Final Phase 2 Expanded Site Inspection Report of Aqueous Film Forming Foam Areas at Peterson Air Force Base El Paso County, Colorado

April 2019

Submitted to:

Air Force Civil Engineer Center
3515 General McMullen Suite 155
San Antonio, Texas 78226-2018

Submitted by:

U.S. Army Corps of Engineers
Omaha District
1616 Capitol Avenue
Omaha, Nebraska 68102-4901

Prepared by:

Aerostar SES LLC
1006 Floyd Culler Court
Oak Ridge, Tennessee 37830-8022
under
Contract No. W9128F-15-D-0051
Delivery Order No. 0003

Final Phase 2
Expanded Site Inspection Report
of
Aqueous Film Forming Foam Areas
at
Peterson Air Force Base
El Paso County, Colorado

April 2019

Submitted to:
Air Force Civil Engineer Center
3515 General McMullen Suite 155
San Antonio, Texas 78226-2018

Submitted by:
U.S. Army Corps of Engineers
Omaha District
1616 Capitol Avenue
Omaha, Nebraska 68102-4901

Prepared by:
Aerostar SES LLC
1006 Floyd Culler Court
Oak Ridge, Tennessee 37830
under
Contract No. W9128F-15-D-0051
Delivery Order No. 0003

Table of Contents

Page

Acronyms and Abbreviations vi

1.0 INTRODUCTION 1

2.0 PETERSON AIR FORCE BASE 5
2.1 BASE HISTORY 5
2.2 CLIMATE 5
2.3 TOPOGRAPHIC SETTING 5
2.4 HYDROLOGIC SETTING 5
2.5 GEOLOGY 6
2.6 HYDROGEOLOGY 6
2.7 DRINKING WATER SOURCES 7

3.0 AFFF RELEASE AREAS 9
3.1 SITE 8 (FT003) – AFFF AREA 1 9
3.1.1 Initial Site Inspection Findings 9
3.2 FIRE STATION #1 (BUILDING 218) – AFFF AREA 2 9
3.2.1 AFFF Releases at Building 218 9
3.2.2 AFFF Releases at Former Building 117 9
3.2.3 Initial Site Inspection Findings 10
3.3 FIRE STATION #2 (BUILDING 2032) – AFFF AREA 3 10
3.3.1 AFFF Releases at Fire Station #2 10
3.3.2 Initial Site Inspection Findings 10
3.3.3 Expanded Site Inspection Phase 1 Findings 10
3.4 GOLF COURSE/LEACH FIELD (WP006), DETENTION POND #3, AND SITE 5 (FT002) – AFFF AREA 4 11
3.4.1 Golf Course/Leach Field (WP006) 11
3.4.2 Detention Pond #3 11
3.4.3 Site 5 (FT002) 12
3.4.4 Initial Site Inspection Findings 12
3.4.5 Phase 1 ESI Findings (Pond #1) 12
3.5 CURRENT FIRE TRAINING AREA– AFFF AREA 5 12
3.5.1 Initial Site Inspection Findings 13

4.0 PALEOCHANNEL TRANSECTS 14
4.1 TRANSECT SELECTION AND SAMPLING RATIONALE 14
4.2 PHASE 1 DIRECT PUSH TECHNOLOGY SOIL BORING INSTALLATION AND GROUNDWATER SAMPLING RESULTS 15
4.3 PHASE 2 MONITORING WELL LOCATION RATIONALE 17

5.0 FIELD ACTIVITIES AND SAMPLING PROCEDURES 19
5.1 SOIL BORINGS AND MONITORING WELL INSTALLATIONS 19
5.2 MONITORING WELL INSTALLATIONS 19
5.3 WELL DEVELOPMENT 19
5.4 GROUNDWATER SAMPLING 20
5.5 DATA QUALITY 21
5.6 SURVEYING 21
5.7 INVESTIGATION-DERIVED WASTE 21

6.0 FINDINGS 22
6.1 SOIL DESCRIPTIONS AND LITHOLOGY 22

6.1.1 Overburden ... *22*
6.1.2 Bedrock ... *22*
6.2 BROADWAY ALLUVIUM PALEOVALLEY ... 22
6.2.1 Groundwater Flow ... *22*
6.2.2 Groundwater Analytical Results ... *23*
6.2.3 Combined PFOS and PFOA in Groundwater ... *30*
6.2.4 Conclusions ... *30*
6.3 WINDMILL GULCH PALEOVALLEY ... 31
6.3.1 Groundwater Flow ... *31*
6.3.2 Groundwater Analytical Results ... *31*
6.3.3 Combined PFOS and PFOA in Groundwater ... *33*
6.3.4 Conclusions ... *34*
6.4 COMPARISON OF INITIAL SITE INSPECTION AND EXPANDED SITE INSPECTION GROUNDWATER ANALYTICAL RESULTS ... 35

7.0 GROUNDWATER PATHWAY ... 37
7.1 DRINKING WATER WELLS ... 37
7.2 BROADWAY ALLUVIUM PALEOVALLEY ... 37
7.3 WINDMILL GULCH PALEOVALLEY ... 37

8.0 CONCLUSIONS, RECOMMENDATIONS, AND INTERIM REMEDIAL MEASURES ... 38
8.1 BROADWAY ALLUVIUM PALEOVALLEY ... 38
8.1.1 Current Fire Training Area (AFFF Area 5) ... *39*
8.1.2 Transects 1, 2, and 3 ... *39*
8.1.3 Fire Station #1 (AFFF Area 2) ... *39*
8.1.4 Transects 4 and 5 ... *39*
8.1.5 Golf Course/Leach Field (WP006), Detention Pond #3, and Site 5 (FT002) (AFFF Area 4) ... *40*
8.1.6 Transects 7 and 13 ... *40*
8.1.7 Conclusions and Recommendations ... *40*
8.2 WINDMILL GULCH PALEOVALLEY ... 40
8.2.1 Fire Station #2 (AFFF Area 3) ... *40*
8.2.2 Site 8 (AFFF Area 1) ... *41*
8.2.3 IRP Site 7 and Downgradient AFFF Area 4 Wells ... *41*
8.2.4 Transects 8, 11, 12, and 14 ... *41*
8.2.5 Conclusions and Recommendations ... *41*
8.3 OFF-SITE INTERIM REMEDIAL MEASURES TO ADDRESS IMPACTED DRINKING WATER ... 41

9.0 REFERENCES ... 43

List of Tables

Table 1 Regulatory Screening Values ... 3
Table 2 AFFF Areas and Investigation Rationale at Peterson Air Force Base ... 3
Table 3 Transect Selection and Sampling Rationale ... 14
Table 4 Phase 1 Paleochannel Transect Investigation Summary ... 16
Table 5 Monitoring Well Locations and Rationale ... 18
Table 6 Current Fire Training Area (AFFF Area 5) and Transects 1, 2 and 3 Groundwater Analytical Results ... 24
Table 7 Fire Station #1 (AFFF Area 2) and Transects 4 and 5 Groundwater Analytical Results ... 26
Table 8 Golf Course/Leach Field (WP006), Detention Pond #3, and Site 5 (FT002) (AFFF Area 4) and Transects 7 and 13 Groundwater Analytical Results ... 28

Table 9 Fire Station #2 (Building 2032) (AFFF Area 3), Site 8 (AFFF Area 1), IRP Site 7, and Transects 8, 11, 12 and 14 Groundwater Analytical Results 32
Table 10 Comparison of 2016 and 2018 Combined PFOS and PFOA Concentrations in Groundwater 35

List of Figures

Figure 1 Location Map of Peterson Air Force Base, El Paso County, Colorado A-1
Figure 2 AFFF Areas and Paleochannel Transects A-2
Figure 3 Site 8 (FT003) (AFFF Area 1) PFBS, PFOA, and PFOS in Groundwater (2016 Analytical Results) A-3
Figure 4 Fire Station #1 –Building 218 (AFFF Area 2) PFBS, PFOA, and PFOS in Groundwater (2016 Analytical Results) A-4
Figure 5 Fire Station #2 Building 2032 (AFFF Area 3) PFBS, PFOA, and PFOS in Groundwater (2016 Analytical Results) A-5
Figure 6 Fire Station #2 Building 2032 (AFFF Area 3) – PFBS, PFOA, and PFOS in Soil (2016 and 2017 Analytical Results) A-6
Figure 7 Golf Course/Leach Field (WP006), Detention Pond #3, and Site 5 (FT002) (AFFF Area 4) PFBS, PFOA, and PFOS in Groundwater and Surface Water (2016 Analytical Results) A-7
Figure 8 Current Fire Training Area (AFFF Area 5) PFBS, PFOA, and PFOS in Groundwater (2016 Analytical Results) A-8
Figure 9 Surficial Aquifer Potentiometric Surface A-9
Figure 10 PFBS, PFOA, and PFOS in Groundwater A-10
Figure 11 Combined PFOS and PFOA Concentrations in Groundwater A-11
Figure 12 Drinking Water Wells within 4 Miles of Peterson Air Force Base A-12

List of Appendices

Appendix A Figures
Appendix B RSL Calculations for PFOA and PFOS in Soil
Appendix C Comparison of Initial SI Soil and Sediment Analytical Results to HQ=0.1 RSLs
Appendix D Field Forms and Boring Logs
Appendix E Monitoring Well Construction Details
Appendix F Groundwater Level Measurements and Elevations
Appendix G Data Validation Report, Case Narratives, and Validated Sample Results Forms
Appendix H IDW Disposal, IDW Analytical Data, and Waste Manifest

Acronyms and Abbreviations

µg/kg	micrograms per kilogram
µg/L	micrograms per liter
AFB	Air Force Base
AFCEC	Air Force Civil Engineer Center
AFFF	aqueous film forming foam
ASL	Aerostar SES LLC
bgs	below ground surface
btoc	below top of casing
CAS	Chemical Abstract Service
CDPHE	Colorado Department of Health and Environment
COSMA	Colorado Springs Municipal Airport
CSM	conceptual site model
CSU	Colorado Springs Utilities
DNR	Department of Natural Resources
DPT	direct push technology
dup	duplicate
EPA	Environmental Protection Agency
ERP	Environmental Restoration Program
ERPIMS	Environmental Resources Program Information Management System
ESI	expanded site inspection
FSP	field sampling plan
ft	foot/feet
FTA	fire training area
FVA	Fountain Valley Authority
GAC	granular activated carbon
gpm	gallons per minute
GW	groundwater
HA	health advisory
HDPE	high-density polyethylene
HQ	hazard quotient
ID	identification
IDW	investigation-derived waste
IRP	Installation Restoration Program
J	The reported concentration is an estimated value.
JB	The reported concentration is an estimated value. This concentration is less than five times the concentration reported in an associated field or lab blank.
N/A	not available
NAD 83	North American Datum of 1983
NAVD 88	North American Vertical Datum of 1988
ND	not detected
NL	not listed
OWS	oil/water separator
PA	preliminary assessment
PETER	ERPIMS code for Peterson Air Force Base
PFAS	per- and polyfluorinated alkyl substance
PFBS	perfluorobutane sulfonate
PFOA	perfluorooctanoic acid
PFOS	perfluorooctane sulfonate
pH	potential of hydrogen

QAPP	quality assurance project plan
RSL	regional screening level
SAIC	Science Applications International Corporation
SDS	Southern Delivery System
SI	site inspection
TCLP	toxicity characteristic leaching procedure
U	The analyte was not detected at the reported value.
USACE	U.S. Army Corps of Engineers
USAF	U.S. Air Force
USGS	U.S. Geological Survey
UST	underground storage tank
WWTP	wastewater treatment plant
WWSD	Widefield Water and Sanitation District

1.0 INTRODUCTION

Aerostar SES LLC (ASL) under contract to the U.S. Army Corps of Engineers (USACE) Omaha District (Contract No.W9128F-15-D-0051, Delivery Order No. 0003, Modification 01) has conducted an expanded site inspection (ESI) to further delineate per- and polyfluorinated alkyl substances (PFAS) in soil and groundwater at Peterson Air Force Base (AFB) in El Paso County, Colorado (Figure 1 in Appendix A). The ESI was conducted in accordance with contract requirements (USACE, July 2015, and September 2017), the quality assurance project plan (QAPP) (ASL, March 2016), the Peterson AFB site-specific addendum to the QAPP (ASL, October 2016), field sampling plan (FSP) Attachment 1 (ASL, November 2017), and Phase 2 FSP Attachment 3 to the QAPP addendum (ASL, May 2018). The initial site inspection (SI) was conducted in October and November 2016, and the final SI report was issued in July 2017 (ASL, July 2017).

PFAS are a class of synthetic fluorinated chemicals used in industrial and consumer products, including defense-related applications. In 1970, the U.S. Air Force (USAF) began using aqueous film forming foam (AFFF) – firefighting agents containing perfluorobutane sulfonate (PFBS), perfluorooctanoic acid (PFOA), and perfluorooctane sulfonate (PFOS) – to extinguish petroleum fires. Releases of AFFF to the environment routinely occurred during fire training and during emergency responses to aircraft crashes or fires. Inadvertent releases of AFFF also occasionally occurred during equipment maintenance and storage. As of this report, the USAF is actively removing PFOS-based AFFF from its inventory and replacing it with formulations based on shorter carbon chains, which may be less persistent and bioaccumulative in the environment.

The objectives of the ESI include the following:

- Delineate PFAS in groundwater and soil (identified during the initial SI of AFFF areas [ASL, July 2017]) focusing on bedrock paleochannels that have been identified in the Peterson AFB area (AECOM, September 2017),
- Resample the existing network of monitoring wells on base for PFAS compounds, and
- Reevaluate Fire Station #2 for potential releases of AFFF.

These objectives were completed in two phases of work. The first phase of fieldwork included

- collecting soil samples at AFFF Area 3 Fire Station #2 to further delineate PFAS-impacted soil,
- completing soil borings and collecting groundwater samples from the borings to help site permanent monitoring wells at 14 paleochannel transects, and
- collecting surface water and sediment samples (for PFAS analysis) at Pond #1 on the golf course.

Phase 1 results were reported in *Final Expanded Site Inspection Report of Aqueous Film Forming Foam Areas, Phase 1 Findings and Proposed Phase 2 Monitoring Well Locations, Peterson Air Force Base, El Paso, County, Colorado* (Odom, May 2018). The Phase 1 effort included completing 57 soil borings and collecting 38 groundwater samples at 14 paleochannel transects. Groundwater at the remaining 19 borings could not be sampled, either because the direct push technology (DPT) drilling rig refused (the drill string could not be advanced) before groundwater was encountered or because groundwater was not encountered to the depth drilled. The Phase 1 report recommended locations for permanent wells to be installed during the Phase 2 effort. The selected locations were based on decisions reached during a March 13, 2018, meeting at the base among representatives from Peterson AFB; Air Force Civil Engineer Center (AFCEC); USACE Omaha District; United States Geological Survey (USGS); NewFields Government Services, LLC; and ASL. The recommended well locations were then presented to the Colorado Department of Public Health (CDPHE) in a second meeting at the base on March 27, 2018, attended by representatives from Peterson AFB; AFCEC; USACE Omaha District; NewFields Government Services, LLC; and ASL.

The second phase of fieldwork included

- installing 21 monitoring wells at 11 paleochannel transects and
- sampling the entire Peterson monitoring well network. This network currently consists of 62 wells, including 24 wells for assessing non-PFAS-related sites (installed prior to the initial AFFF SI), 17 wells installed during the initial AFFF SI, and 21 wells installed during Phase 2 of the ESI. The Phase 2 FSP (ASL, May 2018) indicated the network consisted of 63 wells; however, one previously installed well was determined to be destroyed during the ESI. In addition, although the network currently consists of 62 wells, two wells were dry and could not be sampled during the ESI.

Wells were not proposed or installed at three transects (Transects 6, 9, and 10) based on Phase 1 groundwater sampling results, which indicated PFBS, PFOS, and PFOA were either not detected or were detected at concentrations below the screening levels.

PFBS, PFOS, and PFOA are the only PFAS compounds for which the EPA has published screening values or health advisories (HAs). Although project screening values for PFBS were not included in the QAPP or QAPP addendum, detected PFBS concentrations were compared to the screening levels and included in the initial SI report (ASL, July 2017). The SI PFBS screening levels were EPA regional screening levels (RSLs) (https://semspub.epa.gov/work/HQ/197416.pdf) based on a hazard quotient (HQ) of 1.0. The residential soil RSL of 1,300,000 micrograms per kilogram (µg/kg) for PFBS was applied to soil and sediment, and the tap water RSL of 400 micrograms per liter (µg/L) for PFBS was applied to surface water and groundwater. Subsequent to publication of the final SI report, the USAF revised screening levels to reflect an HQ of 0.1, reducing the project screening levels to 130,000 µg/kg for PFBS in soil and sediment and 40 µg/L for PFBS in surface water and groundwater. PFBS concentrations in groundwater and surface water samples collected during the initial SI, which were all below the 400 µg/L screening level using an HQ of 1.0, were reviewed as part of this ESI and found to also be below the current 40 µg/L screening level using an HQ of 0.1.

Project screening levels for PFOS and PFOA in soil and sediment have been revised twice since the QAPP and QAPP addendum were published. The QAPP and QAPP addendum included calculated screening values of 5,000 µg/kg and 12,000 µg/kg for PFOS and PFOA respectively based on USAF guidance (USAF, August 2012). Prior to publication of the initial SI (ASL, July 2017) the screening levels were recalculated at 1,260 µg/kg (applicable to both PFOS and PFOA) using EPA's RSL calculator based on an HQ of 1.0. After publication of the initial SI, the screening level was reduced to 126 µg/kg based on an HQ of 0.1. Analytical results from the initial SI for PFOS and PFOA in soil and sediment were compared to the current HQ = 0.1 screening level, and two additional exceedances were noted. PFOS concentrations in one surface soil sample and one sediment sample were above the lower calculated RSL. RSL calculations for PFOS and PFOA are included as Appendix B, and additional information on the two exceedances described above is included in Appendix C.

Screening levels for PFOS and PFOA in groundwater and surface water are based on the EPA lifetime drinking water HAs for PFOS (EPA, May 2016a) and PFOA (EPA, May 2016b) of 0.07 µg/L as indicated in the QAPP addendum. Table 1 presents the current project screening values for PFBS, PFOA, and PFOS.

Table 1 Regulatory Screening Values

Parameter	Chemical Abstract Number	EPA Regional Screening Level Table (November 2018) [a]		Calculated Screening Levels for Soil and Sediment[b] (µg/kg)	EPA Health Advisory for Drinking Water (Surface Water or Groundwater) (µg/L) [c]
		Residential Soil (µg/kg)	Tap Water (µg/L)		
Perfluorobutane sulfonate (PFBS)	29420-43-3	130,000	40	NL	NL
Perfluorooctanoic acid (PFOA)	335-67-1	NL	NL	126	0.07[d]
Perfluorooctane sulfonate (PFOS)	1763-23-1	NL	NL	126	

[a] EPA Regional Screening Levels (November 2018) (https://semspub.epa.gov/work/HQ/197416.pdf) (HQ=0.1).
[b] Screening levels calculated using the EPA RSL calculator (https://epa-prgs.ornl.gov/cgi-bin/chemicals/csl_search) (HQ=0.1).
[c] EPA, May 2016a. "Drinking Water Health Advisory for Perfluorooctane Sulfonate (PFOS)" and EPA, May 2016b. "Drinking Water Health Advisory for Perfluorooctanoic Acid (PFOA)."
[d] The EPA health advisory value for drinking water of 0.07 µg/L applies to the individual and combined concentrations of PFOS and PFOA.
µg/kg = micrograms per kilogram
µg/L = micrograms per liter
EPA = Environmental Protection Agency
NL = not listed

The initial SI (ASL, July 2017) investigated five AFFF areas at Peterson AFB and confirmed four areas (AFFF Areas 2 through 5) where apparent releases of AFFF have occurred and further investigation was needed. The areas investigated during the initial SI are listed in Table 2 and are shown on Figure 2 in Appendix A.

Table 2 AFFF Areas and Investigation Rationale at Peterson Air Force Base

AFFF Area	Location	Associated Existing ERP Site ID	Investigation Rationale
1	Site 8	FT003	• IRP Site 8 was an active FTA from 1977 to 1991. • AFFF was potentially used during fire training events. The total volume of AFFF released is unknown.
2	Building 218, Fire Station #1	Not applicable (new site)	• AFFF spray tests were primarily conducted on the paved surface south of the building on the aircraft apron. Runoff from these tests drained to Pond #3. • During freezing temperatures, AFFF spray testing was conducted in the sand volleyball court south of and adjacent to the building. • Former Building 117 (the original fire station at Peterson AFB) was slightly southwest of Building 218. AFFF spray testing conducted at Building 117 was usually performed on the apron immediately southeast of Building 104 and occasionally on the apron adjacent to Building 117.
3	Building 2032, Fire Station #2	Not applicable (new site)	• AFFF spray tests were conducted along the road leading to the airfield west of the fire station.

AFFF Area	Location	Associated Existing ERP Site ID	Investigation Rationale
4	Golf Course/ Leach Field	WP006	• Prior to construction of the golf course, the leach field was in this area. The leach field served as a final point to which all industrial runoff was routed. • AFFF spray testing was conducted on the northern edge of the airfield ramp between the ramp and the golf course. • The golf course uses water from Pond #3 for irrigation.
	Detention Pond #3	WP006	• Pond #3 is a lined detention pond that receives all runoff from the industrial areas of Peterson AFB. • An unlined overflow pond is adjacent to Detention Pond #3. If Pond #3 gets too full, it will discharge water through Outfall #4 into the overflow pond.
	Site 5	FT002	• Site 5 was an active FTA from 1956 to 1977. Though no record confirming AFFF use was found during the PA, it is likely that AFFF was used at this location. • Soil was excavated from Site 5 during construction of Taxiway F and placed in Landfill 3, approximately 1 mile south/ southwest of the site. • Soil placed in Landfill 3 was subsequently excavated and relocated to a landfill immediately south of Runway 17R/35L.
5	Current FTA	Not applicable (new site)	• The current FTA has been fully operational since 1991/1992 and currently uses propane as a fuel source. • From 1991/1992 until 1999, hydrocarbon fuels were used as a fuel source, and an unknown volume of AFFF was used during training activities. Although there were no known releases of AFFF to the environment reported in the PA, CDPHE requested that a site inspection be conducted at the current FTA.

AFB = Air Force Base
AFFF = aqueous film forming foam
CDPHE = Colorado Department of Public Health and Environment
ERP = Environmental Resource Program
FTA = fire training area
ID = identification
IRP = Installation Restoration Program
PA = preliminary assessment

2.0 PETERSON AIR FORCE BASE

Peterson AFB (Figure 1 in Appendix A) is approximately 7 miles east of downtown Colorado Springs in El Paso County, Colorado, along the eastern foothills of the Rocky Mountains. The base occupies approximately 1,294 acres, of which 201 acres are federally owned and 1,093 acres are leased from the city of Colorado Springs (USACE Omaha District and Bay West, March 2018).

2.1 BASE HISTORY

Initially opened as Colorado Springs Municipal Airport (COSMA) in 1926, Peterson AFB officially opened as Colorado Springs Army Air Base in 1942, and the Army took control of the airfield during World War II. The facility was renamed Peterson Army Air Base in December 1942 and has been the home of training and operational units through several base closures, reactivations, and name changes. Control of the airfield reverted to COSMA after World War II. Renamed Peterson Air Force Base in 1976 and home to the 21st Space Wing, the base provides missile warning and space control to the North American Aerospace Defense Command and United States Strategic Command through a network of ground- and space-based sensors.

2.2 CLIMATE

Peterson AFB and the Colorado Springs area have a semi-arid climate and receive 16 inches of precipitation (including 41 inches of snow) annually. The average number of days with any measurable precipitation is 89, and the average number of sunny days per year is 243. The average July high is 85 degrees Fahrenheit, and the average January low is 16 degrees Fahrenheit (ASL, November 2016).

2.3 TOPOGRAPHIC SETTING

Peterson AFB is within the Colorado Piedmont Section of the Great Plains Physiographic Province, an area dominated by gently to strongly rolling high plains. Cities and towns adjacent to the base are Cimarron Hills to the north, Colorado Springs to the west, and Fountain and Security-Widefield to the south. Ground surface in the area slopes to the southwest with elevations falling from 6,300 feet above North American Vertical Datum 1988 (NAVD 88) just north of the base to 6,000 feet above NAVD 88 at the south end of COSMA.

2.4 HYDROLOGIC SETTING

Peterson AFB is situated within the Fountain Creek drainage basin, which is part of the Arkansas River drainage basin. The two main streams draining the Fountain Creek drainage basin are Monument Creek and Fountain Creek. Fountain Creek is a perennial stream that originates approximately 20 miles west/ northwest of the base and flows southeast through the city of Colorado Springs. Monument Creek originates approximately 24 miles northwest of the base and flows into Fountain Creek near downtown Colorado Springs. Fountain Creek joins the Arkansas River in the vicinity of the city of Pueblo, Colorado. Intermittent tributaries to Fountain Creek in the vicinity of Peterson AFB include Sand Creek and East Fork Sand Creek to the west, and Jimmy Camp Creek to the east. These tributaries provide local surface drainage for Peterson AFB and the surrounding area.

East Fork Sand Creek flows across Peterson AFB, crossing the northwest corner of the base. The channel of East Fork Sand Creek is the largest on-base surface drainage feature. All drainage from the northwest corner of the base flows into East Fork Sand Creek as does drainage from portions of the airfield through

unnamed intermittent tributaries. Drainage from remaining developed portions of the base and the airfield flows through surface ditches on base to the golf course ponds, where the water is stored and used for irrigation (Science Applications International Corp. [SAIC], September 1989).

2.5 GEOLOGY

Peterson AFB is situated on the southwestern margin of the Denver Basin, a large asymmetrical structural depression comprised of sedimentary rocks that reach depths of 13,000 feet (SAIC, September 1989). The base is underlain by a thick layer of unconsolidated alluvial and aeolian deposits overlying the sedimentary bedrock. From oldest to most recent, bedrock units underlying the Peterson AFB area include the Pierre Shale, the Fox Hills Sandstone, and the Laramie formation. Surficial unconsolidated deposits include mid- to late Pleistocene and Holocene aeolian (windblown) deposits and mid-Pleistocene alluvium identified regionally as the Broadway Alluvium. The aeolian deposits are primarily coarse sand that appears to have been deposited as sand sheets. Alluvial deposits primarily contain cobbles, gravels, and sands and are good conduits for groundwater flow (Colorado Geological Survey, 2002).

The impermeable Pierre Shale is described as a gray to dark-gray shale weathering to brown and olive-green clay with lesser amounts of yellowish-gray, medium- to coarse-grained sandstone (Colorado Geological Survey, 2002). Estimated to be more than 4,500-7,000 feet thick, the Pierre Shale is the confining unit that separates the overlying permeable bedrock from deeper, less permeable Paleozoic and Mesozoic rocks. Uplift and erosion resulted in the formation of paleovalleys in the Pierre Shale and subsequent deposition of sediments in river valleys and low areas between ridges that remain unconsolidated today. Groundwater occurrence and movement are controlled by unconsolidated permeable surface material and the topography of the impermeable bedrock beneath it (AECOM, September 2017).

2.6 HYDROGEOLOGY

Both a surficial alluvial aquifer and deeper sedimentary bedrock aquifers provide drinking water to a portion of the population surrounding the Peterson AFB area via private and municipal wells. The sedimentary rock aquifers are associated with the Denver Basin, a structural low, and consist predominantly of sandstones and limestones. Four sedimentary aquifers in the Denver Basin range from upper Cretaceous to Tertiary in age, including the Laramie-Fox Hills, Arapahoe, Denver, and Dawson (oldest to youngest). The Dawson, Denver, and Arapahoe aquifers are younger in age, occur toward the center of the Denver Basin, and are not present near the base. The Laramie-Fox Hills aquifer defines the margins of the water-bearing units in the Denver Basin and have been mapped immediately northwest of the base (AECOM, September 2017, and Colorado Geological Survey, 2002).

The surficial aquifer (identified as the Widefield Aquifer in the Peterson AFB area) occurs within unconsolidated Quaternary age silt, sand, and gravel deposited by wind, water, and gravity in low-lying areas and stream valleys. These surficial deposits range up to 125 feet thick with saturated thicknesses of up to 100 feet. Groundwater recharge occurs from surface percolation of rainfall and snowmelt, and groundwater discharge occurs within downgradient stream valleys. Groundwater flow direction is controlled by bedding if very fine-grained sediments (clays) occur or, more typically, by stream morphology and bedrock topography (AECOM, September 2017).

A conceptual site model (CSM) developed by AECOM (AECOM, September 2017) identified three paleovalleys thought to control groundwater flow within the unconsolidated surficial deposits at Peterson AFB. These paleovalleys (Figure 2), which have been eroded into the surface of the Pierre Shale, are identified as the Sand Creek water-bearing unit, the Broadway Alluvium paleovalley, and the paleo

Windmill Gulch. The CSM indicated the Sand Creek unit is not hydraulically connected to the base as it transports shallow groundwater west of bedrock outcrops to Fountain Creek south of the base. The Broadway Alluvium paleovalley originates as two narrow paleochannels north and northeast of the base. These channels converge beneath the base and continue to the southwest. Groundwater within the Broadway paleovalley flows along the southern edge of the paleovalley toward Fountain Creek. The paleo Windmill Gulch occurs east of Runway 17L/35R and flows southwest through the COSMA terminal parking lot toward Fountain Creek. The CSM also indicated that saturated alluvium only occurs within the paleochannels and that unconsolidated alluvium between the channels is likely unsaturated. Evaluation of these paleochannels as they relate to groundwater flow and contaminant transport is the focus of this ESI.

2.7 DRINKING WATER SOURCES

Base drinking water is supplied by Colorado Springs Utilities (CSU) (CSU, 2017). Off-base drinking water for the surrounding communities is provided by CSU, the Security Water District, the Widefield Water and Sanitation District (WWSD), the City of Fountain Water Department, Stratmoor Hills Water and Sanitation Districts, and Security Mobile Home Park. CSU obtains water from local sources, mountain sources, and purchased water. Local sources include North and South Slopes of Pikes Peak (Catamount Reservoir, Crystal Reservoir, South Slope Reservoirs, and their tributaries), North and South Cheyenne Creeks, Fountain Creek, Monument Creek (Pikeview Reservoir), Northfield Watershed (Rampart and Northfield Reservoirs), and Pueblo Reservoir. Mountain sources include numerous reservoirs along the Continental Divide. Collection systems include the Homestake, Fryingpan-Arkansas, Twin Lakes, and Blue River Systems. Mountain water is conveyed to Colorado Springs via the Southern Delivery System (SDS), the Blue River Pipeline, the Upper and Lower Homestake Pipeline, and the Arkansas River. Purchased water is obtained from the Fountain Valley Authority (FVA), which receives water from the Fryingpan Arkansas Project that is transported via the FVA pipeline (CSU, 2016, and CSU, 2018).

The Security Water District formerly obtained water from both surface water and groundwater sources. Of Security's total water supply in 2017, 53% was treated surface water provided by the FVA, 44% was treated surface water from the SDS, and 3% was provided by CSU. As of September 10, 2016, none of the Security Water District's wells have been used in the distribution system (Security Water District, 2018).

WWSD formerly obtained water from both surface water and groundwater sources. Surface water is purchased from the FVA and is taken from the Pueblo Reservoir. Groundwater wells owned by Widefield were taken out of service on November 10, 2016, because of the presence of PFAS in the surficial (Widefield) aquifer. Three wells were returned to service in May 2017 with the first ion exchange system to treat PFOS/PFOA in the United States.

The City of Fountain Water Department obtains water from both surface water sources (from FVA and SDS) and from groundwater sources (city-owned wells). Two granular-activated carbon (GAC) water treatment systems have been installed to treat PFAS-impacted source water (groundwater) used by the city of Fountain (WWSD, 2018, and city of Fountain website, 2018).

Stratmoor Hills Water and Sanitation Districts obtains water from both surface water sources (Colorado Springs [CSU], Fountain Valley [FVA], and groundwater sources (Stratmoor Hills Water and Sanitation Districts [WSD], 2018). Security Mobile Home Park obtains drinking water from groundwater sources.

Drinking water for much of the population in the Colorado Springs/Peterson AFB area is provided by the public water supplies discussed in this section. Based on the Colorado Department of Natural Resources (DNR) Division of Water Resources well permit database (https://dnrweb.state.co.us/cdss/WellPermits), 488 drinking water wells are within a 4-mile radius of Peterson AFB and COSMA.

3.0 AFFF RELEASE AREAS

Fieldwork for the SI (conducted in October and November 2016) investigated five potential AFFF release areas (AFFF Areas 1 through 5) and confirmed four areas (AFFF Areas 2 through 5) where soil, groundwater, sediment, and/or surface water have been impacted by PFOS and/or PFOA at concentrations above project screening levels (ASL, July 2017). No PFAS compounds were detected above screening levels in any media sampled at AFFF Area 1. A description of the five AFFF areas and a brief summary of the initial SI findings are presented in this section.

3.1 SITE 8 (FT003) – AFFF AREA 1

Installation Restoration Program (IRP) Site 8 (Figure 3 in Appendix A) is a former fire training area (FTA) (Environmental Resources Program [ERP] Identification [ID] FT003) that was active from 1977 until late 1991/early 1992. Now on COSMA property south of Peterson AFB, Site 8 is well-vegetated and maintained by the airport. All structures associated with the FTA have been removed but included a collection pit, an oil/water separator (OWS), and associated piping. Water/liquids collected in the pit drained to the OWS, and water was ultimately allowed to discharge to the ground surface to a drainage area east of the site. The original size of the pit is unknown, and it is now filled with soil and covered with grass. Although no information is available concerning AFFF use at Site 8, it may have been used during fire training events given the time period the FTA was in use.

3.1.1 Initial Site Inspection Findings

The initial SI indicated PFOS and PFOA concentrations were below screening values in soil and were below detection limits in groundwater at AFFF Area 1; no potentially complete human exposure pathways were identified. AFFF Area 1 wells were resampled during the ESI as part of the basewide groundwater sampling effort. Site 8 (with 2016 groundwater analytical results[1]) is shown on Figure 3 in Appendix A.

3.2 FIRE STATION #1 (BUILDING 218) – AFFF AREA 2

3.2.1 AFFF Releases at Building 218

Fire Station #1 (Building 218) is on Suffolk Street near the intersection of East Duluth Avenue, as shown on Figure 4. From 2000 (when the building began operations) until 2017, time and distance tests were conducted periodically at the fire station to certify the performance of the pump and spray system on the trucks. AFFF spray testing at Fire Station #1 was primarily conducted on the concrete on the aircraft apron side of the building. Surface runoff was directed into the Peterson AFB stormwater system, which ultimately discharged to Detention Pond #3. During freezing weather, however, spray testing was conducted over the adjacent volleyball court to avoid icing the concrete ramp. The volleyball court has a sand surface and a soil subsurface, and AFFF released during spray testing percolated into the ground in this area. The volume of AFFF released during spray testing at the volleyball court is unknown. Spray testing of AFFF has now been discontinued at Peterson AFB.

3.2.2 AFFF Releases at Former Building 117

Former Building 117 was the original fire station at Peterson AFB and was slightly southwest of Building 218, as shown on Figure 4. Spray testing conducted when Fire Station #1 was at Building 117 was usually performed on the apron west of the former leach field, as shown on Figure 7 and discussed further in

Section 3.4. However, spray testing was also occasionally conducted on the apron adjacent to Building 117. Building 117 operations ceased in 2000.

3.2.3 Initial Site Inspection Findings

The initial SI indicated PFOS and PFOA were detected in groundwater at combined concentrations above the 0.07 µg/L screening level with a maximum concentration of 0.178 µg/L. PFOS was also detected in one surface soil sample (PETER02-003-SS-001) at a concentration of 160 µg/kg, which is above the current 126 µg/kg screening level. The SI identified a potentially complete human ingestion exposure pathway for impacted groundwater from the presence of shallow drinking water wells downgradient from the area. Fire Station #1 (with 2016 groundwater analytical results) is shown on Figure 4 in Appendix A.

3.3 FIRE STATION #2 (BUILDING 2032) – AFFF AREA 3

3.3.1 AFFF Releases at Fire Station #2

Fire Station #2 is in the eastern portion of the base on El Dorado Street off Stewart Avenue, as shown on Figure 5. From 1996 (when the fire station began operations) until 2017, time and distance tests were conducted periodically on the west side of Building 2032 along the airport access road. The total volume of AFFF released during previous spray testing at this location is unknown.

3.3.2 Initial Site Inspection Findings

The initial SI indicated concentrations of PFOA in soil and groundwater were below screening levels. PFOS, however, was detected in one surface soil sample (PETER03-003 at a concentration of 2,400 µg/kg) on the west side of the building. Based on this PFOS exceedance in surface soil, a human exposure pathway for base personnel or construction workers during excavations or other ground-disturbing activities was identified, and the potential for PFOS to leach into groundwater noted. Fire Station #2 (with 2016 groundwater analytical results) is shown on Figure 5 in Appendix A.

3.3.3 Expanded Site Inspection Phase 1 Findings

To delineate the PFOS exceedance in surface soil at PETER03-003 at Fire Station #2 (detected during the initial SI), six additional soil borings were completed during Phase 1 of this ESI (Odom, May 2018). PFOS concentrations above the 126 µg/kg screening level were detected in surface soil at four boring locations and in subsurface soil at two of those four. Fire Station #2 SI and Phase 1 ESI soil analytical results are shown on Figure 6 in Appendix A.

The Phase 1 report indicated the extent of PFOS-impacted soil appeared limited and had not resulted in impacts to groundwater (based on initial SI groundwater analytical results). A remedial investigation was recommended to determine both the areal and vertical extent of PFOS in soil. A new downgradient monitoring well (PETER-T08-MW001, installed during Phase 2) was also proposed at Transect 8 downgradient from the fire station.

3.4 GOLF COURSE/LEACH FIELD (WP006), DETENTION POND #3, AND SITE 5 (FT002) – AFFF AREA 4

Three sites in the southern portion of Peterson AFB identified as known or suspected AFFF release sites include the golf course/leach field (WP006), Detention Pond #3, and IRP Site 5 (FT002). These sites have been grouped as AFFF Area 4 because of their proximity.

3.4.1 Golf Course/Leach Field (WP006)

The Peterson AFB golf course was constructed in 1977 and is in the south-central portion of Peterson AFB. Prior to construction of the golf course, a leach field occupied a portion of the area and was active from 1956 to 1978. Irrigation water used at the golf course and industrial discharges to the leach field may have contained AFFF-impacted water.

The leach field was part of an industrial waste drainage system and consisted of a settling tank, an OWS, and a gravel envelope leach field. Effluent from the leach field infiltrated the subsurface overburden, primarily migrating downward until encountering bedrock and/or the uppermost water-bearing zone. At that point, the effluent would mix with groundwater, which flows to the southwest. In 1978, industrial discharges from Peterson AFB were connected to the sanitary sewer line and the leach field was decommissioned. AFFF released from hangars at Peterson AFB from 1970 until 1978 would have ultimately discharged to the leach field. Subsequently, the Peterson AFB golf course was constructed over the leach field.

From 1979 to present day, the Peterson AFB golf course has used water from Pond #3 and two other ponds on the course for irrigation. Pond #3 receives surface water runoff from the industrialized/ developed portions of the base and may have received AFFF-impacted water during previous releases during spray testing. The volume of AFFF released at both the golf course and the leach field area is unknown. A former AFFF spray test area mentioned in Section 3.2 is on the northern edge of the airfield ramp, as shown on Figure 7 in Appendix A, and was investigated as a part of AFFF Area 4.

3.4.2 Detention Pond #3

Pond #3 was constructed in 1979 as an unlined detention pond; in early 2002, the pond was upgraded and the current butyl rubber liner installed. The pond is in the southern portion of Peterson AFB between Taxiway B and the golf course, as shown on Figure 7, and receives surface water and stormwater runoff from the central and western portions of the base and some base industrial areas. Photographs taken in 1997 show AFFF on the surface of the pond and a cleanup effort in progress. Although no other information is available, it appears an unknown quantity of AFFF was released to the unlined pond.

Prior to the construction of Pond #3, there was another pond approximately 850 feet to the south, based on the 1961 USGS Elsmere Topographic Quadrangle map). The former pond received surface water runoff from the same areas that currently discharge to Pond #3 and is also shown on Figure 7 in Appendix A.

Untreated water from Pond #3 was used to fill Ponds #1 and #2 and to irrigate the adjacent golf course. Currently, treated water from Pond #3 is used to fill Ponds #1 and #2. When Pond #3 reaches its maximum capacity, overflow is routed to the adjacent unlined detention pond and allowed to infiltrate into the ground surface. The total volume of AFFF released at this location is unknown.

3.4.3 Site 5 (FT002)

IRP Site 5, also known as FTA-1, is a former FTA near the intersections of Taxiways B and F and immediately south of the golf course. The FTA was active from the 1960s through 1977 and consisted of a shallow unlined burn pit. Originally at the same elevation as the golf course, the area was filled during construction of Taxiway F and is now part of COSMA. The FTA included a shallow unlined burn pit where JP-4, waste oils, and solvents were used for training fires (ASL, November 2016).

During construction of Taxiway F, soil excavated from the former FTA was placed in Landfill 3, approximately 1 mile south-southwest of the site, as shown on Figure 2 in Appendix A. This excavated material was subsequently excavated in 1989 during expansion of the airport and placed in a landfill south of Runway 17R/35L, also shown on Figure 2 in Appendix A.

3.4.4 Initial Site Inspection Findings

The initial SI indicated combined PFOS and PFOA concentrations in groundwater from five monitoring wells at AFFF Area 4 exceeded the 0.07 µg/L screening level at estimated combined concentrations ranging from 0.079 µg/L to 0.98 µg/L. At least one well associated with each potential release site at AFFF Area 4 has been impacted by PFOS and PFOA at combined concentrations above the EPA HA, indicating releases have likely occurred at each site. The initial SI also identified a potentially complete human ingestion exposure pathway for impacted groundwater from the presence of off-base drinking water wells.

The initial SI also indicated combined PFOS and PFOA concentrations in surface water from Pond #2 on the golf course and from Detention Pond #3 exceeded the 0.07 µg/L screening level (at concentrations of 0.826 µg/L and 0.73 µg/L, respectively). The SI identified a potential human exposure pathway for golfers and golf course maintenance personnel exposed to surface water in Pond #2. Although Pond #3 is fenced, preventing exposure to golfers, the SI indicated a potential exposure pathway exists for base maintenance workers exposed to surface water at the pond. A human ingestion pathway, however, was not identified. AFFF Area 4 (with 2016 groundwater and surface water analytical results) is shown on Figure 7 in Appendix A.

3.4.5 Phase 1 ESI Findings (Pond #1)

Because untreated water from Pond #3 was previously used to fill Pond #1, co-located surface water and sediment samples (one primary and one duplicate from each media) were collected from Pond #1 during Phase 1 of the ESI. PFBS and PFOA were not detected in either the primary sample or duplicate sediment sample. PFOS was detected in both the primary and duplicate sediment samples at concentrations below the screening level. PFBS was detected in both the primary surface water sample and duplicate sample at concentrations below the screening level. PFOA and PFOS were detected in both the primary and duplicate surface water samples at combined estimated concentrations of 0.287 µg/L and 0.450 µg/L, both above the EPA HA of 0.07 µg/L, and may represent an ongoing source for groundwater impacts.

3.5 CURRENT FIRE TRAINING AREA– AFFF AREA 5

The current FTA (Figure 8 in Appendix A) is in the northwestern portion of the facility near the intersection of Ent Avenue and Goodfellow Street. The FTA is bordered by grassy areas adjacent to the airfield to the west and northwest and by paved developed areas to the east and southeast. The current FTA has been used since 1989 and includes a burn pit, a dual high-density polyethylene (HDPE) liner,

and a mock aircraft. Firefighting foams were used frequently when flammable fuels were ignited for training; however, current fire training activities use water.

Water generated from training activities is pumped into an enclosed holding tank on the southern side of the training area. An OWS was previously associated with the holding tank, but the OWS has been removed. Excess water from the holding tank was occasionally drained into the sanitary sewer system. Some of the water would be sent to the sanitary sewer when the tank would reach capacity and more training was to occur. Approximately 10,000 to 20,000 gallons of water would be discharged during each event. Excess water is no longer drained from the tank, and the pump has been locked out and tagged to prevent accidental discharge to the sewer.

No releases of AFFF were reported during the PA because the burn pit was lined, and it was assumed that AFFF used during training was contained (ASL, November 2016). The CDPHE, however, requested that the FTA be included in the SI process to confirm that previous use of AFFF had not resulted in releases to the environment.

Subsequent to sampling conducted during the SI, Peterson AFB independently sampled three locations around the FTA: a leak detection well, an existing FTA well outside the liner, and a firefighting solution holding tank at the FTA (Recker, November 2016). The leak detection well is a sump between the primary and secondary containment liners, the FTA well was installed during a 1997 investigation to assess the integrity of the liner system (Blanche, February 1998), and the holding tank is part of the fire suppression system used during training activities. PFAS were detected in each sample collected. Detections of PFOA at 7.4 µg/L and PFOS at 81 µg/L in FTA well MW-4 (identified as sample GN16108PA) (Recker, November 2016) outside the liner confirm that AFFF releases have occurred at the FTA. These releases were apparently the result of overspray because the integrity of the secondary liner was shown to be intact during the 1997 investigation as well as during a second dye test conducted by Peterson AFB in 2016 (Peterson AFB, November 2016).

3.5.1 Initial Site Inspection Findings

The initial SI indicated PFBS, PFOS, and PFOA concentrations in one subsurface soil sample were below screening levels at AFFF Area 5. This sample was collected slightly south of the FTA and may not represent PFAS concentrations in subsurface soil at the FTA. Surface soil was not sampled at the FTA, however, and the status of air and soil pathways for surface soil is unknown.

The SI also indicated combined PFOS and PFOA concentrations exceeded the 0.07 µg/L screening level in groundwater at three wells at or near the current FTA. The combined PFOS and PFOA concentration at an existing well just outside the fire pit liner was 88.4 µg/L. The combined PFOS and PFOA concentration in two downgradient wells was 3.24 µg/L and 15 µg/L. The SI also identified a potentially complete human ingestion exposure pathway for impacted groundwater. The current FTA (with 2016 groundwater analytical results) is shown on Figure 8 in Appendix A.

4.0 PALEOCHANNEL TRANSECTS

The CSM (AECOM, September 2017) indicated shallow groundwater flow beneath Peterson AFB was controlled by paleochannels as discussed in Section 2.6. Fourteen transects were selected along these paleochannels to further assess PFOS- and PFOA-impacted groundwater at the base.

4.1 TRANSECT SELECTION AND SAMPLING RATIONALE

Table 3 lists the rationale for the 14 paleochannel transects selected to further assess impacted groundwater at Peterson AFB. These transects, shown on Figure 2 in Appendix A, focus on the four AFFF release areas identified in the initial SI (AFFF Areas 2 through 5 as listed in Table 2), a wastewater sludge disposal area on COSMA property (identified during the CSM), and locations where paleochannels exit COSMA property to the south and southwest.

Table 3 Transect Selection and Sampling Rationale

Transect	Area of Interest	Transect Location and Sampling Rationale
1	AFFF Area 5	Southwest of AFFF Area 5 toward Sand Creek to determine/rule out potential influence into Sand Creek
2	AFFF Area 5	Northeast and upgradient of AFFF Area 5 and downgradient of Cherokee WWTP to assess possible impacts from the treatment facility
3	AFFF Area 5	Southeast of AFFF Area 5 to determine PFAS concentrations in groundwater downgradient from Area 5
4	AFFF Area 2	Northwest and upgradient of AFFF Area 2 to assess possible impacts at Area 2 from (upgradient) Area 5
5	AFFF Areas 2 and 4	Southeast and downgradient of AFFF Area 2 and northwest and upgradient of AFFF Area 4 to assess possible downgradient impacts from Area 2 and/or Area 5
6	AFFF Area 4	Northeast and upgradient of AFFF Area 4 to evaluate potential upgradient impacts from AFFF use during response to a private plane crash just north of Runway 17L/35R[1]
7	AFFF Area 4	Southwest and downgradient of AFFF Area 4 to assess possible downgradient impacts
8	AFFF Area 3	Southwest and downgradient of AFFF Area 3 to assess possible downgradient impacts from a surface soil PFOS exceedance
9	AFFF Area 4	Evaluate potential PFAS-impacted surface water transfer from AFFF Area 4 to the Windmill Gulch paleovalley
10	Sludge Area	Northeast of sludge area to assess upgradient impacts
11	Sludge Area	Southwest of sludge area to assess downgradient impacts
12	Southern COSMA Boundary	Southern boundary of COSMA to determine impacts to Windmill Gulch paleovalley
13	Southwestern COSMA Boundary	Western boundary of COSMA to determine impacts in Broadway alluvium paleochannel
14	Former Landfill Southern Extent	South of COSMA landfill to assess possible impacts from the landfill

[1]On December 23, 2010, a privately owned, single propeller Mooney aircraft crashed just north of Runway 17L/35R. At least 100 gallons of AFFF concentrate were discharged during the emergency response to the crash (ASL, November 2016). Because the crash did not involve a USAF aircraft and occurred off base, the crash site was not investigated during the initial SI.

AFFF = aqueous film forming foam
PFAS = per- and polyfluorinated alkyl substances
COSMA = Colorado Springs Municipal Airport
WWTP = wastewater treatment plant

4.2 PHASE 1 DIRECT PUSH TECHNOLOGY SOIL BORING INSTALLATION AND GROUNDWATER SAMPLING RESULTS

To determine the locations for planned permanent monitoring wells at the 14 transects, DPT soil borings were installed and grab groundwater samples collected during Phase 1 of the ESI. Groundwater samples were collected from 38 of 57 DPT soil borings installed at the 14 paleochannel transects. Groundwater was either not encountered or the boring could not be advanced, due to drill-string refusal, at the remaining 19 borings. As shown in Table 4, of the 38 borings where groundwater was sampled, combined PFOS and PFOA were detected in 32 samples (at 12 transects). Of the 32 samples, combined PFOS and PFOA were detected above screening levels in 14 samples at seven transects.

Table 4 Phase 1 Paleochannel Transect Investigation Summary

Transect	Paleochannel	Associated Area	Transect Position Relative to Associated Area	Transect Length (ft)	Number of Borings Completed	Depth Range of Borings (ft)	Number of Groundwater Samples Collected	Number of Combined PFOS and PFOA Detections in Groundwater	Number of Combined PFOS and PFOA Exceedances in Groundwater	Highest Combined PFOS and PFOA Concentration Detected (µg/L)	Associated AFFF Area Maximum Combined PFOS and PFOA Concentration Detected[1] (µg/L)	Depth to Pierre Shale (ft)
1	Broadway/ Sand Creek	AFFF Area 5	Downgradient	523	3	30–35	3	3	3	**0.173**	**15 J**	Not encountered
2	Broadway	AFFF Area 5	Upgradient	1845	5	37–65	4	4	2	**0.092**		53
3	Broadway	AFFF Area 5	Downgradient	1053	3	55–60	3	3	1	**0.33**		Not encountered
4	Broadway	AFFF Area 2	Upgradient	1732	5	34–70	3	3	2	**0.159**	**0.176 J**	Not encountered
5	Broadway	AFFF Area 4	Upgradient	1541	4	70[2]	3	3	1	**0.853**	**0.98 J**	Not encountered
6	Broadway	AFFF Area 4	Upgradient	580	3	15–22.5	2	1	0	0.0216 J		20
7	Broadway	AFFF Area 4	Downgradient	1601	5	60–65	5	5	3	**2.41**		Not encountered
8	Windmill Gulch	AFFF Area 3	Downgradient	1001	3	60–74	2	1	0	0.025	0.0364 J	Not encountered
9	Windmill Gulch	AFFF Area 4	Possible Downgradient[3]	1218	5	50–74.5	1	0	0	ND	**0.98 J**	Not encountered
10	Windmill Gulch	Sludge Area	Upgradient	1534	5	67–95	2	1	0	0.0099 J	N/A	94
11	Windmill Gulch	Sludge Area	Downgradient	865	3	59–84	0	N/A	N/A	N/A		Not encountered
12	Windmill Gulch	Southern COSMA Boundary	Downgradient[4]	1473	5	40–79	5	3	0	0.016 J	N/A	44
13	Broadway	Southwestern Boundary	Downgradient[4]	1790	5	69.5–80	4	4	2	**0.385**		Not encountered
14	Windmill Gulch	Former Landfill Southern Extent	Downgradient[4]	584	3	55–65	1	1	0	0.035		Not encountered
			Totals	-	57	-	38	32	14		-	-

Bold values exceeded the EPA HA of 0.07 µg/L.
[1]Initial SI analytical results.
[2]All four borings were drilled to a depth of 70 feet.
[3]Positioned to assess possible communication between Broadway and Windmill Gulch paleovalleys
[4]Downgradient from the base and all AFFF areas.
µg/L = micrograms per liter
COSMA = Colorado Springs Municipal Airport
J = The reported concentration is an estimated value
ND = not detected
PFOS = perfluorooctane sulfonate
AFFF = aqueous film forming foam
ft = foot/feet
N/A = not applicable
PFOA = perfluorooctanoic acid

4.3 PHASE 2 MONITORING WELL LOCATION RATIONALE

Twenty-one monitoring wells were installed at 11 transects during Phase 2 of the ESI. Seventeen of these were installed at Transects 1, 2, 3, 4, 5, 7, and 13 to facilitate future groundwater monitoring because PFOS or PFOA was detected above screening levels during Phase 1 sampling. One monitoring well was installed at Transect 8 to assess possible groundwater impacts from known PFOS impacts to soil (above the current screening level). One monitoring well was installed at Transect 11 because no groundwater samples could be collected during Phase 1 because the borings refused before encountering groundwater. Monitoring wells were also installed at Transects 12 and 14 (one at each transect) to facilitate future monitoring at the COSMA boundary. Detailed rationales for Phase 2 monitoring well locations are summarized in Table 5.

Table 5 Monitoring Well Locations and Rationale

Transect	Associated Area	Number of Phase 1 Combined PFOS and PFOA Exceedances in Groundwater	Number of Phase 2 Monitoring Wells Installed	Monitoring Well IDs	Rationale/Comments
1	Current FTA (AFFF Area 5)	3	2	PETER-T01-MW002 PETER-T01-MW004	To monitor groundwater migration to the Sand Creek paleochannel downgradient from AFFF Area 5 near the northwestern COSMA boundary.
2	Current FTA (AFFF Area 5)	2	1	PETER-T02-MW006	To monitor upgradient impacts from former Cherokee WWTP.
3	Current FTA (AFFF Area 5)	1	2	PETER-T03-MW002 PETER-T03-MW004	To monitor PFOS and PFOA levels in groundwater downgradient from AFFF Area 5.
4	Fire Station #1 (AFFF Area 2)	2	2	PETER-T04-MW004 PETER-T04-MW006	To monitor PFOS and PFOA levels in groundwater downgradient from AFFF Area 2.
5	Fire Station #1 (AFFF Area 2) Golf Course/Leach Field (WP006), Detention Pond #3, and Site 5 (FT002) (AFFF Area 4)	1	3	PETER-T05-MW001 PETER-T05-MW005 PETER-T05-MW006	To monitor PFOS and PFOA levels in groundwater downgradient from AFFF Area 2, AFFF Area 5, and Hangar 210. Wells are upgradient from AFFF Area 4.
6	Golf Course/Leach Field (WP006), Detention Pond #3, and Site 5 (FT002) (AFFF Area 4)	0	0	N/A	No wells proposed. Potential impacts from use of AFFF during response to private plane crash north of Runway 17L/35R and upgradient of AFFF Area 4 appear minimal.
7	Golf Course/Leach Field (WP006), Detention Pond #3, and Site 5 (FT002) (AFFF Area 4)	3	3	PETER-T07-MW003 PETER-T07-MW004 PETER-T07-MW006	To monitor PFOS and PFOA levels in groundwater downgradient from AFFF Area 4. The highest combined PFOS and PFOA detection (from a Phase 1 groundwater sample) occurred at PETER-T07-004 at 2.41 µg/L. PETER-T07-006 was installed to monitor downgradient concentrations between Transects 7 and 13.
8	Fire Station #2 (AFFF Area 3)	0	1	PETER-T08-MW001	To monitor PFOS and PFOA levels in groundwater downgradient from AFFF Area 3 where PFOS screening level exceedances in surface soil and shallow subsurface soil have been detected.
9	Golf Course/Leach Field (WP006), Detention Pond #3, and Site 5 (FT002) (AFFF Area 4)	0	0	N/A	No wells proposed. Groundwater was encountered in only one boring, but PFOS and PFOA were not detected. Based on these results, there is no apparent transfer from AFFF Area 4 (in the Broadway Alluvium paleochannel) to the Windmill Gulch paleovalley.
10	Sludge Area	0	0	N/A	No wells proposed. Groundwater was encountered in only one boring, but the combined PFOS and PFOA concentration was below the EPA HA.
11	Sludge Area	N/A	1	PETER-T11-MW001	To monitor possible downgradient impacts from former sludge disposal area. DPT borings refused above groundwater at all three borings.
12	Southern Boundary	0	1	PETER-T12-MW003	To monitor the Windmill Gulch paleovalley at the southern COSMA boundary.
13	Southern Boundary	2	4	PETER-T13-MW001 PETER-T13-MW003 PETER-T13-MW004 PETER-T13-MW006	To monitor the Broadway paleochannel at the southwestern COSMA boundary. PETER-T13-006 was installed to assess possible communication between the Broadway and Windmill Gulch paleovalleys and provide another monitoring point on the western boundary.
14	Former Landfill South Extent	0	1	PETER-T14-MW002	To monitor possible impacts from the former landfill at the south end of Runway 17R/35L.

µg/kg = micrograms per liter
COSMA = Colorado Springs Municipal Airport
EPA = Environmental Protection Agency
HA = health advisory
N/A = not applicable
PFOS = perfluorooctane sulfonate
AFFF = aqueous film forming foam
DPT = direct push technology
FTA = fire training area
ID = identification
PFOA = perfluorooctanoic acid
WWTP = wastewater treatment plant

5.0 FIELD ACTIVITIES AND SAMPLING PROCEDURES

ASL conducted Phase 2 ESI field activities at Peterson AFB between July 31 and September 13, 2018. Fieldwork was conducted in accordance with the QAPP (ASL, March 2016), the base-specific FSP (ASL, October 2016), and the Phase 2 FSP (ASL, May 2018). Readiness reviews (documented in Appendix D) conducted prior to fieldwork discussed anticipated hazards, types and proper use of equipment needed for the field activities, sampling procedures, and procedures to be used to prevent cross-contamination of samples with PFAS-containing compounds.

The Phase 2 effort included installing 21 new monitoring wells and groundwater sampling of 60 monitoring wells at the base (new and existing).

5.1 SOIL BORINGS AND MONITORING WELL INSTALLATIONS

Soil borings for monitoring well installations were advanced with a track-mounted, compact sonic drill rig. Soil cores were collected by advancing a 4-inch, inner core barrel to the desired sample depth (typically in 5-foot or 10-foot intervals) and overdrilling with a 6-inch outer casing. The core barrel and soil core were-retrieved, leaving the 6-inch outer casing to maintain the integrity of the borehole. Soil cores were then vibrated from the core barrel into plastic sleeves for logging, field screening, and sample collection. The soil descriptions were in general accordance with the *Geology Supplement to the Scope of Services* (USACE, June 2013) and followed this general format:

- Soil type/description (fat clay, lean clay, sand, silty gravel, etc.);
- Color (using Munsell soil color charts);
- Grading, grain size, consistency/density, moisture content;
- Other notable features (cementing, staining, organics, fossils, odors, etc.); and
- Unified Soil Classification System symbol (CH, CL, SP, GM, etc.).

5.2 MONITORING WELL INSTALLATIONS

Twenty-one monitoring wells were installed during Phase 2. Monitoring wells were installed/constructed with 2-inch-diameter, 10-foot-long, Schedule 40 polyvinyl chloride screens (continuous wrap 0.010-inch slot) and risers with flushmount threads. Sand filter packs were installed by tremieing the sand through the outer sonic casing and vibrating it in place. Bentonite seals were allowed to hydrate for at least 24 hours (and typically up to 48 hours before development). The initial well installed at Transect 14 (PETER-T14-MW002) was damaged during installation, so it was abandoned and replaced with well PETER-T14-MW002A, installed approximately 10 feet from the original well location. Boring logs with well construction diagrams are included in Appendix D. Well construction details for the 21 newly installed wells are also included in Table E-1 in Appendix E.

5.3 WELL DEVELOPMENT

Twenty of 21 newly installed monitoring wells were developed prior to sampling (one well [PETER-T02-MW003] went dry during development, failed to produce water, and was not developed or sampled). Fourteen of 17 existing monitoring wells not sampled during the initial SI were also redeveloped prior to sampling; three existing wells not sampled during the SI (MW1-3, MW-2, and MW-4 at the current FTA [AFFF Area 5]) produced very little water and could not be redeveloped. Twenty-three wells developed (or redeveloped) and sampled during the initial SI were not redeveloped during the ESI because these wells had been developed in 2016 and redevelopment was determined to be unnecessary.

Wells were typically developed with either an air displacement pump or an electric centrifugal submersible pump; however, bailers were used to develop slow-producing wells when pumping was not practical. Wells were developed until potential of hydrogen (pH), temperature, turbidity, and specific conductivity stabilized. The turbidity at some wells remained high during development because some wells produced little water and/or because the wells were screened within intervals containing large amounts of silt and clay. Turbidity readings remained high at these wells with several remaining above the instrument upper range of 1,000 nephelometric turbidity units.

Elevated turbidity is not expected to significantly impact analytical results because PFAS is relatively mobile in groundwater. Once sampled, mobility from soil particles to water and vice versa is expected to be minimal. Particulate within the sample is not extracted/analyzed, and, therefore, analytical results are representative of PFAS in the water.

Well development logs are included in Appendix D.

5.4 GROUNDWATER SAMPLING

Sixty monitoring wells (of 63 wells planned for sampling) were sampled during the ESI. Wells not sampled included one previously installed monitoring well (MW1-4 near the current FTA), which had been destroyed, and two newly installed monitoring wells (PETER02-MW0002 at Fire Station #1 and PETER-T03-MW002 at Transect 2) that were dry. Twenty-five of the 60 monitoring wells sampled are on base-owned or base-leased property, and 35 wells are on adjacent COSMA property.

Groundwater samples were collected from wells that produced adequate water using either a centrifugal pump or a bladder pump. New disposable polyethylene tubing was used for all samples collected with pumps. Grab samples were collected from poor producing wells using a new polyethylene bailer. Sampling was conducted at least 24 hours after development. Groundwater sampling logs and sample collection forms are included in Appendix D.

Samples were submitted via overnight courier to Maxxam Analytics International Corporation of Mississauga, Ontario, Canada, under chain of custody procedures. The samples were analyzed by modified EPA Method 537, “Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS).” Eighteen PFAS compounds are included in this analysis; however, only the three analytes listed below have published EPA health-based screening levels associated with them.

Analyte	CAS Number
• Perfluorobutane sulfonate (PFBS)	29420-43-3
• Perfluorooctanoic acid (PFOA)	335-67-1
• Perfluorooctane sulfonate (PFOS)	1763-23-1

CAS = Chemical Abstract Service

Laboratory case narratives and analytical data sheets that include results for the entire list of 18 compounds are included in Appendix G. Field duplicate samples were collected at a frequency of one for every 10 samples for each media sampled. Matrix spike/matrix spike duplicate samples were collected at a frequency of one for every 20 samples.

5.5 DATA QUALITY

Third-party data validation was conducted on 100% of the analytical data. Overall, the quality of the data was acceptable; no data was rejected, and all data is considered usable for decision-making. The precision, accuracy, and completeness results were acceptable for the project. More details on data quality are included in the data validation report in Appendix G.

5.6 SURVEYING

Coordinates and elevations for monitoring wells were established by Bell Surveying Company of Denver, Colorado. All newly installed wells and existing wells not resurveyed during the initial SI were surveyed. Northing and easting coordinates were based on the 1983 US State Plane Coordinate System, Colorado Central Zone, North American Datum of 1983 (NAD 83). Elevations were referenced to NAVD 88. Survey information is included in Table E-1 in Appendix E and in Table F-1 in Appendix F.

5.7 INVESTIGATION-DERIVED WASTE

Investigation-derived waste (IDW) generated during both phases of the ESI was managed in accordance with Attachment 2 to the QAPP addendum (ASL, March 2018). Specifically, soil and groundwater IDW was drummed only at borings and wells installed in paved or landscaped areas. For borings installed in unpaved areas or areas that were not landscaped, soil IDW was spread on the ground surface. For monitoring wells installed in unpaved areas or areas that were not landscaped, water IDW was poured on the ground surface near and downgradient from the well. IDW disposal by investigation site is summarized in Table H-1 in Appendix H.

Soil and water IDW that could not be placed on the ground was placed in Department of Transportation-approved steel drums and staged at the base IDW yard near Building 1246 pending off-site disposal. Ten drums of soil and 26 drums of water were generated during the two phases of work, and a representative sample was collected from each media. The two samples were submitted to CT Laboratories and analyzed for total petroleum hydrocarbons, toxicity (using the Toxicity Characteristic Leaching Procedure [TCLP] for the full TCLP list of analytes), flashpoint, pH, cyanide, and sulfide. A representative sample of each media was also submitted to Maxxam and analyzed for PFAS.

Clean Harbors Environmental Services, Inc. (Environmental Protection Agency [EPA] ID No. MAD039322250) removed all IDW from the base on November 15, 2018, and transported it to its Kimball, Nebraska, facility (EPA ID No. NED981723513) for disposal by incineration. IDW analytical results have been submitted to the USAF electronically; the IDW analytical results and a copy of the waste manifest are also included in Appendix H.

6.0 FINDINGS

6.1 SOIL DESCRIPTIONS AND LITHOLOGY

6.1.1 Overburden

Overburden underlying Peterson AFB consists of Quaternary age silt, sand, and gravel deposited by wind (aeolian deposits), water (alluvium), and gravity (colluvium). Soils encountered during Phase 1 and 2 of the ESI included silty sand (SM), well-graded and poorly graded sand (SW and SP), clayey sand (SC), and lean and fat clay (CL and CH). A trace to some gravel was noted in some intervals. Predominant soil colors were light and dark yellowish brown and light to dark brown.

6.1.2 Bedrock

The Pierre Shale was encountered in 25 of 53 borings completed during the initial SI and both Phase 1 and Phase 2 of the ESI. The shale was encountered at depths ranging from 20.0 feet bgs at Phase 1 DPT boring PETER-T06-001 at Transect 6 to 100.0 feet bgs at SI boring/monitoring well PETER04-MW009.

Where encountered, Pierre Shale was generally described as olive gray, dark gray, or very dark gray shale, shaley silt, or lean clay. Typically, borings that encountered Pierre Shale were terminated within a few feet of the top of the shale, but at boring PETER-T14-002, Pierre Shale was encountered at a depth of 59.0 feet and penetrated to a depth of 112.0 feet. At this location, Pierre Shale was described as dark gray stiff lean clay to a depth of 85.0 feet and as a shaley sandy silt from 85.0 feet to the boring termination depth of 112.0 feet.

6.2 BROADWAY ALLUVIUM PALEOVALLEY

As shown on Figure 2, AFFF Areas 2, 4, and 5 are within or adjacent to the northwest/southeast trending paleochannel within the Broadway Alluvium paleovalley. Seven transects (Transects 1, 2, 3, 4, 5, 7, and 13) were selected to further assess PFOS-/PFOA-impacted groundwater along the paleochannel, and 17 monitoring wells were installed and sampled in association with these transects. In addition, 30 existing monitoring wells within the Broadway Alluvium paleovalley were sampled. Of the 30 existing wells, 16 were installed prior to the initial SI to assess non-PFAS related releases at IRP Sites 1, 2, and 4. Three existing wells were installed at the current FTA (to assess the effectiveness of the FTA liner), two wells were installed at the COSMA deicing ponds, and nine wells were installed during the initial AFFF SI. Existing wells at IRP Site 1 are in proximity to AFFF Area 5 and will be discussed jointly with Area 5. Existing wells at Site 2 and Site 4 are in proximity to AFFF Area 4, and the two deicing pond wells are downgradient of AFFF Area 4. These wells will be discussed with Area 4.

6.2.1 Groundwater Flow

ASL measured the depth to water in all monitoring wells on September 12, 2018, except PETER-T14-MW002A, which was measured on September 13, 2018. Groundwater elevations, potentiometric contours, and flow directions based on these measurements are shown on Figure 9 in Appendix A; groundwater measurements and elevations are summarized on Table F-1 in Appendix F.

Groundwater flow at the current FTA (AFFF Area 5) within the Broadway Alluvium is to the southeast. Further south along the Broadway Alluvium paleochannel, groundwater flow is south/southwest at Transect 1 and south/southeast at Transect 3. Groundwater flow turns south/southwest at Transect 4 and also flows south/southwest at AFFF Area 2 and Transect 5. From AFFF Area 4, groundwater flows

southwest toward Transect 7 and continues to the southwest to Transect 13, where groundwater migrates off COSMA property.

Note that the CSM (AECOM, September 2017) indicated saturated overburden occurs only within the paleochannels. It is likely, at least during nondrought conditions, that shallow groundwater occurs within overburden above the Pierre Shale across most of, if not the entire, Peterson/COSMA area. Because there are no wells outside the paleochannel, potentiometric contour lines are dashed in these areas on Figure 9 to indicate they are inferred.

6.2.2 Groundwater Analytical Results

Analytical results discussed in this section are grouped by AFFF areas and presented based on their location along the Broadway paleochannel, beginning with AFFF Area 5 (and Transects 1, 2, and 3) and proceeding southeast to AFFF Area 2 (and Transects 4 and 5) and AFFF Area 4 (and Transects 7 and 13). Except the PFBS concentration at monitoring well MW-2 at the current FTA, PFBS concentrations were below screening levels in all groundwater samples collected from wells installed in the Broadway Alluvium paleochannel and will not be discussed further.

6.2.2.1 Current Fire Training Area (AFFF Area 5)

Eleven primary groundwater samples and one duplicate sample were collected in association with AFFF Area 5 during Phase 2 of the ESI. Of the 12 samples collected, PFOA was detected above the screening level in nine samples (eight primary and one duplicate), and PFOS and combined PFOS and PFOA were detected above the screening level in 10 samples (nine primary and one duplicate). AFFF Area 5 analytical results are shown in Table 6 and on Figure 10 in Appendix A.

Transect 1
Two primary groundwater samples and one duplicate sample were collected from two wells (PETER-T01-MW002 and PETER-T01-MW004) installed at Transect 1 to assess possible release of impacted groundwater from AFFF Area 5 to Sand Creek. PFOS and combined PFOS and PFOA were detected above the screening level in the primary and duplicate samples from PETER-T01-MW002; combined PFOS and PFOA were also detected above the screening level in the sample from PETER-T01-MW004. Transect 1 analytical results are shown in Table 6 and on Figure 10 in Appendix A.

Transect 2
One groundwater sample was collected upgradient of Transect 2 and upgradient of the current FTA (AFFF Area 5) from PETER-T02-MW006 to assess possible impacts from the former Cherokee Waste Water Treatment Plant (WWTP). PFOS and PFOA were not detected in the sample. Transect 2 analytical results are shown in Table 6 and on Figure 10 in Appendix A.

Transect 3
One groundwater sample was collected at Transect 3 from PETER-T03-MW004 to assess downgradient impacts from AFFF Area 5. PFOS, PFOA, and combined PFOS and PFOA were detected above the screening level in the sample. Transect 3 analytical results are shown in Table 6 and on Figure 10 in Appendix A.

Table 6 Current Fire Training Area (AFFF Area 5)[a] and Transects 1, 2 and 3 Groundwater Analytical Results

	Area	AFFF Area 5 Current FTA	IRP Site 1							
	Well ID	PETER05-MW001	MW1-1	MW1-2	MW1-3	MW1-5A	MW1-6	MW1-7	MW1-8	MW1-8
	Sample ID	PETER05-MW001-GW-045	PETER-MW1-1-GW-040	PETER-MW1-2-GW-045	PETER-MW1-3-GW-052	PETER-MW1-5A-GW-054	PETER-MW1-6-GW-025	PETER-MW1-7-GW-032	PETER-MW1-8-GW-043	PETER-MW1-8-GW-943 (dup)
	Date Sampled	8/9/18	8/8/18	8/9/18	8/8/18	8/8/18	8/8/18	8/9/18	8/9/18	8/9/18
	Screened Interval (ft bgs)	40 - 50	27.51 - 47.51	36.3 - 56.3	48.8 - 58.8	27.4 - 47.4	6.8 - 26.8	12.1 - 32	33.5 - 43.5	33.5 - 43.5
Analyte	Screening Level (µg/L)	Result (µg/L)	Result (µg/L)	Result (µg/L)	Result (µg/L)	Result (µg/L)	Result (µg/L)	Result (µg/L)	Result (µg/L)	Result (µg/L)
Perfluorobutane sulfonate (PFBS)	40[b]	**1.3**	**0.014 J**	**8.4**	0.015 U	**0.0093 J**	**9.9**	**12**	**0.64**	**0.61**
Perfluorooctanoic acid (PFOA)	0.07[c]	**0.16**	**0.011 J**	**2.3**	**0.014 J**	**0.013 J**	**2.8**	**4.0**	**0.14**	**0.14**
Perfluorooctane sulfonate (PFOS)	0.07[c]	**1.6**	**0.040**	**12**	**0.12**	**0.0070 J**	**78**	**170**	**0.22**	**0.24**
PFOS + PFOA	0.07[d]	**1.76**	**0.051 J**	**14.3**	**0.134 J**	**0.0200 J**	**80.8**	**174**	**0.36**	**0.38**

	Area	Existing Current FTA Wells			Transect 1			Transect 2	Transect 3
	Well ID	MW-2	MW-3	MW-4	PETER-T01-MW002	PETER-T01-MW002	PETER-T01-MW004	PETER-T02-MW006	PETER-T03-MW004
	Sample ID	PETER-MW-2-GW-23.5	PETER-MW-3-GW-028	PETER-MW-4-GW-029	PETER-T01-MW002-GW-030	PETER-T01-MW002-GW-930 (dup)	PETER-T01-MW004-GW-032	PETER-T02-MW006-GW-053	PETER-T03-MW004-GW-028
	Date Sampled	8/8/18	8/8/18	9/11/18	8/24/18	8/24/18	8/19/18	8/24/18	8/19/18
	Screened Interval (ft bgs)	15 - 24	20 - 29	20 - 29	25.3 - 35.3	25.3 - 35.3	24.3 - 34.3	45.6 - 55.6	20 - 30
Analyte	Screening Level (µg/L)	Result (µg/L)	Result (µg/L)	Result (µg/L)	Result (µg/L)	Result (µg/L)	Result (µg/L)	Result (µg/L)	Result (µg/L)
Perfluorobutane sulfonate (PFBS)	40[a]	**60**	**8.6**	**16**	**0.014 J**	**0.014 J**	**0.044**	**0.0074 J**	**0.61**
Perfluorooctanoic acid (PFOA)	0.07[b]	**11**	**2.8**	**8.0**	**0.017 J**	**0.016 J**	**0.028**	0.010 U	**0.15**
Perfluorooctane sulfonate (PFOS)	0.07[b]	**120**	**30**	**80**	**0.11**	**0.11**	**0.063**	0.015 U	**3.9**
PFOS + PFOA	0.07[b]	**131**	**32.8**	**88.0**	**0.127 J**	**0.126 J**	**0.091**	ND	**4.05**

Bold values indicate analyte detected at concentration indicated.
Shaded results indicate value exceeds screening criteria.
[a] Includes existing current FTA and IRP Site 1 wells.
[b] EPA Regional Screening Level for Tap Water (November 2018) (https://semspub.epa.gov/work/HQ/197416.pdf).
[c] EPA, May 2016a. Drinking Water Health Advisory for Perfluorooctane Sulfonate (PFOS) and EPA, May 2016b. Drinking Water Health Advisory for Perfluorooctanoic Acid (PFOA).
[d] The EPA Health Advisory value for drinking water of 0.07 µg/L applies to the combined detected concentrations of PFOS and PFOA.

µg/L = micrograms per liter
bgs = below ground surface
ft = foot or feet
ID = identification
ND = not detected
U = The analyte was not detected at the reported value.
AFFF = aqueous film forming foam
dup = duplicate
GW = groundwater
J = The reported concentration is an estimated value.
PETER = ERPIMS designation for Peterson Air Force Base

6.2.2.2 Fire Station #1 (AFFF Area 2)

Two primary groundwater samples and one duplicate sample were collected from PETER02-MW001 and PETER02-MW003 at AFFF Area 2. A third well (PETER02-MW002) was dry and could not be sampled. PFOA and combined PFOS and PFOA were detected at concentrations above the screening level in the sample collected from PETER02-MW003. AFFF Area 2 analytical results are shown in Table 7 and on Figure 10 in Appendix A.

Transect 4
Two groundwater samples were collected at Transect 4 from PETER-T04-MW004 and PETER-T04-MW006 to assess possible impacts from AFFF Area 5 at Fire Station #1. PFOS and PFOA were detected at individual and combined concentrations above the screening level at PETER-T04-MW004. PFOA and combined PFOS and PFOA were detected above the screening level at PETER-T04-MW006. Transect 4 analytical results are shown in Table 7 and on Figure 10 in Appendix A.

Transect 5
Three groundwater samples were collected in association with Transect 5. Two samples were collected from PETER-T05-MW001 and PETER-T05-MW006 installed at the transect, and one sample was collected from PETER-T05-MW005 installed near a 146,000-gallon underground storage tank (UST) at Hangar 210. PFOA and combined PFOS and PFOA were detected above the screening level in PETER-T05-MW001 and PETER-T05-MW006 at Transect 5. PFOA and combined PFOS and PFOA were detected at PETER-T05-MW005 at the 146,000-gallon UST at concentrations below the screening level. Transect 5 analytical results are shown in Table 7 and on Figure 10 in Appendix A.

Table 7 Fire Station #1 (AFFF Area 2) and Transects 4 and 5 Groundwater Analytical Results

	Area	**AFFF Area 2 Fire Station #1 (Building 218)**			**Transect 4**		**Transect 5**		
	Well ID	**PETER02-MW001**	**PETER02-MW001**	**PETER02-MW003**	**PETER-T04-MW004**	**PETER-T04-MW006**	**PETER-T05-MW001**	**PETER-T05-MW005**	**PETER-T05-MW006**
	Sample ID	**PETER02-MW001-GW-055**	**PETER02-MW001-GW-955 (dup)**	**PETER02-MW003-GW-049**	**PETER-T04-MW004-GW-060**	**PETER-T04-MW006-GW-057**	**PETER-T05-MW001-GW-064**	**PETER-T05-MW005-GW-065**	**PETER-T05-MW006-GW-060**
	Date Sampled	**8/9/18**	**8/9/18**	**8/9/18**	**8/16/18**	**9/7/18**	**9/7/18**	**8/18/18**	**8/17/18**
	Depth (ft bgs)	**50.5 - 60.5**	**50.5 - 60.5**	**35 - 50**	**55.2 - 65.2**	**49.6 - 59.6**	**59 - 69**	**59.6 - 69.6**	**54.3 - 64.3**
Analyte	**Screening Level (µg/L)**	**Result (µg/L)**	**Result (µg/L)**	**Result (µg/L)**	**Result (µg/L)**	**Result (µg/L)**	**Result (µg/L)**	**Result (µg/L)**	**Result (µg/L)**
Perfluorobutane sulfonate (PFBS)	40[a]	**0.011 J**	**0.011 J**	**0.041**	**1.3**	**0.18**	**0.083**	**0.0062 J**	**0.017 J**
Perfluorooctanoic acid (PFOA)	0.07[b]	**0.057**	**0.057**	**0.24**	**0.56**	**0.076**	**1.0**	**0.0057 J**	**0.18**
Perfluorooctane sulfonate (PFOS)	0.07[b]	**0.0093 J**	**0.0071 J**	**0.047**	**3.4**	**0.065**	**0.070**	0.015 U	0.015 U
PFOS + PFOA	0.07[c]	**0.0663 J**	**0.0641J**	**0.287**	**3.96**	**0.141**	**1.070**	**0.0057 J**	**0.18**

Bold values indicate analyte detected at concentration indicated.
Shaded results indicate value exceeded screening criteria.
[a] EPA Regional Screening Level for Tap Water (November 2018) (https://semspub.epa.gov/work/HQ/197416.pdf).
[b] EPA, May 2016a. Drinking Water Health Advisory for Perfluorooctane Sulfonate (PFOS) and EPA, May 2016b. Drinking Water Health Advisory for Perfluorooctanoic Acid (PFOA).
[c] The EPA Health Advisory value for drinking water of 0.07 µg/L applies to the combined detected concentrations of PFOS and PFOA.

µg/L = micrograms per liter
bgs = below ground surface
ft = foot or feet
ID = identification
PETER = ERPIMS designation for Peterson Air Force Base
AFFF = aqueous film forming foam
dup = duplicate
GW = groundwater
J = The reported concentration is an estimated value.
U = The analyte was not detected at the reported value.

6.2.2.3 Golf Course/Leach Field (WP006), Detention Pond #3, and Site 5 (FT002) (AFFF Area 4)

Eighteen primary groundwater samples and one duplicate sample were collected in association with AFFF Area 4 during Phase 2 of the ESI. Fourteen primary samples (from PETER04-MW001 through PETER04-MW005, MW2-1 through MW2-5, and MW4-1 through MW4-4) were collected within the AFFF area. Four primary and one duplicate sample were collected from north and south COSMA deicing pond wells and from PETER04-MW008 and PETER04-MW009 downgradient from AFFF Area 4.

Of the 14 primary samples collected from within AFFF Area 4, PFOS and/or PFOA were detected above screening levels in three samples. Individual PFOS and PFOA and combined PFOS and PFOA were detected above screening levels in PETER04-MW005, and PFOS and combined PFOS and PFOA were detected above screening levels in MW2-3 and MW2-4. AFFF Area 4 analytical results are shown in Table 8 and on Figure 10 in Appendix A.

Four primary groundwater samples and one duplicate sample were collected from two downgradient Area 4 wells (PETER04-MW008 and PETER04-MW009) and from two COSMA deicing pond wells (De-icing Pond North and De-icing Pond South). Where detected, PFOS and PFOA (and combined PFOS and PFOA) were below screening levels in PETER04-MW008 and PETER04-MW009. PFOS (and combined PFOS and PFOA) were detected above screening levels in both deicing pond wells. Analytical results for downgradient AFFF Area 4 wells and deicing pond wells are shown in Table 8 and on Figure 10 in Appendix A. Note that wells PETER04-MW008 and PETER04-MW009 were installed as AFFF Area 4 downgradient wells prior to the development of the CSM (AECOM, September 2017), which indicates the wells to be within the Windmill Gulch paleovalley. Therefore, these two wells are discussed both here and in Section 6.3.

Transect 7

Three primary groundwater samples and one duplicate sample were collected in association with Transect 7 to assess possible downgradient impacts from AFFF Area 4. Samples were collected from PETER-T07-MW003 and PETER-T07-MW004, installed at the transect, and from PETER-T07-MW006, installed downgradient from the transect. PFOS and combined PFOS and PFOA were detected above the screening level at PETER-T07-MW004 (at the transect) and at PETER-T07-MW006 (downgradient from the transect). Individual and combined PFOS and PFOA concentrations were below screening levels at PETER-T07-MW003 (at the transect). Transect 7 analytical results are shown in Table 8 and on Figure 10 in Appendix A.

Transect 13

Four groundwater samples were collected in association with Transect 13 to assess possible downgradient impacts from AFFF Area 4. Samples were collected from PETER-T13-MW001, PETER-T13-MW003, and PETER-T13-MW004, at the transect, and from PETER-T13-MW0 06, south of the transect, to assess possible communication between the Broadway Alluvium and Windmill Gulch paleovalleys.

PFOS, PFOA, or combined PFOS and PFOA were detected above the screening level at PETER-T13-MW001, PETER-T13-MW003, and PETER-T13-MW004 (at the transect). Both individual and combined PFOS and PFOA concentrations were above screening levels at PETER-T13-MW006 (south of the transect). Transect 13 analytical results are shown in Table 8 and on Figure 10 in Appendix A.

Table 8 Golf Course/Leach Field (WP006), Detention Pond #3, and Site 5 (FT002) (AFFF Area 4) and Transects 7 and 13 Groundwater Analytical Results[1]

	Area	AFFF Area 4 Golf Course/Leach Field (WP006) Detention Pond #3 IRP Site 5 (FT003)							
	Well ID	PETER04-MW001	PETER04-MW002	PETER04-MW003	PETER04-MW004	PETER04-MW005	PETER04-MW008[2]	PETER04-MW008[2]	PETER04-MW009[2]
	Sample ID	PETER04-MW001-GW-060	PETER04-MW002-GW-049	PETER04-MW003-GW-060	PETER04-MW004-GW-085	PETER04-MW005-GW-060	PETER04-MW008-GW-098	PETER04-MW008-GW-998 (dup)	PETER04-MW009-GW-090
	Date Sampled	08/18/18	08/18/18	08/27/18	08/27/18	08/27/18	08/24/18	08/24/18	08/24/18
	Depth (ft bgs)	54 - 64	40 - 50	49 - 64	80 - 90	60 - 70	91 - 101	91 - 101	80 - 100
Analyte	Screening Level (µg/L)	Result (µg/L)	Result (µg/L)	Result (µg/L)	Result (µg/L)	Result (µg/L)	Result (µg/L)	Result (µg/L)	Result (µg/L)
Perfluorobutane sulfonate (PFBS)	40[a]	**0.044**	**0.18**	**0.28**	**0.0095 J**	**0.031**	**0.056**	**0.057**	**0.028**
Perfluorooctanoic acid (PFOA)	0.07[b]	**0.0087 J**	**0.028**	**0.019 J**	**0.0057 J**	**0.12**	**0.018 J**	**0.021**	0.010 U
Perfluorooctane sulfonate (PFOS)	0.07[b]	0.015 U	0.015 U	0.015 U	0.015 U	**0.55**	0.015 U	0.015 U	0.015 U
PFOS +PFOA	0.07[c]	**0.0087 J**	**0.028**	**0.019 J**	**0.0057 J**	**0.67**	**0.018 J**	**0.021**	ND

	Area	IRP Site 2					IRP Site 4			
	Well ID	MW2-1	MW2-2	MW2-3	MW2-4	MW2-5	MW4-1	MW4-2	MW4-3	MW4-4
	Sample ID	PETER-MW2-1-GW-054	PETER-MW2-2-GW-045	PETER-MW2-3-GW-045	PETER-MW2-4-GW-048	PETER-MW2-5-GW-060	PETER-MW4-1-GW-068	PETER-MW4-2-GW-070	PETER-MW4-3-GW-069	PETER-MW4-4-GW-070
	Date Sampled	08/21/18	08/09/18	08/21/18	08/21/18	08/21/18	08/21/18	08/17/18	08/17/18	08/17/18
	Depth (ft bgs)	49.2 - 59.2	40.6 - 50.6	40.7 - 50.7	43.9 - 53.9	49.6 - 69.6	54.8 - 74.8	61.8 - 81.8	64.3 - 84.3	59.8 - 89.8
Analyte	Screening Level (µg/L)	Result (µg/L)	Result (µg/L)	Result (µg/L)	Result (µg/L)	Result (µg/L)	Result (µg/L)	Result (µg/L)	Result (µg/L)	Result (µg/L)
Perfluorobutane sulfonate (PFBS)	40[a]	**0.0089 J**	**0.014 J**	**0.0099 J**	0.015 U	**0.021**	**0.028**	**0.0092 J**	**0.025**	**0.032**
Perfluorooctanoic acid (PFOA)	0.07[b]	0.010 U	0.010 U	**0.010 J**	0.010 U	**0.010 J**	**0.0096 J**	**0.013 J**	**0.0083 J**	**0.012 J**
Perfluorooctane sulfonate (PFOS)	0.07[b]	**0.048**	0.015 U	**0.075**	**0.27**	0.015 U	**0.0084 J**	0.015 U	0.015 U	0.015 U
PFOS + PFOA	0.07[c]	**0.048**	ND	**0.085 J**	**0.27**	**0.010 J**	**0.0180 J**	**0.013 J**	**0.0083 J**	**0.012 J**

	Area	Deicing Ponds		Transect 7			
	Well ID	DE-ICING Pond North	DE-ICING Pond South	PETER-T07-MW003	PETER-T07-MW003	PETER-T07-MW004	PETER-T07-MW006
	Sample ID	PETER-DE-ICING PONDN-GW-085	PETER-DE-ICING PONDS-GW-090	PETER-T07-MW003-GW-069	PETER-T07-MW003-GW-969 (dup)	PETER-T07-MW004-GW-064	PETER-T07-MW006-GW-089
	Date Sampled	8/18/18	8/18/18	9/6/18	9/6/18	09/06/18	09/10/18
	Depth (ft bgs)	0 – 0	0 - 0	64.8 - 74.8	64.8 - 74.8	59.4 - 69.4	84.2 - 94.2
Analyte	**Screening Level (µg/L)**	**Result (µg/L)**	**Result (µg/L)**	**Result (µg/L)**	**Result (µg/L)**	**Result (µg/L)**	**Result (µg/L)**
Perfluorobutane sulfonate (PFBS)	40[a]	**0.057**	**0.046**	**0.028**	**0.030**	**0.024**	**0.039**
Perfluorooctanoic acid (PFOA)	0.07[b]	**0.062**	**0.047**	**0.019 J**	**0.017 J**	**0.019 J**	**0.037**
Perfluorooctane sulfonate (PFOS)	0.07[b]	**0.53**	**0.58**	**0.016 JB**	**0.018 JB**	**0.31**	**0.25**
PFOS + PFOA	0.07[c]	**0.592**	**0.627**	**0.035 JB**	**0.035 JB**	**0.329 J**	**0.287**

	Area	Transect 13			
	Station	PETER-T13-MW001	PETER-T13-MW003	PETER-T13-MW004	PETER-T13-MW006
	Well ID	PETER-T13-MW001-GW-075	PETER-T13-MW003-GW-079	PETER-T13-MW004-GW-075	PETER-T13-MW006-GW-110
	Date Sampled	09/05/18	09/05/18	08/28/18	08/28/18
	Depth (ft-bgs)	69.5 - 79.5	74.5 - 84.5	69.5 - 79.5	104.7 - 114.7
Analyte	**Screening Level (µg/L)**	**Result (µg/L)**	**Result (µg/L)**	**Result (µg/L)**	**Result (µg/L)**
Perfluorobutane sulfonate (PFBS)	40[a]	**0.033**	**0.028**	**0.079**	**0.14**
Perfluorooctanoic acid (PFOA)	0.07[b]	**0.039**	**0.076**	**0.087**	**0.18**
Perfluorooctane sulfonate (PFOS)	0.07[b]	**0.051**	**0.0075 J**	**0.13**	**1.6**
PFOS +PFOA	0.07[c]	**0.090**	**0.0835 J**	**0.217**	**1.78**

[1]Includes IRP Site 2 and Site 4 wells and downgradient COSMA deicing pond wells.
[2]PETER04-MW008 and PETER04-MW009 are downgradient wells southwest of AFFF Area 4 within the Windmill Gulch paleovalley.
Bold values indicate analyte detected at concentration indicated.
Shaded results indicate value exceeds screening criteria.
[a] EPA Regional Screening Level for Tap Water (November 2018) (https://semspub.epa.gov/work/HQ/197416.pdf).
[b] EPA, May 2016a. Drinking Water Health Advisory for Perfluorooctane Sulfonate (PFOS) and EPA, May 2016b. Drinking Water Health Advisory for Perfluorooctanoic Acid (PFOA).
[c] The EPA Health Advisory value for drinking water of 0.07 µg/L applies to the combined detected concentrations of PFOS and PFOA.

µg/L = micrograms per liter
bgs = below ground surface
ft = foot or feet
ID = identification
AFFF = aqueous film forming foam
dup = duplicate
GW = groundwater
J = The reported concentration is an estimated value.
JB = The reported concentration is an estimated value. This concentration is less than 5 times the concentration reported in an associated field or laboratory blank.
PETER = ERPIMS designation for Peterson Air Force Base
U = The analyte was not detected at the reported value.

6.2.3 Combined PFOS and PFOA in Groundwater

Figure 11 shows the combined PFOS and PFOA groundwater plume that has resulted from releases at the current FTA (AFFF Area 5); Fire Station #1 (AFFF Area 2); and the golf course/leach field, Detention Pond #3, and Site 5 (AFFF Area 4). The plume shown on Figure 11 indicates apparent overlap of at least three separate plumes originating from the three AFFF areas.

Because groundwater sampling was focused on the Broadway Alluvium paleochannel, the plume shown is primarily limited to the paleochannel. Given that shallow groundwater likely exists across the entire Peterson AFB/COSMA area and based on groundwater contours and flow directions shown on Figure 9, the combined PFOS and PFOA plume may extend southwest from the base (outside the paleochannel) to Runway 17R/35L on the west side of the airport and the western COSMA boundary.

6.2.4 Conclusions

Shallow groundwater has been impacted by PFOS and PFOA from releases of AFFF at the current FTA (AFFF Area 5); Fire Station #1 (AFFF Area 2); and the golf course/leach field, Detention Pond #3, and Site 5 (AFFF Area 4). The following bullets summarize key findings for each of these areas presented from the farthest upgradient release area (AFFF Area 5 and associated transects) to the most downgradient release area (AFFF Area 4 and associated transects).

AFFF Area 5

- Based on Transect 2 groundwater results, the former Cherokee WWTP does not appear to be a significant source of PFOS or PFOA impacts to groundwater.
- Combined PFOS and PFOA concentrations in groundwater at the current FTA were the highest concentrations detected at Peterson AFB.
- Based on Transect 1 groundwater results, impacted groundwater from the current FTA may be migrating to the south/southwest as shown on Figure 11 and could be a source of releases to Sand Creek.
- Based on apparent groundwater flow direction and Transect 3 groundwater results, PFOS-/PFOA-impacted groundwater is migrating from the FTA to the southeast.

AFFF Area 2

- Based on apparent groundwater flow direction and Transect 4 groundwater results, impacted shallow groundwater from AFFF Area 5 is migrating to the south/southeast. However, from Transect 4, groundwater flows south/southwest toward the western COSMA boundary rather than toward AFFF Area 2 as suggested in the CSM (AECOM, September 2017).
- PFOS/PFOA concentrations in groundwater at Fire Station #1 are significantly lower than AFFF Area 5. Specifically, the lone combined PFOS and PFOA exceedance at Area 2 (0.287 µg/L) was three orders of magnitude lower than the highest concentration detected at Area 5 (174 µg/L).
- Based on apparent groundwater flow and Transect 5 groundwater results, shallow groundwater at Transect 5 has been impacted by PFOS and PFOA, and AFFF Area 2 may be the source. From Transect 5, groundwater is migrating south, mingling with the PFOS and PFOA plume migrating from AFFF Area 4, as shown on Figure 11.

AFFF Area 4

- Based on apparent groundwater flow and Transect 7 groundwater results, impacted shallow groundwater from AFFF Area 4 is migrating southwest toward the western COSMA boundary as shown on Figure 11.

- Based on apparent groundwater flow and Transect 13 groundwater results, shallow groundwater from AFFF Area 4 has migrated southwest to and possibly beyond the southwestern COSMA boundary as shown on Figure 11.
- The combined PFOS and PFOA concentration detected at PETER-T13-MW006 (1.78 µg/L) south of Transect 13 was the highest concentration detected outside or immediately downgradient from AFFF Area 5 and higher than any detection at AFFF Area 4. The source for this relatively high concentration compared to upgradient concentrations is uncertain.

6.3 WINDMILL GULCH PALEOVALLEY

As shown on Figure 2, AFFF Areas 1 and 3 fall within the Windmill Gulch paleovalley. Four transects, (Transects 8, 11, 12, and 14) were selected to further assess PFOS-/PFOA-impacted groundwater along the paleovalley, and four monitoring wells were installed and sampled in association with the transects. In addition 11 existing monitoring wells within the Windmill Gulch paleovalley were sampled. Three wells were installed prior to the initial SI to assess IRP Site 7 for non-PFAS-related releases, and eight wells were installed during the initial SI (three wells each at AFFF Areas 1 and 3 and two wells downgradient of AFFF Area 4).

6.3.1 Groundwater Flow

Based on the September 12, 2018, water level measurements, groundwater flow within the Windmill Gulch paloevalley is to the southwest at AFFF Area 3 and continues to the southwest at Transect 8, AFFF Area 1, and Site 7. Further to the southwest, groundwater flow turns east/southeast at Transects 11, 12, and 14, apparently migrating off COSMA property along the southwest boundary. Groundwater elevations, potentiometric contours, and flow directions are shown on Figure 9 in Appendix A; groundwater measurements and elevations are also summarized in Table F-1 in Appendix F.

As mentioned previously, it is likely, at least during nondrought conditions, that shallow groundwater is present within overburden above the Pierre Shale across most of, if not the entire, Peterson/COSMA area. Potentiometric contours are, therefore, shown as continuous lines indicating saturated overburden across both the Windmill Gulch and Broadway Alluvium paleovalleys and groundwater flow to the southwest toward the southwestern COSMA boundary.

6.3.2 Groundwater Analytical Results

Analytical results discussed in this subsection are grouped by AFFF areas and presented based on their location along the Windmill Gulch paleovalley, beginning with AFFF Area 3 and proceeding downgradient to Transect 8, AFFF Area 1, Site 7, downgradient AFFF Area 4 wells, and Transects 11, 12, and 14.

AFFF Area 3
Three groundwater samples were collected at AFFF Area 3 from PETER03-MW001, PETER03-MW002, and PETER03-MW003. PFOA and combined PFOS and PFOA were detected above the screening level in the sample collected from PETER03-MW002. AFFF Area 3 analytical results are shown in Table 9 and on Figure 10 in Appendix A.

Table 9 Fire Station #2 (Building 2032) (AFFF Area 3), Site 8 (AFFF Area 1), IRP Site 7, and Transects 8, 11, 12 and 14 Groundwater Analytical Results

	Area	AFFF Area 3 Fire Station #2 (Building 2032)			Transect 8	AFFF Area 1 Site 8 (FT002)			IRP Site 7	
	Well ID	PETER03-MW001	PETER03-MW002	PETER03-MW003	PETER-T08-MW001	PETER01-MW001	PETER01-002-100	PETER01-003-087	PAFB07MW01	PAFB07MW01
	Sample ID	PETER03-MW001-GW-068	PETER03-MW002-GW-071	PETER03-MW003-GW-073	PETER-T08-MW001-GW-074	PETER01-MW001-GW-089	PETER01-MW002-GW-098	PETER01-MW003-GW-082	PETER-PAFB07MW01-GW-078	PETER-PAFB07MW01-GW-978 (dup)
	Date Sampled	8/17/18	8/16/18	8/16/18	8/26/18	8/20/18	8/20/18	8/20/18	8/08/18	8/08/18
	Screened Interval (ft bgs)	60 – 70	66 - 76	65 - 74.6	70.1 - 80.1	82 - 92	90 - 100	76.6 - 86.6	69 - 79	69 - 79
Analyte	Screening Level (µg/L)	Result (µg/L)	Result (µg/L)	Result (µg/L)	Result (µg/L)	Result (µg/L)	Result (µg/L)	Result (µg/L)	Result (µg/L)	Result (µg/L)
Perfluorobutane sulfonate (PFBS)	40[a]	0.015 U	**0.13**	**0.17**	**0.015 J**	**3.4**	**0.040**	**0.0093 J**	**0.069**	**0.076**
Perfluorooctanoic acid (PFOA)	0.07[b]	**0.014 J**	**0.079**	**0.019 J**	0.010 U	0.020 U	0.010 U	0.010 U	**0.026**	**0.024**
Perfluorooctane sulfonate (PFOS)	0.07[b]	0.015 U	**0.013 J**	**0.018 J**	0.015 U	0.030 U	0.015 U	0.015 U	0.015 U	0.015 U
PFOS +PFOA	0.07[c]	**0.014 J**	**0.092 J**	**0.037 J**	ND	ND	ND	ND	**0.026**	**0.024**

	Area	IRP Site 7 (continued)		Downgradient AFFF Area 4 Wells			Transect 11	Transect 12	Transect 14	
	Well ID	PAFB07MW02	PAFB07MW03	PETER04-MW008[d]	PETER04-MW008[d]	PETER04-MW009[d]	PETER-T11-MW001	PETER-T12-MW003	PETER-T14-MW002A	PETER-T14-MW002A
	Sample ID	PETER-PAFB07MW02-GW-086	PETER-PAFB07MW03-GW-090	PETER04-MW008-GW-098	PETER04-MW008-GW-998 (dup)	PETER04-MW009-GW-090	PETER-T11-MW001-GW-070	PETER-T12-MW003-GW-053	PETER-T14-MW002A-GW-049	PETER-T14-MW002A-GW-949 (dup)
	Date Sampled	8/08/18	8/19/18	8/24/18	8/24/18	8/24/18	9/10/18	9/13/18	9/13/18	9/13/18
	Screened Interval (ft bgs)	82.1 - 92.1	75 - 85	91 - 101	91 - 101	80 - 100	60.4 - 70.4	44.3 - 54.3	50.2 - 60.2	50.2 - 60.2
Analyte	Screening Level (µg/L)	Result (µg/L)	Result (µg/L)	Result (µg/L)	Result (µg/L)	Result (µg/L)	Result (µg/L)	Result (µg/L)	Result (µg/L)	Result (µg/L)
Perfluorobutane sulfonate (PFBS)	40[a]	**0.045**	**0.15**	**0.056**	**0.057**	**0.028**	0.15 U	0.015 U	0.017 U	0.016 U
Perfluorooctanoic acid (PFOA)	0.07[b]	**0.018 J**	**0.046**	**0.018 J**	**0.021**	0.010 U	0.10 U[e]	**0.0070 JB**	**0.0058 JB**	**0.0050 JB**
Perfluorooctane sulfonate (PFOS)	0.07[b]	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.15 U[e]	0.015 U	**0.0099 J**	**0.0097 J**
PFOS +PFOA	0.07[c]	**0.018 J**	**0.046**	**0.018 J**	**0.021**	ND	ND[e]	**0.0070 JB**	**0.0157 JB**	**0.0147 JB**

Bold values indicate analyte detected at concentration indicated.
Shaded results indicate value exceeds screening criteria.
[a] EPA Regional Screening Level for Tap Water (November 2018) (https://semspub.epa.gov/work/HQ/197416.pdf).
[b] EPA, May 2016a. Drinking Water Health Advisory for Perfluorooctane Sulfonate (PFOS) and EPA, May 2016b. Drinking Water Health Advisory for Perfluorooctanoic Acid (PFOA).
[c] The EPA Health Advisory value for drinking water of 0.07 µg/L applies to the combined detected concentrations of PFOS and PFOA.
[d] PETER04-MW008 and PETER04-MW009 are downgradient wells southwest of AFFF Area 4 within the Windmill Gulch paleovalley.
[e] Detection limit exceeds screening value. Elevated detection limit caused by sample turbidity. A reduced sample volume was extracted in the laboratory in order to prevent clogging of the solid phase extraction cartridge and detection limits adjusted accordingly.

µg/L = micrograms per liter
bgs = below ground surface
ft = foot or feet
ID = identification
JB = The reported concentration is an estimated value. This concentration is less than 5 times the concentration reported in an associated field or laboratory blank.
PETER = ERPIMS designation for Peterson Air Force Base
AFFF = aqueous film forming foam
dup = duplicate
GW = groundwater
J = The reported concentration is an estimated value.
U = The analyte was not detected at the reported value.

Transect 8
One groundwater sample was collected at Transect 8 from PETER-T08-MW001. PFOS and PFOA were not detected in the sample. Transect 8 analytical results are shown in Table 9 and on Figure 10 in Appendix A.

AFFF Area 1
Three groundwater samples were collected at AFFF Area 1 from PETER01-MW001, PETER01-MW002, and PETER01-MW003. PFOS and PFOA were not detected in any of the three samples. AFFF Area 1 analytical results are shown in Table 9 and on Figure 10 in Appendix A.

IRP Site 7 Existing Wells
Four groundwater samples (three primary and one duplicate) were collected at IRP Site 7 from PAFB07MW01, PAFB07MW02, and PAFB07MW03. Where detected, PFOS, PFOA, and combined PFOS and PFOA were below the screening level in all three samples. Analytical results for Site 7 wells are shown in Table 9 and on Figure 10 in Appendix A.

Downgradient AFFF Area 4 Wells
Three groundwater samples (two primary and one duplicate) were collected from two downgradient Area 4 wells (PETER04-MW008 and PETER04-MW009). Where detected, individual PFOS and PFOA and combined PFOS and PFOA were below screening levels in the samples. Analytical results for downgradient AFFF Area 4 wells are shown in Table 9 and on Figure 10 in Appendix A. Note that wells PETER04-MW008 and PETER04-MW009 were installed as AFFF Area 4 downgradient wells prior to development of the AECOM CSM, which indicates the wells to be within the Windmill Gulch paleovalley. As such, these two wells are discussed both here and in Section 6.2.

Transect 11
One groundwater sample was collected at Transect 11 from PETER-T11-MW001. PFOS and PFOA were not detected; however, the detection limits (0.15 µg/L for PFOS and 0.10 µg/L for PFOA) were elevated and above the 0.07 µg/L screening level. Sample turbidity required extraction of a reduced sample volume to prevent clogging the solid phase extraction cartridge, and the detection limits were adjusted accordingly. Transect 11 analytical results are shown in Table 9 and on Figure 10 in Appendix A.

Transect 12
One groundwater sample was collected at Transect 12 from PETER-T12-MW003. PFOS was not detected, and PFOA was detected below the screening level. Transect 12 analytical results are shown in Table 9 and on Figure 10 in Appendix A.

Transect 14
One primary groundwater sample and one duplicate sample were collected at Transect 14 from PETER-T14-002A. Individual and combined PFOS and PFOA concentrations were below screening values in both samples. Transect 14 analytical results are shown in Table 9 and on Figure 10 in Appendix A.

6.3.3 Combined PFOS and PFOA in Groundwater

Figure 11 shows that groundwater within the Windmill Gulch paleovalley has been impacted by combined PFOS and PFOA at a concentration above the screening level in one well (PETER03-MW02 at a combined concentration of 0.092 ug/L) at Fire Station #2 (AFFF Area 3). All other combined PFOS and PFOA concentrations in wells installed within the Windmill Gulch paleovalley were below screening levels. PFOS and PFOA were not detected above screening levels in groundwater at Fire Station #2

during the initial SI. This recent combined PFOS and PFOA exceedance at PETER-MW02 indicates an apparent incipient plume is developing from previous AFFF releases at the fire station.

6.3.4 Conclusions

Groundwater sampling conducted during the initial SI indicated shallow groundwater had not been impacted above screening levels at AFFF Areas 1 or 3. Groundwater sampling at AFFF Area 3 conducted during this ESI, however, indicated groundwater has now been impacted above screening levels in one well (PETER03-MW002 at an estimated concentration of 0.092 µg/L). Groundwater has not been impacted above screening levels at AFFF Area 1; IRP Site 7; downgradient Area 4 wells; or Transects 8, 11, 12, or 14. The following bullets summarize key findings for each of these areas presented in order from upgradient (AFFF Area 3 and Transect 8 and proceeding downgradient to AFFF Area 1; IRP Site 7; downgradient AFFF Area 4 wells; and Transects 11, 12, and 14:

AFFF Area 3

- Groundwater has now been impacted above screening levels at AFFF Area 3 (in one of three wells sampled) as shown on Figures 10 and 11. Groundwater sampling conducted during the initial SI indicated shallow groundwater had not been impacted above screening levels at AFFF Area 3. Groundwater impact is apparently the result of previous spray testing conducted at the fire station as indicated in PFOS exceedances in soil detected during the initial SI and Phase 1 of the ESI.
- AFFF releases have occurred during spray testing at the fire station from 1996, when the station was constructed, until 2017, when spray testing was discontinued. Impacts to groundwater, however, have only occurred since sampling conducted in 2016 during the initial SI.
- Groundwater flow from AFFF Area 3 is to the southwest, but impacted groundwater is limited to the immediate vicinity of Fire Station #2. PFOS and PFOA were not detected in groundwater at Transect 8, indicating impacted groundwater has not migrated downgradient.

AFFF Area 1

- PFOS and PFOA were not detected in Phase 2 groundwater samples from AFFF Area 1, confirming similar results from the initial SI. AFFF may have been used at Area 1 (based on detections of PFBS at low concentrations), but groundwater has not been impacted by PFOS or PFOA.

IRP Site 7

- PFOA was detected at concentrations below the screening level in the three existing wells at IRP Site 7. The source of the low PFOA detections in groundwater is unknown.

Downgradient AFFF Area 4 Wells

- PFOA was detected at a concentration below the screening level at well PETER04-MW008. The source for this detection is uncertain but likely represents the eastern limits of the impacted plume from AFFF Area 4.
- PFOS and PFOA were not detected in downgradient Area 4 well PETER04-MW009, indicating impacts from the COSMA landfill are unlikely. These results also indicate communication between the Broadway Alluvium paleochannel (at Transect 13) and the Windmill Gulch paleovalley is unlikely.

Transects 11, 12, and 14

- PFOS and PFOA were not detected in groundwater at Transect 11, but the detection limits were elevated (above the screening level) because of sample turbidity.

- Where detected, combined PFOS and PFOA concentrations at Transects 12 and 14 were below detection limits, indicating PFOS-/PFOA-impacted groundwater is likely not migrating beyond the COSMA boundary to the south.

6.4 COMPARISON OF INITIAL SITE INSPECTION AND EXPANDED SITE INSPECTION GROUNDWATER ANALYTICAL RESULTS

Phase 2 combined PFOS and PFOA concentrations in groundwater were compared with reported concentrations from the initial SI as shown in Table 10. Of the 25 wells sampled during both events, combined PFOS and PFOA concentrations increased in 10 monitoring wells, decreased in 10 monitoring wells, and remained unchanged in four wells (and were below detection limits in both sampling events). Of the 25 wells, combined PFOS and PFOA concentrations exceeded the screening level at nine wells during the initial SI and exceeded the screening level in eight wells during the ESI.

Of the five AFFF areas identified at Peterson AFB, combined PFOS and PFOA concentrations in groundwater at AFFF Area 1 remained below detection limits. Combined PFOS and PFOA concentrations were above the screening level in groundwater at AFFF Areas 2, 4, and 5 (in at least some wells) during both sampling events. Combined PFOS and PFOA concentrations in groundwater at AFFF Area 3 increased from below screening levels during the initial SI to above screening levels in Phase 2 of the ESI in one well. Combined PFOS and PFOA increased in PETER03-MW002 from an estimated concentration of 0.0294 µg/L (in 2016) to an estimated concentration of 0.092 µg/L (in 2018). In addition, combined PFOS and PFOA concentrations increased in the other two wells installed at AFFF Area 3 although they remained below the screening level. These increases indicate PFOS concentrations in soil at Fire Station #2 (above the residential screening level), detected during the initial SI and Phase 1 of the ESI, are now impacting groundwater.

Table 10 Comparison of 2016 and 2018 Combined PFOS and PFOA Concentrations in Groundwater

AFFF Area	Well ID	Initial SI Combined PFOS+PFOA (µg/L)	ESI Phase 2 Combined PFOS+PFOA (µg/L)	Increase/ Decrease	Percent (%) Change
AFFF Area 1 Site 8 (FT003)	PETER01-MW001	ND	ND	No change	No change
	PETER01-MW002	ND	ND	No change	No change
	PETER01-MW003	ND	ND	No change	No change
AFFF Area 2 Fire Station #1 (Building 218)	PETER02-MW001	**0.178 J**	0.0663 J	Decrease	-62.8
	PETER02-MW002	Dry	Dry	N/A	N/A
	PETER02-MW003	**0.077 J**	**0.287**	Increase	272.7
AFFF Area 3 Fire Station #2 (Building 2032)	PETER03-MW001	ND	0.014 J	Increase	N/A
	PETER03-MW002	0.0294 J	**0.092 J**	Increase	212.9
	PETER03-MW003	0.0364 J	0.037 J	Increase	1.6
AFFF Area 4 Golf Course/ Leach Field (WP006), Detention Pond #3, and Site 5 (FT002)	PETER04-MW001	0.028 J	0.0087 J	Decrease	-68.9
	PETER04-MW002	**0.13 J**	0.028	Decrease	-78.5
	PETER04-MW003	0.015 J	0.019 J	Increase	26.7
	PETER04-MW004	0.0037 J	0.0057 J	Increase	54.1
	PETER04-MW005	**0.98 J**	**0.67**	Decrease	-31.6
	PETER04-MW008	ND	0.021[1]	Increase	N/A

AFFF Area	Well ID	Initial SI Combined PFOS+PFOA (µg/L)	ESI Phase 2 Combined PFOS+PFOA (µg/L)	Increase/ Decrease	Percent (%) Change
AFFF Area 4 (cont'd)	PETER04-MW009	ND	ND	No change	No change
	MW2-1	**0.079 J**	0.048	Decrease	-39.2
	MW2-2	0.0046 J	ND	Decrease	N/A
	MW2-3	**0.547**	**0.085 J**	Decrease	-84.5
	MW2-4	**0.085**	**0.27**	Increase	217.6
	MW2-5	0.0087 J	0.010 J	Increase	14.9
	MW4-1	0.0191 J	0.0180 J	Decrease	-5.8
AFFF Area 5 Current Fire Training Area	PETER05-MW001	**3.24 J**	**1.76**	Decrease	-45.7
	MW-4	**88.4**	**88.0**	Decrease	-0.5
	MW1-2	**15 J**	**14.3**	Decrease	-4.7

Bold values exceeded screening level.
[1]Duplicate result.
µg/L = micrograms per liter
ESI = Expanded Site Inspection
J = Reported concentration is an estimated value.
ND = not detected
PFOA = perfluorooctanoic acid
SI = Site Inspection
AFFF = aqueous film forming foam
ID = identification
N/A = not applicable
PETER = ERPIMS code for Peterson Air Force Base
PFOS = perfluorooctane sulfonate

7.0 GROUNDWATER PATHWAY

7.1 DRINKING WATER WELLS

Shallow drinking water wells that tap the surficial aquifer and are downgradient from Peterson AFB and COSMA are vulnerable to PFAS impacts. The Colorado DNR Division of Water Resources well permit database (https://dnrweb.state.co.us/cdss/WellPermits) classifies 438 wells as “domestic,” “household use only,” “municipal,” or “domestic, municipal” that are either less than or equal to 150 feet deep or are of unknown depth. Based on groundwater flow to the southwest, 153 wells are downgradient of Peterson AFB/COSMA and at risk of PFAS impacts while 285 wells are upgradient or sidegradient (Figure 12, Appendix A).

7.2 BROADWAY ALLUVIUM PALEOVALLEY

Groundwater flow within the Broadway Alluvium paleovalley is to the southeast at AFFF Area 5, to the south at Transect 1, and to the south/southeast at Transect 3. Groundwater flow then turns southwest at Transect 4 and also flows south-southwest at AFFF Area 2 and Transect 5 as shown on Figure 9 in Appendix A. Groundwater also flows southwest from AFFF Area 4 toward Transect 7, continuing to the southwest to Transect 13, where groundwater migrates off COSMA property.

Individual and/or combined PFOS and PFOA concentrations in shallow groundwater exceeded the screening level at AFFF Areas 2, 4, and 5 and at Transects 1, 3, 4, 5, 7, and 13 within the Broadway Alluvium paleovalley (Figures 10 and 11, Appendix A). Based on the presence of shallow drinking water wells as discussed in Section 7.1 and shown on Figure 12 in Appendix A, the human ingestion exposure pathway is potentially complete.

7.3 WINDMILL GULCH PALEOVALLEY

Groundwater flow within the Windmill Gulch paleovalley is to the southwest at AFFF Area 3, Transect 8, AFFF Area 1, and Site 7 as shown on Figure 9 in Appendix A. Further to the southwest, groundwater flow turns more east-southeast at Transects 11, 12, and 14 and apparently migrates off COSMA property along the southwest boundary.

PFOA and combined PFOS and PFOA were detected at concentrations above the EPA HA in one well sampled at AFFF Area 3 during the ESI. It should be noted that PFBS, PFOS, and PFOA concentrations were below screening levels in this well when sampled during the initial SI, indicating previous AFFF releases have now impacted groundwater at Fire Station #2. Where detected, all PFBS, PFOS, and PFOA concentrations in downgradient locations (Transect 8, AFFF Area 1, IRP Site 7, Transect 11, Transect 12, and Transect 14) were below screening levels. Because there is no indication that impacted groundwater at AFFF Area 3 has migrated from the release area or off site, the human ingestion exposure pathway is incomplete based on current receptors.

8.0 CONCLUSIONS, RECOMMENDATIONS, AND INTERIM REMEDIAL MEASURES

ASL completed an ESI at Peterson AFB to further assess impacts to groundwater from four known AFFF release areas as documented in the SI (ASL, July 2017) and as detailed in the Phase 2 FSP (ASL, May 2018). The release areas were

- Fire Station #1 Building 218 – AFFF Area 2;
- Fire Station #2 Building 2032 – AFFF Area 3;
- Golf Course/Leach Field (WP006), Detention Pond #3, and Site 5 (FT002) – AFFF Area 4; and
- Current FTA – AFFF Area 5.

The ESI evaluated groundwater movement from these release areas and the potential for off-base migration of PFAS-impacted groundwater.

The ESI objectives included

- delineating PFAS in groundwater and soil (identified during the initial AFFF areas SI [ASL, July 2017]), focusing on bedrock paleochannels that have been identified in the Peterson AFB area (AECOM, September 2017);
- resampling the existing network of wells on base for PFAS compounds; and
- reevaluating Fire Station #2 for potential releases of AFFF.

These objectives were completed in two phases of work. The first phase of fieldwork (Odom, May 2018) included

- collecting soil samples at Fire Station #2 to further delineate PFAS-impacted soil and
- completing soil borings and collecting groundwater samples from the borings to aid in siting permanent monitoring well locations.

The second phase of fieldwork included

- installing 21 monitoring wells at 11 paleochannel transects and
- sampling 60 of 62 monitoring wells, including 24 wells installed prior to the initial AFFF SI to assess non-PFAS-related sites, 16 wells installed during the initial AFFF SI, and 20 wells installed during Phase 2 of the ESI (one well installed during the initial SI and one well installed during the ESI were dry and could not be sampled).

All samples were analyzed for PFBS, PFOA, and PFOS using modified EPA Method 537. Groundwater PFBS analytical results were compared to the published EPA RSL of 40 µg/L. Individual and combined PFOS and PFOA groundwater analytical results were compared to the EPA HA of 0.07 µg/L.

A brief summary of key findings and conclusions (focusing on PFOS and PFOA) are in this section. PFBS was not detected above screening levels in any groundwater samples collected.

8.1 BROADWAY ALLUVIUM PALEOVALLEY

AFFF Areas 2, 4, and 5 are within the Broadway Alluvium paleovalley, and Transects 1, 2, 3, 4, 5, 7, and 13 were installed within Broadway Alluvium paleochannels. A summary of previous and current ESI findings for each AFFF release area and its associated transects is presented in this section, beginning with the current FTA (AFFF Area 5) and continuing downgradient to Fire Station #1 (AFFF Area 2) and Golf Course/Leach Field (WP006), Detention Pond #3, and Site 5 (FT002) (AFFF Area 4).

8.1.1 Current Fire Training Area (AFFF Area 5)

AFFF was used frequently during training exercises at the FTA, which includes a burn pit with a dual HDPE liner and a mock aircraft. Although no releases of AFFF were reported during the PA, the CDPHE requested that the FTA be included in the SI process to confirm that previous use of AFFF had not resulted in releases to the environment.

During the initial SI, combined PFOS and PFOA concentrations exceeded the EPA HA in two groundwater samples collected at the current FTA at estimated concentrations of 3.24 µg/L and 15 µg/L. In addition, combined PFOS and PFOA was detected at a concentration of 88.4 µg/L in a third groundwater sample collected by others in November 2017 (Recker, November 2016).

PFOS and PFOA were detected in each of 11 groundwater samples collected at or near the current FTA during the ESI with combined PFOS and PFOA concentrations exceeding the EPA HA in nine samples (at concentrations ranging from an estimated 0.134 µg/L to 174 µg/L).

Based on potentiometric surface contours developed from water level measurements collected during the ESI, impacted groundwater initially migrates from the FTA to the southeast before turning south and finally south/southwest toward the COSMA boundary.

8.1.2 Transects 1, 2, and 3

PFOS and PFOA were not detected in one groundwater sample collected upgradient from the FTA at Transect 2, indicating the former Cherokee WWTP is not a significant source of PFAS impacts to groundwater. Combined PFOS and PFOA concentrations exceeded the EPA HA in groundwater at Transect 1 at concentrations of an estimated 0.127 µg/L and 0.091 µg/L, indicating possible impacts to Sand Creek. Combined PFOS and PFOA also exceeded the EPA HA at Transect 3 (at a concentration of 4.05 µg/L), indicating impacted groundwater is migrating from the FTA to the south/southeast.

8.1.3 Fire Station #1 (AFFF Area 2)

AFFF was released to the environment at Fire Station #1 during spray testing conducted over a volleyball court during freezing weather to avoid icing the concrete ramp. During the initial SI, combined PFOS and PFOA concentrations in two groundwater samples exceeded the EPA HA at estimated concentrations of 0.178 µg/L and 0.077 µg/L. During the ESI, the combined PFOS and PFOA concentration decreased to an estimated concentration of 0.0663 µg/L (below the EPA HA) in one well and increased to 0.287 µg/L (remaining above the EPA HA) in the other well.

Based on potentiometric surface contours developed from water level measurements collected during the ESI, impacted groundwater migrates from Fire Station #1 to the south-southwest toward the COSMA boundary.

8.1.4 Transects 4 and 5

PFOS and PFOA were detected at concentrations above the EPA HA in groundwater samples collected at both Transects 4 and 5. Impacted shallow groundwater from AFFF Area 5 is migrating to the south-southeast to Transect 4. From Transect 4, groundwater flows south-southwest toward the western COSMA boundary. Shallow groundwater at Transect 5 has been impacted by PFOS and PFOA, and AFFF Area 2 may be the source. Groundwater from Transect 5 is migrating south toward the PFOS and PFOA plume migrating from AFFF Area 4.

8.1.5 Golf Course/Leach Field (WP006), Detention Pond #3, and Site 5 (FT002) (AFFF Area 4)

AFFF Area 4 includes the golf course/leach field, Detention Pond #3, and Site 5. PFAS releases at the sites included

- likely discharge of PFAS-impacted wastewater to the leach field,
- irrigation at the golf course using PFAS-impacted surface water from Detention Pond #3,
- historical discharge of PFAS-impacted stormwater to the original unlined Pond #3, and
- discharge of PFAS-impacted storm water from existing Detention Pond #3 to unlined COSMA detention pond.

During the initial SI, combined PFOS and PFOA concentrations in groundwater samples collected from five wells at AFFF Area 4 exceeded the EPA HA at estimated concentrations ranging from 0.079 µg/L to 0.98 µg/L. At least one well associated with each site at Area 4 was impacted by PFAS at concentrations above the EPA HA, indicating releases likely occurred at each site.

During the ESI, combined PFOS and PFOA concentrations in groundwater samples collected from three of 14 wells sampled exceeded the EPA HA at concentrations ranging from an estimated 0.085 µg/L to 0.67 µg/L. Groundwater flows to the southwest at AFFF Area 4, and impacted groundwater may be flowing off site along the southwestern COSMA boundary. PFOA and PFOS were detected in the surface water sample at Pond #2 on the golf course at a combined concentration above the EPA HA of 0.07 µg/L and may represent an ongoing source for groundwater impacts.

8.1.6 Transects 7 and 13

PFOS and PFOA were detected at concentrations above the EPA HA in groundwater samples collected at Transects 7 and 13. Impacted shallow groundwater from AFFF Area 4 is migrating southwest to Transect 7, continues to Transect 13, and may be migrating off site at the southwestern COSMA boundary.

8.1.7 Conclusions and Recommendations

Given that impacted groundwater is apparently migrating off site along the southwestern COSMA boundary and the fact that both private and municipal drinking water wells are within a 4-mile radius and downgradient from the base as shown on Figure 12 in Appendix A, the human ingestion (drinking water) pathway for impacted groundwater from AFFF Areas 2, 4, and 5 (and the Broadway Alluvium paloeochannel) is complete. A remedial investigation to further assess impacted groundwater at and migrating from AFFF Areas 2, 4, and 5 is recommended. Off-site remedial measures to address drinking water impacts are discussed further in Section 8.3.

8.2 WINDMILL GULCH PALEOVALLEY

8.2.1 Fire Station #2 (AFFF Area 3)

Time and distance tests were conducted periodically at Fire Station #2 from 1996 until 2016. Testing was typically conducted on the west side of the fire station along the airport access road. PFOS was first detected above the 126 µg/kg screening level in one surface soil sample (0- to 1-foot depth) at a concentration of 2,400 µg/kg (ASL, July 2017). During subsequent sampling in Phase 1 of the ESI, PFOS was detected in both surface soil samples and subsurface soil samples (9 to 10 feet) at concentrations ranging from 150 µg/kg to 800 µg/kg (Odom, May 2018).

PFOS and PFOA were not detected above the EPA HA in groundwater during the initial SI. PFOA and combined PFOS and PFOA were, however, detected above the EPA HA at one well during ESI sampling at concentrations of 0.079 µg/L and an estimated 0.092 µg/L, respectively. Groundwater flows to the southwest at AFFF Area 3 toward Transect 8. PFOS, PFOA, and combined PFOS and PFOA were not detected in groundwater at Transect 8.

8.2.2 Site 8 (AFFF Area 1)

IRP Site 8, a former FTA, was active from 1977 until late 1991 or early 1992. AFFF was apparently used at the FTA, as evidenced by low detections of PFOA and PFOS in soil and groundwater detected during the initial SI; however, all concentrations were below screening levels. AFFF Area 1 wells were resampled during the ESI, confirming that groundwater has not been impacted above screening levels. PFOS and PFOA were not detected in any of the three samples.

8.2.3 IRP Site 7 and Downgradient AFFF Area 4 Wells

Where detected in groundwater, PFOS, PFOA, and combined PFOS and PFOA concentrations were below screening levels in IRP Site 7 and downgradient AFFF Area 4 wells.

8.2.4 Transects 8, 11, 12, and 14

Where detected in groundwater, PFOS, PFOA, and combined PFOS and PFOA concentrations were below screening levels in Transect 8, 11, 12, and 14 wells.

8.2.5 Conclusions and Recommendations

PFOS impacts to soil and PFOS and PFOA impacts to groundwater at AFFF Area 3 appear to be limited to the immediate Fire Station #2 area, and the Windmill Gulch paleovalley is currently not a pathway for off-site migration of impacted groundwater (above screening levels). However, given that PFOS-impacted soil detected at AFFF Area 3 has not been fully delineated and groundwater has now been impacted at Area 3 (in one monitoring well), an RI is recommended.

8.3 OFF-SITE INTERIM REMEDIAL MEASURES TO ADDRESS IMPACTED DRINKING WATER

Off-base sampling of private and municipal drinking water wells south of Peterson AFB (by others) has indicated the presence of PFOS and PFOA at concentrations above the EPA HA. The USAF has completed and/or funded several interim remedial measures to protect human health. These measures include

- providing bottled water for private well owners whose wells have been impacted by PFOS/PFOA above the EPA HA but are awaiting a treatment system or have refused a treatment system,
- installing reverse osmosis units under the kitchen sink in 27 homes with private wells where PFOS and PFOA concentrations are above the EPA HA,
- installing ion exchange systems at two water districts to treat PFOS/PFOA-impacted groundwater above the EPA HA,
- connecting two additional wells to the Widefield ion exchange system and funding an ion exchange system for its five other wells,
- purchasing replacement water for Security until a 6,800 gallons per minute (gpm) ion exchange system can be installed for 24 impacted wells,

- installing two 500 gpm GAC systems and funding a 1,500 gpm ion exchange system to treat groundwater from four city of Fountain wells impacted by PFOS/PFOA,
- installing a 300 gpm ion exchange system for Stratmoor Hills and a 50 gpm ion exchange system for Security Mobile Home Park, and
- connecting a church whose well has been impacted to city water.

9.0 REFERENCES

AECOM, September 2017. Technical Memorandum From: Elizabeth Larsen, AECOM and Ryan Samuels, AECOM, To: Sharon Stone, Peterson AFB (AFCEC/CZO) and John Gillespie, AFCEC/CZTE. Subject: Peterson Air Force Base Conceptual Site Model, Colorado Springs, Colorado.

Aerostar SES LLC (ASL), March 2016. *Final Uniform Federal Policy (UFP) Quality Assurance Project Plan (QAPP) for Site Inspection of Aqueous Film Forming Foam Areas, Multiple Sites, United States Air Force Installations*.

ASL, October 2016. *Final Uniform Federal Policy (UFP) Quality Assurance Project Plan (QAPP) for Site Inspection of Aqueous Film Forming Foam Areas, Multiple Sites, United States Air Force Installations Addendum 8 Field Sampling Plan for Peterson Air Force Base El Paso County, Colorado*.

ASL, November 2016. *Revised Final Preliminary Assessment Report for Perfluorinated Compounds at Peterson Air Force Base, El Paso County, Colorado*.

ASL, July 2017. *Final Site Inspection Report of Aqueous Film Forming Foam Areas at Peterson Air Force Base, El Paso County, Colorado*.

ASL, November 2017. *Final Expanded Site Inspection Field Sampling Plan; Attachment 1 to Final Uniform Federal Policy (UFP) Quality Assurance Project Plan (QAPP) for Site Inspection of Aqueous Film Forming Foam Areas, Multiple Sites, United States Air Force Installations Addendum 8 Field Sampling Plan for Peterson Air Force Base El Paso County, Colorado*.

ASL, March 2018. *Final Revised Investigation Derived Waste Management Guidance Attachment 2 to Final Uniform Federal Policy (UFP) Quality Assurance Project Plan (QAPP) for Site Inspections of Aqueous Film Forming Foam Areas, Multiple Sites, United States Air Force Installations Addendum 8, Field Sampling Plan for Peterson Air Force Base El Paso County, Colorado.*

ASL, May 2018. *Final Expanded Site Inspection Phase 2 Field Sampling Plan; Attachment 3 to Final Uniform Federal Policy (UFP) Quality Assurance Project Plan (QAPP) for Site Inspection of Aqueous Film Forming Foam Areas, Multiple Sites, United States Air Force Installations Addendum 8 Field Sampling Plan for Peterson Air Force Base El Paso County, Colorado*.

Blanche, Matthew J. Letter to Frank Melville, February 1998. *Dye Tracer Services Firefighter Training Area Peterson Air Force Base, Colorado*.

City of Fountain Website, 2018. Accessed November 15, 2018. https://www.fountaincolorado.org/government/city_departments___divisions/utilities/utilities_departments/water/water_projects/fountain_installs_second_water_treatment_unit_from

Colorado Department of Natural Resources Division of Water Resources Well Permit Search https://dnrweb.state.co.us/cdss/WellPermits?, Accessed October 16, 2018.

Colorado Geological Survey, 2002. *Open File Report 02-2 Geologic Map of the Elsmere Quadrangle, El Paso County, Colorado, by Richard F. Madole and Jon P. Thorson.*

Colorado Springs Utilities (CSU), 2016. *2016 Water Tour, History: Colorado Springs' Water Collection System*. https://www.csu.org/csudocuments/watertour.pdf

CSU, 2018. 2017 Drinking Water Quality Report Public Water System I.D. CO0121150. https://www.csu.org/CSUDocuments/waterqualityreport2017.pdf

CSU, 2017. 2017 Water Quality Report Information for: Peterson Air Force Base (PWSID # CO0121605), et al. https://www.peterson.af.mil/Portals/15/documents/AboutUs/2017%20CSU%20Water%20Qual%20report.pdf?ver=2017-06-12-135021-490

EPA, May 2016a. *"Drinking Water Health Advisory for Perfluorooctane Sulfonate (PFOS)."*

EPA, May 2016b. *"Drinking Water Health Advisory for Perfluorooctanoic Acid (PFOA)."*

EPA, November 2018. *Regional Screening Level (RSL) Summary Table.* (https://semspub.epa.gov/work/HQ/197416.pdf)

Odom, Brian (ASL), letter to Sharon Stone (AFCEC), May 4, 2018. *Final Expanded Site Inspection Report of Aqueous Film Forming Foam Areas, Phase 1 Findings and Proposed Phase 2 Monitoring Well Locations, Peterson Air Force Base, El Paso, County, Colorado.*

Peterson Air Force Base (PAFB), November 2016. *Talking Paper On Fire Pit Training Closed Loop Water System*.

Recker, Benjamin C. letter to Frederick Brooks, November 2016. *Sample Analysis Results for Perfluorinated Hydrocarbons at the Peterson Air Force Base Fire Training Area (FTA).*

Security Water District, 2018. Water Quality Report for Calendar Year 2017. https://securitywsd.com/wp-content/uploads/2018/05/Security_CCR_2017.pdf

Science Applications International Corporation (SAIC), September 1989. *U.S. Air Force Installation Restoration Program Remedial Investigation/Feasibility Study at Peterson AFB, CO; Final Remedial Investigation Report Volume 1 Technical Report.*

Stratmoor Hills Water and Sanitation Districts (WSD), 2018. "Stratmoor Hills WSD 2018 Drinking Water Quality Report for Calendar Year 2017."

U.S. Army Corps of Engineers (USACE) Omaha District, July 2015. *Performance Work Statement for Site Inspection of Aqueous Film Forming Areas, Multiple Sites, United States Air Force Installations.*

USACE Omaha District, September 2017. *Performance Work Statement for Site Inspection of Aqueous Film Forming Areas, Multiple Sites, United States Air Force Installations*. Modification #1.

U.S. Air Force, August 2012. *Interim AF Guidance on Sampling and Response Actions for Perfluorinated Compounds at Active and BRAC Installations.*

USACE Omaha District and Bay West, March 2018. *Final Site-Specific Final Report, Munitions Response Sites SR501, SR501a, SR501c, and SR501d, Military Munitions Response Program, Peterson Air Force Base, Colorado.*

U.S. Army Corps of Engineers (USACE), June 2013. Geology Supplement to the Scope of Services.

Widefield Water and Sanitation District (WWSD), 2018. *2018 Drinking Water Quality Report For Calendar Year 2017*. https://evogov.s3.amazonaws.com/media/4/media/130816.pdf

Appendix A

Figures

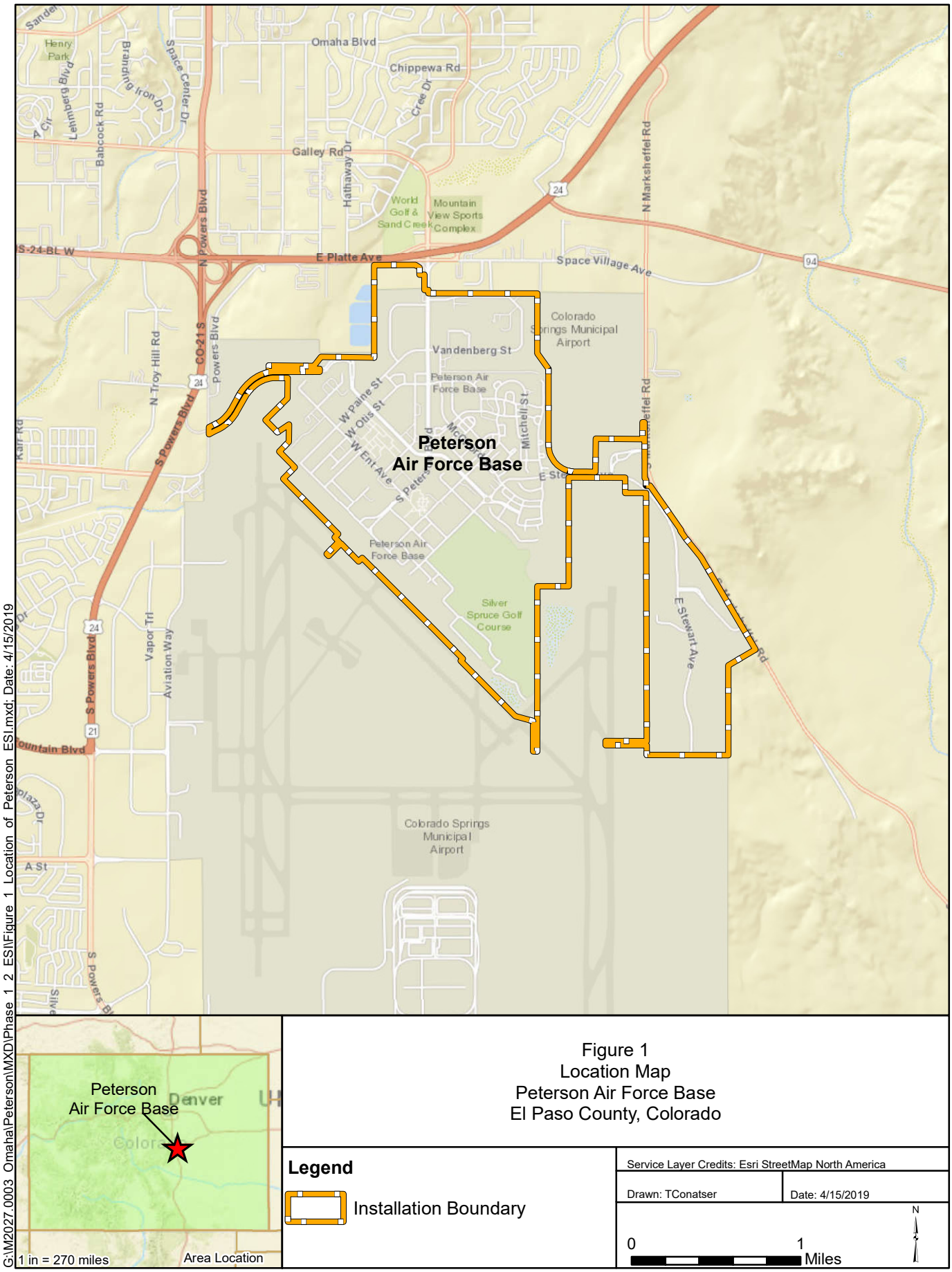


Figure 1
Location Map
Peterson Air Force Base
El Paso County, Colorado

Legend

Installation Boundary

Service Layer Credits: Esri StreetMap North America

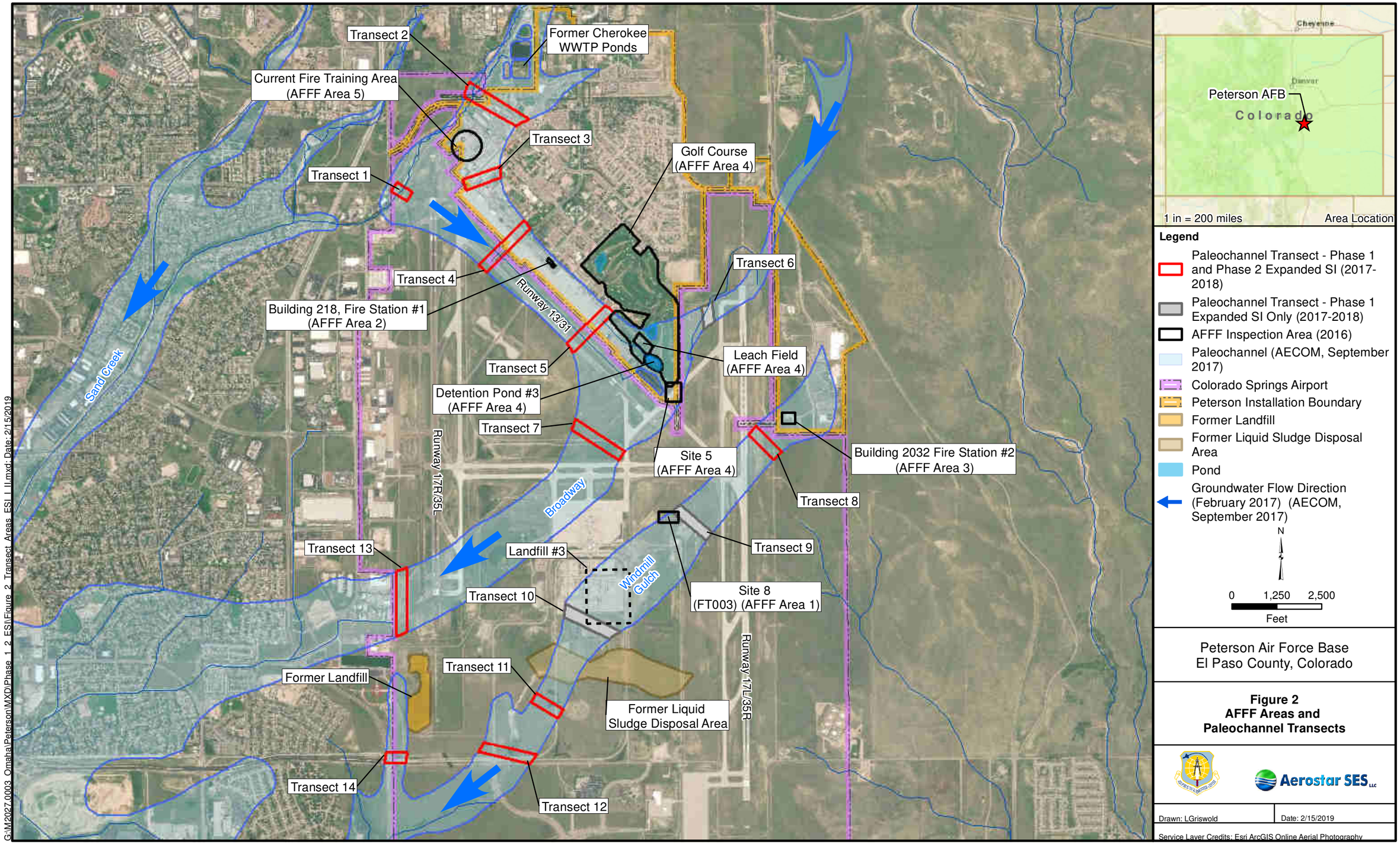
Drawn: TConatser

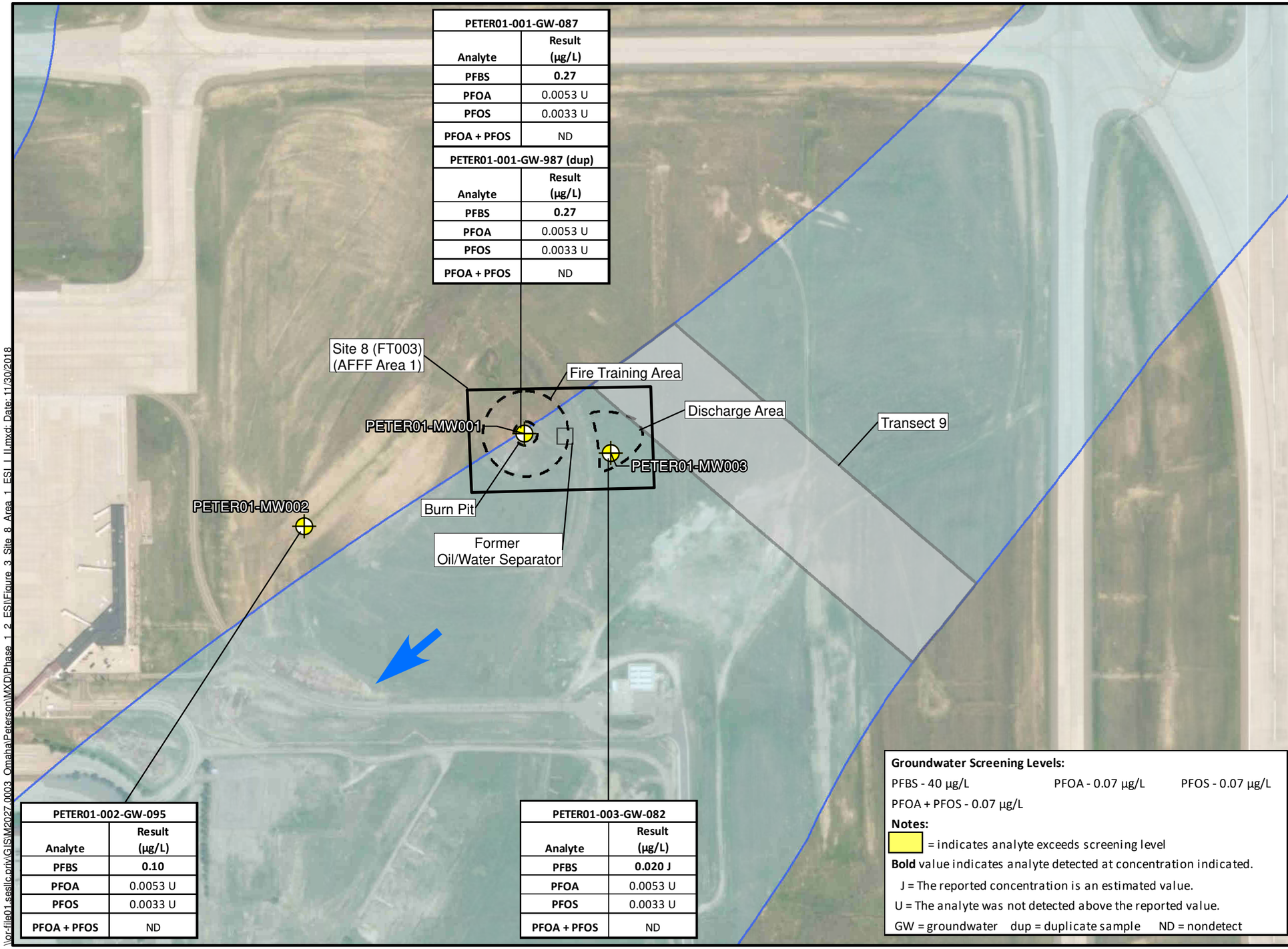
Date: 4/15/2019

0 1 Miles

N

G:\M2027.0003_Omaha\Peterson\MXD\Phase_1_2_ESI\Figure_1_Location_of_Peterson_ESI.mxd; Date: 4/15/2019


Transect 2
Former Cherokee WWTP Ponds
Current Fire Training Area (AFFF Area 5)
Transect 3
Golf Course (AFFF Area 4)
Transect 1
Transect 6
Transect 4
Building 218, Fire Station #1 (AFFF Area 2)
Runway 13/31
Leach Field (AFFF Area 4)
Transect 5
Detention Pond #3 (AFFF Area 4)
Transect 7
Sand Creek
Runway 17R/35L
Site 5 (AFFF Area 4)
Building 2032 Fire Station #2 (AFFF Area 3)
Broadway
Transect 8
Transect 9
Transect 13
Landfill #3
Windmill Gulch
Site 8 (FT003) (AFFF Area 1)
Transect 10
Runway 17L/35R
Transect 11
Former Landfill
Former Liquid Sludge Disposal Area
Transect 14
Transect 12
Cheyenne
Denver
Peterson AFB
Colorado
1 in = 200 miles
Area Location
Legend
Paleochannel Transect - Phase 1 and Phase 2 Expanded SI (2017-2018)
Paleochannel Transect - Phase 1 Expanded SI Only (2017-2018)
AFFF Inspection Area (2016)
Paleochannel (AECOM, September 2017)
Colorado Springs Airport
Peterson Installation Boundary
Former Landfill
Former Liquid Sludge Disposal Area
Pond
Groundwater Flow Direction (February 2017) (AECOM, September 2017)
N
0 1,250 2,500
Feet
Peterson Air Force Base
El Paso County, Colorado
Figure 2
AFFF Areas and Paleochannel Transects
Aerostar SES LLC
Drawn: LGriswold
Date: 2/15/2019
Service Layer Credits: Esri ArcGIS Online Aerial Photography
G:\M2027.0003_Omaha\Peterson\MXD\Phase_1_2_ESI\Figure_2_Transect_Areas_ESI_I_II.mxd; Date: 2/15/2019



PETER01-001-GW-087	
Analyte	Result (µg/L)
PFBS	**0.27**
PFOA	0.0053 U
PFOS	0.0033 U
PFOA + PFOS	ND

PETER01-001-GW-987 (dup)	
Analyte	Result (µg/L)
PFBS	**0.27**
PFOA	0.0053 U
PFOS	0.0033 U
PFOA + PFOS	ND

PETER01-002-GW-095	
Analyte	Result (µg/L)
PFBS	**0.10**
PFOA	0.0053 U
PFOS	0.0033 U
PFOA + PFOS	ND

PETER01-003-GW-082	
Analyte	Result (µg/L)
PFBS	**0.020 J**
PFOA	0.0053 U
PFOS	0.0033 U
PFOA + PFOS	ND

Groundwater Screening Levels:

PFBS - 40 µg/L PFOA - 0.07 µg/L PFOS - 0.07 µg/L

PFOA + PFOS - 0.07 µg/L

Notes:

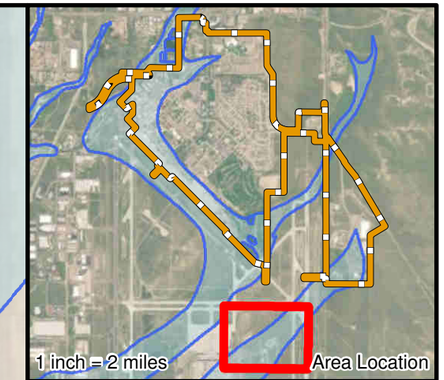
= indicates analyte exceeds screening level

Bold value indicates analyte detected at concentration indicated.

J = The reported concentration is an estimated value.

U = The analyte was not detected above the reported value.

GW = groundwater dup = duplicate sample ND = nondetect



Legend

- Monitoring Well (Installed and Sampled 2016)
- AFFF Inspection Area (2016)
- Paleochannel Transect - Phase 1 Expanded SI Only (2017-2018)
- Paleochannel (AECOM, September 2017)
- Installation Boundary
- Groundwater Flow Direction (2016)

N

0 150 300
Feet

Peterson Air Force Base
El Paso County, Colorado

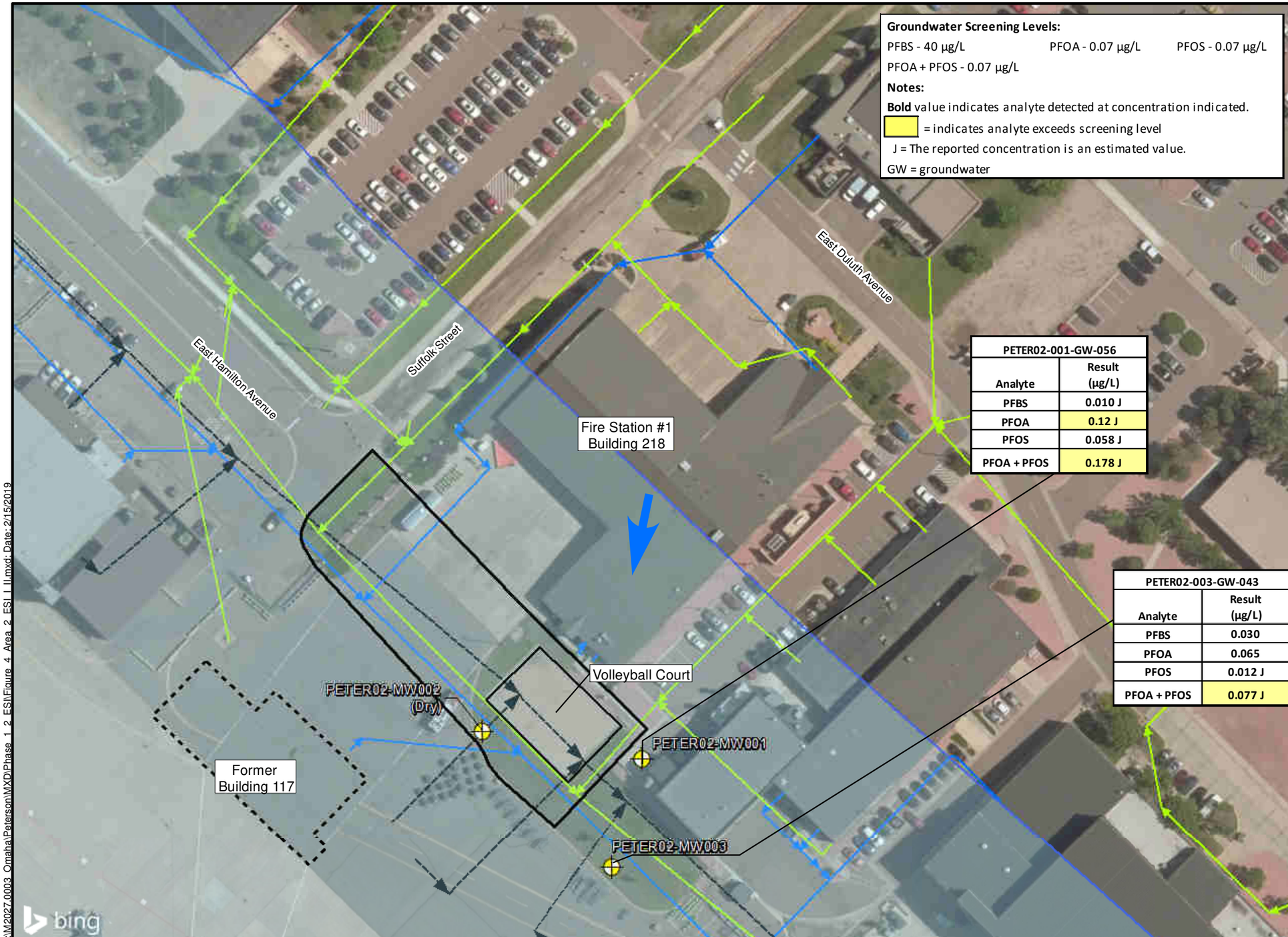
Figure 3
Site 8 (FT003) (AFFF Area 1)
PFBS, PFOA, and PFOS
in Groundwater
(2016 Analytical Results)

Aerostar SES LLC

Drawn: LGriswold Date: 11/30/2018

Service Layer Credits: Esri ArcGIS Online Aerial Photography

\\or-file01.seslic.priv\GIS\M2027.0003_Omaha\Peterson\MXD\Phase_1_2_ESI\Figure_3_Site_8_Area_1_ESI_LL.mxd; Date: 11/30/2018



Groundwater Screening Levels:

PFBS - 40 µg/L PFOA - 0.07 µg/L PFOS - 0.07 µg/L

PFOA + PFOS - 0.07 µg/L

Notes:

Bold value indicates analyte detected at concentration indicated.

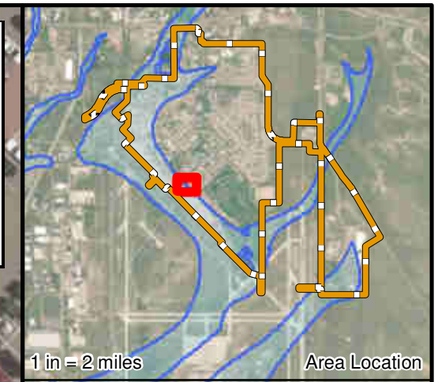
= indicates analyte exceeds screening level

J = The reported concentration is an estimated value.

GW = groundwater

PETER02-001-GW-056	
Analyte	Result (µg/L)
PFBS	0.010 J
PFOA	0.12 J
PFOS	0.058 J
PFOA + PFOS	0.178 J

PETER02-003-GW-043	
Analyte	Result (µg/L)
PFBS	0.030
PFOA	0.065
PFOS	0.012 J
PFOA + PFOS	0.077 J



Legend

- Monitoring Well (Installed and Sampled 2016)
- AFFF Inspection Area (2016)
- Paleochannel (AECOM, September 2017)
- Storm Sewer (Underground)
- Industrial Waste Line
- Wastewater Line
- Installation Boundary
- Groundwater Flow Direction (2016) (ASL, July 2017)

N

0 35 70

Feet

Peterson Air Force Base
El Paso County, Colorado

Figure 4
Fire Station #1 - Building 218
(AFFF Area 2) PFBS, PFOA, and PFOS in Groundwater
(2016 Analytical Results)

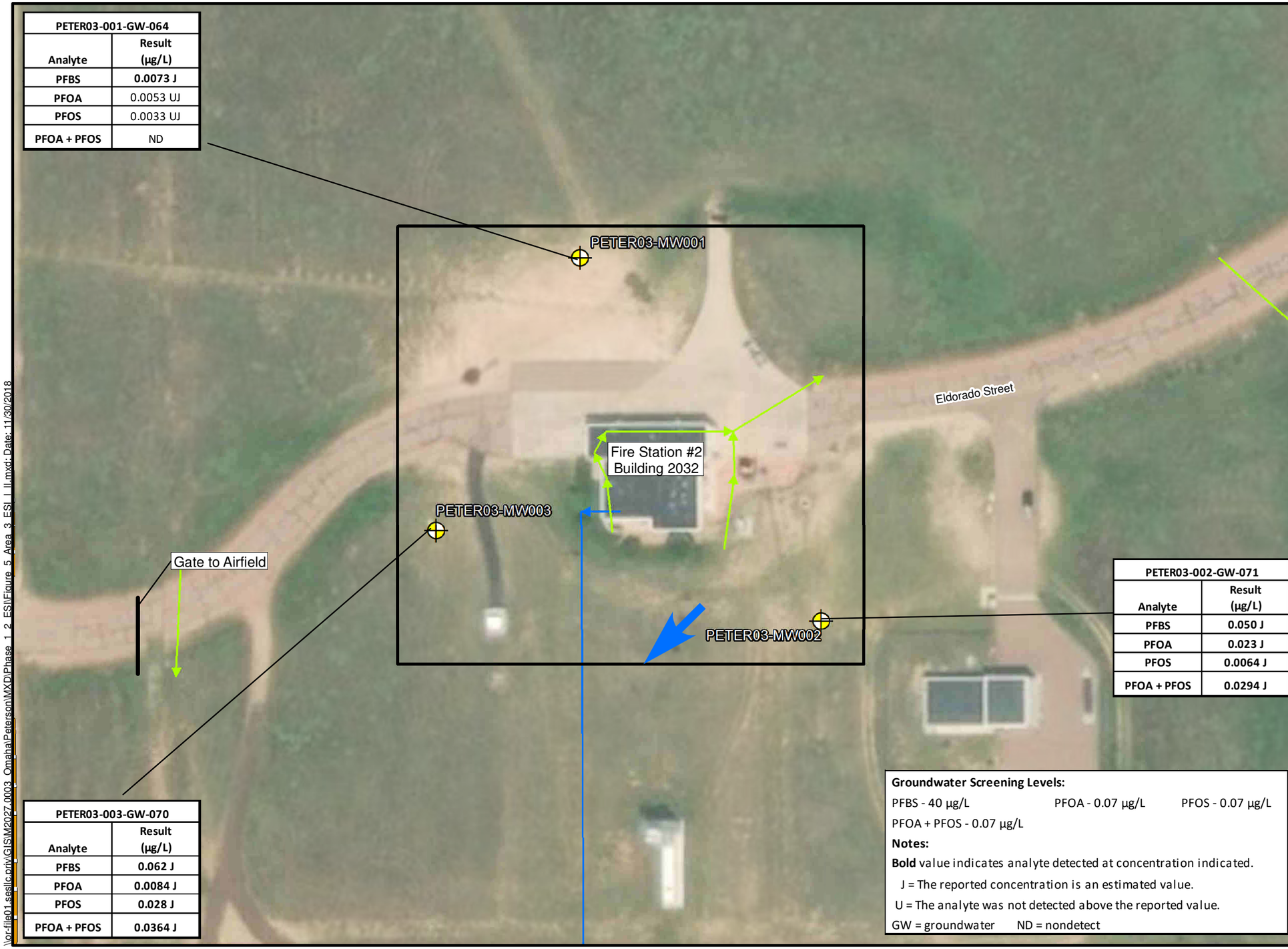
Aerostar SES LLC

Drawn: LGriswold

Date: 2/15/2019

Service Layer Credits: Esri ArcGIS Online Aerial Photography

G:\M2027.0003_Omaha\Peterson\MXD\Phase_1_2_ESI\Figure_4_Area_2_ESI_I_II.mxd; Date: 2/15/2019



PETER03-001-GW-064	
Analyte	Result (µg/L)
PFBS	**0.0073 J**
PFOA	0.0053 UJ
PFOS	0.0033 UJ
PFOA + PFOS	ND

PETER03-002-GW-071	
Analyte	Result (µg/L)
PFBS	**0.050 J**
PFOA	**0.023 J**
PFOS	**0.0064 J**
PFOA + PFOS	**0.0294 J**

PETER03-003-GW-070	
Analyte	Result (µg/L)
PFBS	**0.062 J**
PFOA	**0.0084 J**
PFOS	**0.028 J**
PFOA + PFOS	**0.0364 J**

Groundwater Screening Levels:

PFBS - 40 µg/L PFOA - 0.07 µg/L PFOS - 0.07 µg/L

PFOA + PFOS - 0.07 µg/L

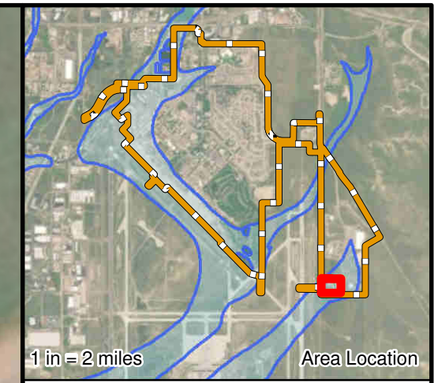
Notes:

Bold value indicates analyte detected at concentration indicated.

J = The reported concentration is an estimated value.

U = The analyte was not detected above the reported value.

GW = groundwater ND = nondetect



Legend

- Monitoring Well (Installed and Sampled 2016)
- Storm Sewer (Underground)
- Wastewater Line (Underground)
- Groundwater Flow Direction (2016)
- AFFF Inspection Area (2016)
- Installation Boundary
- Paleochannel (AECOM, September 2017)

Note: Area shown falls within the Windmill Gulch Paleochannel.

N

0 35 70

Feet

Peterson Air Force Base
El Paso County, Colorado

Figure 5
Fire Station #2 Building 2032 (AFFF Area 3) PFBS, PFOA, and PFOS in Groundwater (2016 Analytical Results)

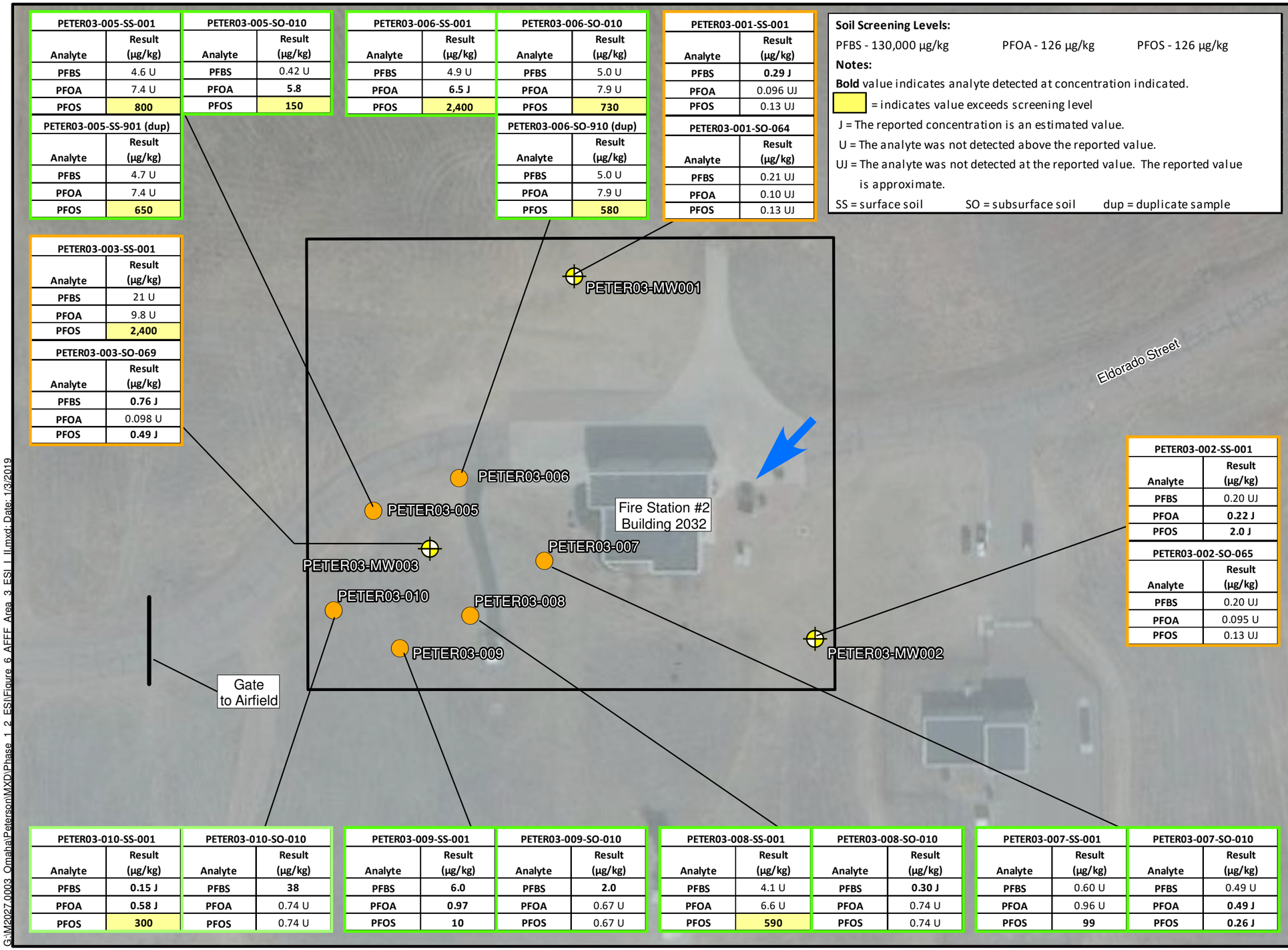
Aerostar SES LLC

Drawn: LGriswold

Date: 11/30/2018

Service Layer Credits: Esri ArcGIS Online Aerial Photography

\\orfile01.sesllc.priv\GIS\M2027.0003_Omaha\Peterson\MXD\Phase_1_2_ESI\Figure_5_Area_3_ESI_I_II.mxd; Date: 11/30/2018



PETER03-005-SS-001	
Analyte	Result (µg/kg)
PFBS	4.6 U
PFOA	7.4 U
PFOS	800

PETER03-005-SO-010	
Analyte	Result (µg/kg)
PFBS	0.42 U
PFOA	5.8
PFOS	150

PETER03-005-SS-901 (dup)	
Analyte	Result (µg/kg)
PFBS	4.7 U
PFOA	7.4 U
PFOS	650

PETER03-006-SS-001	
Analyte	Result (µg/kg)
PFBS	4.9 U
PFOA	6.5 J
PFOS	2,400

PETER03-006-SO-010	
Analyte	Result (µg/kg)
PFBS	5.0 U
PFOA	7.9 U
PFOS	730

PETER03-006-SO-910 (dup)	
Analyte	Result (µg/kg)
PFBS	5.0 U
PFOA	7.9 U
PFOS	580

PETER03-001-SS-001	
Analyte	Result (µg/kg)
PFBS	0.29 J
PFOA	0.096 UJ
PFOS	0.13 UJ

PETER03-001-SO-064	
Analyte	Result (µg/kg)
PFBS	0.21 UJ
PFOA	0.10 UJ
PFOS	0.13 UJ

PETER03-003-SS-001	
Analyte	Result (µg/kg)
PFBS	21 U
PFOA	9.8 U
PFOS	2,400

PETER03-003-SO-069	
Analyte	Result (µg/kg)
PFBS	0.76 J
PFOA	0.098 U
PFOS	0.49 J

PETER03-002-SS-001	
Analyte	Result (µg/kg)
PFBS	0.20 UJ
PFOA	0.22 J
PFOS	2.0 J

PETER03-002-SO-065	
Analyte	Result (µg/kg)
PFBS	0.20 UJ
PFOA	0.095 U
PFOS	0.13 UJ

PETER03-010-SS-001	
Analyte	Result (µg/kg)
PFBS	0.15 J
PFOA	0.58 J
PFOS	300

PETER03-010-SO-010	
Analyte	Result (µg/kg)
PFBS	38
PFOA	0.74 U
PFOS	0.74 U

PETER03-009-SS-001	
Analyte	Result (µg/kg)
PFBS	6.0
PFOA	0.97
PFOS	10

PETER03-009-SO-010	
Analyte	Result (µg/kg)
PFBS	2.0
PFOA	0.67 U
PFOS	0.67 U

PETER03-008-SS-001	
Analyte	Result (µg/kg)
PFBS	4.1 U
PFOA	6.6 U
PFOS	590

PETER03-008-SO-010	
Analyte	Result (µg/kg)
PFBS	0.30 J
PFOA	0.74 U
PFOS	0.74 U

PETER03-007-SS-001	
Analyte	Result (µg/kg)
PFBS	0.60 U
PFOA	0.96 U
PFOS	99

PETER03-007-SO-010	
Analyte	Result (µg/kg)
PFBS	0.49 U
PFOA	0.49 J
PFOS	0.26 J

Soil Screening Levels:

PFBS - 130,000 µg/kg PFOA - 126 µg/kg PFOS - 126 µg/kg

Notes:

Bold value indicates analyte detected at concentration indicated.

= indicates value exceeds screening level

J = The reported concentration is an estimated value.

U = The analyte was not detected above the reported value.

UJ = The analyte was not detected at the reported value. The reported value is approximate.

SS = surface soil SO = subsurface soil dup = duplicate sample

Legend

- DPT Boring Surface Soil and Subsurface Soil Samples
- Monitoring Well with Surface and Subsurface Soil Samples (2016 SI)
- AFFF Inspection Area (2016)
- Installation Boundary
- Groundwater Flow Direction (2016)
- Analytical Results (2016)
- Analytical Results (2017)
- Paleochannel (AECOM, September 2017)

Note: Area shown falls within the Windmill Gulch Paleochannel.

N

0 45 90

Feet

Peterson Air Force Base
El Paso County, Colorado

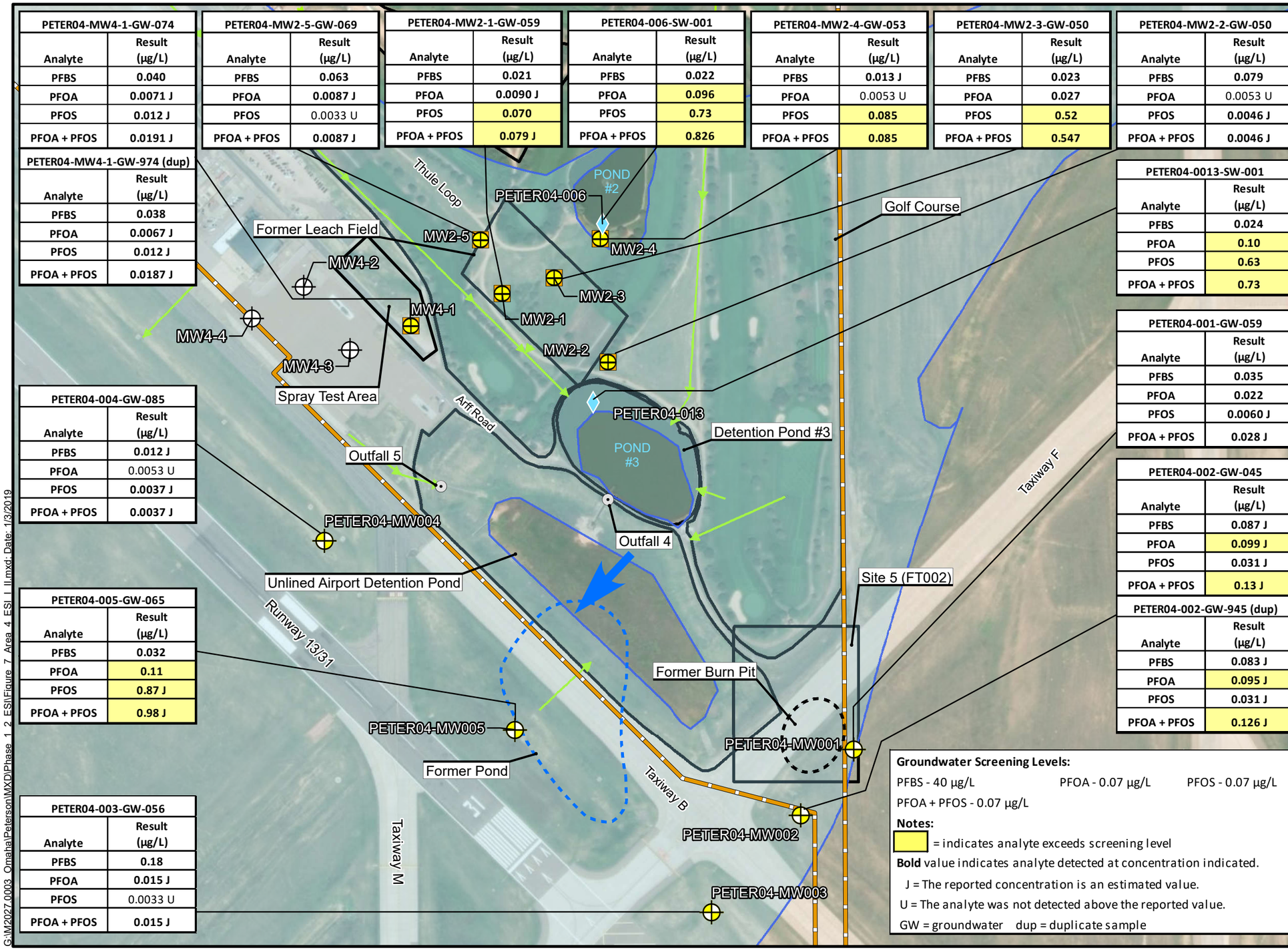
Figure 6
Fire Station #2 Building 2032
(AFFF Area 3) - PFBS, PFOA, and PFOS in Soil
(2016 and 2017 Analytical Results)

Aerostar SES LLC

Drawn: tmorse Date: 1/3/2019

Service Layer Credits: Esri ArcGIS Online Aerial Photography

G:\M2027.0003_Omaha\Peterson\MXD\Phase_1_2_ESI\Figure_6_AFFF_Area_3_ESI_I_II.mxd; Date: 1/3/2019



PETER04-MW4-1-GW-074	
Analyte	Result (µg/L)
PFBS	0.040
PFOA	0.0071 J
PFOS	0.012 J
PFOA + PFOS	0.0191 J

PETER04-MW4-1-GW-974 (dup)	
Analyte	Result (µg/L)
PFBS	0.038
PFOA	0.0067 J
PFOS	0.012 J
PFOA + PFOS	0.0187 J

PETER04-MW2-5-GW-069	
Analyte	Result (µg/L)
PFBS	0.063
PFOA	0.0087 J
PFOS	0.0033 U
PFOA + PFOS	0.0087 J

PETER04-MW2-1-GW-059	
Analyte	Result (µg/L)
PFBS	0.021
PFOA	0.0090 J
PFOS	0.070
PFOA + PFOS	0.079 J

PETER04-006-SW-001	
Analyte	Result (µg/L)
PFBS	0.022
PFOA	0.096
PFOS	0.73
PFOA + PFOS	0.826

PETER04-MW2-4-GW-053	
Analyte	Result (µg/L)
PFBS	0.013 J
PFOA	0.0053 U
PFOS	0.085
PFOA + PFOS	0.085

PETER04-MW2-3-GW-050	
Analyte	Result (µg/L)
PFBS	0.023
PFOA	0.027
PFOS	0.52
PFOA + PFOS	0.547

PETER04-MW2-2-GW-050	
Analyte	Result (µg/L)
PFBS	0.079
PFOA	0.0053 U
PFOS	0.0046 J
PFOA + PFOS	0.0046 J

PETER04-0013-SW-001	
Analyte	Result (µg/L)
PFBS	0.024
PFOA	0.10
PFOS	0.63
PFOA + PFOS	0.73

PETER04-001-GW-059	
Analyte	Result (µg/L)
PFBS	0.035
PFOA	0.022
PFOS	0.0060 J
PFOA + PFOS	0.028 J

PETER04-002-GW-045	
Analyte	Result (µg/L)
PFBS	0.087 J
PFOA	0.099 J
PFOS	0.031 J
PFOA + PFOS	0.13 J

PETER04-002-GW-945 (dup)	
Analyte	Result (µg/L)
PFBS	0.083 J
PFOA	0.095 J
PFOS	0.031 J
PFOA + PFOS	0.126 J

PETER04-004-GW-085	
Analyte	Result (µg/L)
PFBS	0.012 J
PFOA	0.0053 U
PFOS	0.0037 J
PFOA + PFOS	0.0037 J

PETER04-005-GW-065	
Analyte	Result (µg/L)
PFBS	0.032
PFOA	0.11
PFOS	0.87 J
PFOA + PFOS	0.98 J

PETER04-003-GW-056	
Analyte	Result (µg/L)
PFBS	0.18
PFOA	0.015 J
PFOS	0.0033 U
PFOA + PFOS	0.015 J

Groundwater Screening Levels:

PFBS - 40 µg/L PFOA - 0.07 µg/L PFOS - 0.07 µg/L

PFOA + PFOS - 0.07 µg/L

Notes:

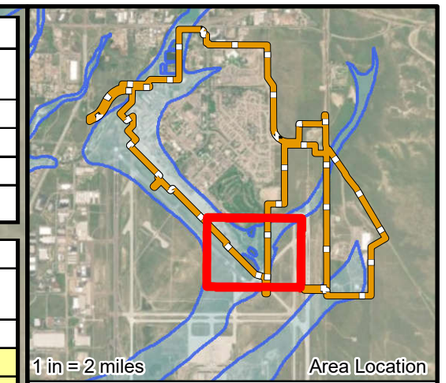
= indicates analyte exceeds screening level

Bold value indicates analyte detected at concentration indicated.

J = The reported concentration is an estimated value.

U = The analyte was not detected above the reported value.

GW = groundwater dup = duplicate sample



Legend

- Monitoring Well (Installed and Sampled 2016)
- Existing Groundwater Monitoring Well Sampled (2016)
- Surface Water Sample (2016)
- Existing Monitoring Well Not Sampled (2016)
- Outfall
- Storm Sewer (Underground)
- AFFF Inspection Area (2016)
- Installation Boundary
- Paleochannel (AECOM, September 2017)
- Groundwater Flow Direction (2016)

N

0 250 500

Feet

Peterson Air Force Base
El Paso County, Colorado

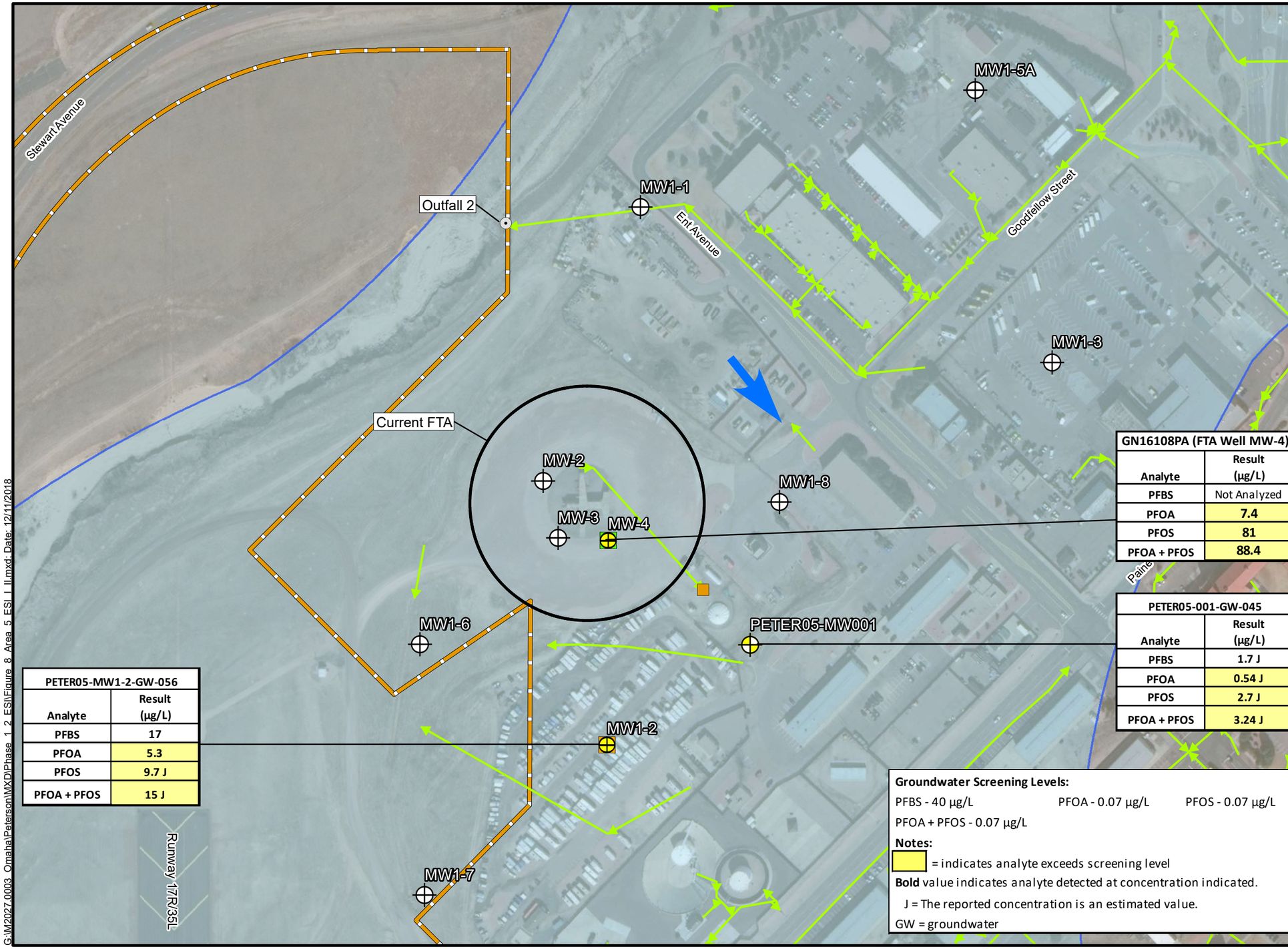
Figure 7
Golf Course/Leach Field (WP006), Detention Pond #3, and Site 5 (FT002) (AFFF Area 4) PFBS, PFOA, and PFOS in Groundwater and Surface Water (2016 Analytical Results)

Aerostar SES LLC

Drawn: tmorse Date: 1/3/2019

Service Layer Credits: Esri ArcGIS Online Aerial Photography

G:\M2027.0003_Omaha\Peterson\MXD\Phase_1_2_ESI\Figure_7_Area_4_ESI_I_II.mxd; Date: 1/3/2019



GN16108PA (FTA Well MW-4)	
Analyte	Result (µg/L)
PFBS	Not Analyzed
PFOA	7.4
PFOS	81
PFOA + PFOS	88.4

PETER05-001-GW-045	
Analyte	Result (µg/L)
PFBS	1.7 J
PFOA	0.54 J
PFOS	2.7 J
PFOA + PFOS	3.24 J

PETER05-MW1-2-GW-056	
Analyte	Result (µg/L)
PFBS	17
PFOA	5.3
PFOS	9.7 J
PFOA + PFOS	15 J

Groundwater Screening Levels:

PFBS - 40 µg/L PFOA - 0.07 µg/L PFOS - 0.07 µg/L

PFOA + PFOS - 0.07 µg/L

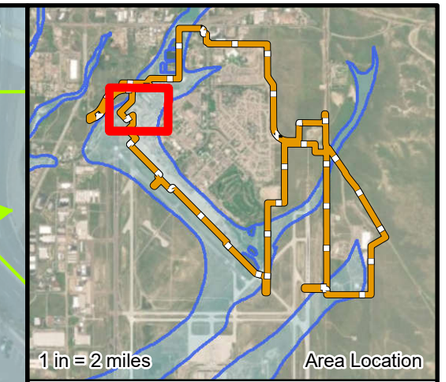
Notes:

= indicates analyte exceeds screening level

Bold value indicates analyte detected at concentration indicated.

J = The reported concentration is an estimated value.

GW = groundwater



Legend

- Monitoring Well (Installed and Sampled 2016)
- Existing Monitoring Well (Sampled 11/1/16 by Others)
- Existing Monitoring Well (Sampled in 2016)
- Existing Monitoring Well (Not Sampled in 2016)
- Outfall
- Decommissioned Oil/Water Separator
- Storm Sewer (Underground)
- Groundwater Flow Direction (2016)
- AFFF Inspection Area (2016)
- Installation Boundary
- Paleochannel (AECOM, September 2017)

N

0 100 200 300

Feet

Peterson Air Force Base
El Paso County, Colorado

Figure 8
Current Fire Training Area (AFFF Area 5) PFBS, PFOA, and PFOS in Groundwater (2016 Analytical Results)

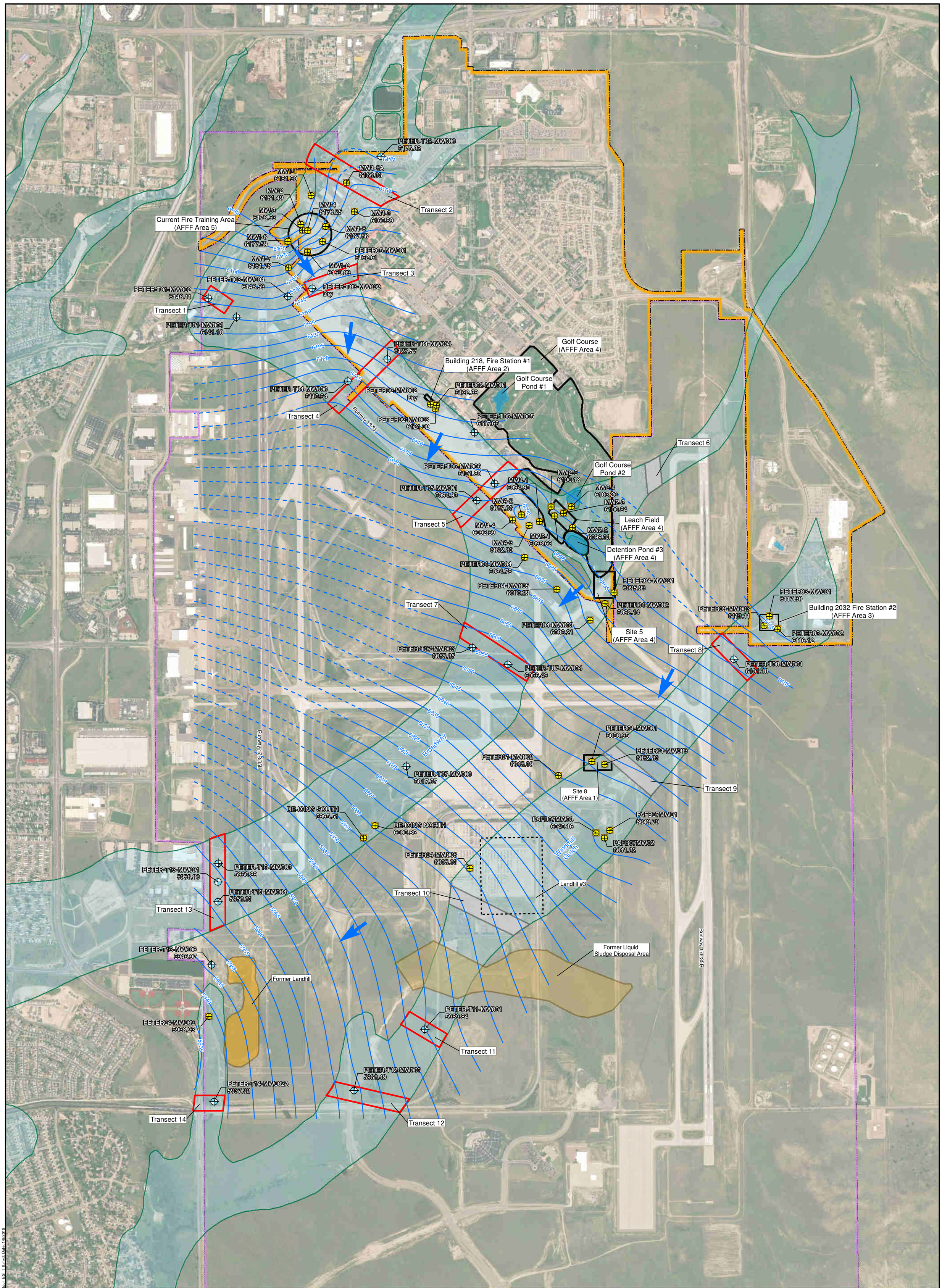
Aerostar SES LLC

Drawn: B Baxter

Date: 12/11/2018

Service Layer Credits: Esri ArcGIS Online Aerial Photography

G:\M2027.0003_Omaha\Peterson\MXD\Phase_1_2_ESI\Figure_8_Area_5_ESI_I_II.mxd; Date: 12/11/2018



Legend

New Monitoring Well

(5937.92) = Groundwater Elevation (ft NAVD 88) measured on September 12, 2018.

Existing Monitoring Well Sampled

(6087.67) = Groundwater Elevation (ft NAVD 88) measured on September 12, 2018.

- Paleochannel Transect - Phase 1 and 2 Expanded SI (2017-2018)
- AFFF Inspection Area (2016)
- Paleochannel Transect - Phase 1 Only (2017-2018)
- Paleochannel (AECOM, September 2017)
- Groundwater Contour
- Groundwater Contour Inferred
- Groundwater Flow Direction
- Pond
- Colorado Springs Airport
- Peterson Installation Boundary
- Former Landfill
- Former Liquid Sludge Disposal Area

Note: Water level was measured at PETER-T14-MW002A on 9/13/2018.

Figure 9
Surficial Aquifer Potentiometric Surface

N

0 400 800 Feet

Peterson Air Force Base
El Paso County, Colorado

Aerostar SES LLC

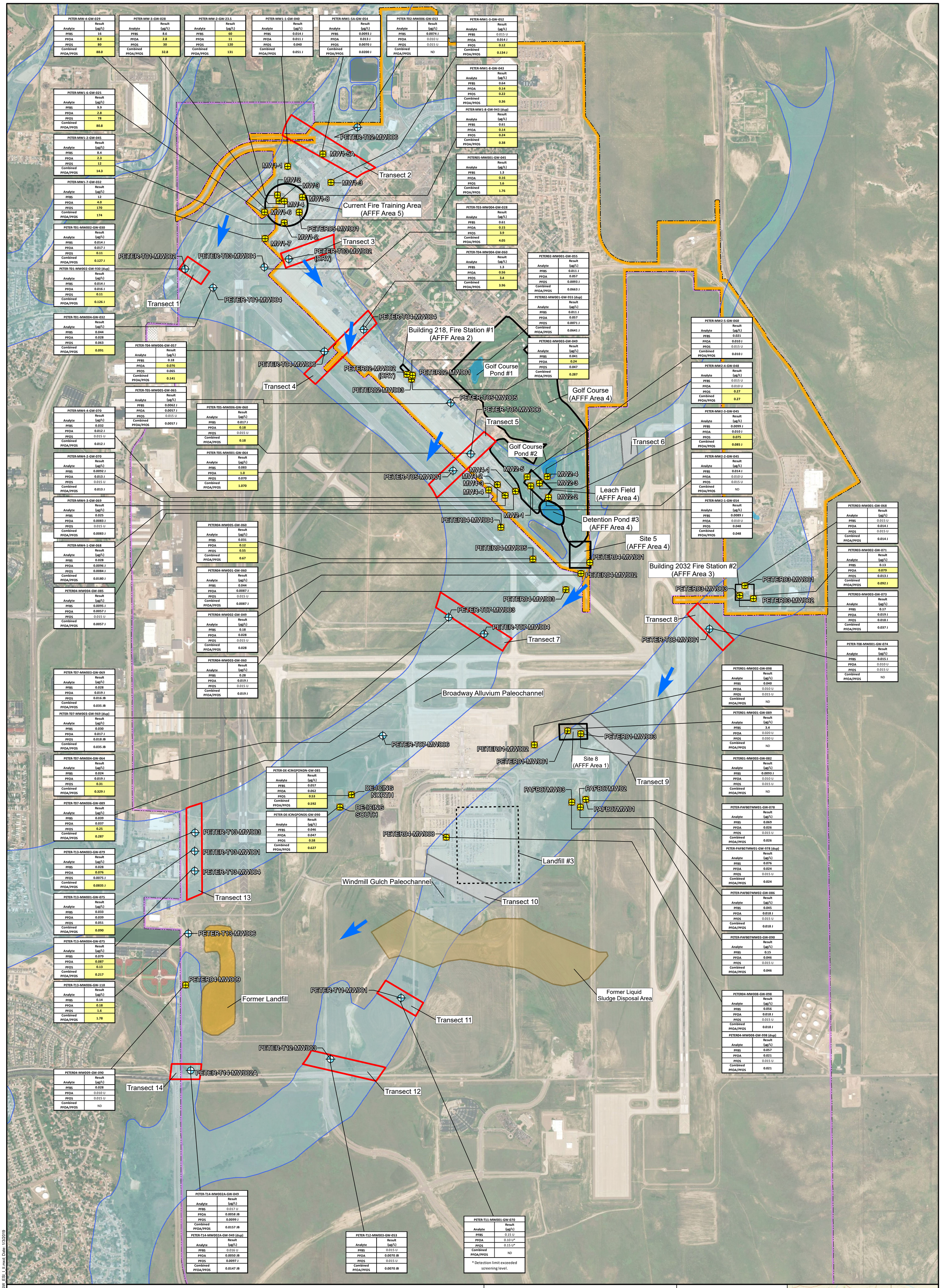
Drawn: LGriswold | Date: 1/8/2019

Service Layer Credits: Esri ArcGIS Online Aerial Photography

1 in = 150 miles

Area Location

G:\M2022.0003_Omaha\Peterson\MXD\Phase 1 2_ESI\Figure_9_SiteWide_Contour_ESI_1_Final.mxd Date: 1/8/2019



PETER-MW-4-GW-029	
Analyte	Result (µg/L)
PFBS	16
PFOA	8.0
PFOS	80
Combined PFOA/PFOS	88.0

PETER-MW-3-GW-028	
Analyte	Result (µg/L)
PFBS	8.6
PFOA	2.8
PFOS	30
Combined PFOA/PFOS	32.8

PETER-MW-2-GW-23.5	
Analyte	Result (µg/L)
PFBS	60
PFOA	11
PFOS	120
Combined PFOA/PFOS	131

PETER-MW1-1-GW-040	
Analyte	Result (µg/L)
PFBS	0.014 J
PFOA	0.011 J
PFOS	0.040
Combined PFOA/PFOS	0.051 J

PETER-MW1-5A-GW-054	
Analyte	Result (µg/L)
PFBS	0.0093 J
PFOA	0.013 J
PFOS	0.0070 J
Combined PFOA/PFOS	0.0200 J

PETER-T02-MW006-GW-053	
Analyte	Result (µg/L)
PFBS	0.0074 J
PFOA	0.010 U
PFOS	0.015 U
Combined PFOA/PFOS	ND

PETER-MW1-3-GW-052	
Analyte	Result (µg/L)
PFBS	0.015 U
PFOA	0.014 J
PFOS	0.12
Combined PFOA/PFOS	0.134 J

PETER-MW1-8-GW-043	
Analyte	Result (µg/L)
PFBS	0.64
PFOA	0.14
PFOS	0.22
Combined PFOA/PFOS	0.36

PETER-MW1-8-GW-943 (dup)	
Analyte	Result (µg/L)
PFBS	0.61
PFOA	0.14
PFOS	0.24
Combined PFOA/PFOS	0.38

PETER-MW1-6-GW-025	
Analyte	Result (µg/L)
PFBS	9.9
PFOA	2.8
PFOS	78
Combined PFOA/PFOS	80.8

PETER-MW1-2-GW-045	
Analyte	Result (µg/L)
PFBS	8.4
PFOA	2.3
PFOS	12
Combined PFOA/PFOS	14.3

PETER-MW1-7-GW-032	
Analyte	Result (µg/L)
PFBS	12
PFOA	4.0
PFOS	170
Combined PFOA/PFOS	174

PETER05-MW001-GW-045	
Analyte	Result (µg/L)
PFBS	1.3
PFOA	0.16
PFOS	1.6
Combined PFOA/PFOS	1.76

PETER-T03-MW004-GW-028	
Analyte	Result (µg/L)
PFBS	0.61
PFOA	0.15
PFOS	3.9
Combined PFOA/PFOS	4.05

PETER-T04-MW004-GW-060	
Analyte	Result (µg/L)
PFBS	1.3
PFOA	0.56
PFOS	3.4
Combined PFOA/PFOS	3.96

PETER-T01-MW002-GW-030	
Analyte	Result (µg/L)
PFBS	0.014 J
PFOA	0.017 J
PFOS	0.11
Combined PFOA/PFOS	0.127 J

PETER-T01-MW002-GW-930 (dup)	
Analyte	Result (µg/L)
PFBS	0.014 J
PFOA	0.016 J
PFOS	0.11
Combined PFOA/PFOS	0.126 J

PETER-T01-MW004-GW-032	
Analyte	Result (µg/L)
PFBS	0.044
PFOA	0.028
PFOS	0.063
Combined PFOA/PFOS	0.091

PETER02-MW001-GW-055	
Analyte	Result (µg/L)
PFBS	0.011 J
PFOA	0.057
PFOS	0.0093 J
Combined PFOA/PFOS	0.0663 J

PETER02-MW001-GW-955 (dup)	
Analyte	Result (µg/L)
PFBS	0.011 J
PFOA	0.057
PFOS	0.0071 J
Combined PFOA/PFOS	0.0641 J

PETER02-MW003-GW-049	
Analyte	Result (µg/L)
PFBS	0.041
PFOA	0.24
PFOS	0.047
Combined PFOA/PFOS	0.287

PETER-MW2-5-GW-060	
Analyte	Result (µg/L)
PFBS	0.021
PFOA	0.010 J
PFOS	0.015 U
Combined PFOA/PFOS	0.010 J

PETER-MW2-4-GW-048	
Analyte	Result (µg/L)
PFBS	0.015 U
PFOA	0.010 U
PFOS	0.27
Combined PFOA/PFOS	0.27

PETER-MW2-3-GW-045	
Analyte	Result (µg/L)
PFBS	0.0099 J
PFOA	0.010 J
PFOS	0.075
Combined PFOA/PFOS	0.085 J

PETER-MW2-2-GW-045	
Analyte	Result (µg/L)
PFBS	0.014 J
PFOA	0.010 U
PFOS	0.015 U
Combined PFOA/PFOS	ND

PETER-MW2-1-GW-054	
Analyte	Result (µg/L)
PFBS	0.0089 J
PFOA	0.010 U
PFOS	0.048
Combined PFOA/PFOS	0.048

PETER-T04-MW006-GW-057	
Analyte	Result (µg/L)
PFBS	0.18
PFOA	0.076
PFOS	0.065
Combined PFOA/PFOS	0.141

PETER-T05-MW005-GW-065	
Analyte	Result (µg/L)
PFBS	0.0062 J
PFOA	0.0057 J
PFOS	0.015 U
Combined PFOA/PFOS	0.0057 J

PETER-T05-MW006-GW-060	
Analyte	Result (µg/L)
PFBS	0.017 J
PFOA	0.18
PFOS	0.015 U
Combined PFOA/PFOS	0.18

PETER-T05-MW001-GW-064	
Analyte	Result (µg/L)
PFBS	0.083
PFOA	1.0
PFOS	0.070
Combined PFOA/PFOS	1.070

PETER-MW4-4-GW-070	
Analyte	Result (µg/L)
PFBS	0.032
PFOA	0.012 J
PFOS	0.015 U
Combined PFOA/PFOS	0.012 J

PETER-MW4-2-GW-070	
Analyte	Result (µg/L)
PFBS	0.0092 J
PFOA	0.013 J
PFOS	0.015 U
Combined PFOA/PFOS	0.013 J

PETER-MW4-3-GW-069	
Analyte	Result (µg/L)
PFBS	0.025
PFOA	0.0083 J
PFOS	0.015 U
Combined PFOA/PFOS	0.0083 J

PETER-MW4-1-GW-068	
Analyte	Result (µg/L)
PFBS	0.028
PFOA	0.0096 J
PFOS	0.0084 J
Combined PFOA/PFOS	0.0180 J

PETER04-MW004-GW-085	
Analyte	Result (µg/L)
PFBS	0.0095 J
PFOA	0.0057 J
PFOS	0.015 U
Combined PFOA/PFOS	0.0057 J

PETER04-MW005-GW-060	
Analyte	Result (µg/L)
PFBS	0.031
PFOA	0.12
PFOS	0.55
Combined PFOA/PFOS	0.67

PETER04-MW001-GW-060	
Analyte	Result (µg/L)
PFBS	0.044
PFOA	0.0087 J
PFOS	0.015 U
Combined PFOA/PFOS	0.0087 J

PETER04-MW002-GW-049	
Analyte	Result (µg/L)
PFBS	0.18
PFOA	0.028
PFOS	0.015 U
Combined PFOA/PFOS	0.028

PETER04-MW003-GW-060	
Analyte	Result (µg/L)
PFBS	0.28
PFOA	0.019 J
PFOS	0.015 U
Combined PFOA/PFOS	0.019 J

PETER03-MW001-GW-068	
Analyte	Result (µg/L)
PFBS	0.015 U
PFOA	0.014 J
PFOS	0.015 U
Combined PFOA/PFOS	0.014 J

PETER03-MW002-GW-071	
Analyte	Result (µg/L)
PFBS	0.13
PFOA	0.079
PFOS	0.013 J
Combined PFOA/PFOS	0.092 J

PETER03-MW003-GW-073	
Analyte	Result (µg/L)
PFBS	0.17
PFOA	0.019 J
PFOS	0.018 J
Combined PFOA/PFOS	0.037 J

PETER-T08-MW001-GW-074	
Analyte	Result (µg/L)
PFBS	0.015 J
PFOA	0.010 U
PFOS	0.015 U
Combined PFOA/PFOS	ND

PETER01-MW002-GW-098	
Analyte	Result (µg/L)
PFBS	0.040
PFOA	0.010 U
PFOS	0.015 U
Combined PFOA/PFOS	ND

PETER01-MW001-GW-089	
Analyte	Result (µg/L)
PFBS	3.4
PFOA	0.020 U
PFOS	0.030 U
Combined PFOA/PFOS	ND

PETER01-MW003-GW-082	
Analyte	Result (µg/L)
PFBS	0.0093 J
PFOA	0.010 U
PFOS	0.015 U
Combined PFOA/PFOS	ND

PETER-T07-MW003-GW-069	
Analyte	Result (µg/L)
PFBS	0.028
PFOA	0.019 J
PFOS	0.016 JB
Combined PFOA/PFOS	0.035 JB

PETER-T07-MW003-GW-969 (dup)	
Analyte	Result (µg/L)
PFBS	0.030
PFOA	0.017 J
PFOS	0.018 JB
Combined PFOA/PFOS	0.035 JB

PETER-T07-MW004-GW-064	
Analyte	Result (µg/L)
PFBS	0.024
PFOA	0.019 J
PFOS	0.31
Combined PFOA/PFOS	0.329 J

PETER-T07-MW006-GW-089	
Analyte	Result (µg/L)
PFBS	0.039
PFOA	0.037
PFOS	0.25
Combined PFOA/PFOS	0.287

PETER-DE-ICINGPONDN-GW-085	
Analyte	Result (µg/L)
PFBS	0.057
PFOA	0.062
PFOS	0.53
Combined PFOA/PFOS	0.592

PETER-DE-ICINGPONDS-GW-090	
Analyte	Result (µg/L)
PFBS	0.046
PFOA	0.047
PFOS	0.58
Combined PFOA/PFOS	0.627

PETER-PAFB07MW01-GW-078	
Analyte	Result (µg/L)
PFBS	0.069
PFOA	0.026
PFOS	0.015 U
Combined PFOA/PFOS	0.026

PETER-PAFB07MW01-GW-978 (dup)	
Analyte	Result (µg/L)
PFBS	0.076
PFOA	0.024
PFOS	0.015 U
Combined PFOA/PFOS	0.024

PETER-T13-MW003-GW-079	
Analyte	Result (µg/L)
PFBS	0.028
PFOA	0.076
PFOS	0.0075 J
Combined PFOA/PFOS	0.0835 J

PETER-T13-MW001-GW-075	
Analyte	Result (µg/L)
PFBS	0.033
PFOA	0.039
PFOS	0.051
Combined PFOA/PFOS	0.090

PETER-T13-MW004-GW-075	
Analyte	Result (µg/L)
PFBS	0.079
PFOA	0.087
PFOS	0.13
Combined PFOA/PFOS	0.217

PETER-T13-MW006-GW-110	
Analyte	Result (µg/L)
PFBS	0.14
PFOA	0.18
PFOS	1.6
Combined PFOA/PFOS	1.78

PETER-PAFB07MW02-GW-086	
Analyte	Result (µg/L)
PFBS	0.045
PFOA	0.018 J
PFOS	0.015 U
Combined PFOA/PFOS	0.018 J

PETER-PAFB07MW03-GW-090	
Analyte	Result (µg/L)
PFBS	0.15
PFOA	0.046
PFOS	0.015 U
Combined PFOA/PFOS	0.046

PETER04-MW008-GW-098	
Analyte	Result (µg/L)
PFBS	0.056
PFOA	0.018 J
PFOS	0.015 U
Combined PFOA/PFOS	0.018 J

PETER04-MW008-GW-998 (dup)	
Analyte	Result (µg/L)
PFBS	0.057
PFOA	0.021
PFOS	0.015 U
Combined PFOA/PFOS	0.021

PETER04-MW009-GW-090	
Analyte	Result (µg/L)
PFBS	0.028
PFOA	0.010 U
PFOS	0.015 U
Combined PFOA/PFOS	ND

PETER-T14-MW002A-GW-049	
Analyte	Result (µg/L)
PFBS	0.017 U
PFOA	0.0058 JB
PFOS	0.0099 J
Combined PFOA/PFOS	0.0157 JB

PETER-T14-MW002A-GW-949 (dup)	
Analyte	Result (µg/L)
PFBS	0.016 U
PFOA	0.0050 JB
PFOS	0.0097 J
Combined PFOA/PFOS	0.0147 JB

PETER-T12-MW003-GW-053	
Analyte	Result (µg/L)
PFBS	0.015 U
PFOA	0.0070 JB
PFOS	0.015 U
Combined PFOA/PFOS	0.0070 JB

PETER-T11-MW001-GW-070	
Analyte	Result (µg/L)
PFBS	0.15 U
PFOA	0.10 U*
PFOS	0.15 U*
Combined PFOA/PFOS	ND

* Detection limit exceeded screening level.

Legend

- New Monitoring Well
- Existing Monitoring Well Sampled
- Paleochannel Transect - Phase 1 and 2 Expanded SI (2017-2018)
- AFFF Inspection Area (2016)
- Paleochannel Transect - Phase 1 Only (2017-2018)
- Paleochannel (AECOM, September 2017)
- Groundwater Flow Direction
- Pond
- Colorado Springs Airport
- Peterson Installation Boundary
- Former Landfill
- Former Liquid Sludge Disposal Area

Groundwater Screening Levels:

PFBS - 40 µg/L PFOA - 0.07 µg/L PFOS - 0.07 µg/L

PFOA + PFOS - 0.07 µg/L

Notes:

Bold value indicates analyte detected at concentration indicated.

= indicates value exceeds screening level

J = The reported concentration is an estimated value.

JB = The reported concentration is an estimated value. This concentration is less than 5 times the concentration reported in an associated field or lab blank.

U = The analyte was not detected above the reported value.

GW = groundwater ND = nondetect dup = duplicate sample

Figure 10
PFBS, PFOA, and PFOS in Groundwater

N

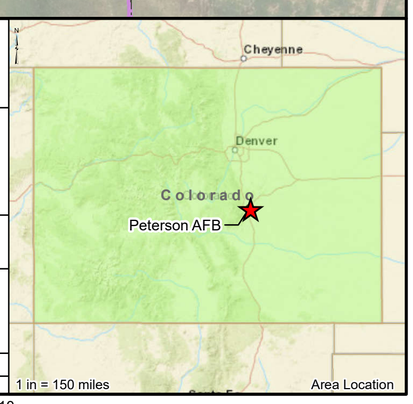
0 400 800 Feet

Peterson Air Force Base
El Paso County, Colorado

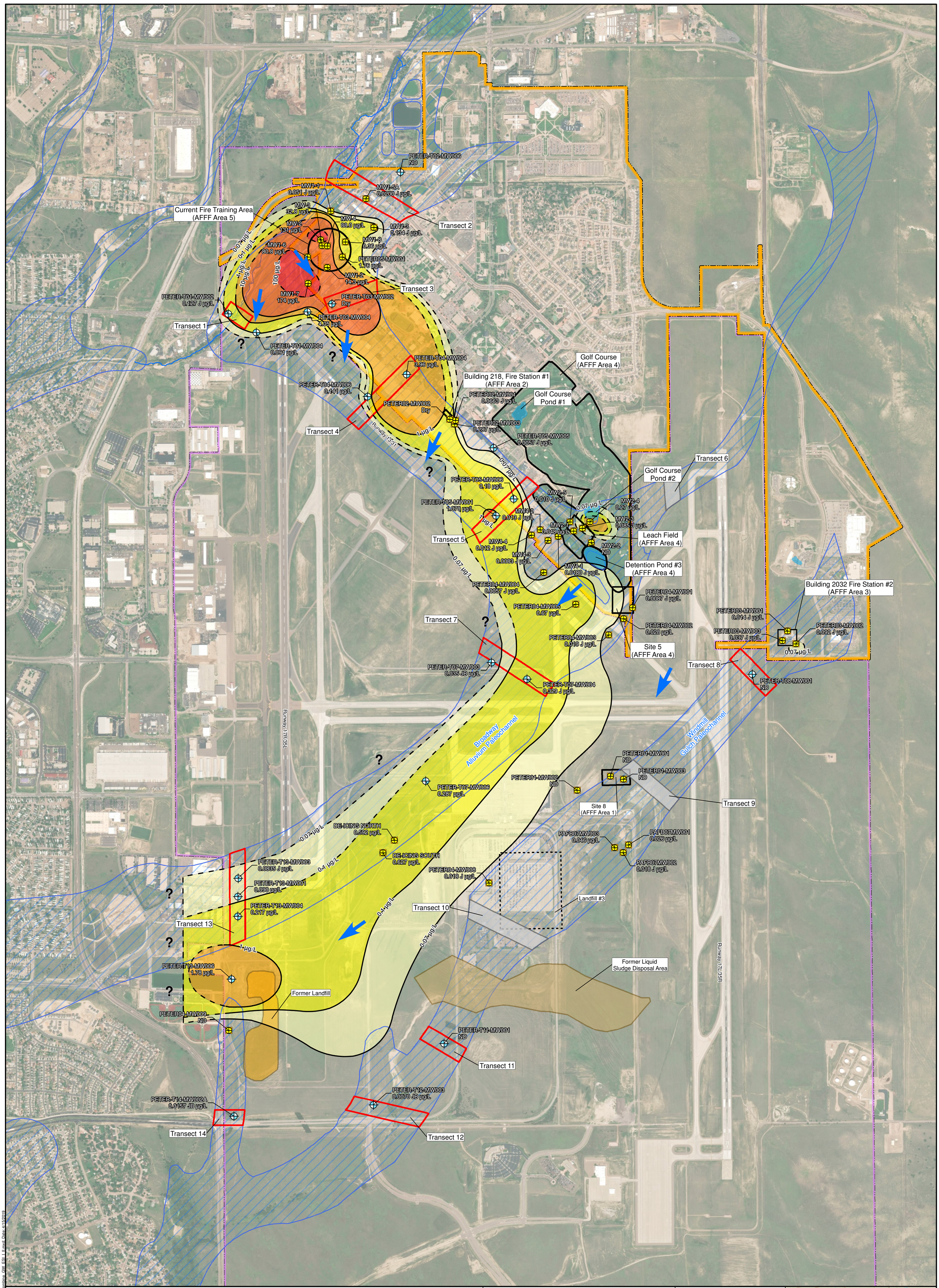
Aerostar SES LLC

Drawn: tmorse | Date: 1/3/2019

Service Layer Credits: Esri ArcGIS Online Aerial Photography



G:\M2027.0003_Omaha\Peterson\MXD\Phase_1_2_ESI\Figure_10_SiteWide_GW_ESI_I_II.mxd, Date: 1/3/2019



Legend

2018 Combined PFOS+PFOA (ug/L) w/ DV Qualifier

- 0.07 µg/L - 0.1 µg/L
- 0.1 µg/L - 1 µg/L
- 1 µg/L - 10 µg/L
- 10 µg/L - 100 µg/L
- >100 µg/L
- Isoconcentration Contour (dashed where inferred)

New Monitoring Well

- 4.05 µg/L= Combined PFOS and PFOA Concentration

Existing Monitoring Well Sampled

- 14.3 µg/L= Combined PFOS and PFOA Concentration
- Paleochannel Transect - Phase 1 and 2 Expanded SI (2017-2018)
- AFFF Inspection Area (2016)
- Pond
- Paleochannel Transect - Phase 1 Only (2017-2018)
- Paleochannel (AECOM, September 2017)
- Groundwater Flow Direction (September 2018)
- Colorado Springs Airport
- Peterson Installation Boundary
- Former Landfill
- Former Liquid Sludge Disposal Area

Groundwater Screening Levels:

PFOA + PFOS - 0.07 µg/L

Notes:

DV = Data Validation

J = The reported concentration is an estimated value.

JB = The reported concentration is an estimated value. This concentration is less than 5 times the concentration reported in an associated field or lab blank.

ND = nondetect

U = The anlayte was not tected above the reported value.

? = Indicates extent of PFOS + PFOA plme is uncertain.

Figure 11
Combined PFOS and PFOA Concentrations in Groundwater

N

0 400 800 Feet

Peterson Air Force Base
El Paso County, Colorado

Aerostar SES LLC

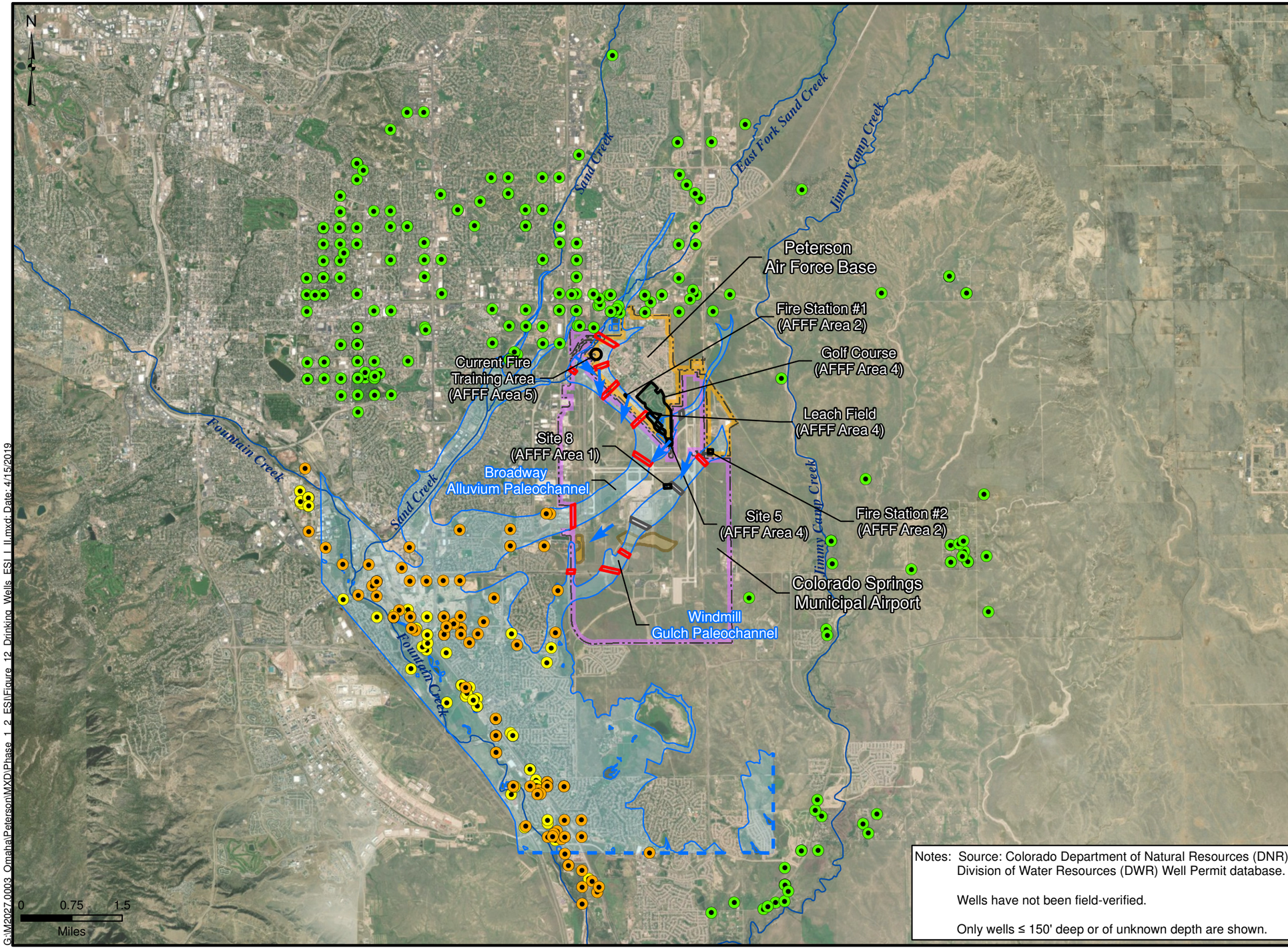
Drawn: TConatser | Date: 4/15/2019

Service Layer Credits: Esri ArcGIS Online Aerial Photography

1 in = 150 miles

Area Location

G:\M2022\0003_Omaha\Peterson\MXD\Phase_1_2_ESI\Figure_11_SiteWide_Combine_GW_ESI_1_11.mxd; Date: 4/15/2019



Notes: Source: Colorado Department of Natural Resources (DNR) Division of Water Resources (DWR) Well Permit database.

Wells have not been field-verified.

Only wells ≤ 150' deep or of unknown depth are shown.

Legend

- Up/Side Gradient Well (use undifferentiated)
- Domestic/Household Use Only Well
- Municipal Well (includes DWR "Domestic, Municipal" well use classification)
- Paleochannel Transect - Phase 1 and 2 Expanded SI (2017-2018)
- Paleochannel Transect - Phase 1 Expanded SI Only (2107-2018)
- AFFF Inspection Area (2016)
- Paleochannel (AECOM, September 2017)
- Limits of Conceptual Site Model Study Area
- Colorado Springs
- Peterson Installation Boundary
- Former Landfill
- Former Liquid Sludge Disposal Area
- Surface Water
- Groundwater Flow Direction (September 2018)

Peterson Air Force Base
El Paso County, Colorado

Figure 12
Drinking Water Wells within 4 Miles of Peterson Air Force Base

Aerostar SES LLC

Drawn: TConatser | Date: 4/15/2019

Service Layer Credits: Esri ArcGIS Online Aerial Photography

G:\M2027.0003_Omaha\Peterson\MXD\Phase_1_2_ESI\Figure_12_Drinking_Wells_ESI_I_II.mxd Date:4/15/2019

Appendix B

RSL Calculations

for

PFOA and PFOS in Soil

Default
Resident Equation Inputs for Soil

Variable	Value
THQ (target hazard quotient) unitless	0.1
TR (target risk) unitless	1E-06
LT (lifetime) years	70
ET_{res} (exposure time) hours/day	24
ET_{res-c} (child exposure time) hours/day	24
ET_{res-a} (adult exposure time) hours/day	24
ET_{0-2} (mutagenic exposure time) hours/day	24
ET_{2-6} (mutagenic exposure time) hours/day	24
ET_{6-16} (mutagenic exposure time) hours/day	24
ET_{16-26} (mutagenic exposure time) hours/day	24
ED_{res} (exposure duration) years	26
ED_{res-c} (exposure duration - child) years	6
ED_{res-a} (exposure duration - adult) years	20
ED_{0-2} (mutagenic exposure duration) years	2
ED_{2-6} (mutagenic exposure duration) years	4
ED_{6-16} (mutagenic exposure duration) years	10
ED_{16-26} (mutagenic exposure duration) years	10
BW_{res-c} (body weight - child) kg	15
BW_{res-a} (body weight - adult) kg	80
BW_{0-2} (mutagenic body weight) kg	15
BW_{2-6} (mutagenic body weight) kg	15
BW_{6-16} (mutagenic body weight) kg	80
BW_{16-26} (mutagenic body weight) kg	80
SA_{res-c} (skin surface area - child) cm^2/day	2373
SA_{res-a} (skin surface area - adult) cm^2/day	6032
SA_{0-2} (mutagenic skin surface area) cm^2/day	2373
SA_{2-6} (mutagenic skin surface area) cm^2/day	2373
SA_{6-16} (mutagenic skin surface area) cm^2/day	6032
SA_{16-26} (mutagenic skin surface area) cm^2/day	6032
EF_{res} (exposure frequency) days/year	350
EF_{res-c} (exposure frequency - child) days/year	350
EF_{res-a} (exposure frequency - adult) days/year	350

Output generated 15FEB2018:16:21:12

Default
Resident Equation Inputs for Soil

Variable	Value
EF_{0-2} (mutagenic exposure frequency) days/year	350
EF_{2-6} (mutagenic exposure frequency) days/year	350
EF_{6-16} (mutagenic exposure frequency) days/year	350
EF_{16-26} (mutagenic exposure frequency) days/year	350
$IFS_{res-adj}$ (age-adjusted soil ingestion factor) mg/kg	36750
$IFSM_{res-adj}$ (mutagenic age-adjusted soil ingestion factor) mg/kg	166833.3
IRS_{res-c} (soil intake rate - child) mg/day	200
IRS_{res-a} (soil intake rate - adult) mg/day	100
IRS_{0-2} (mutagenic soil intake rate) mg/day	200
IRS_{2-6} (mutagenic soil intake rate) mg/day	200
IRS_{6-16} (mutagenic soil intake rate) mg/day	100
IRS_{16-26} (mutagenic soil intake rate) mg/day	100
AF_{res-a} (skin adherence factor - adult) mg/cm ^{2}	0.07
AF_{res-c} (skin adherence factor - child) mg/cm ^{2}	0.2
AF_{0-2} (mutagenic skin adherence factor) mg/cm ^{2}	0.2
AF_{2-6} (mutagenic skin adherence factor) mg/cm ^{2}	0.2
AF_{6-16} (mutagenic skin adherence factor) mg/cm ^{2}	0.07
AF_{16-26} (mutagenic skin adherence factor) mg/cm ^{2}	0.07
$DFS_{res-adj}$ (age-adjusted soil dermal factor) mg/kg	103390
$DFSM_{res-adj}$ (mutagenic age-adjusted soil dermal factor) mg/kg	428260
AT_{res} (averaging time - resident carcinogenic)	365
$City_{PEF}$ (Climate Zone) Selection	Default
A_s (PEF acres)	0.5
Q/C_{wind} (g/m^2-s per kg/m^3)	93.77
PEF (particulate emission factor) m ^{3}/kg	1359344438
A (PEF Dispersion Constant)	16.2302
B (PEF Dispersion Constant)	18.7762
C (PEF Dispersion Constant)	216.108
V (fraction of vegetative cover) unitless	0.5
U_m (mean annual wind speed) m/s	4.69
U_t (equivalent threshold value)	11.32
F(x) (function dependent on U_m/U_t) unitless	0.194

Output generated 15FEB2018:16:21:12

Default
Resident Equation Inputs for Soil

Variable	Value
$City_{VF}$ (Climate Zone) Selection	Default
A_c (VF acres)	0.5
Q/C_{vol} (g/m^2-s per kg/m^3)	68.18
foc (fraction organic carbon in soil) g/g	0.006
p_b (dry soil bulk density) g/cm^3	1.5
p_s (soil particle density) g/cm^3	2.65
n (total soil porosity) L_{pore}/L_{soil}	0.43396
$Theta_a$ (air-filled soil porosity) L_{air}/L_{soil}	0.28396
$Theta_w$ (water-filled soil porosity) L_{water}/L_{soil}	0.15
T (exposure interval) s	819936000
A (VF Dispersion Constant)	11.911
B (VF Dispersion Constant)	18.4385
C (VF Dispersion Constant)	209.7845
$City_{VF\ mass\text{-}loading}$ (Climate Zone) Selection	Default
VF_{ml} (volitization factor - mass-limit) m^3/kg	.
Q/C_{vol} (g/m^2-s per kg/m^3)	68.18
A_c (VF mass-limit acres)	0.5
T (exposure interval) yr	26
d_c (depth of source) m	.
p_b (dry soil bulk density) g/cm^3	1.5
A (VF Dispersion Constant - Mass Limit)	11.911
B (VF Dispersion Constant - Mass Limit)	18.4385
C (VF Dispersion Constant - Mass Limit)	209.7845
T_w (groundwater temperature) Celsius	25

Output generated 15FEB2018:16:21:12

Default
Resident Risk-Based Screening Levels (RSL) for Soil

Key: I = IRIS; P = PPRTV; D = DWSHA; O = OPP; A = ATSDR; C = Cal EPA; X = APPENDIX PPRTV SCREEN (See FAQ #29); H = HEAST; F = See FAQ; E = see user guide Section 2.3.5; W = see user guide Section 2.3.6; L = see user guide on lead; M = mutagen; S = see user guide Section 5; V = volatile; R = RBA applied (See User Guide for Arsenic notice) ; c = cancer; n = noncancer; * = where: n SL < 100X c SL; ** = where n SL < 10X c SL; SSL values are based on DAF=1; m = Concentration may exceed ceiling limit (See User Guide); s = Concentration may exceed Csat (See User Guide); U = User-provided

Chemical	CAS Number	Mutagen?	VOC?	Ingestion SF $(mg/kg\text{-}day)^{-1}$	SFO Ref	Inhalation Unit Risk $(ug/m^3)^{-1}$	IUR Ref	RfD (mg/kg-day)	RfD Ref	RfC (mg/m^3)	RfC Ref	GIABS	ABS	RBA	Soil Saturation Concentration (mg/kg)	S (mg/L)
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	No	No	-		-		2.00E-05	D	-		1	0.1	1	-	6.80E+02
Perfluorooctanoic acid (PFOA)	335-67-1	No	No	7.00E-02	D	-		2.00E-05	D	-		1	0.1	1	-	9.50E+03

K_{oc} (cm3/g)	K_d (cm³/g)	HLC $(atm\text{-}m^3/mole)$	Henry's Law Constant (unitless)	H` and HLC Ref	Normal Boiling Point T_{boil} (K)	BP Ref	Critical Temperature T_{crit} (K)	T_{crit} Ref	D_{ia} (cm^2/s)	D_{iw} (cm^2/s)	D_A (cm^2/s)	Particulate Emission Factor (m^3/kg)	Volatilization Factor (m^3/kg)
3.72E+02	-	-	-		532.15	PHYSPROP	-		2.07E-02	5.25E-06	-	1.36E+09	-
1.15E+02	-	-	-		465.55	PHYSPROP	-		2.26E-02	5.79E-06	-	1.36E+09	-

Ingestion SL TR=1E-06 (mg/kg)	Dermal SL TR=1E-06 (mg/kg)	Inhalation SL TR=1E-06 (mg/kg)	Carcinogenic SL TR=1E-06 (mg/kg)	Ingestion SL Child THQ=0.1 (mg/kg)	Dermal SL Child THQ=0.1 (mg/kg)	Inhalation SL Child THQ=0.1 (mg/kg)	Noncarcinogenic SL Child THI=0.1 (mg/kg)	Ingestion SL Adult THQ=0.1 (mg/kg)	Dermal SL Adult THQ=0.1 (mg/kg)	Inhalation SL Adult THQ=0.1 (mg/kg)	Noncarcinogenic SL Adult THI=0.1 (mg/kg)	Screening Level (mg/kg)
-	-	-	-	1.56E-01	6.59E-01	-	1.26E-01	1.67E+00	3.95E+00	-	1.17E+00	1.26E-01 nc
9.93E+00	3.53E+01	-	7.75E+00	1.56E-01	6.59E-01	-	1.26E-01	1.67E+00	3.95E+00	-	1.17E+00	1.26E-01 nc

Output generated 15FEB2018:16:21:12

Chemical	CASNUM	Inhalation Unit Risk (µg/m ^{3})$^{-1}$	Toxicity Source	EPA Cancer Classification	Inhalation Unit Risk Tumor Type	Inhalation Unit Risk Target Organ	Inhalation Unit Risk Species	Inhalation Unit Risk Method	Inhalation Unit Risk Route	Inhalation Unit Risk Treatment Duration	Inhalation Unit Risk Study Reference	Inhalation Unit Risk Notes
Perfluorooctane sulfonic acid (PFOS)	1763-23-1											
Perfluorooctanoic acid (PFOA)	335-67-1											

Output generated 15FEB2018:16:21:12

Oral Slope Factor Toxicity Metadata

Chemical	CASNUM	Oral Slope Factor (mg/kg-day) $^{-1}$	Toxicity Source	EPA Cancer Classification	Oral Slope Factor Tumor Type	Oral Slope Factor Target Organ	Oral Slope Factor Species	Oral Slope Factor Method	Oral Slope Factor Route	Oral Slope Factor Treatment Duration	Oral Slope Factor Study Reference	Oral Slope Factor Notes
Perfluorooctane sulfonic acid (PFOS)	1763-23-1											
Perfluorooctanoic acid (PFOA)	335-67-1	7.00E-02	DWSHA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Output generated 15FEB2018:16:21:12

Oral Chronic Toxicity Metadata

Chemical	CASNUM	Chronic Oral Reference Dose (mg/kg-day)	Toxicity Source	Oral Chronic Reference Dose Basis	Oral Chronic Reference Dose Confidence Level	Oral Chronic Reference Dose Critical Effect
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	2.00E-05	DWSHA	NA	NA	NA
Perfluorooctanoic acid (PFOA)	335-67-1	2.00E-05	DWSHA	NA	NA	NA

Oral Chronic Reference Dose Target Organ	Oral Chronic Reference Dose Modifying Factor	Oral Chronic Reference Dose Uncertainty Factor	Oral Chronic Reference Dose Species	Oral Chronic Reference Dose Route	Oral Chronic Reference Dose Study Duration	Oral Chronic Reference Dose Study Reference	Oral Chronic Reference Dose Notes
NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA

Output generated 15FEB2018:16:21:12

Inhalation Chronic Toxicity Metadata

Chemical	CASNUM	Chronic Inhalation Reference Concentration (mg/m³)	Toxicity Source	Inhalation Chronic Reference Concentration Basis	Inhalation Chronic Reference Concentration Confidence Level	Inhalation Chronic Reference Concentration Critical Effect	Inhalation Chronic Reference Concentration Target Organ
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	-					
Perfluorooctanoic acid (PFOA)	335-67-1	-					

Inhalation Chronic Reference Concentration Modifying Factor	Inhalation Chronic Reference Concentration Uncertainty Factor	Inhalation Chronic Reference Concentration Species	Inhalation Chronic Reference Concentration Route	Inhalation Chronic Reference Concentration Study Duration	Inhalation Chronic Reference Concentration Study Reference	Inhalation Chronic Reference Concentration Notes

Output generated 15FEB2018:16:21:12

Appendix C

Comparison of Initial SI Soil and Sediment Analytical Results to HQ=0.1 RSLs

Comparison of Initial SI Soil and Sediment Analytical Results to HQ=0.1 RSL

The initial SI (ASL, July 2017) compared analytical results of perfluorobutane sulfonate (PFBS), perfluorooctane sulfonate (PFOS), and perfluooctanoic acid (PFOA) to published or calculated regional screening levels (RSLs) based on a hazard quotient (HQ) of 1.0. Project screening levels for PFBS listed in the SI were 1,300,000 micrograms per kilogram (µg/kg) for soil and sediment (based on the residential soil RSL) and 400 micrograms per liter (µg/L) for groundwater and surface water (based on the tap water RSL). Similarly, the calculated project screening level for PFOS and PFOA for soil and sediment was 1,260 µg/kg for both analytes based on an HQ of 1.0.

The U.S. Air Force (USAF) subsequently determined that project screening levels based on an HQ of 0.1 are appropriate. Therefore, based on an HQ of 0.1, the current PFBS project screening value is 130,000 µg/kg for soil and sediment and 40 µg/L for surface water and groundwater; the current project screening value for PFOA and PFOS for soil and sediment is 126 µg/kg. To assess possible soil impacts based on the revised screening levels, all affected analytical results from the initial SI (all PFBS results and all PFOS and PFOA soil and sediment results) were compared to project screening values based on an HQ of 0.1 during Phase 2 of the expanded SI (ESI).

This comparison determined that all PFBS detections in surface soil, subsurface soil, groundwater, sediment, and surface water were below their respective screening levels based on an HQ of 0.1. All PFOA detections in surface soil, subsurface soil, and sediment were also below the calculated screening level based on an HQ of 0.1. One PFOS detection in surface soil (160 µg/kg in sample PETER02-003-SS-001 at Fire Station #1 Building 218 [AFFF Area 2] and one PFOS detection in sediment (370 µg/kg in sample PETER04-0013-SD-001 from Detention Pond #3 at AFFF Area 4) exceeded the screening level of 126 µg/kg. Except PETER03-003-SS-001 (which exceeded the screening level based on an HQ of 1.0), all other PFOS detections in surface soil and sediment and all PFOS detections in subsurface soil were below the screening value based on an HQ of 0.1. These sample locations are shown on Figure 11 (AFFF Area 2) and Figure 15 (AFFF Area 4) in the initial SI report (ASL, July 2017).

Soil exposure and air pathways at AFFF Area 2 were determined to be incomplete during the initial SI based on detected concentrations of PFBS, PFOS, and PFOA screening values based on an HQ of 1.0. Although there is now a PFOS exceedance in surface soil at Fire Station #1 using the screening value based on an HQ of 0.1, ground surfaces in the area are grassed or paved precluding fugitive dust emissions. Further, a complete human ingestion exposure pathway for PFOS-impacted surface soil is also unlikely. The soil and air exposure pathway at AFFF Area 4 was also determined to be incomplete during the initial SI based on detected concentrations of PFBS, PFOS, and PFOA screening values based on HQ of 1.0 screening values. Although there is now a PFOS exceedance in sediment at Detention Pond #3 at AFFF Area 4 (based on the lower screening value), a complete human ingestion exposure pathway for PFOS-impacted sediment is unlikely.

Appendix D

Field Forms

and

Boring Logs

SES FIELD READINESS REVIEW FORM

Employee Name: Ash Willis

Job Number: M2027.0003

Job Location: Peterson AFB

Job Tasks:

Groundwater sampling, soil boring logging, well installation, mob/demob tasks

Equipment Needed:

Soil boring: Munsell Charts, tape measure, pens, soil boring forms, USCS table

GW Sampling: YSI, peristaltic pump, multiRAE, sample containers etc.

Proper PPE for all above tasks is a minimum Level D, plus nitrile gloves

Documents Needed:

Field forms: Boring log, GW sampling log, sample log, log book, calibration sheets

Meeting Notes:

The Petersons Phase 2 Expanded Site Inspection that is set to kick off on July 31. There are 21 new wells to install and 42 existing wells to sample over the course of 3 rotations**. We will redevelop any wells that have not been previously used for this investigation – That list is attached.** This list also details which existing wells will need to be surveyed as well. The shift schedule is:

07-30 – All personnel will fly out and be on site the 31st of July for badging

07/31 – 08/09 – First fieldwork rotation – Jeremy K./Jeremy M./Ash W./Franklin J.

08/10 – Travel day for end of first rotation

08/14 - Travel for second rotation

08/15 – 08/28 – Second rotation of fieldwork – Jeremy K,/Jeremy M./Ash

08/29 – Travel home for end of second rotation/Labor Day Holiday

09/04 – Travel for third rotation

09/05– 09/14 – Third rotation – Jeremy K/Jeremy M./Ash W.

9/15 – Travel home

If a fourth rotation is needed dates will be determined during the third shift.

Jeremy Klein will be the site lead. Jeremy M. will be the geologist. All others will be assigned to GW development/sampling.

Hotel/Storage Unit/Trucks

The hotel will be the Townplace near base. The address is 1530 N. Newport Road, Colorado Springs, CO 80916. Jenny – Sample bottles have been delivered already. Once we're done with Buckley we may need to order additional PFAS Free water and/or bottles. Jeremy Klein will conduct a bottle count at the start of the work and update everyone on what we have/need. Since Klein has been here for all the work he'll be in charge of arranging for a storage unit. The three Enterprise trucks from Buckley will be at the Denver Airport and utilized for this job as well.

IDW Handling

All IDW will be containerized.

Equipment

We'll rent whatever equipment we need in addition to owned equipment from Geotech. Jeremy K and Ash will take the lead on that and get things set up. We should have most everything we need for Peterson already at Buckley. The reclaimers pumps will need to be sent out.

Site Supervisor Signature

Greg Carlson

SES FIELD READINESS REVIEW FORM

Employee Name: Franklin Johnson

Job Number: M2027.0003

Job Location: Peterson AFB

Job Tasks:

Groundwater sampling, soil boring logging, well installation, mob/demob tasks

Equipment Needed:

Soil boring: Munsell Charts, tape measure, pens, soil boring forms, USCS table

GW Sampling: YSI, peristaltic pump, multiRAE, sample containers etc.

Proper PPE for all above tasks is a minimum Level D, plus nitrile gloves

Documents Needed:

Field forms: Boring log, GW sampling log, sample log, log book, calibration sheets

Meeting Notes:

The Petersons Phase 2 Expanded Site Inspection that is set to kick off on July 31. There are 21 new wells to install and 42 existing wells to sample over the course of 3 rotations**. We will redevelop any wells that have not been previously used for this investigation – That list is attached.** This list also details which existing wells will need to be surveyed as well. The shift schedule is:

07-30 – All personnel will fly out and be on site the 31st of July for badging

07/31 – 08/09 – First fieldwork rotation – Jeremy K./Jeremy M./Ash W./Franklin J.

08/10 – Travel day for end of first rotation

08/14 - Travel for second rotation

08/15 – 08/28 – Second rotation of fieldwork – Jeremy K,/Jeremy M./Ash

08/29 – Travel home for end of second rotation/Labor Day Holiday

09/04 – Travel for third rotation

09/05– 09/14 – Third rotation – Jeremy K/Jeremy M./Ash W.

9/15 – Travel home

If a fourth rotation is needed dates will be determined during the third shift.

Jeremy Klein will be the site lead. Jeremy M. will be the geologist. All others will be assigned to GW development/sampling.

Hotel/Storage Unit/Trucks

The hotel will be the Townplace near base. The address is 1530 N. Newport Road, Colorado Springs, CO 80916. Jenny – Sample bottles have been delivered already. Once we're done with Buckley we may need to order additional PFAS Free water and/or bottles. Jeremy Klein will conduct a bottle count at the start of the work and update everyone on what we have/need. Since Klein has been here for all the work he'll be in charge of arranging for a storage unit. The three Enterprise trucks from Buckley will be at the Denver Airport and utilized for this job as well.

IDW Handling

All IDW will be containerized.

Equipment

We'll rent whatever equipment we need in addition to owned equipment from Geotech. Jeremy K and Ash will take the lead on that and get things set up. We should have most everything we need for Peterson already at Buckley. The reclaimers pumps will need to be sent out.

Site Supervisor Signature

Greg Carlson

SES FIELD READINESS REVIEW FORM

Employee Name: Jeremy Klein

Job Number: M2027.0003

Job Location: Peterson AFB

Job Tasks:

Groundwater sampling, soil boring logging, well installation, mob/demob tasks

Equipment Needed:

Soil boring: Munsell Charts, tape measure, pens, soil boring forms, USCS table

GW Sampling: YSI, peristaltic pump, multiRAE, sample containers etc.

Proper PPE for all above tasks is a minimum Level D, plus nitrile gloves

Documents Needed:

Field forms: Boring log, GW sampling log, sample log, log book, calibration sheets

Meeting Notes:

The Petersons Phase 2 Expanded Site Inspection that is set to kick off on July 31. There are 21 new wells to install and 42 existing wells to sample over the course of 3 rotations**. We will redevelop any wells that have not been previously used for this investigation – That list is attached.** This list also details which existing wells will need to be surveyed as well. The shift schedule is:

07-30 – All personnel will fly out and be on site the 31st of July for badging

07/31 – 08/09 – First fieldwork rotation – Jeremy K./Jeremy M./Ash W./Franklin J.

08/10 – Travel day for end of first rotation

08/14 - Travel for second rotation

08/15 – 08/28 – Second rotation of fieldwork – Jeremy K,/Jeremy M./Ash

08/29 – Travel home for end of second rotation/Labor Day Holiday

09/04 – Travel for third rotation

09/05– 09/14 – Third rotation – Jeremy K/Jeremy M./Ash W.

9/15 – Travel home

If a fourth rotation is needed dates will be determined during the third shift.

Jeremy Klein will be the site lead. Jeremy M. will be the geologist. All others will be assigned to GW development/sampling.

Hotel/Storage Unit/Trucks

The hotel will be the Townplace near base. The address is 1530 N. Newport Road, Colorado Springs, CO 80916. Jenny – Sample bottles have been delivered already. Once we're done with Buckley we may need to order additional PFAS Free water and/or bottles. Jeremy Klein will conduct a bottle count at the start of the work and update everyone on what we have/need. Since Klein has been here for all the work he'll be in charge of arranging for a storage unit. The three Enterprise trucks from Buckley will be at the Denver Airport and utilized for this job as well.

IDW Handling

All IDW will be containerized.

Equipment

We'll rent whatever equipment we need in addition to owned equipment from Geotech. Jeremy K and Ash will take the lead on that and get things set up. We should have most everything we need for Peterson already at Buckley. The reclaimers pumps will need to be sent out.

Site Supervisor Signature

SES FIELD READINESS REVIEW FORM

Employee Name: Jeremy Meshew

Job Number: M2027.0003

Job Location: Peterson AFB

Job Tasks:

Groundwater sampling, soil boring logging, well installation, mob/demob tasks

Equipment Needed:

Soil boring: Munsell Charts, tape measure, pens, soil boring forms, USCS table

GW Sampling: YSI, peristaltic pump, multiRAE, sample containers etc.

Proper PPE for all above tasks is a minimum Level D, plus nitrile gloves

Documents Needed:

Field forms: Boring log, GW sampling log, sample log, log book, calibration sheets

Meeting Notes:

The Petersons Phase 2 Expanded Site Inspection that is set to kick off on July 31. There are 21 new wells to install and 42 existing wells to sample over the course of 3 rotations**. We will redevelop any wells that have not been previously used for this investigation – That list is attached.** This list also details which existing wells will need to be surveyed as well. The shift schedule is:

07-30 – All personnel will fly out and be on site the 31st of July for badging

07/31 – 08/09 – First fieldwork rotation – Jeremy K./Jeremy M./Ash W./Franklin J.

08/10 – Travel day for end of first rotation

08/14 - Travel for second rotation

08/15 – 08/28 – Second rotation of fieldwork – Jeremy K,/Jeremy M./Ash

08/29 – Travel home for end of second rotation/Labor Day Holiday

09/04 – Travel for third rotation

09/05– 09/14 – Third rotation – Jeremy K/Jeremy M./Ash W.

9/15 – Travel home

If a fourth rotation is needed dates will be determined during the third shift.

Jeremy Klein will be the site lead. Jeremy M. will be the geologist. All others will be assigned to GW development/sampling.

Hotel/Storage Unit/Trucks

The hotel will be the Townplace near base. The address is 1530 N. Newport Road, Colorado Springs, CO 80916. Jenny – Sample bottles have been delivered already. Once we're done with Buckley we may need to order additional PFAS Free water and/or bottles. Jeremy Klein will conduct a bottle count at the start of the work and update everyone on what we have/need. Since Klein has been here for all the work he'll be in charge of arranging for a storage unit. The three Enterprise trucks from Buckley will be at the Denver Airport and utilized for this job as well.

IDW Handling

All IDW will be containerized.

Equipment

We'll rent whatever equipment we need in addition to owned equipment from Geotech. Jeremy K and Ash will take the lead on that and get things set up. We should have most everything we need for Peterson already at Buckley. The reclaimers pumps will need to be sent out.

Site Supervisor Signature

Greg Carlson

Aerostar SES LLC

Peterson Air Force Base
AFFF Areas Expanded Site Inspections
USACE Omaha District

Contract No. W9128F-15-D-0051

Delivery Order No. 0003

BORING LOG
PETER-T01-MW002

Start Date	: 08/15/18
End Date	: 08/15/18
Northing	: 1362013.73
Easting	: 3222326.71
Surface Elev. (ft)*	: 6172.69
Total Depth (ft)**	: 37.0

Site Name	: Transect 1
Drilling Company	: Cascade Drilling
Drilling Method	: Roto-Sonic
Driller	: Todd Mecham
Borehole Diameter	: 6.0 in.
Boring Completion	: 2.0" Sch. 40 PVC Monitoring Well
Depth to Water** (ft)	: 21.0 (during drilling)
Logged by	: Jeremy A Meshew
Signature	: Jeremy A Meshew

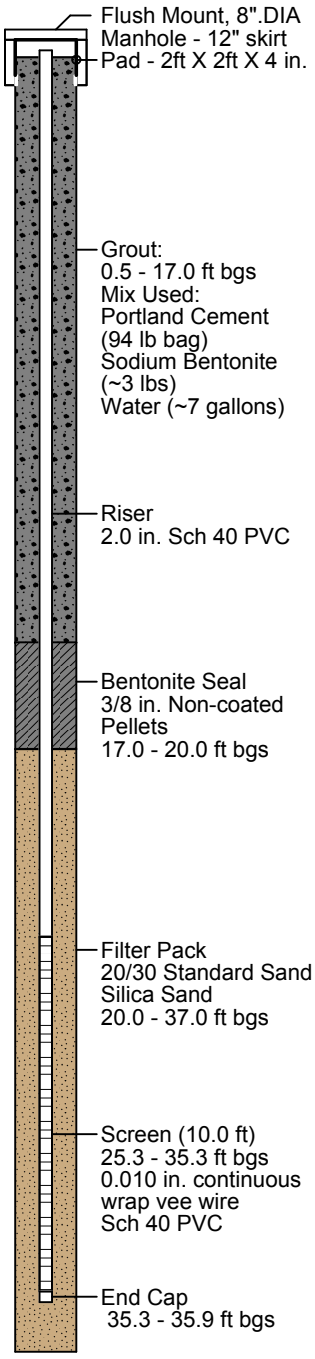
Water Levels
▼ During Drilling

Measurements
*North American Vertical Datum (NAVD88) feet
**Below Ground Surface (bgs) feet

DEPTH IN FEET (bgs)	INTERVAL	% RECOVERY	DESCRIPTION	PID (ppm)	USCS \ LITHOLOGY	Munsell Color	Depth to Water (DTW)	SAMPLE TYPE	SAMPLE ID
0	1	100	(0.0 - 8.0) SILTY GRAVEL, coarse, sub-rounded to rounded, 5YR 8/2, pinkish white, dry, very loose, fill	0	GM				No Soil Samples Collected
5	2	100							
8.0			(8.0 - 19.0) CLAYEY SAND, with fine gravel, fine grained, 10YR 3/3, dark brown, slightly moist, low plasticity						
10	3	70		0	SC				
15				0					
19.0			(19.0 - 21.0) SAND with low plasticity clay and fine gravel, poorly graded, fine grained, 10YR 6/4, light yellowish brown, dry, loose						
20				0	SP		▼		
21.0			(21.0 - 35.0) SAND with fine gravel, poorly graded, fine grained, 10YR 6/1, gray, wet to saturated, loose						
25	4	100		0					
					SP				
30				0					
	5	100							
35				0					
35.0			(35.0 - 37.0) SILT with fine sand, 10YR 5/4, yelllowish brown, dry, hard		ML				
				0					

End of Borehole 37.0 ft bgs

Well: PETER-T01-MW002
Elev (TOC): 6172.21



1/9/19

M2027.0003

Aerostar SES LLC

Peterson Air Force Base
AFFF Areas Expanded Site Inspections
USACE Omaha District

Contract No. W9128F-15-D-0051

Delivery Order No. 0003

BORING LOG
PETER-T01-MW004

Start Date	: 08/08/18
End Date	: 08/08/18
Northing	: 1361645.18
Easting	: 3222876.35
Surface Elev. (ft)*	: 6168.55
Total Depth (ft)**	: 35.0

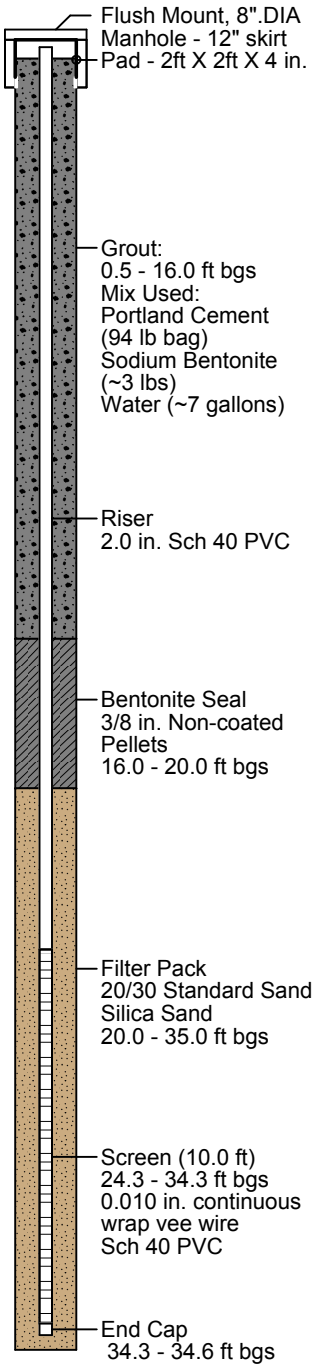
Site Name	: Transect 1
Drilling Company	: Cascade Drilling
Drilling Method	: Roto-Sonic
Driller	: Todd Mecham
Borehole Diameter	: 6.0 in.
Boring Completion	: 2.0" Sch. 40 PVC Monitoring Well
Depth to Water** (ft)	: 20.0 (during drilling)
Logged By	: Jeremy A Meshew
Signature	: Jeremy A Meshew

Water Levels
▼ During Drilling

Measurements
*North American Vertical Datum (NAVD88) feet
**Below Ground Surface (bgs) feet

DEPTH IN FEET (bgs)	INTERVAL	% RECOVERY	DESCRIPTION	PID (ppm)	USCS \ LITHOLOGY	Munsell Color	Depth to Water (DTW)	SAMPLE TYPE	SAMPLE ID
0	1	100	(0.0 - 10.0) SAND with fine gravel, poorly graded, fine grained, subround to round sand, 10YR 4/3, brown, dry, loose, fill	0	SP				No Soil Samples Collected
5	2	100							
10	3	100	(10.0 - 30.0) SAND with non-plastic silt and fine gravel, poorly graded, fine grained, 10YR 6/4, light yellowish brown, very moist, loose	0					
15				0					
20			(Wet at 20 ft BGS)	0	SP		▼		
25	4	100		0					
30	5	100	(30.0 - 35.0) SILTY SAND with fine gravel, fine grained, 10YR 6/4, light yellowish brown, wet, loose	0	SM				
35			End of Borehole 35.0 ft bgs	0					

Well: PETER-T01-MW004
Elev (TOC): 6168.18



1/9/19

M2027.0003

Aerostar SES LLC

Peterson Air Force Base
AFFF Areas Expanded Site Inspections
USACE Omaha District

Contract No. W9128F-15-D-0051

Delivery Order No. 0003

BORING LOG
PETER-T02-MW006

Start Date	: 08/06/18
End Date	: 08/07/18
Northing	: 1364789.16
Easting	: 3225700.58
Surface Elev. (ft)*	: 6226.53
Total Depth (ft)**	: 59.0

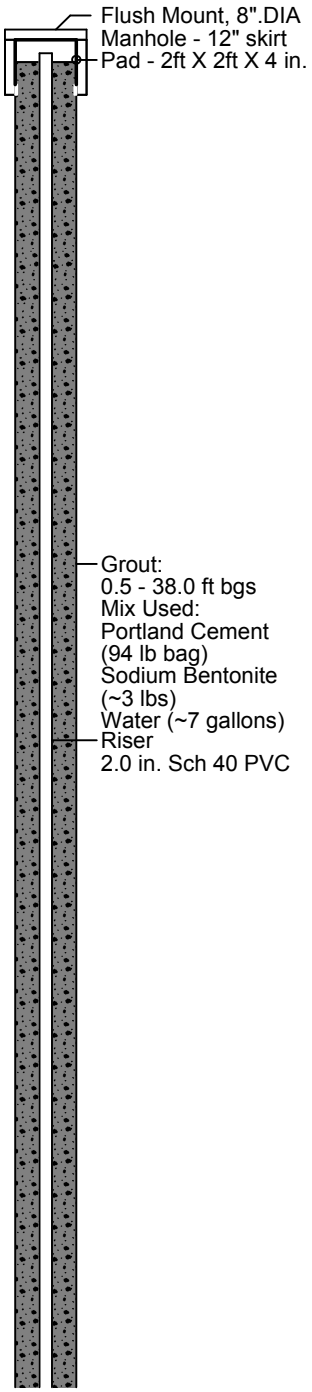
Site Name	: Transect 2
Drilling Company	: Cascade Drilling
Drilling Method	: Roto-Sonic
Driller	: Todd Mecham
Borehole Diameter	: 6.0 in.
Boring Completion	: 2.0" Sch. 40 PVC Monitoring Well
Depth to Water** (ft)	: 50.0 (during drilling)
Logged By	: Jeremy A Meshew
Signature	: Jeremy A Meshew

Water Levels
▼ During Drilling

Measurements
*North American Vertical Datum (NAVD88) feet
**Below Ground Surface (bgs) feet

DEPTH IN FEET (bgs)	INTERVAL	% RECOVERY	DESCRIPTION	PID (ppm)	USCS \ LITHOLOGY	Munsell Color	Depth to Water (DTW)	SAMPLE TYPE	SAMPLE ID
0	1	100	(0.0 - 5.0) SAND with silt and fine gravel, poorly graded, fine grained, 10YR 6/4, light yellowish brown, dry, loose	0	SP				No Soil Samples Collected
5	2	100	(5.0 - 20.0) SILTY SAND with fine gravel, fine grained, 10YR 6/4, light yellowish brown, moist, loose	0	SM				
10	3	80		0					
15				0					
20	4	100	(20.0 - 21.0) SILTY SAND with fine gravel, fine grained, 10YR 4/3, brown, moist, loose	0	SM				
			(21.0 - 39.0) FAT CLAY with fine sand, 10YR 5/4, yellowish brown, moist, medium dense						
25				0	CH				
30				0					

Well: PETER-T02-MW006
Elev (TOC): 6226.13



Aerostar SES LLC

Peterson Air Force Base
AFFF Areas Expanded Site Inspections
USACE Omaha District

Contract No. W9128F-15-D-0051

Delivery Order No. 0003

BORING LOG
PETER-T02-MW006

Start Date	: 08/06/18
End Date	: 08/07/18
Northing	: 1364789.16
Easting	: 3225700.58
Surface Elev. (ft)*	: 6226.53
Total Depth (ft)**	: 59.0

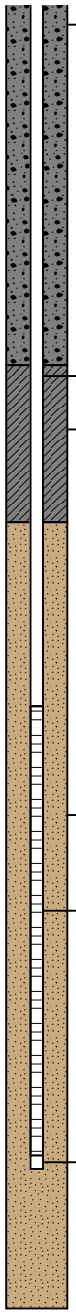
Site Name	: Transect 2
Drilling Company	: Cascade Drilling
Drilling Method	: Roto-Sonic
Driller	: Todd Mecham
Borehole Diameter	: 6.0 in.
Boring Completion	: 2.0" Sch. 40 PVC Monitoring Well
Depth to Water** (ft)	: 50.0 (during drilling)
Logged By	: Jeremy A Meshew
Signature	: Jeremy A Meshew

Water Levels
▼ During Drilling

Measurements
*North American Vertical Datum (NAVD88) feet
**Below Ground Surface (bgs) feet

Well: PETER-T02-MW006
Elev (TOC): 6226.13

DEPTH IN FEET (bgs)	INTERVAL	% RECOVERY	DESCRIPTION	PID (ppm)	USCS \ LITHOLOGY	Munsell Color	Depth to Water (DTW)	SAMPLE TYPE	SAMPLE ID
30				0					
35	5	100		0	CH				
40	6	100	(39.0 - 52.0) SAND with fine gravel and silt, poorly graded, fine grained, 10YR 6/4, light yellowish brown, dry, loose (Moist at 43 ft BGS)	0					
45	7	100	(Wet at 47 ft BGS)	0	SP				
50	8	100		0			▼		
			(52.0 - 54.0) SILT with fine sand, 10YR 6/4, light yellowish brown, slightly moist, soft		ML				
			(54.0 - 55.0) SAND with gravel and silt, well graded, fine grained, 10YR 6/4, light yellowish brown, wet, loose		SW				
55	9	100	(55.0 - 59.0) SILT with fine sand, 10YR 6/4, light yellowish brown, slightly moist, soft	0	ML				
60			End of Borehole 59.0 ft bgs	0					



Aerostar SES LLC

Peterson Air Force Base
AFFF Areas Expanded Site Inspections
USACE Omaha District

Contract No. W9128F-15-D-0051

Delivery Order No. 0003

BORING LOG
PETER-T03-MW002

Start Date	: 08/03/18
End Date	: 08/03/18
Northing	: 1362208.60
Easting	: 3224358.01
Surface Elev. (ft)*	: 6185.32
Total Depth (ft)**	: 50.0

Site Name	: Transect 3
Drilling Company	: Cascade Drilling
Drilling Method	: Roto-Sonic
Driller	: Todd Mecham
Borehole Diameter	: 6.0 in.
Boring Completion	: 2.0" Sch. 40 PVC Monitoring Well
Depth to Water** (ft)	: 30.0 (during drilling)
Logged By	: Jeremy A Meshew
Signature	: Jeremy A Meshew

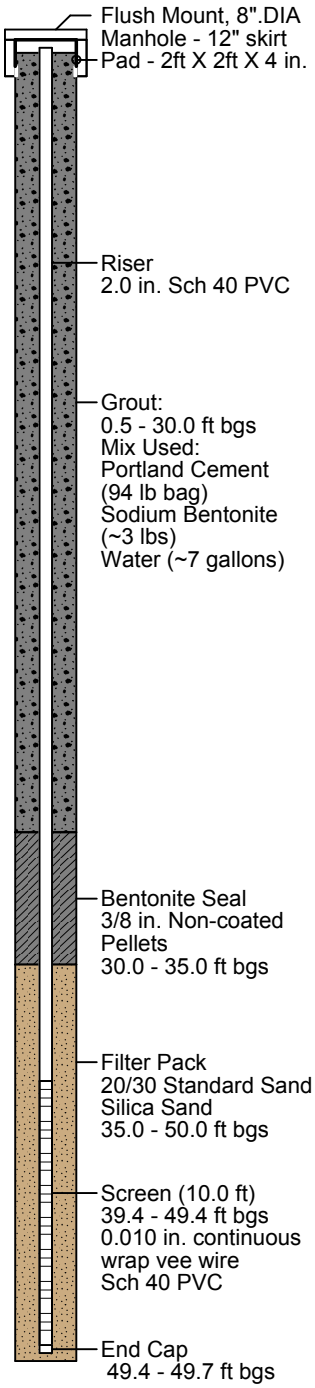
Water Levels
▼ During Drilling

Measurements
*North American Vertical Datum (NAVD88) feet
**Below Ground Surface (bgs) feet

DEPTH IN FEET (bgs)	INTERVAL	% RECOVERY	DESCRIPTION	PID (ppm)	USCS \ LITHOLOGY	Munsell Color	Depth to Water (DTW)	SAMPLE TYPE	SAMPLE ID
0	1	100	(0.0 - 0.5) Asphalt						No Soil Samples Collected
	2	100	(0.5 - 43.0) SAND with fine gravel and silt, poorly graded, fine grained, 10YR 6/4, light yellowish brown, moist, loose						
5	3	100		0					
10	4	100		0					
15				0					
20	5	100		0	SP				
25				0					
30			(Wet at 30 ft BGS)	0			▼		
35	6	100		0					
40	7	100		0					
	8	100	(43.0 - 50.0) SILTY SAND with fine gravel, fine grained, 10YR 6/4, light yellowish brown, wet, loose						
45	9	100		0	SM				
50				0					

End of Borehole 50.0 ft bgs

Well: PETER-T05-MW006
Elev (TOC): 6184.97



Aerostar SES LLC

Peterson Air Force Base
AFFF Areas Expanded Site Inspections
USACE Omaha District

Contract No. W9128F-15-D-0051

Delivery Order No. 0003

BORING LOG
PETER-T03-MW004

Start Date	: 08/08/18
End Date	: 08/08/18
Northing	: 1362051.10
Easting	: 3223878.59
Surface Elev. (ft)*	: 6174.74
Total Depth (ft)**	: 35.0

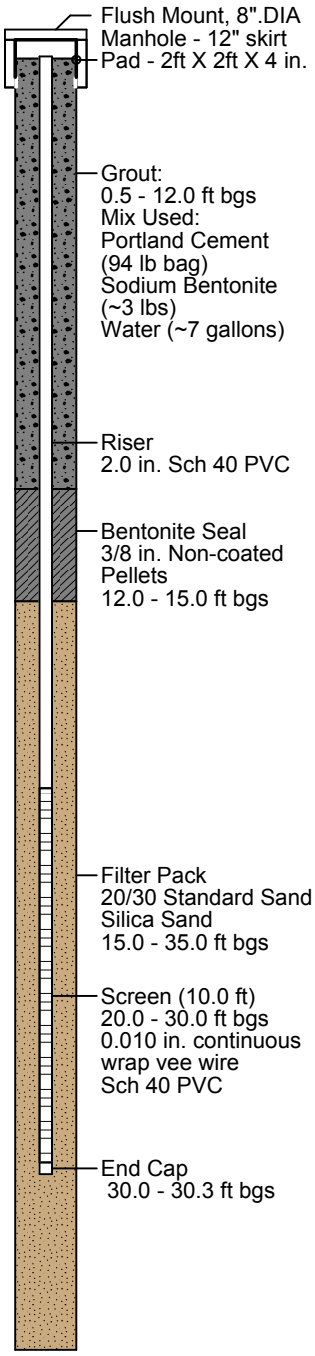
Site Name	: Transect 3
Drilling Company	: Cascade Drilling
Drilling Method	: Roto-Sonic
Driller	: Todd Mecham
Borehole Diameter	: 6.0 in.
Boring Completion	: 2.0" Sch. 40 PVC Monitoring Well
Depth to Water** (ft)	: 29.0 (during drilling)
Logged By	: Jeremy A Meshew
Signature	: Jeremy A Meshew

Water Levels
▼ During Drilling

Measurements
*North American Vertical Datum (NAVD88) feet
**Below Ground Surface (bgs) feet

DEPTH IN FEET (bgs)	INTERVAL	% RECOVERY	DESCRIPTION	PID (ppm)	USCS \ LITHOLOGY	Munsell Color	Depth to Water (DTW)	SAMPLE TYPE	SAMPLE ID
0	1	100	(0.0 - 14.0) SAND with fine gravel and silt, poorly graded, fine grained, 10YR 6/4, light yellowish brown, moist, loose	0	SP				No Soil Samples Collected
5	2	100		0					
10	3	100	(14.0 - 20.0) FAT CLAY with fine sand, 10YR 6/4, light yellowish brown, moist, soft	0	CH				
15	4	100	(20.0 - 31.0) CLAYEY SAND with trace fine gravel, fine grained, 10YR 6/4, light yellowish brown, moist, loose (Wet at 29 ft BGS)	0	SC		▼		
20	5	100	(31.0 - 35.0) SILT, 10YR 5/1, gray, dry, hard, Pierre Shale	0	ML				
25				0					
30				0					
35			End of Borehole 35.0 ft bgs	0					

Well: PETER-T03-MW004
Elev (TOC): 6174.28



Aerostar SES LLC

Peterson Air Force Base
AFFF Areas Expanded Site Inspections
USACE Omaha District

Contract No. W9128F-15-D-0051

Delivery Order No. 0003

BORING LOG
PETER-T04-MW004

Start Date	: 08/04/18
End Date	: 08/05/18
Northing	: 1360825.59
Easting	: 3225822.89
Surface Elev. (ft)*	: 6179.23
Total Depth (ft)**	: 84.0

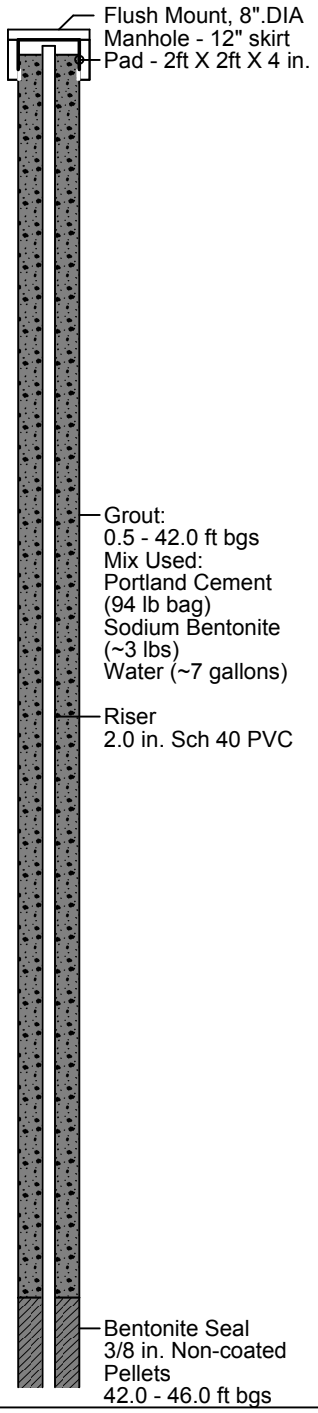
Site Name	: Transect 4
Drilling Company	: Cascade Drilling
Drilling Method	: Roto-Sonic
Driller	: Todd Mecham
Borehole Diameter	: 6.0 in.
Boring Completion	: 2.0" Sch. 40 PVC Monitoring Well
Depth to Water** (ft)	: 59.0 (during drilling)
Logged By	: Jeremy A Meshew
Signature	: Jeremy A Meshew

Water Levels
▼ During Drilling

Measurements
*North American Vertical Datum (NAVD88) feet
**Below Ground Surface (bgs) feet

Well: PETER-T04-MW004
Elev (TOC): 6178.87

DEPTH IN FEET (bgs)	INTERVAL	% RECOVERY	DESCRIPTION	PID (ppm)	USCS \ LITHOLOGY	Munsell Color	Depth to Water (DTW)	SAMPLE TYPE	SAMPLE ID
0	1	100	(0.0 - 23.0) SAND with silt and fine gravel, poorly graded, fine grained, 10YR 6/4, light yellowish brown, moist, loose	0	SP				No Soil Samples Collected
5	2	100		0					
10	3	100		0					
15				0					
20			(Wet at 20 ft BGS)	0					
25	4	100	(23.0 - 32.0) SILTY SAND, fine grained, 10YR 5/4, yellowish brown, moist, loose	0	SM				
30				0					
	5	100	(32.0 - 35.0) SAND with fine gravel and silt, poorly graded, fine grained, 10YR 6/6, brownish yellow, moist, loose		SP				
35	6	100	(35.0 - 51.0) SILTY SAND with gravel, fine grained, 10YR 5/4, yellowish brown, moist, loose	0	SM				
40				0					
45				0					



1/9/19

M2027.0003

Aerostar SES LLC

Peterson Air Force Base
AFFF Areas Expanded Site Inspections
USACE Omaha District

Contract No. W9128F-15-D-0051

Delivery Order No. 0003

BORING LOG
PETER-T04-MW004

Start Date	: 08/04/18
End Date	: 08/05/18
Northing	: 1360825.59
Easting	: 3225822.89
Surface Elev. (ft)*	: 6179.23
Total Depth (ft)**	: 84.0

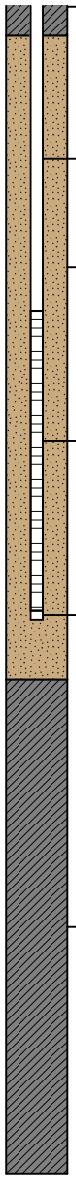
Site Name	: Transect 4
Drilling Company	: Cascade Drilling
Drilling Method	: Roto-Sonic
Driller	: Todd Mecham
Borehole Diameter	: 6.0 in.
Boring Completion	: 2.0" Sch. 40 PVC Monitoring Well
Depth to Water** (ft)	: 59.0 (during drilling)
Logged By	: Jeremy A Meshew
Signature	: Jeremy A Meshew

Water Levels
▼ During Drilling

Measurements
*North American Vertical Datum (NAVD88) feet
**Below Ground Surface (bgs) feet

Well: PETER-T04-MW004
Elev (TOC): 6178.87

DEPTH IN FEET (bgs)	INTERVAL	% RECOVERY	DESCRIPTION	PID (ppm)	USCS \ LITHOLOGY	Munsell Color	Depth to Water (DTW)	SAMPLE TYPE	SAMPLE ID
45				0					
	7	100			SM				
50				0					
			(51.0 - 54.0) SAND with silt, poorly graded, fine grained, 10YR 5/1, gray, slightly moist, loose		SP				
	8	100	(54.0 - 60.0) SILTY SAND, fine grained, 10YR 5/4, yellowish brown, moist, loose						
55				0	SM				
			(Wet at 59 ft BGS)				▼		
60			(60.0 - 84.0) SILTY SAND, fine grained, 10YR 5/1, gray, moist, loose, top of Pierre Shale	0					
	9	100							
65				0					
70				0					
	10	100			SM				
75				0					
	11	100							
80				0					
				0					
85			End of Borehole 84.0 ft bgs						
90									



Bentonite Seal
3/8 in. Non-coated Pellets
42.0 - 46.0 ft bgs

Riser
2.0 in. Sch 40 PVC

Filter Pack
20/30 Standard Sand
Silica Sand
46.0 - 67.5 ft bgs

Screen (10.0 ft)
55.2 - 65.2 ft bgs
0.010 in. continuous wrap vee wire
Sch 40 PVC

End Cap
65.2 - 65.5 ft bgs

Bentonite
3/8 in. Uncoated Pellets

Aerostar SES LLC

Peterson Air Force Base
AFFF Areas Expanded Site Inspections
USACE Omaha District

Contract No. W9128F-15-D-0051

Delivery Order No. 0003

BORING LOG
PETER-T04-MW006

Start Date	: 08/20/18
End Date	: 08/20/18
Northing	: 1360395.66
Easting	: 3225055.02
Surface Elev. (ft)*	: 6164.54
Total Depth (ft)**	: 60.0

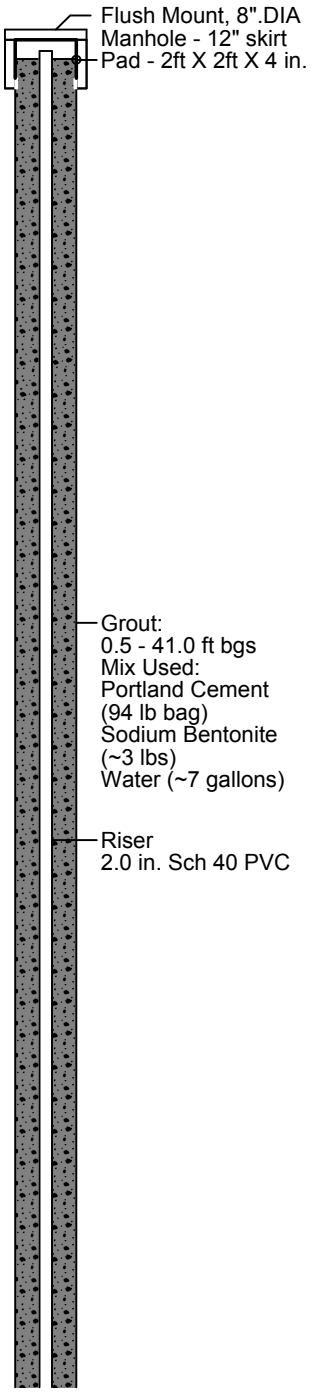
Site Name	: Transect 4
Drilling Company	: Cascade Drilling
Drilling Method	: Roto-Sonic
Driller	: Todd Mecham
Borehole Diameter	: 6.0 in.
Boring Completion	: 2.0" Sch. 40 PVC Monitoring Well
Depth to Water** (ft)	: 40.0 (during drilling)
Logged By	: Jeremy A Meshew
Signature	: Jeremy A Meshew

Water Levels
▼ During Drilling

Measurements
*North American Vertical Datum (NAVD88) feet
**Below Ground Surface (bgs) feet

DEPTH IN FEET (bgs)	INTERVAL	% RECOVERY	DESCRIPTION	PID (ppm)	USCS \ LITHOLOGY	Munsell Color	Depth to Water (DTW)	SAMPLE TYPE	SAMPLE ID
0	1	100	(0.0 - 30.0) CLAYEY SAND, fine grained, 10YR 5/4, yellowish brown, slightly moist, loose						No Soil Samples Collected
5	2	100		0					
10				0					
15	3	100		0	SC				
20				0					
25	4	100		0					
30	5	100	(30.0 - 35.0) FAT CLAY with sand, high plasticity, 10YR 5/4, yellowish brown, slightly moist, soft	0	CH				
35				0					

Well: PETER-T04-MW006
Elev (TOC): 6164.09



Aerostar SES LLC

Peterson Air Force Base
AFFF Areas Expanded Site Inspections
USACE Omaha District

Contract No. W9128F-15-D-0051

Delivery Order No. 0003

BORING LOG
PETER-T04-MW006

Start Date	: 08/20/18
End Date	: 08/20/18
Northing	: 1360395.66
Easting	: 3225055.02
Surface Elev. (ft)*	: 6164.54
Total Depth (ft)**	: 60.0

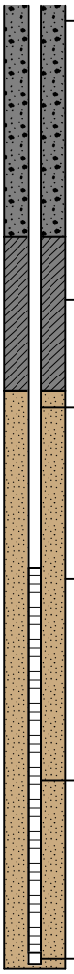
Site Name	: Transect 4
Drilling Company	: Cascade Drilling
Drilling Method	: Roto-Sonic
Driller	: Todd Mecham
Borehole Diameter	: 6.0 in.
Boring Completion	: 2.0" Sch. 40 PVC Monitoring Well
Depth to Water** (ft)	: 40.0 (during drilling)
Logged By	: Jeremy A Meshew
Signature	: Jeremy A Meshew

Water Levels
▼ During Drilling

Measurements
*North American Vertical Datum (NAVD88) feet
**Below Ground Surface (bgs) feet

Well: PETER-T04-MW006
Elev (TOC): 6164.09

DEPTH IN FEET (bgs)	INTERVAL	% RECOVERY	DESCRIPTION	PID (ppm)	USCS \ LITHOLOGY	Munsell Color	Depth to Water (DTW)	SAMPLE TYPE	SAMPLE ID
35	6	100	(35.0 - 39.0) SAND with fine gravel and silt, poorly graded, fine grained, 10YR 6/4 light yellowish brown, moist, loose	0	SP				
40	7	100	(39.0 - 40.0) SILT, 10YR 5/2, grayish brown, dry, hard	0	ML		▼		
			(40.0 - 42.0) SAND with gravel and clay, poorly graded, fine grained, 10YR 6/4 light yellowish brown, wet, loose		SP				
			(42.0 - 45.0) FAT CLAY with fine sand, 10YR 5/4, yellowish brown, wet, soft		CH				
45	8	100	(45.0 - 50.0) SAND with fine gravel and clay, poorly graded, fine grained, 10YR 6/4 light yellowish brown, wet, loose	0	SP				
50	9	100	(50.0 - 52.0) FAT CLAY with sand, 10YR 5/4, yellowish brown, wet, soft	0	CH				
			(52.0 - 60.0) SAND with fine gravel and clay, poorly graded, fine grained, 10YR 6/4 light yellowish brown, wet, loose	0	SP				
60			End of Borehole 60.0 ft bgs	0					
65									
70									



Aerostar SES LLC

Peterson Air Force Base
AFFF Areas Expanded Site Inspections
USACE Omaha District

Contract No. W9128F-15-D-0051

Delivery Order No. 0003

BORING LOG
PETER-T05-MW001

Start Date	: 08/20/18
End Date	: 08/20/18
Northing	: 1358058.74
Easting	: 3227572.38
Surface Elev. (ft)*	: 6153.93
Total Depth (ft)**	: 70.0

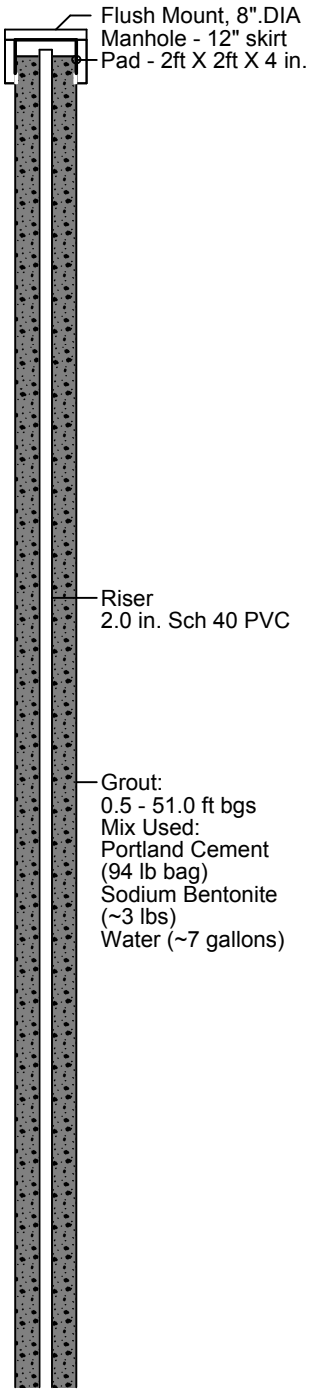
Site Name	: Transect 5
Drilling Company	: Cascade Drilling
Drilling Method	: Roto-Sonic
Driller	: Todd Mecham
Borehole Diameter	: 6.0 in.
Boring Completion	: 2.0" Sch. 40 PVC Monitoring Well
Depth to Water** (ft)	: 50.0 (during drilling)
Logged By	: Jeremy A Meshew
Signature	: Jeremy A Meshew

Water Levels
▼ During Drilling

Measurements
*North American Vertical Datum (NAVD88) feet
**Below Ground Surface (bgs) feet

Well: PETER-T05-MW001
Elev (TOC): 6153.58

DEPTH IN FEET (bgs)	INTERVAL	% RECOVERY	DESCRIPTION	PID (ppm)	USCS \ LITHOLOGY	Munsell Color	Depth to Water (DTW)	SAMPLE TYPE	SAMPLE ID
0	1	100	(0.0 - 18.0) SAND with clay, poorly graded, fine grained, 10YR 6/4, light yellowish brown, dry, loose	0	SP				No Soil Samples Collected
5	2	100		0					
10	3	100		0					
15				0					
20	4	100	(18.0 - 48.0) SAND with fine gravel, poorly graded, fine grained, 10YR 6/4, light yellowish brown, dry, loose	0	SP				
25				0					
30			(Damp at 30 - 40 ft BGS)	0					
35	5	100		0					
40				0					



Aerostar SES LLC

Peterson Air Force Base
AFFF Areas Expanded Site Inspections
USACE Omaha District

Contract No. W9128F-15-D-0051

Delivery Order No. 0003

BORING LOG
PETER-T05-MW001

Start Date	: 08/20/18
End Date	: 08/20/18
Northing	: 1358058.74
Easting	: 3227572.38
Surface Elev. (ft)*	: 6153.93
Total Depth (ft)**	: 70.0

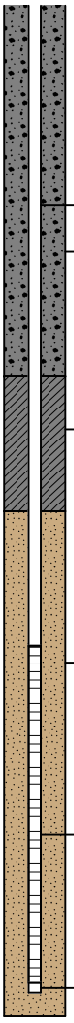
Site Name	: Transect 5
Drilling Company	: Cascade Drilling
Drilling Method	: Roto-Sonic
Driller	: Todd Mecham
Borehole Diameter	: 6.0 in.
Boring Completion	: 2.0" Sch. 40 PVC Monitoring Well
Depth to Water** (ft)	: 50.0 (during drilling)
Logged By	: Jeremy A Meshew
Signature	: Jeremy A Meshew

Water Levels
▼ During Drilling

Measurements
*North American Vertical Datum (NAVD88) feet
**Below Ground Surface (bgs) feet

Well: PETER-T05-MW001
Elev (TOC): 6153.58

DEPTH IN FEET (bgs)	INTERVAL	% RECOVERY	DESCRIPTION	PID (ppm)	USCS \ LITHOLOGY	Munsell Color	Depth to Water (DTW)	SAMPLE TYPE	SAMPLE ID
40				0					
45	6	100		0	SP				
			(48.0 - 50.0) LEAN CLAY and fine sand, 10YR 6/6, brownish yellow, dry, soft		CL		▼		
50			(50.0 - 70.0) SAND with fine gravel and clay, poorly graded, fine grained, 10YR 6/4, light yellowish brown, wet, loose	0					
55	7	100		0					
60				0	SP				
65	8	100		0					
70				0					
			End of Borehole 70.0 ft bgs						
75									
80									



Aerostar SES LLC

Peterson Air Force Base
AFFF Areas Expanded Site Inspections
USACE Omaha District

Contract No. W9128F-15-D-0051

Delivery Order No. 0003

BORING LOG
PETER-T05-MW005

Start Date	: 08/04/18
End Date	: 08/04/18
Northing	: 1359387.87
Easting	: 3227526.70
Surface Elev. (ft)*	: 6169.47
Total Depth (ft)**	: 70.0

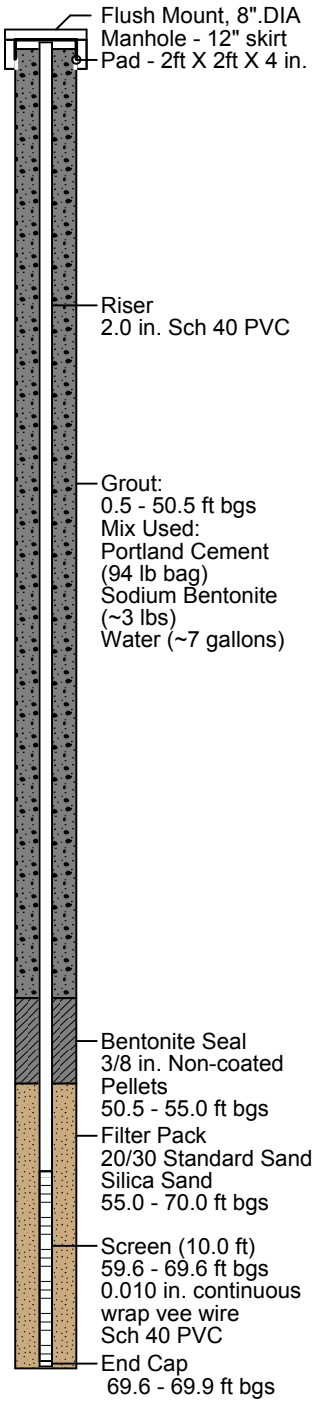
Site Name	: Transect 5
Drilling Company	: Cascade Drilling
Drilling Method	: Roto-Sonic
Driller	: Todd Mecham
Borehole Diameter	: 6.0 in.
Boring Completion	: 2.0" Sch. 40 PVC Monitoring Well
Depth to Water** (ft)	: 52.0 (during drilling)
Logged By	: Jeremy A Meshew
Signature	: Jeremy A Meshew

Water Levels
▼ During Drilling

Measurements
*North American Vertical Datum (NAVD88) feet
**Below Ground Surface (bgs) feet

Well: PETER-T05-MW005
Elev (TOC): 6169.19

DEPTH IN FEET (bgs)	INTERVAL	% RECOVERY	DESCRIPTION	PID (ppm)	USCS \ LITHOLOGY	Munsell Color	Depth to Water (DTW)	SAMPLE TYPE	SAMPLE ID
0	1	100	(0.0 - 0.5) Asphalt						No Soil Samples Collected
	2	100	(0.5 - 70.0) SAND with silt and fine gravel, poorly graded, fine grained, 10YR 6/4, light yellowish brown, slightly moist, loose						
5				0					
	3	100							
10				0					
15	4	100		0					
20				0					
25	5	100		0					
30	6	100		0					
35	7	100		0	SP				
40	8	100	(Moist at 39 ft BGS)	0					
45	9	100	(Slightly Moist at 45 ft BGS)	0					
50			(Wet at 52 ft BGS)	0			▼		
55	10	100		0					
60				0					
65	11	100		0					
70			End of Borehole 70.0 ft bgs	0					



1/9/19

M2027.0003

Aerostar SES LLC

Peterson Air Force Base
AFFF Areas Expanded Site Inspections
USACE Omaha District

Contract No. W9128F-15-D-0051

Delivery Order No. 0003

BORING LOG
PETER-T05-MW006

Start Date	: 08/01/18
End Date	: 08/02/18
Northing	: 1358389.73
Easting	: 3227919.58
Surface Elev. (ft)*	: 6160.30
Total Depth (ft)**	: 65.0

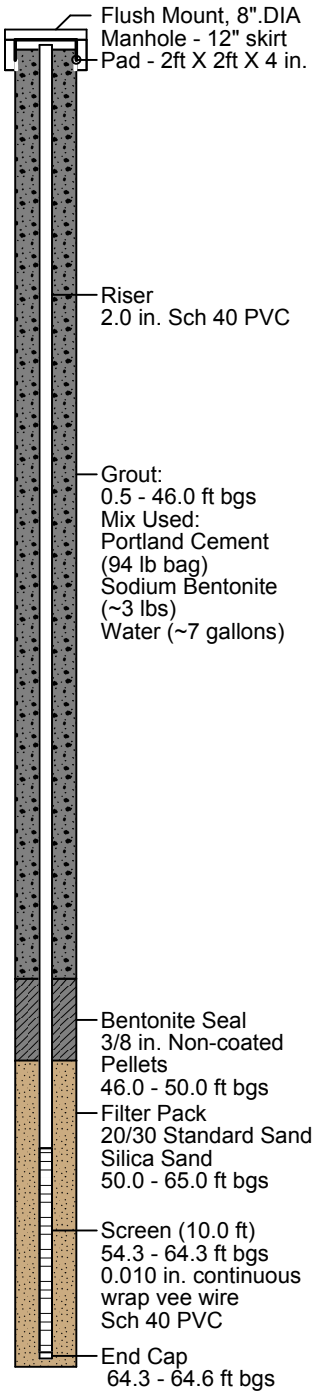
Site Name	: Transect 5
Drilling Company	: Cascade Drilling
Drilling Method	: Roto-Sonic
Driller	: Todd Mecham
Borehole Diameter	: 6.0 in.
Boring Completion	: 2.0" Sch. 40 PVC Monitoring Well
Depth to Water** (ft)	: 50.0 (during drilling)
Logged By	: Jeremy A Meshew
Signature	: Jeremy A Meshew

Water Levels
▼ During Drilling

Measurements
*North American Vertical Datum (NAVD88) feet
**Below Ground Surface (bgs) feet

DEPTH IN FEET (bgs)	INTERVAL	% RECOVERY	DESCRIPTION	PID (ppm)	USCS \ LITHOLOGY	Munsell Color	Depth to Water (DTW)	SAMPLE TYPE	SAMPLE ID
0	1	100	(0.0 - 0.5) Asphalt						No Soil Samples Collected
	2	100	(0.5 - 10.0) SAND with silt, poorly graded, fine grained, 10YR 6/4, light yellowish brown, moist, loose	0	SP				
5	3	100							
10	4	100	(10.0 - 18.0) SILTY SAND, fine grained, 10YR 6/4, light yellowish brown, moist, loose	0	SM				
15				0					
20	5	100	(18.0 - 65.0) SILTY SAND with fine gravel, fine grained, 10YR 6/4, light yellowish brown, moist, loose	0	SM				
25				0					
30	6	100		0					
35				0					
40	7	100		0					
45	8	100		0					
50			(Wet at 50 ft BGS)	0			▼		
55	9	100		0					
60	10	100		0					
65			End of Borehole 65.0 ft bgs	0					

Well: PETER-T05-MW006
Elev (TOC): 6160.00



1/9/19

M2027.0003

Aerostar SES LLC

Peterson Air Force Base
AFFF Areas Expanded Site Inspections
USACE Omaha District

Contract No. W9128F-15-D-0051

Delivery Order No. 0003

BORING LOG
PETER-T07-MW003

Start Date	: 08/18/18
End Date	: 08/18/18
Northing	: 1355187.20
Easting	: 3227485.27
Surface Elev. (ft)*	: 6112.03
Total Depth (ft)**	: 80.0

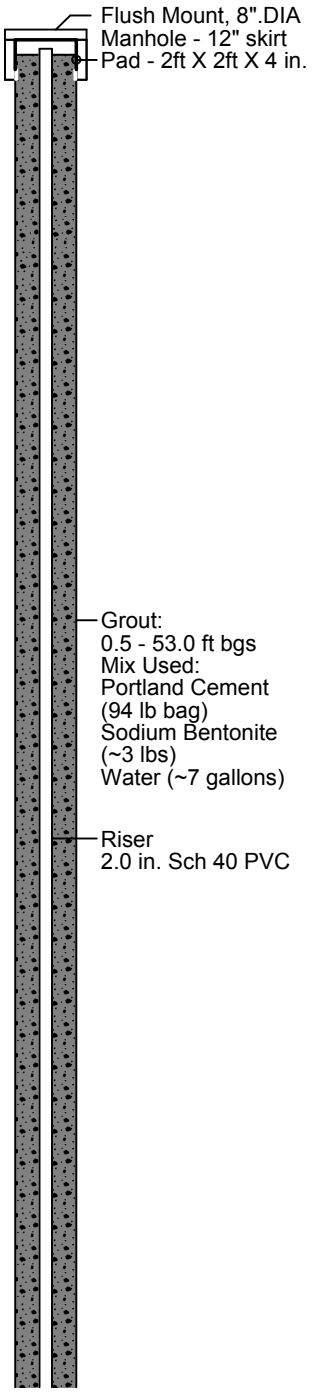
Site Name	: Transect 7
Drilling Company	: Cascade Drilling
Drilling Method	: Roto-Sonic
Driller	: Todd Mecham
Borehole Diameter	: 6.0 in.
Boring Completion	: 2.0" Sch. 40 PVC Monitoring Well
Depth to Water** (ft)	: 59.5 (during drilling)
Logged By	: Jeremy A Meshew
Signature	: Jeremy A Meshew

Water Levels
▼ During Drilling

Measurements
*North American Vertical Datum (NAVD88) feet
**Below Ground Surface (bgs) feet

Well: PETER-T07-MW003
Elev (TOC): 6111.66

DEPTH IN FEET (bgs)	INTERVAL	% RECOVERY	DESCRIPTION	PID (ppm)	USCS \ LITHOLOGY	Munsell Color	Depth to Water (DTW)	SAMPLE TYPE	SAMPLE ID
0	1	100	(0.0 - 12.0) CLAYEY SAND, fine grained, 10YR 6/4, light yellowish brown, slightly moist, loose	0	SC				No Soil Samples Collected
5	2	100		0					
10	3	100	(12.0 - 30.0) SAND with silt, poorly graded, fine grained, 10YR 6/4, light yellowish brown, dry, loose	0	SP				
15				0					
20	4	100		0					
25				0					
30	5	100	(30.0 - 77.0) SAND with fine gravel and silt, poorly graded, fine grained, 10YR 6/4, light yellowish brown, dry, loose	0	SP				
35				0					
40	6			0					
45				0					



Aerostar SES LLC

Peterson Air Force Base
AFFF Areas Expanded Site Inspections
USACE Omaha District

Contract No. W9128F-15-D-0051

Delivery Order No. 0003

BORING LOG
PETER-T07-MW003

Start Date	: 08/18/18
End Date	: 08/18/18
Northing	: 1355187.20
Easting	: 3227485.27
Surface Elev. (ft)*	: 6112.03
Total Depth (ft)**	: 80.0

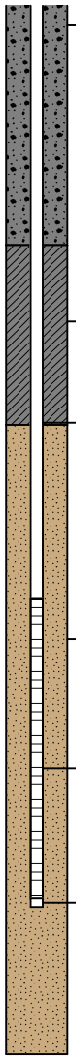
Site Name	: Transect 7
Drilling Company	: Cascade Drilling
Drilling Method	: Roto-Sonic
Driller	: Todd Mecham
Borehole Diameter	: 6.0 in.
Boring Completion	: 2.0" Sch. 40 PVC Monitoring Well
Depth to Water** (ft)	: 59.5 (during drilling)
Logged By	: Jeremy A Meshew
Signature	: Jeremy A Meshew

Water Levels
▼ During Drilling

Measurements
*North American Vertical Datum (NAVD88) feet
**Below Ground Surface (bgs) feet

Well: PETER-T07-MW003
Elev (TOC): 6111.66

DEPTH IN FEET (bgs)	INTERVAL	% RECOVERY	DESCRIPTION	PID (ppm)	USCS \ LITHOLOGY	Munsell Color	Depth to Water (DTW)	SAMPLE TYPE	SAMPLE ID
45				0					
	6	100							
50				0					
	7	100							
55				0					
60			(Wet at 59.5 ft BGS)	0	SP		▼		
65	8	100		0					
70				0					
75	9	100		0					
			(77.0 - 80.0) SILT, 10YR 5/1, gray, dry, hard, Pierre Shale		ML				
80			End of Borehole 80.0 ft bgs	0					
85									
90									



Aerostar SES LLC

Peterson Air Force Base
AFFF Areas Expanded Site Inspections
USACE Omaha District

Contract No. W9128F-15-D-0051

Delivery Order No. 0003

BORING LOG
PETER-T07-MW004

Start Date	: 08/17/18
End Date	: 08/17/18
Northing	: 1354861.50
Easting	: 3228180.58
Surface Elev. (ft)*	: 6113.44
Total Depth (ft)**	: 70.0

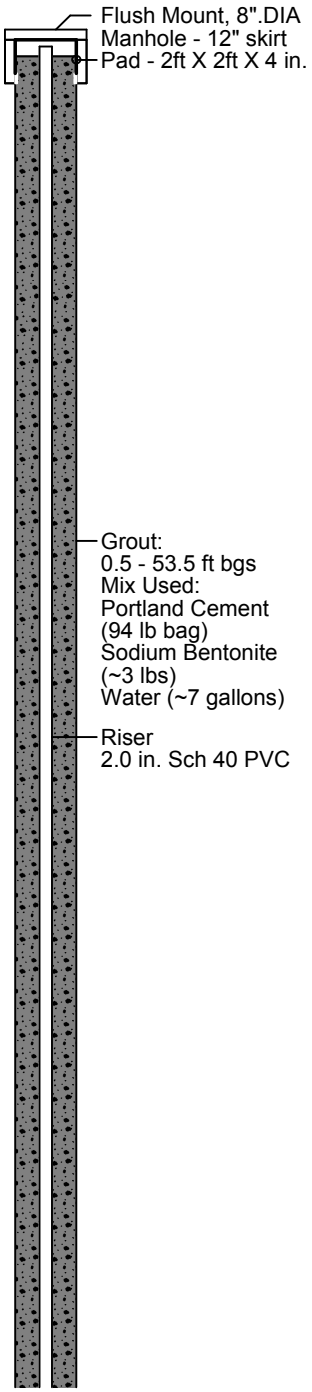
Site Name	: Transect 7
Drilling Company	: Cascade Drilling
Drilling Method	: Roto-Sonic
Driller	: Todd Mecham
Borehole Diameter	: 6.0 in.
Boring Completion	: 2.0" Sch. 40 PVC Monitoring Well
Depth to Water** (ft)	: 56.0 (during drilling)
Logged By	: Jeremy A Meshew
Signature	: Jeremy A Meshew

Water Levels
▼ During Drilling

Measurements
*North American Vertical Datum (NAVD88) feet
**Below Ground Surface (bgs) feet

DEPTH IN FEET (bgs)	INTERVAL	% RECOVERY	DESCRIPTION	PID (ppm)	USCS \ LITHOLOGY	Munsell Color	Depth to Water (DTW)	SAMPLE TYPE	SAMPLE ID
0	1	100	(0.0 - 20.0) SAND, poorly graded, fine grained, 10YR 4/4, brown, dry, loose						No Soil Samples Collected
5	2	100		0					
10	3	100		0	SP				
15				0					
20	4	100	(20.0 - 70.0) SAND with silt and fine gravel, poorly graded, fine grained, 10YR 6/4, light yellowish brown, dry, loose	0					
25				0					
30	5	100		0	SP				
35	6	100		0					
40				0					

Well: PETER-T07-MW004
Elev (TOC): 6113.08



Aerostar SES LLC

Peterson Air Force Base
AFFF Areas Expanded Site Inspections
USACE Omaha District

Contract No. W9128F-15-D-0051

Delivery Order No. 0003

BORING LOG
PETER-T07-MW004

Start Date	: 08/17/18
End Date	: 08/17/18
Northing	: 1354861.50
Easting	: 3228180.58
Surface Elev. (ft)*	: 6113.44
Total Depth (ft)**	: 70.0

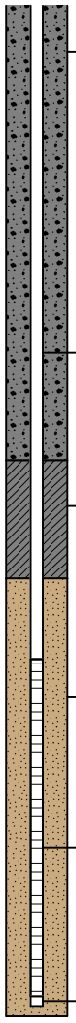
Site Name	: Transect 7
Drilling Company	: Cascade Drilling
Drilling Method	: Roto-Sonic
Driller	: Todd Mecham
Borehole Diameter	: 6.0 in.
Boring Completion	: 2.0" Sch. 40 PVC Monitoring Well
Depth to Water** (ft)	: 56.0 (during drilling)
Logged By	: Jeremy A Meshew
Signature	: Jeremy A Meshew

Water Levels
▼ During Drilling

Measurements
*North American Vertical Datum (NAVD88) feet
**Below Ground Surface (bgs) feet

Well: PETER-T07-MW004
Elev (TOC): 6113.08

DEPTH IN FEET (bgs)	INTERVAL	% RECOVERY	DESCRIPTION	PID (ppm)	USCS \ LITHOLOGY	Munsell Color	Depth to Water (DTW)	SAMPLE TYPE	SAMPLE ID
40				0					
45	7	100		0					
50				0					
	8	100							
55			(Wet at 56 ft BGS)	0	SP		▼		
60	9	100		0					
65				0					
	10	100							
70			End of Borehole 70.0 ft bgs	0					
75									
80									



Aerostar SES LLC

Peterson Air Force Base
AFFF Areas Expanded Site Inspections
USACE Omaha District

Contract No. W9128F-15-D-0051

Delivery Order No. 0003

BORING LOG
PETER-T07-MW006

Start Date	: 08/25/18
End Date	: 08/26/18
Northing	: 1352865.77
Easting	: 3226196.31
Surface Elev. (ft)*	: 6094.34
Total Depth (ft)**	: 95.0

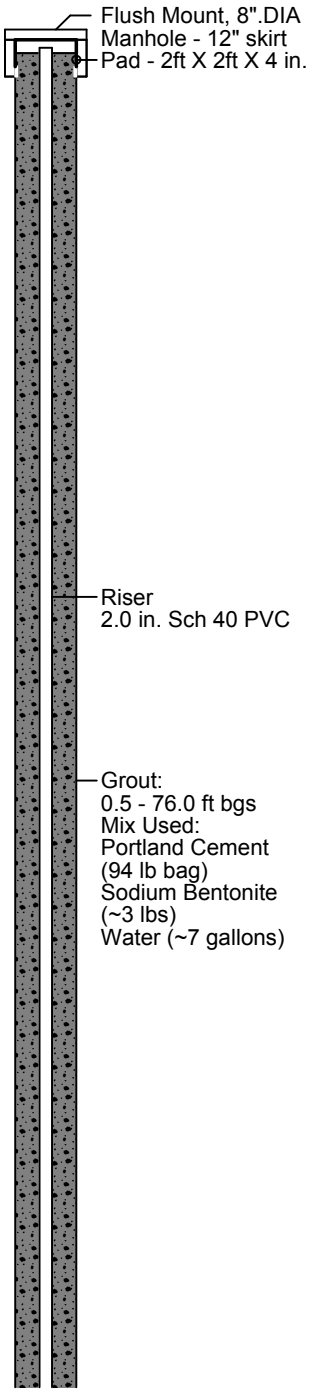
Site Name	: Transect 7
Drilling Company	: Cascade Drilling
Drilling Method	: Roto-Sonic
Driller	: Todd Mecham
Borehole Diameter	: 6.0 in.
Boring Completion	: 2.0" Sch. 40 PVC Monitoring Well
Depth to Water** (ft)	: 75.0 (during drilling)
Logged By	: Jeremy A Meshew
Signature	: Jeremy A Meshew

Water Levels
▼ During Drilling

Measurements
*North American Vertical Datum (NAVD88) feet
**Below Ground Surface (bgs) feet

DEPTH IN FEET (bgs)	INTERVAL	% RECOVERY	DESCRIPTION	PID (ppm)	USCS \ LITHOLOGY	Munsell Color	Depth to Water (DTW)	SAMPLE TYPE	SAMPLE ID
0	1	100	(0.0 - 10.0) SAND, poorly graded, fine grained, 10YR 6/4, light yellowish brown, slightly moist, loose	0	SP				No Soil Samples Collected
5	2	100		0					
10	3	100	(10.0 - 30.0) CLAYEY SAND, fine grained, 10YR 4/4, dark yellowish brown, slightly moist, loose	0	SC				
15				0					
20	4	100		0					
25				0					
30	5	100	(30.0 - 37.0) SAND, poorly graded, fine grained, 10YR 6/4, light yellowish brown, slightly moist, loose	0	SP				
35				0					
40	6	100	(37.0 - 62.0) SAND with fine gravel, poorly graded, fine grained, 10YR 6/4, light yellowish brown, slightly moist, loose	0	SP				
	7	100							
45				0					
	8	100							
50				0					

Well: PETER-T07-MW006
Elev (TOC): 6094.07



Aerostar SES LLC

Peterson Air Force Base
AFFF Areas Expanded Site Inspections
USACE Omaha District

Contract No. W9128F-15-D-0051

Delivery Order No. 0003

BORING LOG
PETER-T07-MW006

Start Date	: 08/25/18
End Date	: 08/26/18
Northing	: 1352865.77
Easting	: 3226196.31
Surface Elev. (ft)*	: 6094.34
Total Depth (ft)**	: 95.0

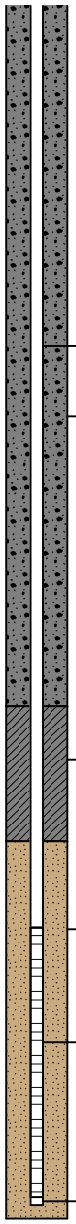
Site Name	: Transect 7
Drilling Company	: Cascade Drilling
Drilling Method	: Roto-Sonic
Driller	: Todd Mecham
Borehole Diameter	: 6.0 in.
Boring Completion	: 2.0" Sch. 40 PVC Monitoring Well
Depth to Water** (ft)	: 75.0 (during drilling)
Logged By	: Jeremy A Meshew
Signature	: Jeremy A Meshew

Water Levels
▼ During Drilling

Measurements
*North American Vertical Datum (NAVD88) feet
**Below Ground Surface (bgs) feet

Well: PETER-T07-MW006
Elev (TOC): 6094.07

DEPTH IN FEET (bgs)	INTERVAL	% RECOVERY	DESCRIPTION	PID (ppm)	USCS \ LITHOLOGY	Munsell Color	Depth to Water (DTW)	SAMPLE TYPE	SAMPLE ID
50				0					
55	9	100		0	SP				
60				0					
65	10	100	(62.0 - 70.0) SAND with silt, poorly graded, fine grained, 10YR 6/4, light yellowish brown, slightly moist, loose	0	SP				
70			(70.0 - 95.0) SAND with fine gravel and clay, poorly graded, fine grained, 10YR 6/4, light yellowish brown, moist, loose	0					
75	11	100	(Wet at 75 ft BGS)	0			▼		
80				0	SP				
85	12	100		0					
90				0					
	13	100							
95			End of Borehole 95.0 ft bgs	0					
100									



Aerostar SES LLC

Peterson Air Force Base
AFFF Areas Expanded Site Inspections
USACE Omaha District

Contract No. W9128F-15-D-0051

Delivery Order No. 0003

BORING LOG
PETER-T08-MW001

Start Date	: 08/16/18
End Date	: 08/16/18
Northing	: 1354958.68
Easting	: 3232594.15
Surface Elev. (ft)*	: 6174.57
Total Depth (ft)**	: 83.0

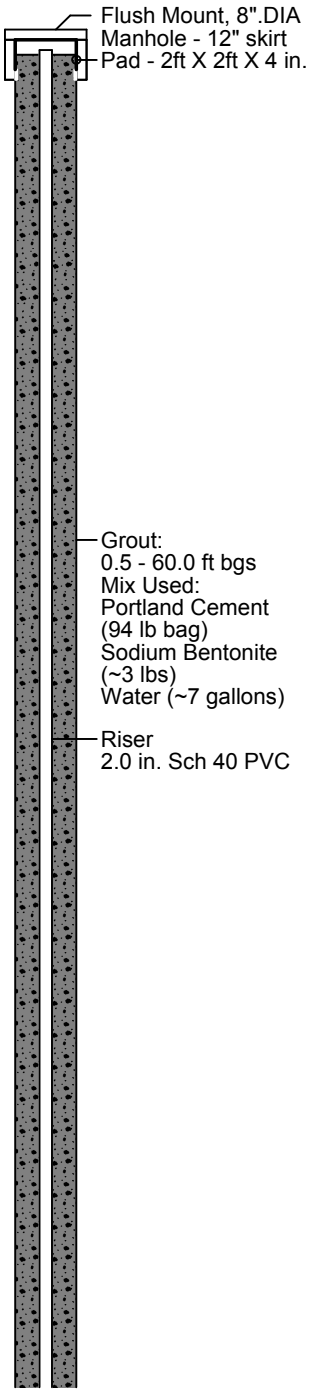
Site Name	: Transect 8
Drilling Company	: Cascade Drilling
Drilling Method	: Roto-Sonic
Driller	: Todd Mecham
Borehole Diameter	: 6.0 in.
Boring Completion	: 2.0" Sch. 40 PVC Monitoring Well
Depth to Water** (ft)	: 70.0 (during drilling)
Logged By	: Jeremy A Meshew
Signature	: Jeremy A Meshew

Water Levels
▼ During Drilling

Measurements
*North American Vertical Datum (NAVD88) feet
**Below Ground Surface (bgs) feet

DEPTH IN FEET (bgs)	INTERVAL	% RECOVERY	DESCRIPTION	PID (ppm)	USCS \ LITHOLOGY	Munsell Color	Depth to Water (DTW)	SAMPLE TYPE	SAMPLE ID
0	1	100	(0.0 - 30.0) SAND with silt, poorly graded, fine grained, 10YR 6/4, light yellowish brown, dry, loose						No Soil Samples Collected
5	2	100		0					
10	3	100		0					
15				0	SP				
	4	100	(Slightly Moist at 18 ft BGS)						
20				0					
25	5	80		0					
30			(30.0 - 53.0) SILTY SAND, fine grained, 10YR 6/4, light yellowish brown, dry, loose	0					
35	6	80		0					
					SM				
40				0					
	7								
45				0					

Well: PETER-T08-MW001
Elev (TOC): 6174.14



Aerostar SES LLC

Peterson Air Force Base
AFFF Areas Expanded Site Inspections
USACE Omaha District

Contract No. W9128F-15-D-0051

Delivery Order No. 0003

BORING LOG
PETER-T08-MW001

Start Date	: 08/16/18
End Date	: 08/16/18
Northing	: 1354958.68
Easting	: 3232594.15
Surface Elev. (ft)*	: 6174.57
Total Depth (ft)**	: 83.0

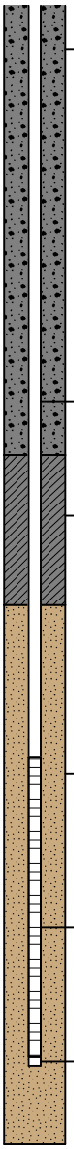
Site Name	: Transect 8
Drilling Company	: Cascade Drilling
Drilling Method	: Roto-Sonic
Driller	: Todd Mecham
Borehole Diameter	: 6.0 in.
Boring Completion	: 2.0" Sch. 40 PVC Monitoring Well
Depth to Water** (ft)	: 70.0 (during drilling)
Logged By	: Jeremy A Meshew
Signature	: Jeremy A Meshew

Water Levels
▼ During Drilling

Measurements
*North American Vertical Datum (NAVD88) feet
**Below Ground Surface (bgs) feet

Well: PETER-T08-MW001
Elev (TOC): 6174.14

DEPTH IN FEET (bgs)	INTERVAL	% RECOVERY	DESCRIPTION	PID (ppm)	USCS \ LITHOLOGY	Munsell Color	Depth to Water (DTW)	SAMPLE TYPE	SAMPLE ID
45	7	100		0					
	8	100			SM				
50	9	100		0					
			(53.0 -55.0) SAND with gravel and silt, poorly graded, fine grained, 10YR 6/4, light yellowish brown, dry, loose		SP				
55	10	100	(55.0 - 60.0) SILT, 10YR 7/1, light gray, dry, stiff	0	ML				
60	11	100	(60.0 - 70.0) SILTY SAND, fine grained, 10YR 7/4, very pale brown, slightly moist, loose	0	SM				
65				0					
70	12	100	(70.0 - 76.5) CLAYEY SAND, fine grained, 10YR 4/4, dark yellowish brown, very moist, stiff	0	SC		▼		
75				0					
	13	100	(76.5 - 80) CLAYEY SAND, fine grained, 10YR 7/1, light gray, dry, stiff		SC				
80			(80.0 - 83.0) SILT, 10YR 4/4, dark yellowish brown, with 10YR 2/1, black mottling, dry, stiff, shaley	0	ML				
			End of Borehole 83.0 ft bgs	0					
85									
90									



Aerostar SES LLC

Peterson Air Force Base
AFFF Areas Expanded Site Inspections
USACE Omaha District

Contract No. W9128F-15-D-0051

Delivery Order No. 0003

BORING LOG
PETER-T11-MW001

Start Date	: 09/06/18
End Date	: 09/06/18
Northing	: 1347726.97
Easting	: 3226555.57
Surface Elev. (ft)*	: 6059.87
Total Depth (ft)**	: 85.0

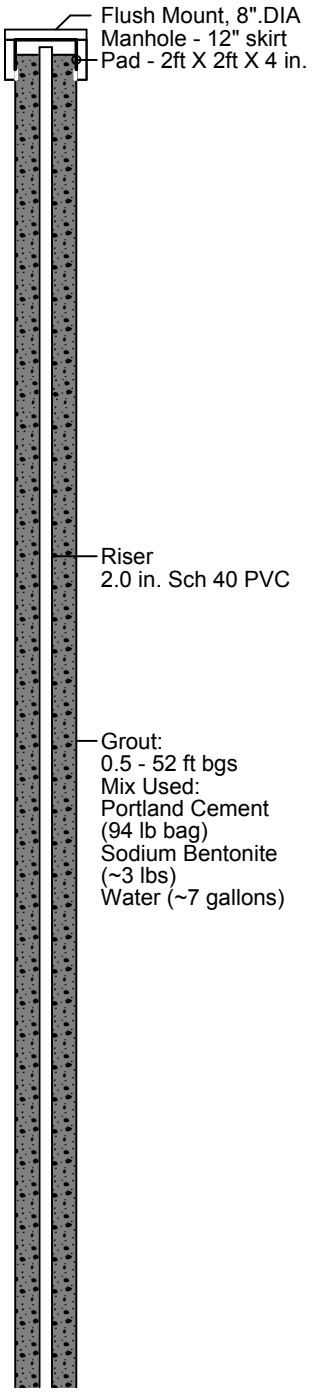
Site Name	: Transect 11
Drilling Company	: Cascade Drilling
Drilling Method	: Roto-Sonic
Driller	: Todd Mecham
Borehole Diameter	: 6.0 in.
Boring Completion	: 2.0" Sch. 40 PVC Monitoring Well
Depth to Water** (ft)	: Not Encountered
Logged By	: Jeremy A Meshew
Signature	: Jeremy A Meshew

Water Levels
▼ During Drilling

Measurements
*North American Vertical Datum (NAVD88) feet
**Below Ground Surface (bgs) feet

DEPTH IN FEET (bgs)	INTERVAL	% RECOVERY	DESCRIPTION	PID (ppm)	USCS \ LITHOLOGY	Munsell Color	Depth to Water (DTW)	SAMPLE TYPE	SAMPLE ID
0	1	100	(0.0 - 58.0) SAND with silt, poorly graded, fine grained, 10YR 6/4, light yellowish brown, slightly moist, loose						No Soil Samples Collected
5	2	100		0					
10				0					
15	3	100		0					
20				0	SP				
25	4	100		0					
30				0					
35	5	100		0					
40				0					
45	6	100		0					

Well: PETER-T11-MW001
Elev (TOC): 6059.44



Aerostar SES LLC

Peterson Air Force Base
AFFF Areas Expanded Site Inspections
USACE Omaha District

Contract No. W9128F-15-D-0051

Delivery Order No. 0003

BORING LOG
PETER-T11-MW001

Start Date	: 09/06/18
End Date	: 09/06/18
Northing	: 1347726.97
Easting	: 3226555.57
Surface Elev. (ft)*	: 6059.87
Total Depth (ft)**	: 85.0

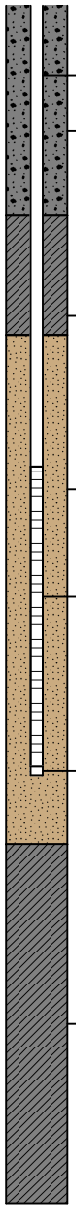
Site Name	: Transect 11
Drilling Company	: Cascade Drilling
Drilling Method	: Roto-Sonic
Driller	: Todd Mecham
Borehole Diameter	: 6.0 in.
Boring Completion	: 2.0" Sch. 40 PVC Monitoring Well
Depth to Water** (ft)	: Not Encountered
Logged By	: Jeremy A Meshew
Signature	: Jeremy A Meshew

Water Levels
▼ During Drilling

Measurements
*North American Vertical Datum (NAVD88) feet
**Below Ground Surface (bgs) feet

Well: PETER-T11-MW001
Elev (TOC): 6059.44

DEPTH IN FEET (bgs)	INTERVAL	% RECOVERY	DESCRIPTION	PID (ppm)	USCS \ LITHOLOGY	Munsell Color	Depth to Water (DTW)	SAMPLE TYPE	SAMPLE ID
45				0					
	7	100							
50				0	SP				
55	8	100		0					
			(58.0 - 70.0) FAT CLAY with fine sand, 10YR 4/4, dark yellowish brown, moist, stiff						
60				0					
65	9	100		0	CH				
70				0					
			(70.0 - 80.0) FAT CLAY, 10YR 4/4, dark yellowish brown, with 10YR 6/6, brownish yellow mottling, slightly moist, hard						
75	10	100		0	CH				
80				0					
	11	143	(80.0 - 85.0) SILT, 10YR 4/1, dark gray, with 10YR 6/6, brownish yellow mottling, dry, shaley, hard, Pierre Shale		ML				
85				0					
			End of Borehole 85.0 ft bgs						
90									



Aerostar SES LLC

Peterson Air Force Base
AFFF Areas Expanded Site Inspections
USACE Omaha District

Contract No. W9128F-15-D-0051

Delivery Order No. 0003

BORING LOG
PETER-T12-MW003

Start Date	: 09/07/18
End Date	: 09/07/18
Northing	: 1346529.62
Easting	: 3225173.42
Surface Elev. (ft)*	: 6019.89
Total Depth (ft)**	: 55.0

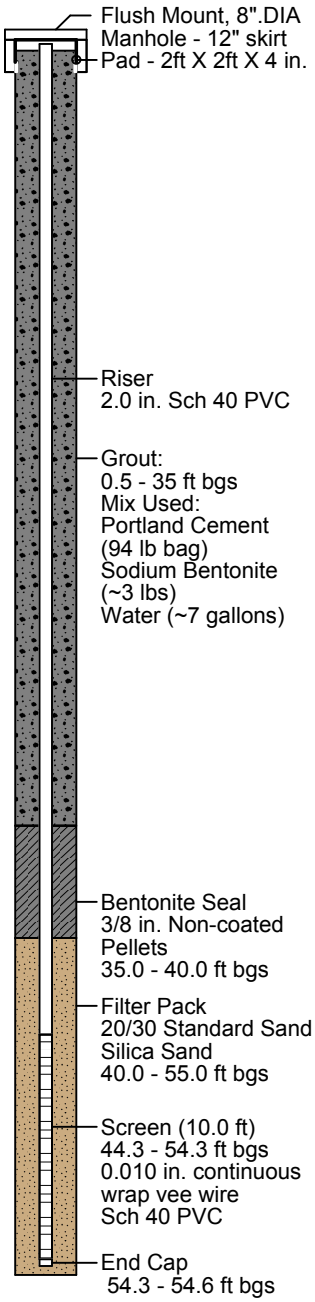
Site Name	: Transect 12
Drilling Company	: Cascade Drilling
Drilling Method	: Roto-Sonic
Driller	: Todd Mecham
Borehole Diameter	: 6.0 in.
Boring Completion	: 2.0" Sch. 40 PVC Monitoring Well
Depth to Water** (ft)	: Not Encountered
Logged By	: Jeremy A Meshew
Signature	: Jeremy A Meshew

Water Levels
▼ During Drilling

Measurements
*North American Vertical Datum (NAVD88) feet
**Below Ground Surface (bgs) feet

DEPTH IN FEET (bgs)	INTERVAL	% RECOVERY	DESCRIPTION	PID (ppm)	USCS \ LITHOLOGY	Munsell Color	Depth to Water (DTW)	SAMPLE TYPE	SAMPLE ID
0	1	100	(0.0 - 28.0) SAND with silt, poorly graded, fine grained, 10YR 6/4, light yellowish brown, dry, loose	0	SP				No Soil Samples Collected
5	2	100		0					
10	3	100		0					
15	4	100		0					
20	5	100	(28.0 - 45.0) CLAYEY SAND, fine grained, 10YR 6/4, light yellowish brown, slightly moist, loose	0	SC				
25	6	100		0					
30	7	100	(45.0 - 50.0) SAND with fine gravel and silt, poorly graded, fine grained, 10YR 5/4, yellowish brown, slightly moist, stiff	0	SP				
35	8	100	(50.0 - 55.0) FAT CLAY with sand, fine grained. 10YR 4/4, dark yellowish brown, moist, hard	0	CH				
40				0					
45				0					
50				0					
55			End of Borehole 55.0 ft bgs	0					
60									

Well: PETER-T12-MW003
Elev (TOC): 6019.51



Aerostar SES LLC

Peterson Air Force Base
AFFF Areas Expanded Site Inspections
USACE Omaha District

Contract No. W9128F-15-D-0051

Delivery Order No. 0003

BORING LOG
PETER-T13-MW001

Start Date	: 08/23/18
End Date	: 08/24/18
Northing	: 1350605.76
Easting	: 3222515.08
Surface Elev. (ft)*	: 6022.06
Total Depth (ft)**	: 80.0

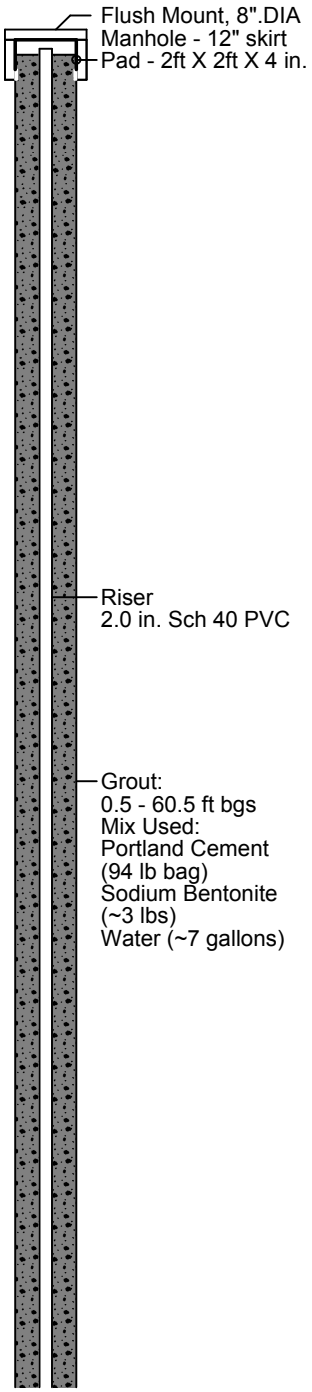
Site Name	: Transect 13
Drilling Company	: Cascade Drilling
Drilling Method	: Roto-Sonic
Driller	: Todd Mecham
Borehole Diameter	: 6.0 in.
Boring Completion	: 2.0" Sch. 40 PVC Monitoring Well
Depth to Water** (ft)	: 61.0 (during drilling)
Logged By	: Jeremy A Meshew
Signature	: Jeremy A Meshew

Water Levels
▼ During Drilling

Measurements
*North American Vertical Datum (NAVD88) feet
**Below Ground Surface (bgs) feet

Well: PETER-T13-MW004
Elev (TOC): 6021.72

DEPTH IN FEET (bgs)	INTERVAL	% RECOVERY	DESCRIPTION	PID (ppm)	USCS \ LITHOLOGY	Munsell Color	Depth to Water (DTW)	SAMPLE TYPE	SAMPLE ID
0	1	100	(0.0 - 5.0) SAND, poorly graded, fine grained, 10YR 6/4, light yellowish brown, moist, loose		SP				No Soil Samples Collected
5	2	100	(5.0 - 37.0) SAND with fine gravel and clay, poorly graded, fine grained, 10YR 6/4, light yellowish brown, slightly moist, loose	0					
10	3	100		0					
15				0					
20	4	100		0	SP				
25				0					
30	5	100		0					
35	6	100		0					
			(37.0 - 50.0) SAND with silt, poorly graded, fine grained, 10YR 6/4, light yellowish brown, slightly moist, loose						
40	7			0	SP				
45				0					



Aerostar SES LLC

Peterson Air Force Base
AFFF Areas Expanded Site Inspections
USACE Omaha District

Contract No. W9128F-15-D-0051

Delivery Order No. 0003

BORING LOG
PETER-T13-MW001

Start Date	: 08/23/18
End Date	: 08/24/18
Northing	: 1350605.76
Easting	: 3222515.08
Surface Elev. (ft)*	: 6022.06
Total Depth (ft)**	: 80.0

Site Name	: Transect 13
Drilling Company	: Cascade Drilling
Drilling Method	: Roto-Sonic
Driller	: Todd Mecham
Borehole Diameter	: 6.0 in.
Boring Completion	: 2.0" Sch. 40 PVC Monitoring Well
Depth to Water** (ft)	: 61.0 (during drilling)
Logged By	: Jeremy A Meshew
Signature	: Jeremy A Meshew

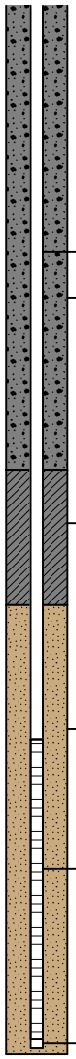
Water Levels
▼ During Drilling

Measurements
*North American Vertical Datum (NAVD88) feet
**Below Ground Surface (bgs) feet

Well: PETER-T13-MW004
Elev (TOC): 6021.72

DEPTH IN FEET (bgs)	INTERVAL	% RECOVERY	DESCRIPTION	PID (ppm)	USCS \ LITHOLOGY	Depth to Water (DTW)	SAMPLE TYPE	SAMPLE ID
45	7	70		0	SP			
50	8	100	(50.0 - 79.0) SAND with fine gravel, poorly graded, fine grained, 10YR 6/4, light yellowish brown, very moist, loose	0				
55				0				
60	9	100	(Wet at 61 ft BGS)	0		▼		
65				0	SP			
70	10	100		0				
75				0				
80			(79.0 - 80.0) SILT, 10YR 3/1, very dark gray, moist, hard, Pierre Shale	0	ML			
85								
90								

End of Borehole 80.0 ft bgs



Aerostar SES LLC

Peterson Air Force Base
AFFF Areas Expanded Site Inspections
USACE Omaha District

Contract No. W9128F-15-D-0051

Delivery Order No. 0003

BORING LOG
PETER-T13-MW003

Start Date	: 08/24/18
End Date	: 08/25/18
Northing	: 1350966.69
Easting	: 3222521.15
Surface Elev. (ft)*	: 6023.86
Total Depth (ft)**	: 85.0

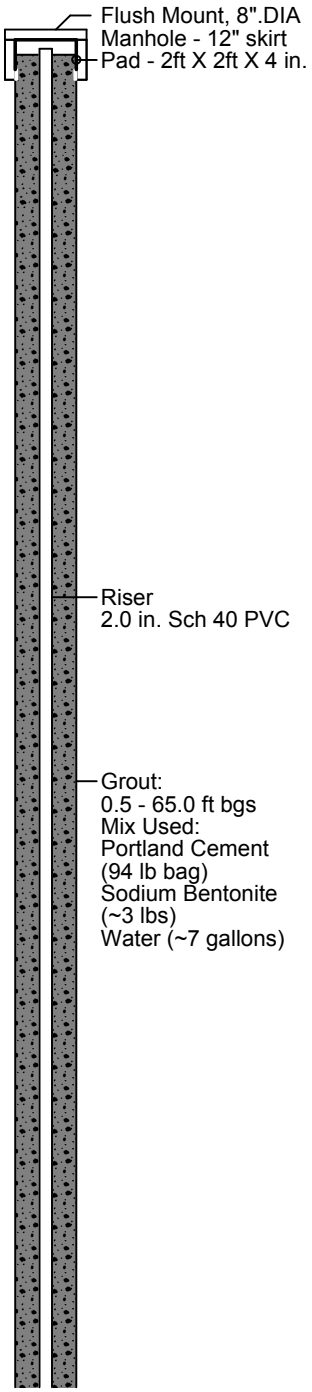
Site Name	: Transect 13
Drilling Company	: Cascade Drilling
Drilling Method	: Roto-Sonic
Driller	: Todd Mecham
Borehole Diameter	: 6.0 in.
Boring Completion	: 2.0" Sch. 40 PVC Monitoring Well
Depth to Water** (ft)	: 67.0 (during drilling)
Logged By	: Jeremy A Meshew
Signature	: Jeremy A Meshew

Water Levels
▼ During Drilling

Measurements
*North American Vertical Datum (NAVD88) feet
**Below Ground Surface (bgs) feet

DEPTH IN FEET (bgs)	INTERVAL	% RECOVERY	DESCRIPTION	PID (ppm)	USCS \ LITHOLOGY	Munsell Color	Depth to Water (DTW)	SAMPLE TYPE	SAMPLE ID
0	1	100	(0.0 - 8.0) SAND, poorly graded, fine grained, 10YR 6/4, light yellowish brown, slightly moist, loose	0	SP				No Soil Samples Collected
5	2	100							
10			(8.0 - 36.0) SAND with fine gravel and clay, poorly graded, fine grained, 10YR 6/4, light yellowish brown, slightly moist, loose	0	SP				
15	3	100		0					
20				0					
25	4	100		0					
30				0					
35	5	100		0					
40			(36.0 - 45.0) SAND with silt, poorly graded, fine grained, 10YR 6/4, light yellowish brown, dry, loose	0	SP				
	6	100							
45				0					

Well: PETER-T13-MW003
Elev (TOC): 6023.44



Aerostar SES LLC

Peterson Air Force Base
AFFF Areas Expanded Site Inspections
USACE Omaha District

Contract No. W9128F-15-D-0051

Delivery Order No. 0003

BORING LOG
PETER-T13-MW003

Start Date	: 08/24/18
End Date	: 08/25/18
Northing	: 1350966.69
Easting	: 3222521.15
Surface Elev. (ft)*	: 6023.86
Total Depth (ft)**	: 85.0

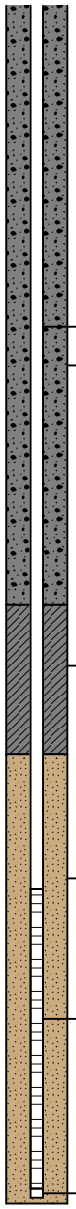
Site Name	: Transect 13
Drilling Company	: Cascade Drilling
Drilling Method	: Roto-Sonic
Driller	: Todd Mecham
Borehole Diameter	: 6.0 in.
Boring Completion	: 2.0" Sch. 40 PVC Monitoring Well
Depth to Water** (ft)	: 67.0 (during drilling)
Logged By	: Jeremy A Meshew
Signature	: Jeremy A Meshew

Water Levels
▼ During Drilling

Measurements
*North American Vertical Datum (NAVD88) feet
**Below Ground Surface (bgs) feet

Well: PETER-T13-MW003
Elev (TOC): 6023.44

DEPTH IN FEET (bgs)	INTERVAL	% RECOVERY	DESCRIPTION	PID (ppm)	USCS \ LITHOLOGY	Munsell Color	Depth to Water (DTW)	SAMPLE TYPE	SAMPLE ID
45	7	100	(50.0 - 85.0) SAND with fine gravel and clay, poorly graded, fine grained, 10YR 6/4, light yellowish brown, very moist, loose	0	SP				
50				0					
55	8	100		0					
60				0					
65	9	100	(Wet at 67 ft BGS)	0			▼		
70	10	100		0					
	11	100							
75				0					
80	12	100		0					
85			End of Borehole 85.0 ft bgs	0					
90									



Aerostar SES LLC

Peterson Air Force Base
AFFF Areas Expanded Site Inspections
USACE Omaha District

Contract No. W9128F-15-D-0051

Delivery Order No. 0003

BORING LOG
PETER-T13-MW004

Start Date	: 08/23/18
End Date	: 08/23/18
Northing	: 1350218.71
Easting	: 3222514.32
Surface Elev. (ft)*	: 6020.80
Total Depth (ft)**	: 80.0

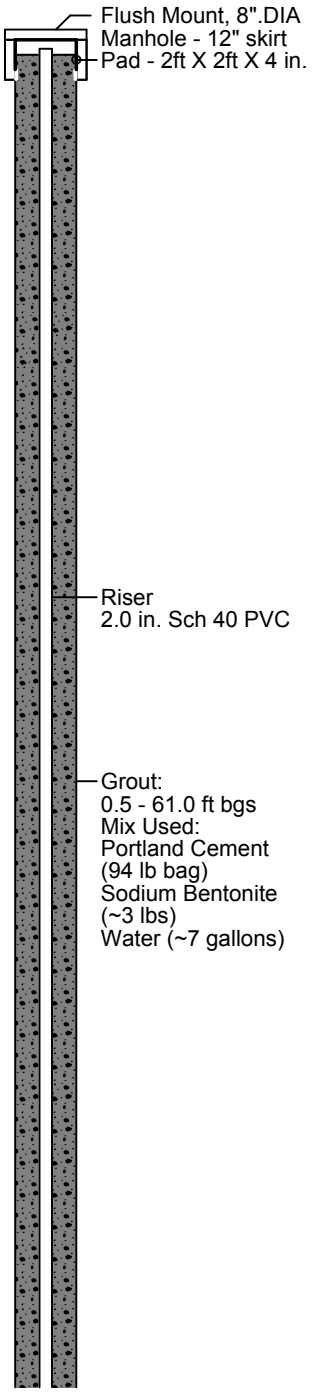
Site Name	: Transect 13
Drilling Company	: Cascade Drilling
Drilling Method	: Roto-Sonic
Driller	: Todd Mecham
Borehole Diameter	: 6.0 in.
Boring Completion	: 2.0" Sch. 40 PVC Monitoring Well
Depth to Water** (ft)	: 63.0 (during drilling)
Logged By	: Jeremy A Meshew
Signature	: Jeremy A Meshew

Water Levels
▼ During Drilling

Measurements
*North American Vertical Datum (NAVD88) feet
**Below Ground Surface (bgs) feet

DEPTH IN FEET (bgs)	INTERVAL	% RECOVERY	DESCRIPTION	PID (ppm)	USCS \ LITHOLOGY	Munsell Color	Depth to Water (DTW)	SAMPLE TYPE	SAMPLE ID
0	1	100	(0.0 - 20.0) SAND, poorly graded, fine grained, 10YR 6/4, light yellowish brown, slightly moist, loose						No Soil Samples Collected
5	2	100		0					
10	3	100		0	SP				
15				0					
20	4	100	(20.0 - 79.0) SAND with fine gravel and clay, poorly graded, fine grained, 10YR 6/4, light yellowish brown, moist, loose	0					
25				0					
30	5	100		0	SP				
35				0					
40	6			0					
45				0					

Well: PETER-T13-MW004
Elev (TOC): 6020.45



Aerostar SES LLC

Peterson Air Force Base
AFFF Areas Expanded Site Inspections
USACE Omaha District

Contract No. W9128F-15-D-0051

Delivery Order No. 0003

BORING LOG
PETER-T13-MW004

Start Date	: 08/23/18
End Date	: 08/23/18
Northing	: 1350218.71
Easting	: 3222514.32
Surface Elev. (ft)*	: 6020.80
Total Depth (ft)**	: 80.0

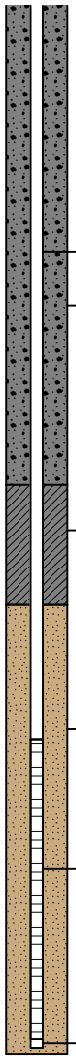
Site Name	: Transect 13
Drilling Company	: Cascade Drilling
Drilling Method	: Roto-Sonic
Driller	: Todd Mecham
Borehole Diameter	: 6.0 in.
Boring Completion	: 2.0" Sch. 40 PVC Monitoring Well
Depth to Water** (ft)	: 63.0 (during drilling)
Logged By	: Jeremy A Meshew
Signature	: Jeremy A Meshew

Water Levels
▼ During Drilling

Measurements
*North American Vertical Datum (NAVD88) feet
**Below Ground Surface (bgs) feet

Well: PETER-T13-MW004
Elev (TOC): 6020.45

DEPTH IN FEET (bgs)	INTERVAL	% RECOVERY	DESCRIPTION	PID (ppm)	USCS \ LITHOLOGY	Depth to Water (DTW)	SAMPLE TYPE	SAMPLE ID
45				0				
	6	100						
50				0				
55	7	100		0				
60				0				
			(Wet at 63 ft BGS)		SP	▼		
65	8	100		0				
70				0				
75	9	100		0				
80			(79.0 - 80.0) SILT, 10YR 3/1, very dark gray, slightly moist, hard, Pierre Shale	0	ML			
			End of Borehole 80.0 ft bgs					
85								
90								



Aerostar SES LLC

Peterson Air Force Base
AFFF Areas Expanded Site Inspections
USACE Omaha District

Contract No. W9128F-15-D-0051

Delivery Order No. 0003

BORING LOG
PETER-T13-MW006

Start Date	: 08/22/18
End Date	: 08/22/18
Northing	: 1348990.50
Easting	: 3222389.37
Surface Elev. (ft)*	: 6042.35
Total Depth (ft)**	: 115.0

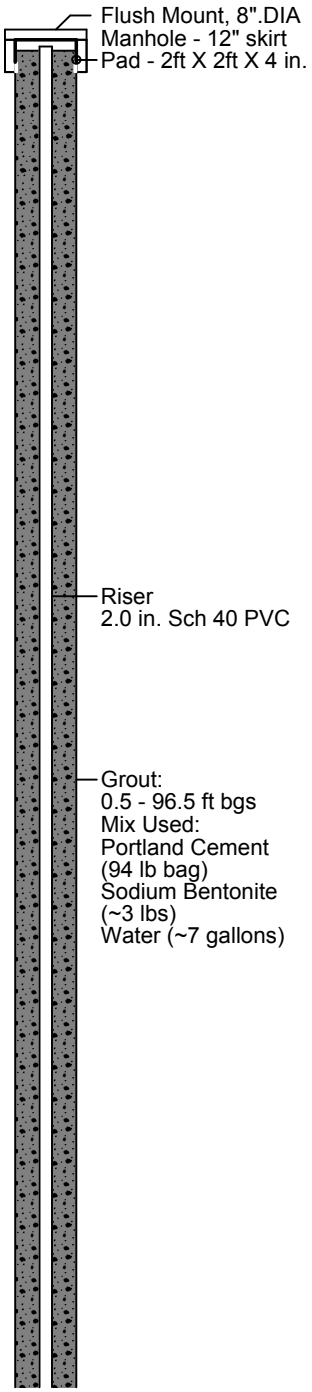
Site Name	: Transect 13
Drilling Company	: Cascade Drilling
Drilling Method	: Roto-Sonic
Driller	: Todd Mecham
Borehole Diameter	: 6.0 in.
Boring Completion	: 2.0" Sch. 40 PVC Monitoring Well
Depth to Water** (ft)	: 97.0 (during drilling)
Logged By	: Jeremy A Meshew
Signature	: Jeremy A Meshew

Water Levels
▼ During Drilling

Measurements
*North American Vertical Datum (NAVD88) feet
**Below Ground Surface (bgs) feet

DEPTH IN FEET (bgs)	INTERVAL	% RECOVERY	DESCRIPTION	PID (ppm)	USCS \ LITHOLOGY	Munsell Color	Depth to Water (DTW)	SAMPLE TYPE	SAMPLE ID
0	1	100	(0.0 - 10.0) SAND with clay, poorly graded, fine grained, 10YR 6/4, light yellowish brown, slightly moist, loose						No Soil Samples Collected
5	2	100		0	SP				
10				0					
	3	30	(10.0 - 20.0) CLAYEY SAND, fine grained, 10YR 6/4, light yellowish brown, slightly moist, loose						
15				0	SC				
20				0					
	4	100	(20.0 - 105.0) SAND with trace clay, poorly graded, fine grained, 10YR 6/4, light yellowish brown, slightly moist, loose						
25				0					
30				0					
	5	50							
35				0					
40				0	SP				
45	6	50		0					
50				0					
55	7	70		0					
60				0					

Well: PETER-T13-MW006
Elev (TOC): 6041.99



Aerostar SES LLC

Peterson Air Force Base
AFFF Areas Expanded Site Inspections
USACE Omaha District

Contract No. W9128F-15-D-0051

Delivery Order No. 0003

BORING LOG
PETER-T13-MW006

Start Date	: 08/22/18
End Date	: 08/22/18
Northing	: 1348990.50
Easting	: 3222389.37
Surface Elev. (ft)*	: 6042.35
Total Depth (ft)**	: 115.0

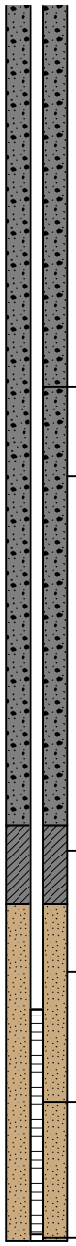
Site Name	: Transect 13
Drilling Company	: Cascade Drilling
Drilling Method	: Roto-Sonic
Driller	: Todd Mecham
Borehole Diameter	: 6.0 in.
Boring Completion	: 2.0" Sch. 40 PVC Monitoring Well
Depth to Water** (ft)	: 97.0 (during drilling)
Logged By	: Jeremy A Meshew
Signature	: Jeremy A Meshew

Water Levels
▼ During Drilling

Measurements
*North American Vertical Datum (NAVD88) feet
**Below Ground Surface (bgs) feet

Well: PETER-T13-MW006
Elev (TOC): 6041.99

DEPTH IN FEET (bgs)	INTERVAL	% RECOVERY	DESCRIPTION	PID (ppm)	USCS \ LITHOLOGY	Munsell Color	Depth to Water (DTW)	SAMPLE TYPE	SAMPLE ID
60				0					
65	8	100	(Damp at 68 ft BGS)	0					
70				0					
75	9	100		0					
80				0	SP				
85	10	100		0					
90				0					
95	11	100	(Wet at 97 ft BGS)	0			▼		
100				0					
	12	100							
105			(105.0 - 115.0) CLAYEY SAND, fine grained, 10YR 6/4, light yellowish brown, slightly moist, loose	0					
110	13	100		0	SC				
115			End of Borehole 115.0 ft bgs	0					
120									



Aerostar SES LLC

Peterson Air Force Base
AFFF Areas Expanded Site Inspections
USACE Omaha District

Contract No. W9128F-15-D-0051

Delivery Order No. 0003

BORING LOG
PETER-T14-MW002

Start Date	: 08/26/18
End Date	: 09/05/18
Northing	: NA
Easting	: NA
Surface Elev. (ft)*	: NA
Total Depth (ft)**	: 112.0

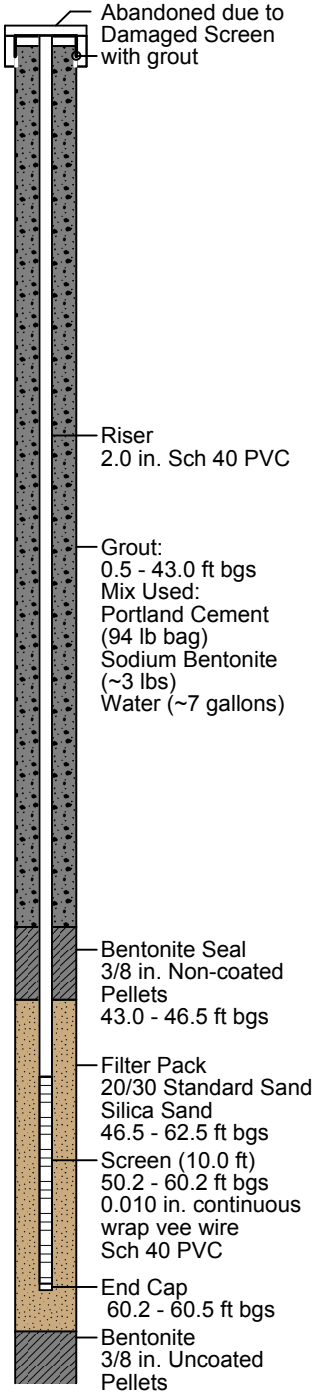
Site Name	: Transect 14
Drilling Company	: Cascade Drilling
Drilling Method	: Roto-Sonic
Driller	: Todd Mecham
Borehole Diameter	: 6.0 in.
Boring Completion	: 2.0" Sch. 40 PVC Monitoring Well Abandoned
Depth to Water** (ft)	: Not Encountered
Logged By	: Jeremy A Meshew
Signature	: Jeremy A Meshew

Water Levels
▼ During Drilling

Measurements
*North American Vertical Datum (NAVD88) feet
**Below Ground Surface (bgs) feet

DEPTH IN FEET (bgs)	INTERVAL	% RECOVERY	DESCRIPTION	PID (ppm)	USCS \ LITHOLOGY	Munsell Color	Depth to Water (DTW)	SAMPLE TYPE	SAMPLE ID
0	1	100	(0.0 - 10.0) SAND, poorly graded, fine grained, 10YR 4/3, brown, dry, loose	0	SP				No Soil Samples Collected
5	2	100		0					
10	3	100	(10.0 - 30.0) CLAYEY SAND, fine grained, 10YR 4/4, dark yellowish brown, moist, loose	0	SC				
15				0					
20	4	100		0					
25				0					
30	5	100	(30.0 - 59.0) SAND with clay, poorly graded, fine grained, 10YR 4/4, dark yellowish brown, dry, stiff	0	SP				
35				0					
40	6	60		0					
45				0					
50	7	100		0					
55				0					
60	8		(59.0 - 85.0) LEAN CLAY, 10YR 4/1 dark gray, dry, stiff, Pierre Shale	0	CL				
65				0					

Well: PETER-T14-MW002
Elev (TOC): NA



Aerostar SES LLC

Peterson Air Force Base
AFFF Areas Expanded Site Inspections
USACE Omaha District

Contract No. W9128F-15-D-0051

Delivery Order No. 0003

BORING LOG
PETER-T14-MW002

Start Date	: 08/26/18
End Date	: 09/05/18
Northing	: NA
Easting	: NA
Surface Elev. (ft)*	: NA
Total Depth (ft)**	: 112.0

Site Name	: Transect 14
Drilling Company	: Cascade Drilling
Drilling Method	: Roto-Sonic
Driller	: Todd Mecham
Borehole Diameter	: 6.0 in.
Boring Completion	: 2.0" Sch. 40 PVC Monitoring Well Abandoned
Depth to Water** (ft)	: Not Encountered
Logged By	: Jeremy A Meshew
Signature	: Jeremy A Meshew

Water Levels
▼ During Drilling

Measurements
*North American Vertical Datum (NAVD88) feet
**Below Ground Surface (bgs) feet

Well: PETER-T14-MW002
Elev (TOC): NA

DEPTH IN FEET (bgs)	INTERVAL	% RECOVERY	DESCRIPTION	PID (ppm)	USCS \ LITHOLOGY	Munsell Color	Depth to Water (DTW)	SAMPLE TYPE	SAMPLE ID
65	8	100		0					
	9	100							
70				0					
75	10	100		0	CL				
80				0					
	11	100							
85			(85.0 - 112.0) SANDY SILT, 10YR 4/1 dark gray, shaley, dry, stiff, Pierre Shale	0					
	12	100							
90				0					
	13	100							
95				0					
100	14	100		0	ML				
105				0					
	15	100							
110				0					
				0					
115			End of Borehole 112.0 ft bgs Monitoring well screen was determined to have been damaged during installation. Well was abandoned in place in accordance with Code of Colorado Regulations 2 CCR 402-2.						
120									
125									
130									

Bentonite
3/8 in. Uncoated
Pellets

Aerostar SES LLC

Peterson Air Force Base
AFFF Areas Expanded Site Inspections
USACE Omaha District

Contract No. W9128F-15-D-0051

Delivery Order No. 0003

BORING LOG
PETER-T14-MW002A

Start Date	: 09/09/18
End Date	: 09/10/18
Northing	: 1346308.45
Easting	: 3222438.14
Surface Elev. (ft)*	: 5986.84
Total Depth (ft)**	: 60.0

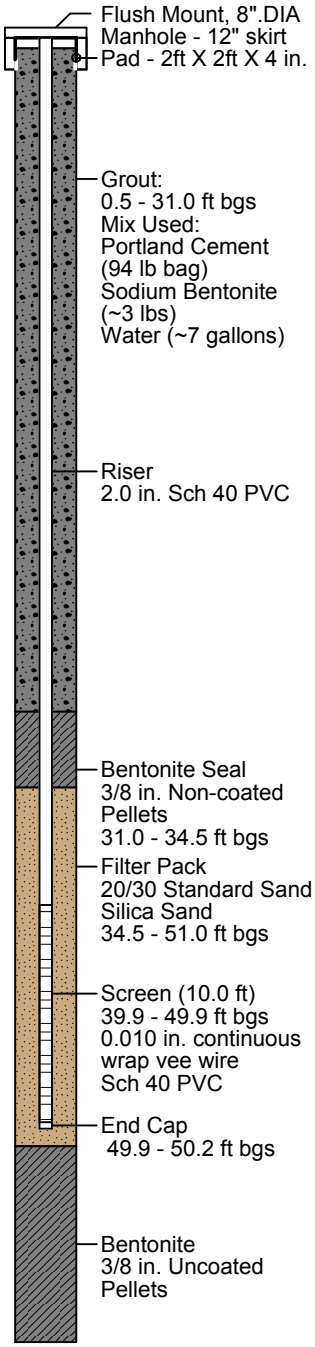
Site Name	: Transect 14
Drilling Company	: Cascade Drilling
Drilling Method	: Roto-Sonic
Driller	: Todd Mecham
Borehole Diameter	: 6.0 in.
Boring Completion	: 2.0" Sch. 40 PVC Monitoring Well
Depth to Water** (ft)	: Not Encountered
Logged By	: Jeremy A Meshew
Signature	: Jeremy A Meshew

Water Levels
▼ During Drilling

Measurements
*North American Vertical Datum (NAVD88) feet
**Below Ground Surface (bgs) feet

DEPTH IN FEET (bgs)	INTERVAL	% RECOVERY	DESCRIPTION	PID (ppm)	USCS \ LITHOLOGY	Munsell Color	Depth to Water (DTW)	SAMPLE TYPE	SAMPLE ID
0	1	100	(0.0 - 10.0) SAND, poorly graded, fine grained, 10YR 4/3, brown, dry, loose	0	SP				No Soil Samples Collected
5	2	100		0					
10	3	100	(10.0 - 30.0) CLAYEY SAND, fine grained, 10YR 4/4, dark yellowish brown, moist, stiff	0	SC				
15				0					
20	4	100		0					
25				0					
30	5	100	(30.0 - 40.0) SAND with clay, poorly graded, fine grained, 10YR 4/4, dark yellowish brown, dry, stiff	0	SP				
35				0					
40	6	80	(40.0 - 43.0) CLAYEY SAND, fine grained, 10YR 4/4, dark yellowish brown, dry, stiff	0	SC				
45			(43.0 - 47.0) SAND with clay, poorly graded, fine grained, 10YR 4/4, dark yellowish brown, dry, stiff	0	SP				
			(47.0 - 50.0) CLAYEY SAND, fine grained, 10YR 4/4, dark yellowish brown, dry, stiff		SC				
50	7	100	(50.0 - 57.0) FAT CLAY with sand, 10YR 4/4, dark yellowish brown, dry, stiff	0	CH				
55				0					
			(57.0 - 60.0) LEAN CLAY, 10YR 4/1, gray, platey, dry, stiff, top of Pierre Shale	0	CL				
60			End of Borehole 60.0 ft bgs						

Well: PETER-T14-MW002A
Elev (TOC): 5986.32



AerostarSES LLC

WELL DEVELOPMENT LOG

Project Name:	SI AFFF MULTIPLE SITES
ASL Project No:	M2027.0003
Installation:	**Peterson AFB**
Site:	Transect 1
Date:	8-19-18
Sample Technician:	A. Willis, J. Klein
Well ID No.:	PETER-T01-MW002

Initial Measurements

Well Total Depth:	35.5 ft BTOC (well completed)	Water Level:	19.1 ft BTOC
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable) = (35.5 Ft - 19.1 Ft) x 0.163 gal/ft = 2.67 Gal			
Calculated Well Volume:	2.67 Gallons	Well Diameter:	2.0 inches
Calculations:	1" diameter = 0.041 gal/ft	2" diameter = 0.163 gal/ft	4" diameter = 0.653 gal/ft

Well Purging Activites

Purging Method (pump type): Geosquirt

Flow rate (incl. units): 2100 ml/min

Time	Flow Rate (ml/min)	Turbidity (NTUs)	Temp (°C)	Cond. (mS/Cm)	pH	Depth to water (BTOC)	DO (mg/l)	ORP	Total Gal Pumped	Comments
0748	2100	—	—	—	—	19.1	—	—	—	Development initiated
0752	2100	over range	14.2	0.388	7.20	19.4	0.31	38.4	2.22	surged
0800	2100	over range	14.1	0.400	6.69	19.4	0.15	-64.7	6.66	surged
0808	2100	209	14.1	0.407	6.72	19.4	0.09	-79.9	11.1	surged
0816	2100	30.2	14.2	0.412	6.76	19.4	0.08	-88.2	15.54	
0824	2100	13.5	14.1	0.414	6.76	19.4	0.08	-92.9	19.98	Developed
Results At End Of Purging:		13.5	14.1	~~0.041~~ 0.414	6.76	19.4	0.08	-92.9	19.98	

COMMENTS:

AerostarSES LLC

WELL DEVELOPMENT LOG

Project Name:	SI AFFF MULTIPLE SITES
ASL Project No:	M2027.0003
Installation:	Peterson AFB
Site:	TRANSECT 1
Date:	8-15-18
Sample Technician:	A. Willis, J. Klein
Well ID No.:	PETER-T01-MW004

Initial Measurements

Well Total Depth:	34.4 ft BTOC	Water Level:	27.48 ft BTOC
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable) = (34.4 Ft - 27.48 Ft) x 0.163 gal/ft = 1.13 Gal			
Calculated Well Volume:	1.13 Gallons	Well Diameter:	2.0 inches
Calculations:	1" diameter = 0.041 gal/ft	2" diameter = 0.163 gal/ft	4" diameter = 0.653 gal/ft

Well Purging Activites

Purging Method (pump type): Geosquirt

Flow rate (incl. units): 350 ml/min

Time	Flow Rate (ml/min)	Turbidity (NTUs)	Temp (°C)	Cond. (mS/Cm)	pH	Depth to water (BTOC)	DO (mg/l)	ORP	Total Gal Pumped	Comments
1538	300	—	—	—	—	27.30	—	—	—	Development initiated
1543	350	over range	15.8	0.57	7.38	29.84	0.50	-140.7	0.92	Surged
1556	350	over range	16.0	0.67	7.51	30.2	0.57	-137.5	1.46	surged
1606	350	378	15.9	0.63	7.33	32.1	0.15	-197.2	2.58	Surged
1614	350	over range	14.7	0.65	7.41	33.60	0.10	-205.4	3.52	
1624	350	270	15.9	0.72	7.91	33.64	0.13	-215.9	4.06	- Almost dry / stop pump
1635	350	—	—	—	—	30.0	—	—	4.06	Resume development
1645	350	821	15.7	0.71	7.24	33.35	0.43	-145.8	4.98	
1650	350	67.9	15.7	0.72	7.30	33.15	0.44	-143.2	5.44	
1655	350	56.6	15.6	0.72	7.33	33.35	0.48	-138.1	5.90	
1700	350	30.2	15.5	0.71	7.32	33.30	0.50	-131.1	6.36	
1705	350	20.7	15.4	0.71	7.31	33.32	0.52	-132.9	6.82	Developed
Results At End Of Purging:		20.7	15.4	0.71	7.31	33.32	0.52	-132.9	6.82	

COMMENTS:
- Well completed
- slow recharge

AerostarSES LLC

WELL DEVELOPMENT LOG

Project Name:	SI AFFF MULTIPLE SITES
ASL Project No:	M2027.0003
Installation:	**Peterson AFB**
Site:	TRANSECT 2
Date:	8-16-18 / 8-18-18
Sample Technician:	A. Willis, J. Klein
Well ID No.:	PETER-T02-MW006

Initial Measurements

Well Total Depth:	55.5 ft BTOC	Water Level:	51.40 ft BTOC
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable) = (55.5 Ft 51.40 Ft) x 0.163 gal/ft = 0.67 Gal			
Calculated Well Volume:	0.67 Gallons	Well Diameter:	2.0 inches
Calculations:	1" diameter = 0.041 gal/ft	2" diameter = 0.163 gal/ft	4" diameter = 0.653 gal/ft

Well Purging Activites

Purging Method (pump type): Bailing / Reclaimer

Flow rate (incl. units): 550 - 700 ml/min

	Time	Flow Rate (ml/min)	Turbidity (NTUs)	Temp (°C)	Cond. (mS/Cm)	pH	Depth to water (BTOC)	DO (mg/l)	ORP	Total Gal Pumped	Comments
8-16-18	0742-0759	700	—	—	—	—	Bailing	—	—	2.22	Development initiated w/ Bailer
	0818	550	—	—	—	—	*	—	—	2.22	Reclaimer
	0830	550	over range	14.2	0.81	8.07	*	2.43	-130.0	3.96	Surged
	0840	550	over range	15.1	0.85	8.34	*	4.00	-91.3	5.41	Surged
	0856	550	over range	15.3	0.89	8.57	*	4.60	-51.2	7.73	Stop to allow recharge
	0912	550	over range	—	—	—	—	—	—	—	DRY - Recharging
	1424	700	over range	—	—	~~51.38~~	51.38	—	—	7.73	Resume - bailing
	1430	700	over range	13.8	0.86	7.70	*	2.61	68.5	8.45	
	1435	700	over range	13.7	0.85	7.73	*	3.31	22.0	9.37	
	1440	700	over range	13.8	0.85	7.72	*	3.46	-25.6	10.31	Developed
Results At End Of Purging:			over range	13.8	0.85	7.72	*	3.46	-25.6	10.31	

COMMENTS: Well completed

* WL is below reclaimer – no WL data (slow recharge)

– well recharged very slowly. Purged over 15 well volumes.

AerostarSES LLC

WELL DEVELOPMENT LOG

Project Name:	SI AFFF MULTIPLE SITES
ASL Project No:	M2027.0003
Installation:	**Peterson AFB**
Site:	TRANSECT 3
Date:	8-6-18 / 8-7-18
Sample Technician:	A. Willis, F. Johnson
Well ID No.:	PETER-T03-MW002

Initial Measurements

Well Total Depth: 50.5 ft BTOC		Water Level: 47.60 ft BTOC	
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY			
(only fill out if applicable) = (50.5 Ft - 47.60 Ft) x 0.163 gal/ft = 0.47 Gal			
Calculated Well Volume: 0.47 Gallons		Well Diameter: 2.0 inches	
Calculations:	1" diameter = 0.041 gal/ft	2" diameter = 0.163 gal/ft	4" diameter = 0.653 gal/ft

Well Purging Activites

Purging Method (pump type): * Bailing

Flow rate (incl. units): ~250 mL/min

	Time	Flow Rate (ml/min)	Turbidity (NTUs)	Temp (°C)	Cond. (mS/Cm)	pH	Depth to water (BTOC)	DO (mg/l)	ORP	Total Gal Pumped	Comments
8-6-18	0706	-0740 800	—	—	—	—	—	—	—	3.5	> 5 well volume
8-7-18	1257	800	—	—	—	—	47.57	—	—	3.5	Ran well dry.
	1300	800	over range	15.3	1.29	6.43	**	0.92	-18.9	4.13	Resumed development
	1304	800	over range	15.4	1.33	6.54		1.28	-41.9	4.98	
	1310	800	over range	15.6	1.38	6.57		1.41	-75.3	6.25	
Results At End Of Purging:											

COMMENTS: Stick + up = 0.68' ags

* Slow recharge. Too slow for ~~bladder pump~~ Geo Squirt and too shallow for reclaimer. Bailed over 5 well volumes before running dry.

** Can't grab WL while bailing; well too small. No WL DATA DURING DEVELOPMENT

AerostarSES LLC

WELL DEVELOPMENT LOG

Project Name:	SI AFFF MULTIPLE SITES
ASL Project No:	M2027.0003
Installation:	**Peterson AFB**
Site:	TRANSECT 3
Date:	8-15-18
Sample Technician:	A. Willis, J. Klein
Well ID No.:	PETER-T03-MW004

Initial Measurements

Well Total Depth:	~~29.8~~ 29.9' ft BTOC	Water Level:	25.73 ft BTOC
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY			
(only fill out if applicable) =	(29.9 Ft - 25.73 Ft) x 0.163 gal/ft = 0.68 Gal		
Calculated Well Volume:	0.68 Gallons	Well Diameter:	2.0 inches
Calculations:	1" diameter = 0.041 gal/ft	2" diameter = 0.163 gal/ft	4" diameter = 0.653 gal/ft

Well Purging Activites

Purging Method (pump type): Geo Squirt

Flow rate (incl. units): 1200 ml/min

Time	Flow Rate (ml/min)	Turbidity (NTUs)	Temp (°C)	Cond. (mS/Cm)	pH	Depth to water (BTOC)	DO (mg/l)	ORP	Total Gal Pumped	Comments
1425	~~1200~~	—	—	—	—	25.70	—	—	—	Development initiated
1430	1200	over range	15.0	0.80	6.10	26.78	0.52	45.2	1.59	Surged
1435	1200	over range	14.3	0.78	6.67	26.78	0.13	-47.7	3.16	Surged
1440	1200	597	14.1	0.78	6.68	26.78	0.11	-63.7	4.75	
1459	1200	254	14.2	0.76	6.70	26.85	0.17	-83.7	10.75	
1505	1200	97.9	14.0	0.75	6.68	26.05	0.09	-86.3	12.65	
1510	1200	63.7	14.1	0.76	6.70	27.05	0.12	-78.1	14.24	
1515	1200	51.9	13.9	0.76	6.69	27.05	0.12	-83.1	15.83	
1520	1200	32.1	13.8	0.76	6.69	27.05	0.12	-82.3	17.42	Developed
Results At End Of Purging:		32.1	13.8	0.76	6.69	27.05	0.12	-82.3	17.42	

COMMENTS: Well Completed. Flushmount.

AerostarSES LLC

WELL DEVELOPMENT LOG

Project Name:	SI AFFF MULTIPLE SITES
ASL Project No:	M2027.0003
Installation:	**Peterson AFB**
Site:	TRANSECT 4
Date:	08/07/2018
Sample Technician:	A. Willis, F. Johnson
Well ID No.:	PETER-T04-MW004

Initial Measurements

Well Total Depth: 65.5 ft BTOC		Water Level: 50.18 ft BTOC	
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY			
(only fill out if applicable) = (65.5 Ft - 50.18 Ft) x 0.163 gal/ft = 2.49 Gal			
Calculated Well Volume: 2.49 Gallons		Well Diameter: 2.0 inches	
Calculations:	1" diameter = 0.041 gal/ft	2" diameter = 0.163 gal/ft	4" diameter = 0.653 gal/ft

Well Purging Activites

Purging Method (pump type): Reclaimer

Flow rate (incl. units): 800 - 1350 ml/min

Time	Flow Rate (ml/min)	Turbidity (NTUs)	Temp (°C)	Cond. (mS/Cm)	pH	Depth to water (BTOC)	DO (mg/l)	ORP	Total Gal Pumped	Comments
0734	800	—	—	—	—	50.0	—	—	—	Development initiated
0744	800	over range	15.8	2.81	7.34	55.8	0.70	-84.0	1.69	
0756	800	over range	15.9	2.52	7.05	55.9	0.43	-172.6	4.23	surged well @ 800
0812	800	over range	15.8	2.20	7.69	55.8	0.68	-180.0	7.61	
0825	800	290	15.9	1.89	7.54	55.8	0.65	-185.3	10.35	
0834	800	270	15.8	1.72	7.45	56.5	0.67	-185.8	12.25	surged well at 0846
0846	800	241	15.9	1.51	7.39	56.5	0.69	-183.3	14.79	>5 well volumes
0920	800	390	15.9	1.05	7.17	56.3	0.74	-176.4	21.97	
0940	800	224	15.9	0.94	7.16	56.3	0.78	-169.8	26.19	
1000	800	162	15.9	0.87	7.09	56.3	0.78	-162.9	30.42	surged well @ 1003
1022	800	overrange	15.3	0.89	7.10	56.3	0.56	-162.0	35.07	
1050	1350	357	15.7	0.78	6.77	56.3	0.93	-141.8	45.07	
1105	@ 426 - 1350	426	15.7	0.77	6.79	56.3	0.93	-136.3	50.47	
1115	1950	437	15.7	0.79	6.85	56.3	0.90	-134.7	54.04	Developed after pumping over 2 well volumes.
Results At End Of Purging:										

COMMENTS:

AerostarSES LLC

WELL DEVELOPMENT LOG

Project Name:	SI AFFF MULTIPLE SITES
ASL Project No:	M2027.0003
Installation:	**Peterson AFB**
Site:	Transect 4
Date:	9-6-18
Sample Technician:	A. Willis, J. Klein
Well ID No.:	PETER-T04-MW006

Initial Measurements

well completed

Well Total Depth:	59.4 ft BTOC	Water Level:	53.45 ft BTOC
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable) = (59.4 Ft 53.45 Ft) x 0.163 gal/ft = 0.97 Gal			
Calculated Well Volume:	0.97 Gallons	Well Diameter:	2.0 inches
Calculations:	1" diameter = 0.041 gal/ft	2" diameter = 0.163 gal/ft	4" diameter = 0.653 gal/ft

Well Purging Activites

Purging Method (pump type): Reclaimer

Flow rate (incl. units): 750-800 ml/min

Time	Flow Rate (ml/min)	Turbidity (NTUs)	Temp (°C)	Cond (mS/Cm)	pH	Depth to water (BTOC)	DO (mg/l)	ORP	Total Gal Pumped	Comments
0842	800	—	—	—	—	53.25	—	—	—	Development initiated
0852	800	overrang	14.7	1.28	7.58	55.60	2.28	22.1	2.11	surged
0912	800	overrange	14.4	1.02	7.10	55.60	4.44	-48.1	6.34	surged ; 5 well volume
0920	750	458	14.5	0.97	7.08	55.75	5.61	-34.5	7.93	surged
0930	750	101	14.4	0.93	7.03	55.75	3.17	-33.4	9.41	
0944	750	27.9	14.5	0.92	7.02	55.75	3.22	-24.9	12.18	
0954	750	18.3	14.5	0.93	7.02	55.75	3.29	-26.0	14.16	Developed
Results At End Of Purging:		18.3	14.5	0.93	7.02	55.75	3.29	-26.0	14.16	

COMMENTS: Screen = 49.6'-59.6' bgs

AerostarSES LLC

WELL DEVELOPMENT LOG

Project Name:	SI AFFF MULTIPLE SITES
ASL Project No:	M2027.0003
Installation:	**Peterson AFB**
Site:	Transect 5
Date:	9-6-18
Sample Technician:	A. Willis, J. Klein
Well ID No.:	PETER-T05-MW001

Initial Measurements

well completed

Well Total Depth:	69.2 ft BTOC	Water Level:	58.75 ft BTOC
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable) = (69.2 Ft - 58.75 Ft) x 0.163 gal/ft = 1.70 Gal			
Calculated Well Volume:	1.70 Gallons	Well Diameter:	2.0 inches

Calculations:	1" diameter = 0.041 gal/ft	2" diameter = 0.163 gal/ft	4" diameter = 0.653 gal/ft

Well Purging Activites

Purging Method (pump type): Rettainer

Flow rate (incl. units): 750 – 1200 ml/min

Time	Flow Rate (ml/min)	Turbidity (NTUs)	Temp (°C)	Cond (mS/Cm)	pH	Depth to water (BTOC)	DO (mg/l)	ORP	Total Gal Pumped	Comments
1038	750	—	—	—	—	58.7	—	—	—	Development initiated
1040	750	over range	15.4	0.74	7.76	58.85	0.67	-28.5	0.40	surge 3x
1108	1200	over range	14.0	0.64	7.18	58.85	4.06	-17.5	9.29	5< well volumes/surged
1114	1160	350	14.0	0.64	7.15	58.85	4.10	-13.1	11.03	surged
1128	1100	90.7	14.0	0.64	7.13	58.85	4.15	-9.1	15.1	
1134	1100	49.3	14.0	0.64	7.12	58.85	4.13	-5.1	16.84	
1142	1100	19.7	14.0	0.64	7.11	58.85	4.12	-2.9	19.16	Developed
Results At End Of Purging:		19.7	14.0	0.64	7.11	58.85	4.12	-2.9	19.16	

COMMENTS: Screen 59.2 – 69.2 'bgs

AerostarSES LLC

WELL DEVELOPMENT LOG

Project Name:	SI AFFF MULTIPLE SITES
ASL Project No:	M2027.0003
Installation:	**Peterson AFB**
Site:	TRANSECT 5
Date:	8-6-18
Sample Technician:	A. Willis, F. Johnson
Well ID No.:	PETER-T05-MW005

Initial Measurements

Well Total Depth: * 70.6	ft BTOC	Water Level: * 52.65	ft BTOC
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY			
(only fill out if applicable) = (70.6 Ft - 52.65 Ft) x 0.163 gal/ft = 2.93 Gal			
Calculated Well Volume: 2.93	Gallons	Well Diameter: 2.0	inches
Calculations:	1" diameter = 0.041 gal/ft	2" diameter = 0.163 gal/ft	4" diameter = 0.653 gal/ft

Well Purging Activites

Purging Method (pump type): Reclaimer

Flow rate (incl. units): 900-1500 ml/min

Time	Flow Rate (ml/min)	Turbidity (NTUs)	Temp (°C)	Cond. (mS/Cm)	pH	Depth to water (BTOC)	DO (mg/l)	ORP	Total Gal Pumped	Comments
0828	900	—	—	—	—	52.61	—	—	—	Development initiated
0832	900	over range	14.9	0.66	8.62	54.70	3.64	-103.5	0.95	
0840	900	over range	14.8	0.64	7.84	54.5	1.99	-94.0	2.85	
0852	900	over range	14.7	0.61	7.28	54.5	3.27	-54.4	5.8	
0900	900	overrange	14.8	0.61	7.14	55.5	3.55	-53.3	7.7	Surged well
0926	900	overrange	15.3	0.61	7.37	53.0	2.43	-79.3	13.6	
0956	900	569	14.4	0.58	6.97	53.0	5.01	-2.6	20.73	>5 well volumes
1022	1500	105	14.4	0.58	7.00	53.0	5.20	+6.0	31.03	
1030	1500	132	14.5	0.58	7.01	53.0	5.31	6.9	34.2	Surged well
1050	1500	591	14.6	0.58	7.04	53.0	5.25	6.3	42.15	
1104	1500	510	14.4	0.58	7.03	53.0	5.32	5.9	47.69	
1118	1500	496	14.4	0.58	7.04	53.0	5.29	6.9	53.23	Developed - after purging 18 well volumes
Results At End Of Purging:		496	14.4	0.58	7.04	53.0	5.29	6.9	53.23	

COMMENTS: Well not completed. stick-up = 0.68' ags

AerostarSES LLC

WELL DEVELOPMENT LOG

Project Name:	SI AFFF MULTIPLE SITES
ASL Project No:	M2027.0003
Installation:	**Peterson AFB**
Site:	TRANSECT 5
Date:	8-3-18
Sample Technician:	A. Willis / F. Johnson
Well ID No.:	PETER-T05-MW006

Initial Measurements

Well Total Depth: ≈ 64.7 ft BTOC		Water Level: ≈ 58.64 ft BTOC	
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY			
(only fill out if applicable) = (64.7 Ft - 58.64 Ft) x 0.163 gal/ft = 0.98 Gal			
Calculated Well Volume: 0.98 Gallons		Well Diameter: 2.0 inches	
Calculations:	1" diameter = 0.041 gal/ft	2" diameter = 0.163 gal/ft	4" diameter = 0.653 gal/ft

Well Purging Activites

Purging Method (pump type): Reclaimer

Flow rate (incl. units): 700 ml/min

Time	Flow Rate (ml/min)	Turbidity (NTUs)	Temp (°C)	Cond. (mS/Cm)	pH	Depth to water (BTOC)	DO (mg/l)	ORP	Total Gal Pumped	Comments
0718	700	—	—	—	—	58.73	—	—	—	DEVELOPMENT INITIATED
0722	700	~~over range~~	14.7	1.35	8.04	60.0	0.40	-51.7	0.74	
0734	700	over range	14.5	0.72	7.15	59.65	2.28	-104.1	2.95	3 well volumes
0750	700	over range	14.0	0.66	7.04	60.3	2.87	-77.9	~~14.80~~ 7.75	surged well at 07.45
0800	700	569	14.2	0.62	6.97	60.3	3.12	-62.8	9.6	
0810	700	62.4	14.2	0.59	6.92	60.3	3.55	-44.3	11.44	
0832	700	49.3	14.4	0.57	6.89	60.3	3.92	-34.6	15.51	
0840	700	15.3	14.5	0.57	6.88	60.3	3.90	-31.5	17.72	DEVELOPED
Results At End Of Purging:		15.3	14.5	0.57	6.88	60.3	3.90	-31.5	17.72	

COMMENTS: ≈ well not completed. Stick up 0.1 ags

AerostarSES LLC

WELL DEVELOPMENT LOG

Project Name:	SI AFFF MULTIPLE SITES
ASL Project No:	M2027.0003
Installation:	**Peterson AFB**
Site:	Transect 7
Date:	8-26-18
Sample Technician:	A. Willis, J. Klein
Well ID No.:	PETER-T07-MW003

Initial Measurements

Well Total Depth:	74.8 ft BTOC	Water Level:	55.87 ft BTOC
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable) = (74.8 Ft - 55.87 Ft) x 0.163 gal/ft = 3.08 Gal			
Calculated Well Volume:	3.08 Gallons	Well Diameter:	2.0 inches
Calculations:	1" diameter = 0.041 gal/ft	2" diameter = 0.163 gal/ft	4" diameter = 0.653 gal/ft

Well Purging Activites

Purging Method (pump type): Redginer

Flow rate (incl. units): 800 - 1600 ml/min

Time	Flow Rate (ml/min)	Turbidity (NTUs)	Temp (°C)	Cond (mS/Cm)	pH	Depth to water (BTOC)	DO (mg/l)	ORP	Total Gal .Pumped	Comments
1602	800	—	—	—	—	55.80	—	—	—	Development initiated
1612	1600	Over range	13.8	1.08	7.47	56.95	1.20	-91.5	4.43	Surged X3
1640	1600	348	13.4	1.02	7.33	56.95	5.31	-12.8	16.06	5 well volumes
1648	1600	210	13.2	1.00	7.32	56.95	5.50	-6.6	19.44	
1656	1600	131	13.3	1.01	7.32	56.95	5.76	-2.6	22.82	
1700	1600	43	13.3	1.01	7.32	56.95	5.78	-5.6	24.51	
1710	1600	19.4	13.3	1.01	7.32	56.95	5.77	-4.8	28.74	Developed
Results At End Of Purging:		19.4	13.3	1.01	7.32	56.95	5.77	-4.8	28.74	

COMMENTS:

AerostarSES LLC

WELL DEVELOPMENT LOG

Project Name:	SI AFFF MULTIPLE SITES
ASL Project No:	M2027.0003
Installation:	**Peterson AFB**
Site:	Transect 7
Date:	8-26-18
Sample Technician:	A. Willis, J. Klein
Well ID No.:	PETER-T07-MW004

Initial Measurements

well completed

Well Total Depth:	69.6' ft BTOC	Water Level:	56.59' ft BTOC
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable) = (69.6 Ft - 56.59 Ft) x 0.163 gal/ft = 2.12 Gal			
Calculated Well Volume:	2.12 Gallons	Well Diameter:	2.0 inches
Calculations:	1" diameter = 0.041 gal/ft	2" diameter = 0.163 gal/ft	4" diameter = 0.653 gal/ft

Well Purging Activites

Purging Method (pump type): Reclaimer

Flow rate (incl. units): 800-1600 ml/min

Time	Flow Rate (ml/min)	Turbidity (NTUs)	Temp (°C)	Cond. (mS/Cm)	pH	Depth to water (BTOC)	DO (mg/l)	ORP	Total Gal Pumped	Comments
1428	800	—	—	—	—	56.7	—	—	—	Development initiated
1432	200	over range	15.1	1.01	7.41	56.9	4.74	29.7	0.84	Surged
1445	800	over range	14.0	0.97	7.14	56.9	5.23	64.5	3.38	Surged
1453	1600	over range	13.5	0.96	7.24	56.8	5.76	76.0	8.87	Surged
1510	1600	236	13.4	0.95	7.25	56.8	5.77	68.7	13.94	5 Cwell volumes
1514	1600	89	13.3	0.94	7.27	56.8	5.71	60.0	15.63	
1518	1600	567	13.4	0.94	7.28	56.7	5.70	53.2	17.32	
1526	1600	25.4	13.4	0.93	7.28	56.8	5.77	50.1	20.7	
1530	1600	18.3	13.4	0.93	7.29	56.8	5.76	50.0	22.39	Developed
Results At End Of Purging:		18.3	13.4	0.93	7.29	56.8	5.76	50.0	22.39	

COMMENTS:

AerostarSES LLC

WELL DEVELOPMENT LOG

Project Name:	SI AFFF MULTIPLE SITES
ASL Project No:	M2027.0003
Installation:	**Peterson AFB**
Site:	Transect 7
Date:	8-27-19
Sample Technician:	A. Willis, J. Klein
Well ID No.:	PETER - T07 - MW006

Initial Measurements

well not completed stick up = 1.2 ft agl

Well Total Depth:	95.6 ft BTOC	Water Level:	78.57 ft BTOC
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY			
(only fill out if applicable) =	(95.6 Ft - 78.57 Ft) x	gal/ft = 2.78	Gal
Calculated Well Volume:	2.78 Gallons	Well Diameter:	2.0 inches

Calculations:	1" diameter = 0.041 gal/ft	2" diameter = 0.163 gal/ft	4" diameter = 0.653 gal/ft

Well Purging Activites

Purging Method (pump type): Rechargen

Flow rate (incl. units): 80 - 1500 ml/min

Time	Flow Rate (ml/min)	Turbidity (NTUs)	Temp (°C)	Cond. (mS/Cm)	pH	Depth to water (BTOC)	DO (mg/l)	ORP	Total Gal Pumped	Comments
1445	1500	—	—	—	—	78.7	—	—	—	Development initiated
1503	1500	over range	14.4	1.13	8.40	79.5	4.76	-88.6	9.11	Surged 3X
1518	1600	over range	14.3	1.05	7.49	79.5	4.24	-74.7	12.49	Surged 2X
1527	800	931	14.9	1.03	7.54	79.8	5.90	-29.2	14.39	5 x well volume
1542	800	780	15.0	1.03	7.35	79.8	4.92	-37.8	14.77	Surged
1600	800	506	14.4	1.01	7.32	79.8	5.56	-27.7	18.57	Surged
1605	800	276	14.4	1.00	7.32	79.8	5.74	-26.2	19.63	
1612	800	185	14.4	1.00	7.32	79.8	5.96	-23.1	21.11	
1622	800	162	14.4	1.00	7.32	79.8	5.98	-20.1	23.22	
1630	800	57.7	14.4	1.00	7.32	79.8	6.03	-9.8	24.11	
1642	800	32.4	14.3	1.00	7.32	79.8	6.10	-6.1	26.65	
1650	800	16.8	14.3	1.00	7.32	79.8	6.10	-6.2	28.35	Developed
Results At End Of Purging:		16.8	14.3	1.00	7.32	79.8	6.10	-6.2	28.35	

COMMENTS:

AerostarSES LLC

WELL DEVELOPMENT LOG

Project Name:	SI AFFF MULTIPLE SITES
ASL Project No:	M2027.0003
Installation:	**Peterson AFB**
Site:	Transect 8
Date:	8-20-18
Sample Technician:	A. Willis, J. Klein
Well ID No.:	PETER-T08-MW001

Well not completed

Initial Measurements

Well Total Depth: 80.6 ft BTOC		Water Level: 73.52 ft BTOC	
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable) = (80.6 Ft - 73.52 Ft) x 0.163 gal/ft = 1.15 Gal			
Calculated Well Volume: 1.15 Gallons		Well Diameter: 2.0 inches	
Calculations:	1" diameter = 0.041 gal/ft	2" diameter = 0.163 gal/ft	4" diameter = 0.653 gal/ft

Well Purging Activites

Purging Method (pump type): Reclaimer

Flow rate (incl. units): ~150-400 ml/min

Time	Flow Rate (ml/min)	Turbidity (NTUs)	Temp (°C)	Cond. (mS/Cm)	pH	Depth to water (BTOC)	DO (mg/l)	ORP	Total Gal Pumped	Comments
0741	400	–	–	–	–	73.5	–	–	–	Development initiated
0748	400	over range	14.2	0.017	7.94	75.0	11.01	88.9	0.74	Surged
0754	400	over range	14.5	0.95	8.69	75.3	2.21	-154.2	1.37	Surged
0808	400	over range	15.3	0.98	8.77	75.3	0.80	-203.9	2.85	Surged
0820	400	over range	16.0	0.99	8.82	76.5	0.49	-225.8	4.12	Surged
0820	150	over range	16.3	0.99	8.84	77.01	0.46	-235.4	4.44	Surged
0836	150	over range	16.4	0.99	8.83	77.25	0.35	-247.5	5.07	Surged
0904	150	over range	17.9	0.99	8.82	*	0.40	-259.2	6.18	Surged
1012	150	over range	19.4	0.99	8.86	*	0.58	-256.2	8.87	Surged
1053	150	over range	19.5	0.98	8.85	*	0.63	-265.1	10.49	Well dry
Results At End Of Purging:		over range	19.5	0.98	8.85	*	0.63	-265.1	10.49	

COMMENTS: * Water Level is resting on top of reclaimer, water below top - no WL readings

Well recharges slow - would not clean up.

AerostarSES LLC

WELL DEVELOPMENT LOG

Project Name:	SI AFFF MULTIPLE SITES
ASL Project No:	M2027.0003
Installation:	Peterson AFB
Site:	TRANSECT 11
Date:	9-8-18
Sample Technician:	A. Willis, J. Klein
Well ID No.:	PETER-T11-MW001

Initial Measurements

Well not completed. Stick-up = 1.4'

Well Total Depth:	71.4 ft BTOC	Water Level:	68.82 ft BTOC
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable) = (71.4 Ft - 68.82 Ft) x 0.163 gal/ft = 0.42 Gal			
Calculated Well Volume: 0.42 ~~0.08~~ Gallons		Well Diameter: 2.0 inches	
Calculations:	1" diameter = 0.041 gal/ft	2" diameter = 0.163 gal/ft	4" diameter = 0.653 gal/ft

Well Purging Activites

Purging Method (pump type): Bailer

Flow rate (incl. units): ~400 ml/min

Time	Flow Rate (ml/min)	Turbidity (NTUs)	Temp (°C)	Cond. (mS/Cm)	pH	Depth to water (BTOC)	DO (mg/l)	ORP	Total Gal Pumped	Comments
1035	400	—	—	—	—	*	—	—	—	Development initiated
1042	400	over range	14.2	2.22	9.16	*	1.75	-21.4	0.74	
1048	400	over range	14.5	2.22	9.01	*	2.25	-70.9	1.37	
1052	400	over range	14.7	2.18	9.01	*	2.54	-79.4	1.79	
1058	400	over range	14.7	2.18	9.02	*	2.28	-74.6	2.42	DRY ; 5<well volumes
Results At End Of Purging:		over range	14.7	2.18	9.02	*	2.28	-74.6	2.42	

COMMENTS: * no WL during bailing

AerostarSES LLC

WELL DEVELOPMENT LOG

Project Name:	SI AFFF MULTIPLE SITES
ASL Project No:	M2027.0003
Installation:	**Peterson AFB**
Site:	Transect 12
Date:	9-10-18
Sample Technician:	A. Willis, J Klein
Well ID No.:	PETER - T12 - MW003

Initial Measurements well completed

Well Total Depth:	54.3 ft BTOC	Water Level:	49.45 ft BTOC
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable) = (54.3 Ft - 49.45 Ft) x 0.163 gal/ft = 0.79 Gal			
Calculated Well Volume:	0.79 Gallons	Well Diameter:	2.0 inches
Calculations:	1" diameter = 0.041 gal/ft	2" diameter = 0.163 gal/ft	4" diameter = 0.653 gal/ft

Well Purging Activites

Purging Method (pump type): Reclaimer / Bailer Flow rate (incl. units): 100 ml/min

Time	Flow Rate (ml/min)	Turbidity (NTUs)	Temp (°C)	Cond. (mS/Cm)	pH	Depth to water (BTOC)	DO (mg/l)	ORP	Total Gal Pumped	Comments
0750	100 *	—	–	–	–	**	–	–	–	Development initiated
0810	100	over range	14.8	0.82	7.78	**	0.10	-178.4	0.52	surged 3x
0820	100	over range	15.4	0.83	8.10	**	0.07	-239.7	0.78	Surged
0835	100	over range	16.0	0.84	8.20	**	0.06	-277.1	1.18	Surged
0900	100	over range	16.8	0.87	8.26	**	0.19	-246.9	1.84	surged
0935	100	over range	14.7	0.85	8.25	**	0.15	-231.7	2.77	PRY
Bailing - 1550	100	over range	16.7	0.84	8.25	**	0.15	-240.9	2.90	started at 1545 WL=52.58
1615	100	over range	16.8	0.87	8.25	**	0.15	-249	3.56	DRY / Developed
Results At End Of Purging:		over range	16.8	0.87	8.25	**	0.15	-249	3.56	

COMMENTS:
* Recharge is very slow
** water level meter is on top of Reclaimer. water level below reclaimer. no water level data

AerostarSES LLC

WELL DEVELOPMENT LOG

Project Name:	SI AFFF MULTIPLE SITES
ASL Project No:	M2027.0003
Installation:	**Peterson AFB**
Site:	TRANSECT 13
Date:	8-25-18
Sample Technician:	A. Willis, J. Klein
Well ID No.:	PETER-T13-MW001

Initial Measurements

well not completed, stick up = 0.8' ags

Well Total Depth:	80.6 ft BTOC	Water Level:	64.07 ft BTOC
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY			
(only fill out if applicable) =	(80.6 Ft - 64.07 Ft) x 0.163 gal/ft = 2.69 Gal		
Calculated Well Volume:	2.69 Gallons	Well Diameter:	2.0 inches
Calculations:	1" diameter = 0.041 gal/ft	2" diameter = 0.163 gal/ft	4" diameter = 0.653 gal/ft

Well Purging Activites

Purging Method (pump type): Redairsen

Flow rate (incl. units): 750 - 1000 ml/min

Time	Flow Rate (ml/min)	Turbidity (NTUs)	Temp (°C)	Cond (mS/Cm)	pH	Depth to water (BTOC)	DO (mg/l)	ORP	Total Gal Pumped	Comments
1400	1000	—	—	—	—	64.01	—	—	—	Development initiated
1406	750	over rang	16.6	0.60	7.60	64.01	5.41	120.2	1.9	surged
1424	750	over range	18.6	0.65	7.49	64.01	5.91	79.4	5.47	Surged
1438	750	over range	16.2	0.61	7.15	64.01	5.82	80.4	8.24	Surged
1450	750	over range	15.8	0.60	7.08	64.01	5.32	76.4	10.62	
1508	750	416	14.8	0.58	7.09	64.01	5.70	75.9	14.19	5 well volumes
1518	750	106	14.8	0.58	7.08	64.01	5.70	78.2	16.17	
1530	750	71	14.8	0.58	7.09	64.01	5.81	78.4	18.55	
1543	750	46.1	14.8	0.58	7.10	64.01	5.81	78.9	21.13	
1547	750	18.3	14.8	0.58	7.11	64.01	5.79	80.7	21.19	Developed
Results At End Of Purging:		18.3	14.8	0.58	7.11	64.01	5.79	80.7	21.19	

COMMENTS:

AerostarSES LLC

WELL DEVELOPMENT LOG

Project Name:	SI AFFF MULTIPLE SITES
ASL Project No:	M2027.0003
Installation:	**Peterson AFB**
Site:	TRANSECT 13
Date:	8-26-18
Sample Technician:	A. Willis, J. Klein
Well ID No.:	PETER-T13-MW003

Initial Measurements

Stick-up = 0.9' ags

Well Total Depth:	85.65 ft BTOC	Water Level:	63.79 ft BTOC
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable) =	(85.65 Ft - 63.79 Ft) x 0.163 gal/ft = 3.56 Gal		
Calculated Well Volume:	3.56 Gallons	Well Diameter:	2.0 inches
Calculations:	1" diameter = 0.041 gal/ft	2" diameter = 0.163 gal/ft	4" diameter = 0.653 gal/ft

Well Purging Activites

Purging Method (pump type): Rechiner

Flow rate (incl. units): 750ml/min

Time	Flow Rate (ml/min)	Turbidity (NTUs)	Temp (°C)	Cond (mS/Cm)	pH	Depth to water (BTOC)	DO (mg/l)	ORP	Total Gal Pumped	Comments
1000	750	—	—	—	—	62.61	—	—	—	Development initiated
1005	750	over range	26.0	0.89	10.25	65.0	0.12	-119.9	0.99	Surged
1100	750	over range	14.5	1.01	7.54	65.0	3.65	-77.0	11.88	Surged 5X during 1005-1100
1114	750	532	14.4	1.00	7.43	65.0	3.85	-57.2	14.65	
1120	750	350	14.4	1.08	7.40	65.0	3.99	-54.0	15.94	
1127	750	219	14.5	1.00	7.40	65.0	4.02	-49.3	17.23	
1135	750	139	14.5	1.00	7.41	65.0	4.13	-44.1	18.82	5 well volumes
1142	750	124	14.5	1.00	7.40	65.0	4.25	-41.0	20.2	
1150	750	102	14.5	1.00	7.39	65.0	4.28	-36.5	21.79	
1200	750	94.4	14.5	1.00	7.38	65.0	4.33	-32.6	23.77	
1210	750	135	14.5	1.00	7.38	65.0	4.32	-30.3	25.75	Developed
Results At End Of Purging:		135	14.5	1.00	7.38	65.0	4.32	-30.3	25.75	

COMMENTS:

AerostarSES LLC

WELL DEVELOPMENT LOG

Project Name:	SI AFFF MULTIPLE SITES
ASL Project No:	M2027.0003
Installation:	**Peterson AFB**
Site:	Transect 13
Date:	8-25-18
Sample Technician:	A. Willis, J Klein
Well ID No.:	PETER-T13-MW04

Initial Measurements

well not completed, stickup = 0.7 ags

Well Total Depth:	80.6 ft BTOC	Water Level:	64.97 ft BTOC
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable) = (80.6 Ft - 64.97 Ft) x 0.163 gal/ft = 2.55 Gal			
Calculated Well Volume:	2.55 Gallons	Well Diameter:	2.0 inches
Calculations:	1" diameter = 0.041 gal/ft	2" diameter = 0.163 gal/ft	4" diameter = 0.653 gal/ft

Well Purging Activites

Purging Method (pump type): Reclaimer

Flow rate (incl. units): 1000 ml/min

Time	Flow Rate (ml/min)	Turbidity (NTUs)	Temp (°C)	Cond. (mS/Cm)	pH	Depth to water (BTOC)	DO (mg/l)	ORP	Total Gal Pumped	Comments
1058	1000	—	—	—	—	65.0	—	—	—	Development initiated
1105	1000	over range	16.0	0.61	7.10	65.0	4.63	8.1	1.85	surged
1120	1000	344	14.8	0.60	7.15	65.0	4.92	18.6	5.81	surged
1136	1000	370	14.7	0.60	7.17	65.0	4.90	26.2	10.04	
1141	1000	208	14.7	0.60	7.17	65.0	5.00	26.7	11.36	
1148	1000	114	14.8	0.60	7.18	65.0	4.73	27.9	13.74	5< well volumes
1155	1000	62	14.8	0.60	7.18	65.0	4.71	28.3	15.56	
1204	1000	43.9	14.8	0.60	7.18	65.0	4.68	24.4	17.94	
1210	1000	24.0	14.9	0.60	7.18	65.0	4.71	26.3	19.53	
1214	1000	19.7	14.9	0.60	7.18	65.0	4.80	26.3	20.59	Developed
Results At End Of Purging:		19.7	14.9	0.60	7.18	65.0	4.60	26.3	20.59	

COMMENTS:

AerostarSES, LLC

WELL DEVELOPMENT LOG

Project Name:	SI AFFF MULTIPLE SITES
ASL Project No:	M2027.0003
Installation:	Peterson AFB
Site:	Transect 13
Date:	8-25-18
Sample Technician:	A. Willis, J. Klein
Well ID No.:	PETER-T13-MW006

Initial Measurements

well not completed. Stickup = 0.71 ags

Well Total Depth:	115.7 ft BTOC	Water Level:	95.97 ft BTOC
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable) = (115.7 Ft - 95.97 Ft) x 0.163 gal/ft = 3.22 Gal			
Calculated Well Volume:	3.22 Gallons	Well Diameter:	2.0 inches
Calculations:	1" diameter = 0.041 gal/ft	2" diameter = 0.163 gal/ft	4" diameter = 0.653 gal/ft

Well Purging Activites

Purging Method (pump type): Reclaimer

Flow rate (incl. units): 500 ml/min

Time	Flow Rate (ml/min)	Turbidity (NTUs)	Temp (°C)	Cond (mS/Cm)	pH	Depth to water (BTOC)	DO (mg/l)	ORP	Total Gal Pumped	Comments
0746	500	—	—	—	—	95.6	—	—	—	Development initiated
0802	500	overrange	15.8	0.59	8.67	*	2.22	-110.0	2.11	surged
0822	500	over range	16.2	0.62	7.48	*	1.23	-146.6	4.76	surged
0846	500	over range	15.8	0.61	7.29	*	2.13	-116.4	7.93	Surged
0914	500	6169	15.7	0.61	7.24	*	3.31	-78.5	11.63	Surged
0930	500	407	15.7	0.61	7.23	*	3.32	-73.0	13.74	
0944	500	225	15.7	0.61	7.23	*	3.44	-69.2	15.59	
1000	500	146	15.7	0.61	7.22	*	3.37	-65.9	17.70	5 well volumes
1012	500	186	15.7	0.61	7.23	*	3.38	-63.3	19.29	Developed
Results At End Of Purging:		186	15.7	0.61	7.23	*	3.38	-63.3	19.29	

COMMENTS: * WLM on top of reclaimer – no WL data

AerostarSES LLC

WELL DEVELOPMENT LOG

Project Name:	SI AFFF MULTIPLE SITES
ASL Project No:	M2027.0003
Installation:	**Peterson AFB**
Site:	~~AREA 5~~ Transect 14
Date:	~~8-2-18~~ 9-12-18
Sample Technician:	A. Willis / ~~F. Johnson~~ / J. Klein
Well ID No.:	~~GN16108PA~~ PETER-T14-MW002A

@902

Initial Measurements

Well Total Depth: 49.8 ft BTOC		Water Level: 42.78 ft BTOC	
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY			
(only fill out if applicable) = (49.8 Ft - 42.78 Ft) x 0.163 gal/ft = 1.14 Gal			
Calculated Well Volume: 1.14 Gallons		Well Diameter: 2.0 inches	
Calculations:	1" diameter = 0.041 gal/ft	2" diameter = ~~0.163 gal/ft~~	4" diameter = 0.653 gal/ft

Well Purging Activites

Purging Method (pump type): Bailer

Flow rate (incl. units): 200-800 ml/min

Time	Flow Rate (ml/min)	Turbidity (NTUs)	Temp (°C)	Cond. (mS/Cm)	pH	Depth to water (BTOC)	DO (mg/l)	ORP	Total Gal Pumped	Comments
0905	300	—	—	—	—	*	—	—	—	Development initiated
0910	800	over range	18.9	0.030	6.90	*	5.22	176.6	10.56	
0914	800	over range	13.4	10.55	7.12	*	2.08	73.8	1.89	
0922	800	over range	13.6	10.37	7.96	*	2.00	61.9	3.58	
0926	200	over range	13.5	10.25	7.97	*	1.75	53.4	3.90	DRY - Slow recharge
Results At End Of Purging:		over range	13.5	10.25	7.97	*	1.75	53.4	3.90	

COMMENTS: drillers used 200gal during installation

Well recharging very slowly.

* No water level data while bailing.

AerostarSES LLC

WELL DEVELOPMENT LOG

Project Name:	SI AFFF MULTIPLE SITES
ASL Project No:	M2027.0003
Installation:	**Peterson AFB**
Site:	AREA 5
Date:	8-3-18
Sample Technician:	A. Willis / K. Johnson
Well ID No.:	MW-2

Initial Measurements

Well Total Depth: 23.9 ft BTOC		Water Level: 23.55 ft BTOC	
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY			
(only fill out if applicable) = (23.9 Ft -23.55 Ft) x 0.163 gal/ft = 0.05 Gal			
Calculated Well Volume: 0.05 Gallons		Well Diameter: 2.0 inches	
Calculations:	1" diameter = 0.041 gal/ft	2" diameter = 0.163 gal/ft	4" diameter = 0.653 gal/ft

Well Purging Activites

Purging Method (pump type): Bailer Flow rate (incl. units): NA

Time	Flow Rate (ml/min)	Turbidity (NTUs)	Temp (°C)	Cond. (mS/Cm)	pH	Depth to water (BTOC)	DO (mg/l)	ORP	Total Gal Pumped	Comments
8-3-18 – 0805	- 0808	—	—	—	—	*	—	—	0.06	Development initiated
									*	Developed
Results At End Of Purging:										

COMMENTS: (Historical) Screen = 15-24
- Well has no cap and is not in a vault – exposed. Purging small volumes.
- 0.41' of water in well – bailing dry

* WLM AND BAILER CAN'T BOTH FIT IN 2 INCH well. NO WL DATA during purging

AerostarSES LLC

WELL DEVELOPMENT LOG

Project Name:	SI AFFF MULTIPLE SITES
ASL Project No:	M2027.0003
Installation:	**Peterson AFB**
Site:	AREA 5
Date:	8-2-19
Sample Technician:	A. Willis,
Well ID No.:	MW-3

Initial Measurements

Well Total Depth: 29.6 ft BTOC		Water Level: 26.7 ft BTOC	
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY			
(only fill out if applicable) = (29.6 Ft - 26.7 Ft) x 0.163 gal/ft = 0.47 Gal			
Calculated Well Volume: 0.47 Gallons		Well Diameter: 2.0 inches	
Calculations:	1" diameter = 0.041 gal/ft	2" diameter = 0.163 gal/ft	4" diameter = 0.653 gal/ft

Well Purging Activites

Purging Method (pump type): Bailing

Flow rate (incl. units): ~ 600mL/min

Time	Flow Rate (ml/min)	Turbidity (NTUs)	Temp (°C)	Cond. (mS/Cm)	pH	Depth to water (BTOC)	DO (mg/l)	ORP	Total Gal Pumped	Comments
1712	600mL/min	—	—	—	—	26.7	—	—	—	Development initiated
1720	600mL/min	Over range	13.1	1.07	6.31	*	2.63	-109.7	1.27	
1724	600mL/min	over range	12.9	1.04	6.43	*	1.01	-101.5	1.9	
1726	600mL/min	over range	12.8	1.09	6.44	*	1.05	-99.8	2.53	>5 well volumes
1730	600mL/min	over range	12.7	1.00	6.47	*	1.02	-101.0	3.16	Developed after purging over 5 well volumes
Results At End Of Purging:		over range	12.7	1.00	6.47	*	1.02	701.0	3.16	

COMMENTS: Well has no cap and is not in a vault. Pictures taken. AFTER DEVELOPMENT WE PUT A J PLUG CAP ON.

* Can't put WL meter in while bailing – no WL DATA

AerostarSES LLC

WELL DEVELOPMENT LOG

Project Name:	SI AFFF MULTIPLE SITES
ASL Project No:	M2027.0003
Installation:	**Peterson AFB**
Site:	AREA 5
Date:	8-2-18
Sample Technician:	A. Willis / F. Johnson / J. Klein
Well ID No.:	MW-4

Initial Measurements

Well Total Depth: 29.64 ft BTOC		Water Level: 29.54 ft BTOC	
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY			
(only fill out if applicable) = (Ft - Ft) x gal/ft = Gal			
Calculated Well Volume: Gallons		Well Diameter: 2.0 inches	
Calculations:	1" diameter = 0.041 gal/ft	2" diameter = 0.163 gal/ft	4" diameter = 0.653 gal/ft

Well Purging Activites

Purging Method (pump type): _____ Flow rate (incl. units): _____

Time	Flow Rate (ml/min)	Turbidity (NTUs)	Temp (°C)	Cond. (mS/Cm)	pH	Depth to water (BTOC)	DO (mg/l)	ORP	Total Gal Pumped	Comments
	DUE TO LACK OF WATER - THIS WILL BE A GRAB SAMPLE. NO DEVELOPMENT									
Results At End Of Purging:										

COMMENTS:

AerostarSES LLC

WELL DEVELOPMENT LOG

Project Name:	SI AFFF MULTIPLE SITES
ASL Project No:	M2027.0003
Installation:	**Peterson AFB**
Site:	
Date:	8-3-18
Sample Technician:	A. Willis / J. Klein / F Johnson
Well ID No.:	MW1-1

Initial Measurements

Well Total Depth:	50.8 ft BTOC	Water Level:	33.95 ft BTOC
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable) = (50.8 Ft - 33.95 Ft) x 0.653 gal/ft = ~~2.74~~ 11.0 Gal			
Calculated Well Volume:	~~2.74~~ 11.0 Gallons	Well Diameter:	4.0 inches
Calculations:	1" diameter = 0.041 gal/ft	2" diameter = 0.163 gal/ft	4" diameter = 0.653 gal/ft

Well Purging Activites

Purging Method (pump type): Geosquirt

Flow rate (incl. units): 3200 - 3400 ml/min

Time	Flow Rate (ml/min)	Turbidity (NTUs)	Temp (°C)	Cond. (mS/Cm)	pH	Depth to water (BTOC)	DO (mg/l)	ORP	Total Gal Pumped	Comments
1448	3200	—	—	—	—	33.87	—	—	—	Development initiated
1452	3200	Over range	12.9	1.10	6.54	33.87	0.93	64.8	3.38	
1454	3200	68.6	13.0	1.14	6.53	34.19	0.91	74.1	6.76	
1500	3400	42.5	12.9	1.13	6.53	34.19	0.55	78.5	12.14	
1504	3400	49.4	12.9	1.12	6.53	34.19	0.53	84.0	15.73	
1508	3400	82.0	12.9	1.12	6.54	34.19	0.54	81.0	19.32	
1514	3400	32.3	12.9	1.12	6.54	34.19	0.44	78.3	25.66	
1518	3400	11.1	12.9	1.12	6.55	34.19	0.42	80.2	29.25	
1522	3400	12.1	12.9	1.12	6.55	34.19	0.39	81.3	32.84	
1524	3400	11.9	12.9	1.12	6.55	34.19	0.35	81.5	34.63	Developed
Results At End Of Purging:		11.9	12.9	1.12	6.55	34.19	0.35	81.5	34.63	

COMMENTS:

AerostarSES LLC

WELL DEVELOPMENT LOG

Project Name:	SI AFFF MULTIPLE SITES
ASL Project No:	M2027.0003
Installation:	**Peterson AFB**
Site:	TRANSECT 2
Date:	8-01-18
Sample Technician:	A. Willis, F. Johnson
Well ID No.:	MW2-3

Initial Measurements

Well Total Depth:	* ~~53.4~~ 53.5 ft BTOC	Water Level:	51.52 ft BTOC
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable) = (53.5 Ft - 51.52 Ft) x 0.653 gal/ft = 1.29 Gal			
Calculated Well Volume:	1.29 Gallons	Well Diameter:	4.0 inches
Calculations:	1" diameter = 0.041 gal/ft	2" diameter = 0.163 gal/ft	4" diameter = 0.653 gal/ft

Well Purging Activites

Purging Method (pump type): Bailing

Flow rate (incl. units): ~ Bailed 400mL/min

	Time	Flow Rate (ml/min)	Turbidity (NTUs)	Temp (°C)	Cond. (mS/Cm)	pH	Depth to water (BTOC)	DO (mg/l)	ORP	Total Gal Pumped	Comments
8-01-18	1142 - 1208		—	—	—	—	51.52	—	—	1.50	Development initiated w/Bailing
	1529	— well still dry					53.0				
8-02-18	0930	- well has wet silt. Bailer can only pull up small amounts									
		DUE TO ~~LACK OF~~ slow recharge and the amount of silt in well This will become a grab sample at a later date.									

Results At End Of Purging:

COMMENTS: * bottom is very soft, 2 inches of mud on tag line when pulled up

AerostarSES, LLC

WELL DEVELOPMENT LOG

Project Name:	SI AFFF MULTIPLE SITES
ASL Project No:	M2027.0003
Installation:	**Peterson AFB**
Site:	TRANSECT 4 2
Date:	7-31-18 / 8-1-18 / 8-2-18
Sample Technician:	A. Willis, F. Johnson, J Klein
Well ID No.:	MW1-5A

Initial Measurements

Well Total Depth:	56.51 ft BTOC	Water Level:	51.45 ft BTOC
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable) = (56.5) Ft - 51.45 Ft) x 0.653 gal/ft = 3.29 Gal			
Calculated Well Volume:	3.29 Gallons	Well Diameter:	4.0 inches
Calculations:	1" diameter = 0.041 gal/ft	2" diameter = 0.163 gal/ft	4" diameter = 0.653 gal/ft

Well Purging Activites

Purging Method (pump type): Grosquirt/Bailing Flow rate (incl. units): ~700 ml/min

Time	Flow Rate (ml/min)	Turbidity (NTUs)	Temp (°C)	Cond (mS/Cm)	pH	Depth to water (BTOC)	DO (mg/l)	ORP	Total Gal Pumped	Comments
1623	700	—	—	—	—	51.42	—	—	—	Development initiated
1628	700	* OR	16.9	1.06	6.71	52.4	0.85	186.2	0.92	
1634	700	OR	17.1	1.08	6.75	52.46	0.68	159.2	2.02	
1640	700	OR	17.3	1.11	6.77	52.80	0.54	139.1	3.12	
1660	700	OR	17.7	1.10	6.77	53.00	0.53	135.5	4.97	Stop to recharge **
0916-0954 (5 gallons bailed) - dry				—	—	51.42	—	—	9.97	Resume Development w/ Bailer
0754-0856 (6.7 gallons bailed) - dry						57.5	—	—	16.67	Developed after purging over 5 well volumes and draining well dry to 0.5" 3X.
Results At End Of Purging:										

7-31-18

8-1-18

8-2-18

COMMENTS: * OR = over range

** well is super ~~silty~~ dirty. We will be bailing on 8-01-18

AerostarSES LLC

WELL DEVELOPMENT LOG

Project Name:	SI AFFF MULTIPLE SITES
ASL Project No:	M2027.0003
Installation:	**Peterson AFB**
Site:	AREA 5, TRANSECT 3
Date:	8-4-18
Sample Technician:	A. Willis, F. Johnson, J. Klein
Well ID No.:	MW1-6

Initial Measurements

Well Total Depth: 30.7 ft BTOC		Water Level: 19.62 ft BTOC	
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable) = (30.7 Ft - 19.62 Ft) x 0.653 gal/ft = 7.24 Gal			
Calculated Well Volume: 7.23 Gallons		Well Diameter: 4.0 inches	
Calculations:	1" diameter = 0.041 gal/ft	2" diameter = 0.163 gal/ft	4" diameter = 0.653 gal/ft

Well Purging Activites

Purging Method (pump type): Geosquirt

Flow rate (incl. units): 800 – 1600 mL/min

Time	Flow Rate (ml/min)	Turbidity (NTUs)	Temp (°C)	Cond. (mS/Cm)	pH	Depth to water (BTOC)	DO (mg/l)	ORP	Total Gal Pumped	Comments
0956	1600	—	—	—	—	19.60	—	—	—	Development initiated
0958	1400	103	13.4	0.68	6.45	21.05	0.58	162.4	0.74	
1010	800	77.8	14.6	0.69	6.42	21.52	0.37	151.7	3.27	
1030	800	45.5	15.1	0.70	6.44	21.60	0.25	135.6	7.49	
1050	800	12.3	14.8	0.70	6.43	22.64	0.13	122.9	11.71	
1120	800	30.7	15.0	0.69	6.45	23.0	0.20	110.0	18.05	
1130	800	23.6	15.1	0.70	6.46	22.84	0.23	106.2	20.18	
1140	800	19.8	15.1	0.69	6.45	22.82	0.21	103.8	22.31	Developed
Results At End Of Purging:		19.8	15.1	0.69	6.45	22.82	0.21	103.8	22.31	

COMMENTS:

AerostarSES LLC

WELL DEVELOPMENT LOG

Project Name:	SI AFFF MULTIPLE SITES
ASL Project No:	M2027.0003
Installation:	**Peterson AFB**
Site:	AREA 5, TRANSECT 3
Date:	8-4-18
Sample Technician:	A. Willis, F. Johnson, J. Klein
Well ID No.:	MW1-7

Initial Measurements

Well Total Depth:	~~34.~~ 35.0 ft BTOC	Water Level:	29.11 ft BTOC
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY			
(only fill out if applicable) =	(35.0 Ft - 29.11 Ft) x 0.653 gal/ft = 3.85 Gal		
Calculated Well Volume:	3.85 Gallons	Well Diameter:	4.0" inches
Calculations:	1" diameter = 0.041 gal/ft	2" diameter = 0.163 gal/ft	4" diameter = 0.653 gal/ft

Well Purging Activites

Purging Method (pump type): Geosquirt

Flow rate (incl. units): ~900-1200 ml/min

Time	Flow Rate (ml/min)	Turbidity (NTUs)	Temp (°C)	Cond. (mS/Cm)	pH	Depth to water (BTOC)	DO (mg/l)	ORP	Total Gal Pumped	Comments
0728	900	—	—	—	—	29.10	—	—	—	Development initiated
0730	900	49.3	13.4	0.56	6.24	30.95	2.70	176.2	0.47	
0735	1200	142	13.5	0.56	6.32	32.05	1.60	168.1	2.06	
0745	900	117	13.7	0.56	6.38	32.19	1.90	159.1	4.43	
0752	700	148	13.4	0.56	6.39	34.1	2.59	153.9	5.72	Almost dry - recharging pump
0915	1200	—	—	—	—	31.40	—	—	5.72	Resumed development
0920	1200	13.7	13.6	0.56	6.40	32.95	3.15	151.6	7.31	
0925	1200	42.5	13.6	0.56	6.38	33.9	3.28	148.3	8.9	
0930	1200	32.7	13.6	0.57	6.40	34.0	3.31	145.6	10.59	
0935	1200	19.4	13.7	0.57	6.41	34.3	3.35	144.9	12.28	>3 well volumes Developed
Results At End Of Purging:			13.7	0.57	6.41	34.3	3.35	144.9	12.28	

COMMENTS: Screen = 12.1 - 32.0 (historical) bgs

AerostarSES LLC

WELL DEVELOPMENT LOG

Project Name:	SI AFFF MULTIPLE SITES
ASL Project No:	M2027.0003
Installation:	**Peterson AFB**
Site:	TRANSECT 3
Date:	8-01-18
Sample Technician:	A. Willis, F. Johnson
Well ID No.:	MW1-8

Initial Measurements

Well Total Depth: 46.87 ft BTOC		Water Level: 40.98 ft BTOC	
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY			
(only fill out if applicable) = (46.87 Ft - 40.98 Ft) x 0.163 gal/ft = 0.96 Gal			
Calculated Well Volume: 0.31 Gallons		Well Diameter: 2.0 inches	
Calculations:	1" diameter = 0.041 gal/ft	2" diameter = 0.163 gal/ft	4" diameter = 0.653 gal/ft

Well Purging Activites

Purging Method (pump type): Geosquirt

Flow rate (incl. units): 600 - 900 mL/min

Time	Flow Rate (ml/min)	Turbidity (NTUs)	Temp (°C)	Cond. (mS/Cm)	pH	Depth to water (BTOC)	DO (mg/l)	ORP	Total Gal Pumped	Comments
1440	600	—	—	—	—	40.95	—	—	—	Development initiated
1444	600	2.44	16.3	1.39	6.38	41.83	0.72	126.8	~~244~~ 0.63	
1450	600	164	15.6	1.53	6.40	42.25	0.23	120.2	1.53	
1456	900	28.5	15.3	1.53	6.45	42.47	0.24	109.3	2.95	
1502	900	6.25	15.2	1.52	6.44	42.45	0.23	107.0	4.38	Developed
Results At End Of Purging:		6.25	15.2	1.52	6.44	42.45	0.23	107.0	4.38	

COMMENTS:
Screen = 33.5 - 43.5 BTOC (historical)

AerostarSES LLC

WELL DEVELOPMENT LOG

Project Name:	SI AFFF MULTIPLE SITES
ASL Project No:	M2027.0003
Installation:	**Peterson AFB**
Site:	AREA 4, TRANSECT 5
Date:	8-4-18
Sample Technician:	A. Willis, F. Johnson, J. Klein
Well ID No.:	MW 4-2

Initial Measurements

Well Total Depth:	82.8 ft BTOC	Water Level:	60.95 ft BTOC
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable) =	(82.8 Ft - 60.95 Ft) x 0.653 gal/ft = 14.25 Gal		
Calculated Well Volume:	14.25 Gallons	Well Diameter:	4.0 inches
Calculations:	1" diameter = 0.041 gal/ft	2" diameter = 0.163 gal/ft	4" diameter = 0.653 gal/ft

Well Purging Activites

Purging Method (pump type): Reclaimer

Flow rate (incl. units): 1000 - 1600 ml/min

Time	Flow Rate (ml/min)	Turbidity (NTUs)	Temp (°C)	Cond. (mS/Cm)	pH	Depth to water (BTOC)	DO (mg/l)	ORP	Total Gal Pumped	Comments
1402	1000	—	—	—	—	69.80	—	—	—	Devolopement initiated
1406	1000	over range	14.2	0.64	7.30	69.80	8.28	173.0	1.06	
1434	1600	@ ~~over range~~ 143	13.7	0.60	7.00	69.80	8.63	138.5	12.89	
1505	1600	34.4	13.3	0.59	6.95	69.80	8.78	137.2	25.89	
1527	1600	20.5	13.2	0.59	6.95	69.80	8.81	138.3	33.07	Cutting off pump due to
1606	1600	—	—	—	—	69.80	—	—	33.07	Severe weather
1620	1600	19.2	13.5	0.60	6.94	69.80	7.42	139.2	38.97	Resume Development
1650	1600	18.5	13.5	0.60	6.93	69.80	7.49	134.4	43.7	Developed after purging 3 well volumes
Results At End Of Purging:		18.5	13.5	0.60	6.93	69.80	7.49	134.4	43.7	

8-4-18

COMMENTS: Screen 61.8 - 81.8 (historical) bgs

AerostarSES LLC

WELL DEVELOPMENT LOG

Project Name:	SI AFFF MULTIPLE SITES
ASL Project No:	M2027.0003
Installation:	**Peterson AFB**
Site:	Transect 5
Date:	8-5-18
Sample Technician:	A. willis, F. Johnson, J. klein
Well ID No.:	MW4-3

Initial Measurements

Well Total Depth:	84.7 ft BTOC	Water Level:	60.6 ft BTOC
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY			
(only fill out if applicable) = (84.7 Ft - 60.6 Ft) x 0.653 gal/ft = 24.1 Gal			
Calculated Well Volume:	24.1 Gallons	Well Diameter:	4.0 inches
Calculations:	1" diameter = 0.041 gal/ft	2" diameter = 0.163 gal/ft	4" diameter = 0.653 gal/ft

Well Purging Activites

Purging Method (pump type): Reclaimer

Flow rate (incl. units): 1200 – 1800 ml/min

Time	Flow Rate (ml/min)	Turbidity (NTUs)	Temp (°C)	Cond. (mS/Cm)	pH	Depth to water (BTOC)	DO (mg/l)	ORP	Total Gal Pumped	Comments
1006	1200	—	—	—	—	60.58	—	—	—	Development initiated
1014	1200	overrange	13.6	0.60	6.91	60.90	10.72	112.4	2.54	
1022	1800	overrange	13.3	0.60	6.99	60.90	7.23	104.0	6.34	
1034	1800	581	13.2	0.60	6.98	60.90	7.85	104.8	12.31	
1044	1800	138	13.1	0.60	6.99	60.90	7.70	105.8	17.01	
1054	1800	230	13.1	0.60	6.99	60.90	8.00	107.8	21.71	
1122	1800	435	13.1	0.60	6.99	60.90	7.41	110.5	35.02	
1135	1800	420	13.1	0.61	6.99	60.90	7.32	110.7	41.2	Pump malfunctioning
1137	1800	—	—	—	—	60.85	—	—	41.2	Resumed Development
1154	1800	75.3	13.2	0.60	7.00	60.91	7.69	110.2	49.28	
1210	1800	10.9	13.3	0.60	7.00	60.90	7.90	108.2	56.88	
1225	1800	7.2	13.1	0.60	7.01	60.90	7.71	107.2	64.01	
1240	1800	6.86	13.2	0.60	7.00	60.91	7.79	107.6	72.56	Developed
Results At End Of Purging:		6.86	13.2	0.60	7.00	60.91	7.79	107.6	72.56	

COMMENTS:

AerostarSES LLC

WELL DEVELOPMENT LOG

Project Name:	SI AFFF MULTIPLE SITES
ASL Project No:	M2027.0003
Installation:	**Peterson AFB**
Site:	TRANSECT 5
Date:	8-5-18
Sample Technician:	A. Willis, F. Johnson, J Klein
Well ID No.:	MW4-4

Initial Measurements

Well Total Depth: 91.40 ft BTOC		Water Level: 60.26 ft BTOC	
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY			
(only fill out if applicable) = (91.40 Ft - 60.26 Ft) x 0.453 gal/ft = 31.14 Gal			
Calculated Well Volume: 31.14 Gallons		Well Diameter: 4.0 inches	
Calculations:	1" diameter = 0.041 gal/ft	2" diameter = 0.163 gal/ft	4" diameter = 0.653 gal/ft

Well Purging Activites

Purging Method (pump type): Reclaimer

Flow rate (incl. units): 1800-3000 ml/min

Time	Flow Rate (ml/min)	Turbidity (NTUs)	Temp (°C)	Cond. (mS/Cm)	pH	Depth to water (BTOC)	DO (mg/l)	ORP	Total Gal Pumped	Comments
1508	1800	—	—	—	—	60.20	—	—	—	Development initiated
1512	1800	over range	14.4	0.65	6.93	60.30	5.24	199.6	1.9	
1536	1800	over range	14.5	0.65	6.94	60.30	6.54	169.1	13.31	
1552	3000	over range	13.4	0.63	6.94	60.30	7.90	164.1	26.01	
1616	3000	over range	13.3	0.63	6.95	60.30	8.40	165.9	45.01	
1630	3000	142	13.5	0.63	6.95	60.30	7.71	160.7	56.01	
1642	3000	40.1	13.5	0.63	6.98	60.30	7.27	159.1	65.51	
1700	3000	15.0	13.3	0.63	6.94	60.30	7.28	157.8	79.77	
1718	3000	12.0	13.3	0.63	6.94	60.30	7.25	157.3	94.03	Developed
Results At End Of Purging:			13.3	0.63	6.94	60.30	7.25	157.3	94.03	

COMMENTS:

AerostarSES LLC

WELL DEVELOPMENT LOG

Project Name:	SI AFFF MULTIPLE SITES
ASL Project No:	M2027.0003
Installation:	**Peterson AFB**
Site:	AREA 7
Date:	8-2-17
Sample Technician:	A. Willis, F. Johnson
Well ID No.:	PAFB07MW01

Initial Measurements

Well Total Depth: 81.8 ft BTOC		Water Level: 79.6 ft BTOC	
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable) = (81.7 Ft - 79.6 Ft) x 0.163 gal/ft = 0.35 Gal			
Calculated Well Volume: 0.35 Gallons		Well Diameter: 2.0 inches	
Calculations:	1" diameter = 0.041 gal/ft	2" diameter = 0.163 gal/ft	4" diameter = 0.653 gal/ft

Well Purging Activites

Purging Method (pump type): Bailing

Flow rate (incl. units): ≈ 700 mL/min

Time	Flow Rate (ml/min)	Turbidity (NTUs)	Temp (°C)	Cond. (mS/Cm)	pH	Depth to water (BTOC)	DO (mg/l)	ORP	Total Gal Pumped	Comments
1500	700 ml/min	911	17.2	0.56	7.37	79.6	5.67	106.9	0.1	Development initiated
1505	↓	812	15.3	0.54	7.21	*	5.60	103.3	0.4	
1510	↓	O.R.	15.0	0.53	7.21	↓	5.94	97.8	0.9	
1515	↓	O.R.	14.9	0.52	7.24	↓	5.60	94.2	1.3	
1520	↓	666	14.7	0.52	7.26	↓	5.58	91.3	1.6	Developed
Results At End Of Purging:		666	14.7	0.52	7.26	*	5.58	91.3	1.6	

COMMENTS: (Hisbrical) screen 69.0 - 79.0

* Can't get WL probe down well while bailing - no WL data

* Purged greater than 5 well volumes

AerostarSES LLC

WELL DEVELOPMENT LOG

Project Name:	SI AFFF MULTIPLE SITES
ASL Project No:	M2027.0003
Installation:	**Peterson AFB**
Site:	AREA 7
Date:	8-2-18
Sample Technician:	A. Willis, F. Johnson
Well ID No.:	PAFB07MW02

Initial Measurements

Well Total Depth: 87.3 ft BTOC		Water Level: 84.66 ft BTOC	
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable) = (87.3 Ft -84.66Ft) x 0.163 gal/ft = 0.43 Gal			
Calculated Well Volume: 0.43 Gallons		Well Diameter: 2.0 inches	
Calculations:	1" diameter = 0.041 gal/ft	2" diameter = 0.163 gal/ft	4" diameter = 0.653 gal/ft

Well Purging Activites

Purging Method (pump type): Bailing

Flow rate (incl. units): ~700 ml/min

Time	Flow Rate (ml/min)	Turbidity (NTUs)	Temp (°C)	Cond. (mS/Cm)	pH	Depth to water (BTOC)	DO (mg/l)	ORP	Total Gal Pumped	Comments
1358	700	—	—	—	—	84.66	—	—	—	Development initiated
1404	700	over range	14.6	0.467	7.45	*	4.37	111.13	1.10	
1410	700		14.7	0.461	7.44	*	4.51	109.9	2.2	
1414	700		15.0	0.468	7.45	*	4.60	107.5	2.94	>5 well volumes Developed
Results At End Of Purging:		overrange	15.0	0.468	7.45	*	4.60	107.5	2.94	

COMMENTS: (historical) screen = 82.1 – 92.1

* Can't put WLM in while bailing – no WL data

• Due to depth of well and depth to water, this will probably need to be a grab sample.

AerostarSES LLC

WELL DEVELOPMENT LOG

Project Name:	SI AFFF MULTIPLE SITES
ASL Project No:	M2027.0003
Installation:	**Peterson AFB**
Site:	TRANSECT 9
Date:	8-7-18
Sample Technician:	A. Willis, F. Johnson
Well ID No.:	PAFB07MW03

Initial Measurements

Well Total Depth:	92.9 ft BTOC	Water Level:	87.78 ft BTOC
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable) = (92.9 Ft - 87.78 Ft) x 0.163 gal/ft = 0.83 Gal			
Calculated Well Volume:	0.83 Gallons	Well Diameter:	2.0 inches
Calculations:	1" diameter = 0.041 gal/ft	2" diameter = 0.163 gal/ft	4" diameter = 0.653 gal/ft

Well Purging Activites

Purging Method (pump type): Bailing / Reclaimer

Flow rate (incl. units): ~ 1200 ml/min

Time	Flow Rate (ml/min)	Turbidity (NTUs)	Temp (°C)	Cond. (mS/Cm)	pH	Depth to water (BTOC)	DO (mg/l)	ORP	Total Gal Pumped	Comments
1550	NA	O.R.	14.1	0.79	7.12	—	5.45	135.0	~	Development initiated
1600	NA	O.R.	13.4	0.76	7.09	—	6.00	128.9	1.9	
1612	– Stoped Bailing, switching to the Reclaimer								3.9	
1643	Started Reclaimer	—	—	—	—	87.81	—	—	3.9	Resume Development
1655	1200	OR	15.2	0.015	7.45	88.0	7.69	71.8	7.7	Purged well (>5 well volumes)
1715	1200	OR	15.3	0.078	7.45	88.0	7.85	86.9	14.04	Trouble shoot reclaimer
1730	1200	—	—	—	—	87.84	—	—	14.04	Resumed developing
1736	1200	425	15.4	0.79	7.26	88.0	6.36	108.1	15.94	
1745	1200	108	15.5	0.77	7.19	88.0	5.84	110.7	18.8	
1750	1200	57.8	15.3	0.77	7.19	88.0	5.94	112.7	20.39	
1754	1200	39.0	15.2	0.76	7.18	88.0	6.00	115.3	21.66	
1758	1200	19.5	15.0	0.76	7.20	88.0	6.02	116.7	22.93	Developed
Results At End Of Purging:		19.5	15.0	0.76	7.20	88.0	6.02	116.7		

COMMENTS:

AerostarSES LLC

WELL DEVELOPMENT LOG

Project Name:	SI AFFF MULTIPLE SITES
ASL Project No:	M2027.0003
Installation:	**Peterson AFB**
Site:	DE-ICING POND
Date:	~~8-6-18~~ @ 8/15/8
Sample Technician:	A. Willis, F. Johnson, J. Klein
Well ID No.:	SOUTH WELL

Initial Measurements

Well Total Depth: 97.1	ft BTOC	Water Level: 82.15	ft BTOC
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable) = (97.1 Ft - 82.2 Ft) x 0.14 gal/ft = 2.14 Gal			
Calculated Well Volume: 2.14	Gallons	Well Diameter: 1 1/8	inches
Calculations:	1" diameter = 0.041 gal/ft	2" diameter = 0.163 gal/ft	4" diameter = 0.653 gal/ft

Well Purging Activites

Purging Method (pump type): Bailing

Flow rate (incl. units): 150

Time	Flow Rate (ml/min)	Turbidity (NTUs)	Temp (°C)	Cond. (mS/Cm)	pH	Depth to water (BTOC)	DO (mg/l)	ORP	Total Gal Pumped	Comments
0858	Development initiated									
8/15/18 0918	150	55.8	14.5	0.58	6.44	82.15	2.33	202.5	0.79	
0924	150	60.6	14.7	0.58	6.60	*	2.32	176.6	1.11	
0934	150	46.7	14.7	0.58	6.64	*	2.46	166.6	1.43	
0945	150	60.7	14.5	0.58	6.64	*	2.39	154.2	1.87	
0954	150	50.9	14.4	0.58	6.65	*	2.40	146.2	2.23	
1000	150	53.1	14.4	0.58	6.66	*	2.37	142.1	2.47	Developed
1001	–	–	–	–	–	82.15	–	–	2.47	
Results At End Of Purging:		53.1	14.4	0.58	6.66	82.15	2.37	142.1	2.42	

COMMENTS: Due to size of well, only bailed water 4ft.
* No turb during bailing

AerostarSES LLC

WELL DEVELOPMENT LOG

Project Name:	SI AFFF MULTIPLE SITES
ASL Project No:	M2027.0003
Installation:	**Peterson AFB**
Site:	DE-ICING POND
Date:	8-15-18
Sample Technician:	A. Willis, F. Johnson, J. Klein
Well ID No.:	NORTH WELL

Initial Measurements

Well Total Depth: 92.3 ft BTOC		Water Level: 78.23 ft BTOC	
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY			
(only fill out if applicable) = (92.3 Ft - 78.23 Ft) x 0.14 gal/ft = 1.96 Gal			
Calculated Well Volume: 1.96 Gallons		Well Diameter: 1 7/8 inches	
Calculations:	1" diameter = 0.041 gal/ft	2" diameter = 0.163 gal/ft	4" diameter = 0.653 gal/ft

Well Purging Activites

Purging Method (pump type): Bailing

Flow rate (incl. units):

Time	Flow Rate (ml/min)	Turbidity (NTUs)	Temp (°C)	Cond. (mS/Cm)	pH	Depth to water (BTOC)	DO (mg/l)	ORP	Total Gal Pumped	Comments
1025	150	—	—	—	—	78.2	—	—	—	Development initiated
1030	150	148	14.2	0.354	6.61	–	1.71	134.9		
1040	150	875	15.3	0.389	6.61	—	1.86	133.1		
1050	150	924	15.2	0.429	6.64	–	1.99	132.4		
1100	150	959	15.1	0.461	6.65	–	2.05	132.0		
1110	150	OR	15.1	0.510	6.67	—	2.16	130.8		
1120	150	OR	14.9	0.520	6.67	–	2.26	129.9	2.17	
1125	150	OR	14.9	0.532	6.68	—	2.36	129.0	2.37	
Results At End Of Purging:		OR	14.9	0.532	6.68	78.2	2.36	129.0	2.37	

COMMENTS: Due to size of well we bailed. No equipment would fit.
Check WL @ end of development

AerostarSES

GROUNDWATER SAMPLING LOG

PROJECT: SI of AFFF Areas (Omaha)	Installation: Peterson AFB
WELL NO: PETER-T01-MW004	SAMPLE ID: PETER-T01-MW004-GW-032 DATE: 8-19-18

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH:	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:
2.0		24.3 Ft - 34.3 Ft	27.45	Geosquirt

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (34.4 - 27.45) X 0.163 gal/ft = 1.13 Gal

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable) NA = gal + (x Ft) + gal = gal

Location (Circle one): Monitoring Well Temporary Well Other

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
32	32	0852	0928	2.88

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. mS/cm or µS/cm	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
0852	—	—	0.08	27.24	—	—	—	—	—	—		
0900	0.64	0.64	0.08	28.77	7.15	13.9	0.81	0.46	-25.9	39.8	Clear	none
0905	0.4	1.04	0.08	28.77	7.12	14.2	0.81	0.31	-82.3	200	Cloudy	none
0910	0.4	1.44	0.08	28.77	7.14	14.2	0.81	0.32	-93.7	85.5	Cloudy	none
0920	0.8	2.24	0.08	28.77	7.12	14.3	0.82	0.35	-95.8	28.4	Clear	↓
0928	0.64	2.88	0.08	28.77	7.11	14.3	0.81	0.35	-99.1	11.3	Clear	↓

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
A. Willis, J. Klein / ASL		0928	ENDED AT: 0932

PUMP OR TUBING DEPTH IN WELL (feet): 32
TUBING MATERIAL CODE: PE
FIELD-FILTERED: Y (N) Filter Size mm
Filtration Equipment Type:
FIELD DECONTAMINATION: PUMP Y (N) TUBING Y (N (replaced))
DUPLICATE: Y (N)

SAMPLE ID CODE	SAMPLE CONTAINER SPECIFICATION # CONTAINERS	MATERIAL CODE	VOLUME (mL)	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	Low Flow Sampling ✓	SAMPLE PUMP FLOW RATE (mL per minute)
PETER-T01-MW004-GW-032	2	PE	125	EPA 583M	Geosquirt	✓	300

REMARKS:

Well Abandoned? Y (N) Date Well Abandoned:

Well Measurement Method: (Probe) Tape Other _____

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

AerostarSES

GROUNDWATER SAMPLING LOG

PROJECT: SI of AFFF Areas (Omaha)	Installation: Peterson AFB
WELL NO: PETER-T01-MW002-	SAMPLE ID: PETER-T01-MW002-GW-030 — DATE: 8-24-18

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches): 3/8	WELL SCREEN INTERVAL DEPTH: 25.3 Ft - 35.3 Ft	STATIC DEPTH TO WATER (feet): 19.42	PURGE PUMP TYPE OR BAILER: ~~Bladder~~ Geosquirt

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (34.4 - 19.42) X 0.163 gal/ft = 2.44 Gal

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable) NA ~~= gal + (x Ft) + gal~~ gal
Location (Circle one): Monitoring Well Temporary Well Other

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 30	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 30	PURGING INITIATED AT: 1438	PURGING ENDED AT: 1505	TOTAL VOLUME PURGED (gallons): 2.43

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. mS/cm or µS/cm	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1438	—	—	0.09	19.7	—	—	—	—	—	—	Clear	None
1444	0.54	0.54	0.09	19.62	6.70	18.3	0.289	0.91	60.8	143		
1446	0.18	0.72	0.09	19.62	6.28	16.0	0.273	0.42	67.7	130		
1454	0.72	1.44	0.09	19.62	6.29	15.8	0.300	0.20	47.1	52.1		
1458	0.36	1.8	0.09	19.62	6.29	15.7	0.302	0.25	39.6	23.6		
1505	0.63	2.43	0.19	19.62	6.28	15.7	0.305	0.27	36.2	17.3		

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: A. Willis S. Hen (ASL)	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 1505	SAMPLING ENDED AT: 1511
PUMP OR TUBING DEPTH IN WELL (feet): 30	TUBING MATERIAL CODE: PE	FIELD-FILTERED: Y N — Filter Size mm — Filtration Equipment Type:	
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE ID CODE	SAMPLE CONTAINER SPECIFICATION # CONTAINERS	MATERIAL CODE	VOLUME (mL)	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	Low Flow Sampling ✓	SAMPLE PUMP FLOW RATE (mL per minute)
PETER-T01-MW002-GW-030	2	PE	125	EPA 537M	Geosquirt	✓	350
PETER-T01-MW002-GW-930	2	PE	125	EPA 537M	Geosquirt	✓	350

REMARKS:

Well Abandoned? Y N Date Well Abandoned:

Well Measurement Method: Probe Tape Other _____

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

AerostarSES LLC

GROUNDWATER SAMPLING LOG

Charged to grab

PROJECT: SI of AFFF Areas (Omaha)	Installation: Peterson AFB
WELL NO: PETER-T02-MW006	SAMPLE ID: PETER-T02-MW006-GW-G3 DATE: 8-24-18

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: 45.6 Ft - 55.6 Ft	STATIC DEPTH TO WATER (feet): 51.40	PURGE PUMP TYPE OR BAILER: BAILER GRAB

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
=(55.5 - 51.40) X 0.163 gal/ft = Gal

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable) = gal + (x Ft) + gal = gal

Location (Circle one): Monitoring Well Temporary Well Other

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. mS/cm or µS/cm	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
							SEE GRAB					
								Sheet				

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE: PE	FIELD-FILTERED: Y N Filtration Equipment Type:	Filter Size mm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE ID CODE	SAMPLE CONTAINER SPECIFICATION # CONTAINERS	MATERIAL CODE	VOLUME (mL)	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	Low Flow Sampling ✓	SAMPLE PUMP FLOW RATE (mL per minute)

REMARKS:

Well Abandoned? Y N Date Well Abandoned:

Well Measurement Method: Probe Tape Other _____

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

AerostarSES

GROUNDWATER SAMPLING LOG

PROJECT: SI of AFFF Areas (Omaha)	Installation: Peterson AFB
WELL NO: PETER-T03-MW004	SAMPLE ID: PETER-T03-MW004-GW-028 DATE: 8-19-18

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH:	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:
2.0	3/8	20 Ft - 30 Ft	25.75	Geo Squirt

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable) =(30.0 - 25.75) X 0.163 gal/ft = 0.69 Gal

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable) NA ~~= gal + (x Ft) + gal = gal~~

Location (Circle one): Monitoring Well Temporary Well Other

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
28	28	0952	1025	2.69

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. mS/cm or µS/cm	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
0952	—	—	0.08	25.72	—	—	—	—	—	—	Cloudy	none
0958	0.80	0.80	0.08	26.05	7.09	15.6	0.91	1.29	98.5	401		
1005	0.49	1.29	0.07	26.05	6.82	15.3	0.91	0.47	54.3	153		
1010	0.35	1.64	0.07	26.05	6.81	15.4	0.90	0.52	45.1	102	clear	
1020	0.70	2.34	0.07	26.05	6.80	15.6	0.89	0.52	38.9	24.1		
1025	0.35	2.69	0.07	26.05	6.81	15.5	0.89	0.52	35.5	9.66		

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
A. Willis, J. Klein (AES)		1025	1028

PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE: PE	FIELD-FILTERED: Y (N) Filter Size mm Filtration Equipment Type:
28		

FIELD DECONTAMINATION: PUMP Y (N) TUBING Y (N) (replaced) DUPLICATE: Y (N)

SAMPLE ID CODE	SAMPLE CONTAINER SPECIFICATION # CONTAINERS	MATERIAL CODE	VOLUME (mL)	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	Low Flow Sampling ✓	SAMPLE PUMP FLOW RATE (mL per minute)
PETER-T03-MW004-GW-028	2	PE	125	EPA 537M	Geosquirt	✓	250

REMARKS:

Well Abandoned? Y (N) Date Well Abandoned:

Well Measurement Method: (Probe) Tape Other _____

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

AerostarSES LLC

GROUNDWATER SAMPLING LOG

Installation: Peterson AFB M2027.0003	Site: TRANSECT 4
WELL NO: PETER-T04-MW004	SAMPLE ID: PETER-T04-MW004-GW-060 DATE: 8-16-18

PURGING DATA

WELL DIAMETER (inches): 2.0"	TUBING DIAMETER (inches): 1/4	WELL SCREEN INTERVAL DEPTH: 55.2 Ft - 65.2 Ft bgs	STATIC DEPTH TO WATER (feet BTOC): 50.03	PURGE PUMP TYPE OR BAILER: Bladder

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable) = (65.5 Ft - 50.03 Ft) x 0.163 gal/ft = 2.52 gal

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable) NA = gal = (x Ft) + gal = gal

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 60	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 60	PURGING INITIATED AT: 1050	PURGING ENDED AT: 1130	TOTAL VOLUME PURGED (gallons): 4.0

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet BTOC)	pH (standard units)	TEMP. (°C)	COND. ~~µS/cm~~ mS/cm	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1050	—	—	0.10	49.73	—	—	—	—	—	—	cloudy	none
1100	1.0	1.0	0.10	50.00	7.39	17.0	0.91	1.30	68.9	323		
1110	1.0	2.0	0.10	50.03	7.53	17.9	0.89	2.35	32.9	271		
1118	0.8	2.8	0.10	50.03	7.60	17.8	0.89	2.48	29.9	239		
1124	0.6	3.4	0.10	50.03	7.62	17.7	0.89	2.54	28.3	211		
1128	0.4	3.8	0.10	50.03	7.64	17.5	0.89	2.50	26.2	207		
1130	0.2	4.0	0.10	50.03	7.64	17.5	0.89	2.52	25.4	202		

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: Anwills S.Hein	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 1130	SAMPLING ENDED AT: 1132
PUMP OR TUBING DEPTH IN WELL (feet): 60	TUBING MATERIAL CODE: PE	FIELD-FILTERED: Y (N) Filtration Equipment Type:	Filter Size mm
FIELD DECONTAMINATION: PUMP Y (N)	TUBING Y (N (replaced))	DUPLICATE: Y (N)	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME (mL)	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH (Stanard Units)	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
PETER-T04-MW004-GW-060	2	PE	125ml carb				EPA 537M	BP	400

REMARKS:
- During development, this well would not clean up. Turbidity did not drop.
- Well Completed

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

Stabilization Criteria for range of variation of last three consecutive readings
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation; optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: March 14, 2016

AerostarSES, LLC

GROUNDWATER SAMPLING LOG

PROJECT: SI of AFFF Areas (Omaha)	Installation: Peterson AFB
WELL NO: PETER-T04-MW006	SAMPLE ID: PETER-T04-MW006-GW-057 DATE: 9-7-18

PURGING DATA

WELL DIAMETER (inches): 2.0	TUBING DIAMETER (inches): 1/4	WELL SCREEN INTERVAL DEPTH: 49.6 Ft - 59.4 Ft	STATIC DEPTH TO WATER (feet): 53.44	PURGE PUMP TYPE OR BAILER: Bladder

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
=(59.4 - 53.44) X 0.163 gal/ft = 0.97 Gal

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
NA = gal + (x Ft) + gal = gal

Location (Circle one): Monitoring Well Temporary Well Other

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 57	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 57	PURGING INITIATED AT: 0950	PURGING ENDED AT: 1050	TOTAL VOLUME PURGED (gallons): 3.0

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. mS/cm or µS/cm	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
0950	–	–	0.05	53.40	–	–	–	–	–	–	Clear	none
1002	0.6	0.6	0.05	53.40	7.09	14.8	0.93	2.63	-10.2	830	Cloudy	↓
1022	1.0	1.6	0.05	53.40	7.19	14.6	0.91	3.43	-13.7	99.8	↓	↓
1036	0.7	2.3	0.05	53.40	7.18	14.7	0.91	3.56	-11.5	36.0	Clear	↓
1050	0.7	3.0	0.05	53.40	7.18	14.8	0.90	3.65	-9.6	17.8	Clear	↓

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: A. Willis, J. Klein (ASL)	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 1050	SAMPLING ENDED AT: 1054
PUMP OR TUBING DEPTH IN WELL (feet): 57	TUBING MATERIAL CODE: PE	FIELD-FILTERED: Y (N) Filtration Equipment Type:	Inter Size mm
FIELD DECONTAMINATION: PUMP Y (N)	TUBING Y (N) (replaced)	DUPLICATE: Y (N)	

SAMPLE ID CODE	SAMPLE CONTAINER SPECIFICATION # CONTAINERS	MATERIAL CODE	VOLUME (mL)	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	Low Flow Sampling ✓	SAMPLE PUMP FLOW RATE (mL per minute)
PETER-T04-MW006-GW-057	2	PE	125	EPA 537M	BP	✓	200

REMARKS:

Well Abandoned? Y (N) Date Well Abandoned:

Well Measurement Method: (Probe) Tape Other _____

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

AerostarSES LLC

GROUNDWATER SAMPLING LOG

Installation: Peterson AFB M2027.0003		Site: Transect 5	
WELL NO: Peter-T05-MW006	SAMPLE ID: PETER-T05-MW006-GW-060		DATE: 8-17-18

PURGING DATA

WELL DIAMETER (inches): 2.0"	TUBING DIAMETER (inches): 1/4	WELL SCREEN INTERVAL DEPTH: 54.3 Ft - 64.3 Ft bgs	STATIC DEPTH TO WATER (feet BTOC): 58.33	PURGE PUMP TYPE OR BAILER: Bladder

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY

(only fill out if applicable) = (64.3 Ft - 58.33 Ft) x 0.163 gal/ft = 0.97 gal

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME

(only fill out if applicable) NA = gal = (x Ft) + gal = gal

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
60	60	1408		

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet BTOC)	pH (standard units)	TEMP. (°C)	COND. µS/cm ~~mS/cm~~	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1408	—	—	0.05	58.5	—	—	—	—	—	—	Cloudy	none
1415	0.15	0.15	0.05	58.5	7.42	18.8	0.93	3.64	127.1	397		
1425	0.5	0.65	0.05	58.5	7.33	17.6	0.88	4.44	93.7	483		
1435	0.5	1.15	0.05	58.5	7.31	17.4	0.79	4.69	68.8	309		
1440	0.25	1.40	0.05	58.5	7.29	17.2	0.73	5.00	57.4	191		
1445	0.25	1.65	0.05	57.5	7.29	17.1	0.71	5.08	53.6	143		
1450	0.25	1.90	0.05	58.5	7.28	17.0	0.68	5.11	50.7	132		
1455	0.25	2.15	0.05	58.5	7.28	17.0	0.66	5.14	47.6	131		
1500	0.25	2.4	0.05	58.5	7.28	17.1	0.68	5.10	50.3	124		

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: Ashwillis J. Klein (ASL)	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 1500	SAMPLING ENDED AT: 1502
PUMP OR TUBING DEPTH IN WELL (feet): 60	TUBING MATERIAL CODE: PE	FIELD-FILTERED: Y (N) Filtration Equipment Type:	Filter Size mm

FIELD DECONTAMINATION: PUMP Y (N) TUBING Y N (replaced) DUPLICATE: Y (N)

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME (mL)	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH (Stanard Units)	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
PETER-T05-MW006-GW-060	2	PE	125ml each				EPA 537M	BP	200

REMARKS: well completed

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

Stabilization Criteria for range of variation of last three consecutive readings

pH: ± 0.2 units Temperature: ± 0.2 °C Specific Conductance: ± 5% Dissolved Oxygen: all readings ≤ 20% saturation; optionally, ± 0.2 mg/L or ± 10% (whichever is greater) Turbidity: all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: March 14, 2016

AerostarSES LLC

GROUNDWATER SAMPLING LOG

Installation: Peterson AFB M2027.0003	Site: TRANSECT 5	
WELL NO: PETER-T05-MW005	SAMPLE ID: PETER-T05-MW005-GW-065	DATE: 8-18-18

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH:	STATIC DEPTH TO WATER (feet BTOC):	PURGE PUMP TYPE OR BAILER:
2.0	1/4	49.6 Ft - 69.6 Ft	51.54	Bladder

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY

(only fill out if applicable) = (70.6 Ft - 51.54 Ft) x 0.163 gal/ft = 3.11 gal

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME

(only fill out if applicable) NA = gal = (x Ft) + gal gal

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
65	65	1516	1605	3.43

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet BTOC)	pH (standard units)	TEMP. (°C)	COND. ~~µS/cm~~ mS/cm	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1516	—	—	0.07	51.2	—	—	—	—	—	—	Cloudy	None
1527	0.77	0.77	0.07	51.2	7.11	17.2	0.71	4.48	129.9	421		
1542	1.05	1.82	0.07	51.2	7.14	15.7	0.66	5.99	97.4	437 15		
1556	0.98	2.8	0.07	51.2	7.15	15.7	0.65	6.19	76.8	384		
1605	0.63	3.43	0.07	51.2	7.16	15.7	0.65	6.25	66.9	385		

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: A. Willis J. Klein (ASL)	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 1605	SAMPLING ENDED AT: 1608
PUMP OR TUBING DEPTH IN WELL (feet): 65	TUBING MATERIAL CODE: PE	FIELD-FILTERED: Y N Filtration Equipment Type:	Filter Size mm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME (mL)	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH (Stanard Units)	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
PETER-T05-MW005-GW-065	2	PE	125ml each				EPA 537M	BP	250

REMARKS: During development, turbidity never cleared up after 30 gallons. SEE Development log.

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

Stabilization Criteria for range of variation of last three consecutive readings

pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation; optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: March 14, 2016

AerostarSES

GROUNDWATER SAMPLING LOG

PROJECT: SI of AFFF Areas (Omaha)	Installation: Peterson AFB
WELL NO: PETER-TOS-MW001	SAMPLE ID: PETER-TOS-MW001-GW-064 DATE: 9-7-18

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH:	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:
2.0	1/4	58.2 Ft - 68.2 Ft	58.7	Bladder

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable) = (69.2 - 58.7) X 0.163 gal/ft = 1.71 Gal

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable) NA = gal + (x Ft.) + gal = gal

Location (Circle one): Monitoring Well Temporary Well Other

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
64	64	1120	1256	4.75

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. mS/cm or µS/cm	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1120	—	—	0.05	58.65	—	—	—	—	—	—	Cloudy	none
1132	0.6	0.4	0.05	58.65	7.36	16.0	~~5.53~~ 0.67	3.53	-5.8	144		
1145	0.65	1.25	0.05	58.65	7.21	15.2	0.66	4.24	-4.0	147		
1200	0.75	2.0	0.05	58.65	7.29	15.1	0.66	4.71	-5.9	114		
1222	1.1	3.1	0.05	58.65	7.31	15.3	0.67	4.72	-2.5	72.7		
1238	0.75	3.85	0.05	58.65	7.31	15.4	0.67	4.82	1.3	38.6	Clear	
1256	0.9	4.75	0.05	58.66	7.31	15.3	0.67	4.83	1.9	19.3	Clear	

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
A. Willis, J. Klein (ASL)	[signature]	1256	ENDED AT: 1259

PUMP OR TUBING DEPTH IN WELL (feet): 64
TUBING MATERIAL CODE: PE
FIELD-FILTERED: Y (N) Filter Size mm
Filtration Equipment Type:
FIELD DECONTAMINATION: PUMP Y (N) TUBING Y (N) (replaced)
DUPLICATE: Y (N)

SAMPLE ID CODE	SAMPLE CONTAINER SPECIFICATION # CONTAINERS	MATERIAL CODE	VOLUME (mL)	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	Low Flow Sampling ✓	SAMPLE PUMP FLOW RATE (mL per minute)
PETER-TOS-MW001-GW-064	2	PE	125	EPA 537m	BP	✓	200

REMARKS:

Well Abandoned? Y (N) Date Well Abandoned:

Well Measurement Method: (Probe) Tape Other _____

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

AerostarSES LLC

GROUNDWATER SAMPLING LOG

PROJECT: SI of AFFF Areas (Omaha)	Installation: Peterson AFB
WELL NO: PETER-T07-MW004	SAMPLE ID: PETER-T07-MW004-GW-064 DATE: 9-6-18

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH:	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:
2.0"	1/4"	59.4 Ft - 69.4 Ft	56.65	Bladder

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (~~74.8~~ 69.6 - 56.65) x 0.163 gal/ft = 2.11 Gal

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable) NA ~~= gal + (x Ft) + gal = gal~~
Location (Circle one): Monitoring Well Temporary Well Other

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
64	64	1226	1338	3.90

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. mS/cm or µS/cm	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1226	—	—	0.07	56.63	—	—	—	—	—	—	Cloudy	none
1234	0.56	0.56	0.07	56.60	7.25	15.6	1.40	4.50	12.8	144		
1244	0.56	1.12	0.07	56.60	7.14	15.0	1.26	4.60	17.4	109		
1304	1.4	2.52	0.07	56.60	7.16	14.7	1.05	5.17	25.3	64	Clear	
1320	1.12	2.64	0.07	56.60	7.16	14.7	1.01	5.23	26.6	45.4		
1327	0.49	3.13	0.07	56.60	7.18	14.7	1.00	5.14	25.2	34.1		
1338	0.77	3.9	0.07	56.60	7.18	14.7	0.99	5.25	30.1	19.0		

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
A. Wilt, J. Klein (ASL)		1338	ENDED AT: 1342

PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE: PE	FIELD-FILTERED: Y (N) Filter Size mm Filtration Equipment Type:
64		

FIELD DECONTAMINATION: PUMP Y (N) TUBING Y (N (replaced)) DUPLICATE: Y (N)

SAMPLE ID CODE	SAMPLE CONTAINER SPECIFICATION # CONTAINERS	MATERIAL CODE	VOLUME (mL)	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	Low Flow Sampling ✓	SAMPLE PUMP FLOW RATE (mL per minute)
PETER-T07-MW004-GW-064	2	PE	125mL	EPA 537M	BP	✓	250

REMARKS:

Well Abandoned? Y (N) Date Well Abandoned:

Well Measurement Method: (Probe) Tape Other _____

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

AerostarSES LLC

GROUNDWATER SAMPLING LOG

PROJECT: SI of AFFF Areas (Omaha)	Installation: Peterson AFB
WELL NO: PETER-T07-MW003	SAMPLE ID: PETER-T07-MW003-GW-069 DATE: 9-6-17

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH:	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:
2.0"	1/4"	64.8 Ft - 74.8 Ft	55.84	Bladder

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
=(74.8 - 55.84) X 0.163 gal/ft = 3.09 Gal

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable) NA ~~gal~~ + (x ~~Ft~~) + ~~gal~~ = ~~gal~~

Location (Circle one): Monitoring Well Temporary Well Other

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
69	69	1408	1535	6.09

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. mS/cm or µS/cm	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1408	—	—	0.07	55.8	—	—	—	—	—	—	Cloudy	none
1434	1.72	1.72	0.07	55.82	7.41	15.0	0.65	5.08	-45.9	overrange	Turbid	
1450	1.12	2.94	0.07	55.82	7.36	14.6	0.64	6.22	-28.6	overrange		
1458	0.56	3.5	0.07	55.82	7.32	14.5	0.64	6.52	-21.5	820		
1507	0.70	4.2	0.07	55.82	7.33	14.3	0.64	6.65	-18.3	737	Cloudy	
1525	1.19	5.39	0.07	55.82	7.33	14.5	0.64	6.98	-11.8	594		
1535	0.70	6.09	0.07	55.82	7.34	14.5	0.64	6.87	-10.2	626		

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
A. Willis, J. Klein (ASL)		1535	1543

PUMP OR TUBING DEPTH IN WELL (feet): 69
TUBING MATERIAL CODE: PE
FIELD-FILTERED: Y (N) Filter Size mm
Filtration Equipment Type:
FIELD DECONTAMINATION: PUMP Y (N) TUBING Y (N) (replaced)
DUPLICATE: (Y) N

SAMPLE ID CODE	SAMPLE CONTAINER SPECIFICATION # CONTAINERS	MATERIAL CODE	VOLUME (mL)	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	Low Flow Sampling ✓	SAMPLE PUMP FLOW RATE (mL per minute)
PETER-T07-MW003-GW-069	2	PE	125	EPA 537M	BP	✓	250
PETER-T07-MW003-GW-9109	2	PE	125	EPA 537M	BP	✓	250

REMARKS:

Well Abandoned? Y (N) Date Well Abandoned:

Well Measurement Method: (Probe) Tape Other _____

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

AerostarSES LLC

GROUNDWATER SAMPLING LOG

PROJECT: SI of AFFF Areas (Omaha)	Installation: Peterson AFB
WELL NO: PETER-T07-MW006	SAMPLE ID: PETER-T07-MW006-GW-089 DATE: 9-10-18

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH:	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:
2.0"	1/4"	84.2 Ft - 94.2 Ft	77.07	Bladder

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable) = (94.2 - 77.07) X 0.163 gal/ft = 2.79 Gal

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable) NA ~~= gal + (X Ft) + gal = gal~~

Location (Circle one): Monitoring Well Temporary Well Other

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
89	89	1100	1254	5.99

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. mS/cm or µS/cm	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1100	—	—	0.07	77.1	—	—	—	—	—	—	Cloudy	none
1120	1.40	1.40	0.07	77.1	6.91	15.8	1.27	4.46	46.6	694		
1140	1.40	1.80	0.07	77.1	7.17	15.4	1.22	5.59	52.1	624		
1200	1.40	2.20	0.07	77.1	7.28	15.6	1.19	6.25	58.5	506		
1210	0.70	2.90	0.07	77.1	7.32	15.7	1.19	6.72	62.9	407		
1224	1.68	4.58	0.07	77.1	7.32	15.8	1.20	6.76	67.8	248		
1246	0.84	5.42	0.07	77.1	7.31	15.9	1.20	6.76	70.5	200		
1254	0.56	5.99	0.07	77.1	7.32	15.9	1.20	6.71	71.2	229		

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
A. Willis, J. Klein (ASL)	[signature]	1254	1258

PUMP OR TUBING DEPTH IN WELL (feet): 89
TUBING MATERIAL CODE: PE
FIELD-FILTERED: Y (N) Filter Size mm
Filtration Equipment Type:
FIELD DECONTAMINATION: PUMP Y (N) TUBING Y (N) (replaced)
DUPLICATE: Y (N)

SAMPLE ID CODE	SAMPLE CONTAINER SPECIFICATION # CONTAINERS	MATERIAL CODE	VOLUME (mL)	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	Low Flow Sampling ✓	SAMPLE PUMP FLOW RATE (mL per minute)
PETER-T07-MW006-GW-089	2	PE	125	EPA 537M	BP	✓	250

REMARKS:

Well Abandoned? Y (N) Date Well Abandoned:

Well Measurement Method: (Probe) Tape Other _____

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

AerostarSES

GROUNDWATER SAMPLING LOG

PROJECT: SI of AFFF Areas (Omaha)	Installation: Peterson AFB
WELL NO: PETER-T08-MW001	SAMPLE ID: PETER-T08-MW001-GW-074 DATE: 8-26-18

PURGING DATA

WELL DIAMETER (inches): 2.0"	TUBING DIAMETER (inches): 1/4	WELL SCREEN INTERVAL DEPTH: 70.1 Ft - 80.1 Ft	STATIC DEPTH TO WATER (feet): 72.97	PURGE PUMP TYPE OR BAILER: Bladder

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
=(80.1 - 72.97) x 0.163 gal/ft = 1.15 Gal

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable) NA = ~~gal + (x Ft) + gal = gal~~

Location (Circle one): Monitoring Well Temporary Well Other

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 74	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 74	PURGING INITIATED AT: 0750	PURGING ENDED AT: 0842	TOTAL VOLUME PURGED (gallons): 3.64

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. mS/cm or µS/cm	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
0750	—	—	0.07	72.78	—	—	—	—	—	—	Cloudy	none
0802	0.84	0.84	0.07	73.2	8.16	15.7	1.23	1.98	-36.3	233	↓	↓
0810	0.56	1.40	0.07	73.2	8.43	15.0	1.22	3.27	-61.8	250	↓	↓
0825	1.05	2.45	0.07	73.2	8.64	16.2	1.29	3.20	-76.8	192	↓	↓
0836	0.77	3.22	0.07	73.2	8.65	16.3	1.32	2.99	-81.5	178	↓	↓
* 0842	0.42	3.64	0.07	73.2	8.66	16.4	1.33	3.00	-85.3	166	↓	↓

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: A. Willis, J. Klein (ASL)	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 0842	SAMPLING ENDED AT: 0846
PUMP OR TUBING DEPTH IN WELL (feet): 74	TUBING MATERIAL CODE: PE	FIELD-FILTERED: Y N Filter Size mm Filtration Equipment Type:	
FIELD DECONTAMINATION: PUMP Y N TUBING Y N (replaced)		DUPLICATE: Y N	

SAMPLE ID CODE	SAMPLE CONTAINER SPECIFICATION # CONTAINERS	MATERIAL CODE	VOLUME (mL)	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	Low Flow Sampling ✓	SAMPLE PUMP FLOW RATE (mL per minute)
PETER-T08-MW001-GW-074	2	PE	125	EPA 537M	BP	✓	250

REMARKS: * During development - well never became clear. ↑ turbidity.

Well Abandoned? Y N Date Well Abandoned:

Well Measurement Method: Probe Tape Other _____

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

AerostarSES

GROUNDWATER SAMPLING LOG

well pad completed

PROJECT: SI of AFFF Areas (Omaha)	Installation: Peterson AFB

WELL NO: PETER-T11-MW001	SAMPLE ID: PETER-T11-MW001	DATE: 9-10-18

PURGING DATA

WELL DIAMETER (inches): 2.0	TUBING DIAMETER (inches): N/A	WELL SCREEN INTERVAL DEPTH: 60.4 Ft - 70.4 Ft	STATIC DEPTH TO WATER (feet): 69.24	PURGE PUMP TYPE OR BAILER: Bailer

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable) NA = (-) X gal/ft = ~~Gal~~

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable) NA = gal + (x Ft) + = gal

Location (Circle one): Monitoring Well Temporary Well Other

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): NA	FINAL PUMP OR TUBING DEPTH IN WELL (feet): NA	PURGING INITIATED AT: NA	PURGING ENDED AT: NA	TOTAL VOLUME PURGED (gallons): NA

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. mS/cm or µS/cm	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)

GRAB SAMPLE
See
Grab Sheet

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./FL): 1/8" = 0.0005; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE: PE	FIELD-FILTERED: Y N Filtration Equipment Type:	Filter Size mm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE ID CODE	SAMPLE CONTAINER SPECIFICATION # CONTAINERS	MATERIAL CODE	VOLUME (mL)	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	Low Flow Sampling ✓	SAMPLE PUMP FLOW RATE (mL per minute)

REMARKS:

Well Abandoned? Y (N) Date Well Abandoned:

Well Measurement Method: (Probe) Tape Other _____

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

AerostarSES

GROUNDWATER SAMPLING LOG

PROJECT: SI of AFFF Areas (Omaha)	Installation: Peterson AFB
WELL NO: PETER-T13-MW001	SAMPLE ID: PETER-T13-MW001-GW-075 DATE: 9/5/18

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH:	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:
2.0	1/4	69.45 Ft - 79.45 Ft	62.94	Bladder

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable) = (79.4 - 62.94) x 0.163 gal/ft = 2.68 Gal

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable) NA ~~= gal + (x Ft) + gal = gal~~

Location (Circle one): Monitoring Well Temporary Well Other

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
75	75	1022	1050	1.96

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. mS/cm or µS/cm	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1022	—	—	0.07	62.51	—	—	—	—	—	—	clear	none
1034	0.84	0.84	0.07	62.9	7.27	15.5	0.56	3.71	131.1	15.0		
1038	0.28	1.12	0.07	62.9	7.01	15.1	0.54	4.24	115.3	8.36		
1044	0.42	1.54	0.07	62.9	7.01	14.8	0.52	4.83	89.3	10.6		
1050	0.42	1.96	0.07	62.9	7.02	14.8	0.52	4.87	85.2	9.54		

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
A. Willis, J. Klein (ASL)		1050	1055

PUMP OR TUBING DEPTH IN WELL (feet): 75
TUBING MATERIAL CODE: PE
FIELD-FILTERED: Y (N) Filter Size mm
Filtration Equipment Type:
FIELD DECONTAMINATION: PUMP Y (N) TUBING Y (N) (replaced)
DUPLICATE: Y (N)

SAMPLE ID CODE	SAMPLE CONTAINER SPECIFICATION # CONTAINERS	MATERIAL CODE	VOLUME (mL)	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	Low Flow Sampling ✓	SAMPLE PUMP FLOW RATE (mL per minute)
PETER-T13-MW001-GW-075	2	PE	125	EPA 537M	BP	✓	250

REMARKS: Well Completed

Well Abandoned? Y (N) Date Well Abandoned:

Well Measurement Method: (Probe) Tape Other _____

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

AerostarSES LLC

GROUNDWATER SAMPLING LOG

PROJECT: SI of AFFF Areas (Omaha)	Installation: Peterson AFB	9/5/18
WELL NO: PETER-T13-MW003-GW-079	SAMPLE ID: PETER-T13-MW003-GW-079	DATE: ~~7-16-18~~ 9/6

PURGING DATA

WELL DIAMETER (inches): 2.0	TUBING DIAMETER (inches): 1/4	WELL SCREEN INTERVAL DEPTH: 74.45 Ft - 84.45 Ft	STATIC DEPTH TO WATER (feet): 62.69	PURGE PUMP TYPE OR BAILER: Bladder

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable) = (84.4 - 62.69) x 0.163 gal/ft = 3.53 Gal

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable) NA ~~= gal + (x Ft) + NA gal = gal~~

Location (Circle one): Monitoring Well Temporary Well Other

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 79	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 79	PURGING INITIATED AT: 1128	PURGING ENDED AT: 1302	TOTAL VOLUME PURGED (gallons): 6.58

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. mS/cm or µS/cm	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1128	—	—	0.07	62.66	—	—	—	—	—	—	Clear	None
1146	0.84	0.84	0.07	62.65	8.20	16.4	0.77	1.73	-22.2	176	Cloudy	
1149	0.63	1.47	0.07	62.65	7.58	15.2	0.68	4.42	-33.7	171		
1201	0.84	2.31	0.07	62.65	7.41	15.1	0.61	5.67	-14.2	146		
1214	0.91	3.22	0.07	62.64	7.32	15.2	0.57	6.01	-2.4	110		
1223	0.63	3.85	0.07	62.64	7.28	15.1	0.55	6.05	4.7	92.1		
1234	0.77	4.62	0.07	62.64	7.27	15.1	0.54	6.09	9.0	71.9		
1245	0.77	5.39	0.07	62.64	7.26	15.2	0.54	6.01	13.1	56.2	Clear	
1255	0.70	6.09	0.07	62.64	7.25	15.3	0.54	6.00	13.8	36.3		
1302	0.49	6.58	0.07	62.64	7.24	15.3	0.54	6.03	18.4	48.5		

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: A. Villis J. Klein / TSC	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 1302	SAMPLING ENDED AT: ENDED AT: 1305
PUMP OR TUBING DEPTH IN WELL (feet): 79	TUBING MATERIAL CODE: PE	FIELD-FILTERED: Y (N) Filtration Equipment Type:	Filter Size mm
FIELD DECONTAMINATION: PUMP Y (N)	TUBING Y (N (replaced))	DUPLICATE: Y (N)	

SAMPLE ID CODE	SAMPLE CONTAINER SPECIFICATION # CONTAINERS	MATERIAL CODE	VOLUME (mL)	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	Low Flow Sampling ✓	SAMPLE PUMP FLOW RATE (mL per minute)
PETER-T13-MW003-GW-079	2	PE	125	EPH-531M	BP	✓	250

REMARKS: well completed

Well Abandoned? Y (N) Date Well Abandoned:

Well Measurement Method: (Probe) Tape Other _____

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

AerostarSES

GROUNDWATER SAMPLING LOG

PROJECT: SI of AFFF Areas (Omaha)	Installation: Peterson AFB
WELL NO: PETER-T13-MW004	SAMPLE ID: PETER-T13-MW004-GW-075 DATE: 8-28-18

PURGING DATA

WELL DIAMETER (inches): 2.0	TUBING DIAMETER (inches): 1/4	WELL SCREEN INTERVAL DEPTH: 69.45 Ft - 79.45 Ft	STATIC DEPTH TO WATER (feet): 63.81	PURGE PUMP TYPE OR BAILER: BP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable) = (79.4 - 63.81) X 0.163 gal/ft = 2.54 Gal

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable) NA = gal + (x Ft) + gal = gal

Location (Circle one): Monitoring Well Temporary Well Other

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 75	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 75	PURGING INITIATED AT: 1046	PURGING ENDED AT: 1143	TOTAL VOLUME PURGED (gallons): 3.96

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. mS/cm or µS/cm	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1046	—	—	0.07	63.87 ~~63.81~~	—	—	—	—	—	—	Cloudy	none
1056	0.7	0.70	0.07	63.89	7.52	18.4	0.63	4.49	68.3	244	cloudy	
1112	1.12	1.82	0.07	63.89	7.31	15.9	0.62	6.03	59.0	128		
1117	0.35	2.17	0.07	63.89	7.29	15.7	0.61	6.30	61.6	148		
1133	1.12	3.26	0.07	63.89	7.30	15.8	0.61	6.19	64.1	141		
1143	0.7	3.96	0.07	63.89	7.30	15.8	0.61	6.30	64.8	146		

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: A. Willis, J. Klein (ASL)	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 1143	SAMPLING ENDED AT: 1151
PUMP OR TUBING DEPTH IN WELL (feet): 75	TUBING MATERIAL CODE: PE	FIELD-FILTERED: Y N Filter Size mm Filtration Equipment Type:	
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE ID CODE	SAMPLE CONTAINER SPECIFICATION # CONTAINERS	MATERIAL CODE	VOLUME (mL)	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	Low Flow Sampling ✓	SAMPLE PUMP FLOW RATE (mL per minute)
PETER-T13-MW004-GW-075	2	PE	125	EPA 537M	BP	✓	250

REMARKS:

Well Abandoned? Y N Date Well Abandoned:

Well Measurement Method: Probe Tape Other _____

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

AerostarSES

GROUNDWATER SAMPLING LOG

PROJECT: SI of AFFF Areas (Omaha)	Installation: Peterson AFB
WELL NO: PETER-T13-MW006	SAMPLE ID: PETER-T13-MW006-GW-110 DATE: 8-28-18

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH:	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:
2.10	1/4	104.7 Ft - 114.7 Ft bgs	94.94	Bladder

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (114.6 - 94.94) x 0.163 gal/ft = 3.20 Gal

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
NA = ~~gal + (x Ft.) + gal~~ = ~~gal~~ gal

Location (Circle one): Monitoring Well Temporary Well Other

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
110	110	0815	1014	8.33

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. mS/cm or µS/cm	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
0815	–	–	0.07	94.60	–	–	–	–	–	–	Clear	none
0830	1.05	1.05	0.07	95.1	7.13	15.9	0.65	1.42	-16.1	931	Cloudy	
0842	0.84	1.89	0.07	95.1	7.42	15.3	0.65	2.98	-78.3	626		
0850	0.54	2.45	0.07	95.1	7.47	15.3	0.64	3.61	-74.7	514		
0902	0.84	3.29	0.07	95.1	7.47	15.3	0.64	3.68	-66.4	462		
0914	0.84	4.13	0.07	95.1	7.47	15.3	0.64	3.81	-59.5	330		
0925	0.77	4.9	0.07	95.1	7.46	15.4	0.64	3.89	-53.7	229		
0940	1.05	5.95	0.07	95.1	7.43	15.4	0.63	3.90	-52.0	153		
0950	0.70	6.65	0.07	95.1	7.41	15.5	0.63	3.89	-50.1	116		
0958	0.56	7.21	0.07	95.1	7.40	15.5	0.63	3.87	-46.2	62	Clear	
1006	0.56	7.77	0.07	95.1	7.40	15.5	0.63	3.87	-44.8	36		
1014	0.56	8.33	0.07	95.1	7.41	15.5	0.63	3.89	-43.6	14.7		

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
A Willis, J Klein (ASC)	[signature]	1014	ENDED AT: 1018

PUMP OR TUBING DEPTH IN WELL (feet): 110
TUBING MATERIAL CODE: PE
FIELD-FILTERED: Y (N) Filter Size mm
Filtration Equipment Type:
FIELD DECONTAMINATION: PUMP Y (N) TUBING Y (N replaced)
DUPLICATE: Y (N)

SAMPLE ID CODE	SAMPLE CONTAINER SPECIFICATION # CONTAINERS	MATERIAL CODE	VOLUME (mL)	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	Low Flow Sampling ✓	SAMPLE PUMP FLOW RATE (mL per minute)
PETER-T13-MW006-GW-110	2	PE	125	EPA 537m	BP	✓	250

REMARKS:

Well Abandoned? Y (N) Date Well Abandoned:

Well Measurement Method: (Probe) Tape Other _____

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

AerostarSES LLC

GROUNDWATER SAMPLING LOG

PROJECT: SI of AFFF Areas (Omaha)	Installation: Peterson AFB
WELL NO: PETER - T14 - MW002A	SAMPLE ID: PETER - T14-MW002A-GW-049 DATE: 9-13-18

PURGING DATA

WELL DIAMETER (inches): 2.0"	TUBING DIAMETER (inches): NA	WELL SCREEN INTERVAL DEPTH: 39.9 Ft - 49.9 Ft	STATIC DEPTH TO WATER (feet): 48.4	PURGE PUMP TYPE OR BAILER: BAILER - GRAB

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable) =(49.9 - 48.3) X 0.163 gal/ft = Gal

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable) NA = gal + (x Ft) + gal = gal

Location (Circle one): Monitoring Well Temporary Well Other

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): NA	FINAL PUMP OR TUBING DEPTH IN WELL (feet): NA	PURGING INITIATED AT: NA	PURGING ENDED AT: NA	TOTAL VOLUME PURGED (gallons): NA

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. mS/cm or µS/cm	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
				GRAB	SAMPLE	DUE	TO					
				LACK	OF	WATER	/	SLOW	RECHARG.			

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: A. Willis (ASL)	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 0950	SAMPLING ENDED AT: ENDED AT: 0959
PUMP OR TUBING DEPTH IN WELL (feet): NA	TUBING MATERIAL CODE: PE	FIELD-FILTERED: Y (N) Filtration Equipment Type: Filter Size mm	
FIELD DECONTAMINATION: PUMP Y (N)	TUBING Y (N) (replaced)	DUPLICATE: (Y) N	

SAMPLE ID CODE	SAMPLE CONTAINER SPECIFICATION # CONTAINERS	MATERIAL CODE	VOLUME (mL)	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	Low Flow Sampling ✓	SAMPLE PUMP FLOW RATE (mL per minute)
PETER-T14-MW002A-GW-049				EPA 537m	B	NA	NA
PETE-T14-MW002A-GW-949							

REMARKS: Slow recharge

Well Abandoned? Y (N) Date Well Abandoned:

Well Measurement Method: (Probe) Tape Other _____

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

AerostarSES LLC

GROUNDWATER SAMPLING LOG

PROJECT: SI of AFFF Areas (Omaha)	Installation: Peterson AFB	
WELL NO: PETER01-MW001	SAMPLE ID: PETER01-MW001-GW-089	DATE: 8-20-18

PURGING DATA

WELL DIAMETER (inches): 2.0"	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: 82 Ft - 92 Ft	STATIC DEPTH TO WATER (feet): 86.75	PURGE PUMP TYPE OR BAILER: Bladder

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable) =(92 - 86.75) X 0.163 gal/ft = 0.85 Gal

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable) NA ~~= gal + (x ft) + gal = gal~~

Location (Circle one): Monitoring Well Temporary Well Other

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 89	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 89	PURGING INITIATED AT: 1142	PURGING ENDED AT: 1205	TOTAL VOLUME PURGED (gallons): 1.61

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. mS/cm or µS/cm	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1142	—	—	0.07	87.0	—	—	—	—	—	—	Clear	none
1152	0.70	0.70	0.07	87.2	7.71	15.8	0.64	2.84	1.6	191	Cloudy	|
1156	0.28	0.98	0.07	87.2	7.66	15.5	0.63	3.73	2.3	250	|	|
1205	0.63	1.61	0.07	87.2	7.65	15.4	0.62	3.56	27.3	298	|	|

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.66; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: A. Willis, J. Klein (ASL)	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 1205	SAMPLING ENDED AT: ENDED AT: 1208
PUMP OR TUBING DEPTH IN WELL (feet): 89	TUBING MATERIAL CODE: PE	FIELD-FILTERED: Y (N) Filtration Equipment Type:	Filter Size mm
FIELD DECONTAMINATION: PUMP Y (N)	TUBING Y (N) (replaced)	DUPLICATE: Y (N)	

SAMPLE ID CODE	SAMPLE CONTAINER SPECIFICATION # CONTAINERS	MATERIAL CODE	VOLUME (mL)	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	Low Flow Sampling ✓	SAMPLE PUMP FLOW RATE (mL per minute)
PETER01-MW001-GW-089	2	PE	125mL	EPA 537M	BP	✓	250

REMARKS: - turbid well

Well Abandoned? Y (N) Date Well Abandoned:

Well Measurement Method: (Probe) Tape Other _____

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

AerostarSES

GROUNDWATER SAMPLING LOG

PROJECT: SI of AFFF Areas (Omaha)	Installation: Peterson AFB
WELL NO: PETER01-MW002	SAMPLE ID: PETER01-MW002-GW-098 DATE: 8-20-18

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH:	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:
2.0	NA	90 Ft - 100 Ft	96.02	Bailing X

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
=(100 - 96.02) X 0.163 gal/ft = 0.65 Gal

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
NA ~~= gal + (x Ft.) + gal = gal~~

Location (Circle one): Monitoring Well Temporary Well Other

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
NA	NA	1520	1542	2.46

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. mS/cm or µS/cm	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1520	—	—	0.11	96.02	—	—	—	—	—	—	cloudy	none
1535	1.45	1.49	0.11	Check 96.02	7.44	13.9	0.456	4.30	131.3	overrun		
1537	0.22	1.91	0.11	96.02	7.45	13.8	0.452	4.20	125.8	overrun		
1542	0.55	2.46	0.11	96.00	7.43	13.8	0.450	4.22	127.1	overrun		

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
A. Willis, J. Klein (ASL)		1542	ENDED AT: 1543

PUMP OR TUBING DEPTH IN WELL (feet):
TUBING MATERIAL CODE: PE
FIELD-FILTERED: Y (N) Filter Size mm
Filtration Equipment Type:
FIELD DECONTAMINATION: PUMP Y (N) TUBING Y (N) (replaced)
DUPLICATE: Y (N)

SAMPLE ID CODE	SAMPLE CONTAINER SPECIFICATION # CONTAINERS	MATERIAL CODE	VOLUME (mL)	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	Low Flow Sampling ✓	SAMPLE PUMP FLOW RATE (mL per minute)
PETER01-MW002-GW-098	2	PE	125	EPA 537M	Br	✓	400

REMARKS:

Well Abandoned? Y (N) Date Well Abandoned:

Well Measurement Method: (Probe) Tape Other _____

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

AerostarSES LLC

GROUNDWATER SAMPLING LOG

PROJECT: SI of AFFF Areas (Omaha)	Installation: Peterson AFB
WELL NO: PETER01 - MW003	SAMPLE ID: PETER01-MW003 - GW-082 DATE: 8-20-18

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH:	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:
2.0"		76.6 Ft - 86.6 Ft	77.81	Bladder

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
=(87.0 - 77.81) X 0.163 gal/ft = 1.49 Gal

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable) NA = gal + (x Ft) + gal = gal

Location (Circle one): Monitoring Well Temporary Well Other

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
82	82	1353	1500	4.69

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. mS/cm or µS/cm	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1353	—	—	0.07	77.95	—	—	—	—	—	—	Cloudy	none
1402	0.63	0.63	0.07	77.95	7.49	17.6	0.494	4.09	69.4	overrange		
1412	0.70	1.33	0.07	77.95	7.49	15.9	0.463	5.92	62.5	overrang		
1432	1.4	2.73	0.07	77.95	7.71	15.0	0.443	7.16	97.4	overrange		
1445	0.91	3.64	0.07	77.95	7.72	15.1	0.437	7.25	101.1	overrange		
1500	1.05	4.69	0.07	77.95	7.72	15.2	0.433	7.25	104.2	overrang		

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
A. Willy J. Klein (TEL)		1500	ENDED AT: 1504

PUMP OR TUBING DEPTH IN WELL (feet): 82
TUBING MATERIAL CODE: PE
FIELD-FILTERED: Y (N) Filter Size mm
Filtration Equipment Type:
FIELD DECONTAMINATION: PUMP Y (N) TUBING Y (N) (replaced)
DUPLICATE: Y (N)

SAMPLE ID CODE	SAMPLE CONTAINER SPECIFICATION # CONTAINERS	MATERIAL CODE	VOLUME (mL)	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	Low Flow Sampling ✓	SAMPLE PUMP FLOW RATE (mL per minute)
PETER01-MW003-GW-082	2	PE	125mL	EPA 537M	BP	✓	250

REMARKS:

Well Abandoned? Y (N) Date Well Abandoned:

Well Measurement Method: (Probe) Tape Other _____

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

AerostarSES LLC

GROUNDWATER SAMPLING LOG

Installation: Peterson AFB M2027.0003	Site: AREA 2	
WELL NO: PETER02-MW001	SAMPLE ID: PETER02 - MW 001 - GW - 055'	DATE: 8-9-18

PURGING DATA

WELL DIAMETER (inches): 2"	TUBING DIAMETER (inches): 3/8	WELL SCREEN INTERVAL DEPTH: 50.5 Ft - 60.5 Ft	STATIC DEPTH TO WATER (feet BTOC): 51.39	PURGE PUMP TYPE OR BAILER: Geo Squirt

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY

(only fill out if applicable) = (60.5 Ft - 51.39 Ft) x 0.163 gal/ft = 1.48 gal

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME

(only fill out if applicable) NA = gal (x ft) + gal = gal

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 55	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 55	PURGING INITIATED AT: 1434	PURGING ENDED AT: 1455	TOTAL VOLUME PURGED (gallons): 3.36	

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet BTOC)	pH (standard units)	TEMP. (°C)	COND. µS/cm mS/cm	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1434	—	—	0.16	51.32	—	—	—	—	—	—	Clear	none
1440	0.96	0.96	0.16	51.39	6.82	15.9	0.85	4.50	139.4	22.7		
1445	0.8	1.76	0.16	51.39	6.80	15.8	0.85	4.48	134.5	10.8		
1450	0.8	2.56	0.16	51.35	6.82	15.9	0.86	4.70	129.2	11.0		
1455	0.8	3.36	0.16	51.39	6.83	15.8	0.87	4.73	123.7	10.0		

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: A. Willis F. Johnson (AGL)	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 1455	SAMPLING ENDED AT: 1500
PUMP OR TUBING DEPTH IN WELL (feet): 55	TUBING MATERIAL CODE: PE	FIELD-FILTERED: Y N Filtration Equipment Type:	Filter Size mm
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME (mL)	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH (Standard Units)	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
PETER02-MW001-GW-055	2	PE	125mL each				EPA 537M	Geosquirt	400
PETER02-MW001-GW-955	2	PE	125mL each						

REMARKS:

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

Stabilization Criteria for range of variation of last three consecutive readings

pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation; optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: March 14, 2016

AerostarSES LLC

GROUNDWATER SAMPLING LOG

-DRY

Installation: Peterson AFB M2027.0003	Site: AREA 2	
WELL NO: PETER02-MW002	SAMPLE ID: PL NA -no sample	DATE: 8-9-18

PURGING DATA

WELL DIAMETER (inches): NA	TUBING DIAMETER (inches): NA	WELL SCREEN INTERVAL DEPTH: 30 Ft - 40 Ft	STATIC DEPTH TO WATER (feet BTOC): 39.98	PURGE PUMP TYPE OR BAILER: NA

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY

(only fill out if applicable) = (41.1 Ft - 39.98 Ft) x 0.163 gal/ft = gal

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME

(only fill out if applicable) = gal = (x Ft) + gal = gal

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet BTOC)	pH (standard units)	TEMP. (°C)	COND. µS/cm	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE: PE	FIELD-FILTERED: Y N Filter Size mm Filtration Equipment Type:	

FIELD DECONTAMINATION: PUMP Y N TUBING Y N (replaced) DUPLICATE: Y N

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME (mL)	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH (Standard Units)	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
							EPA 537M		

REMARKS:

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

Stabilization Criteria for range of variation of last three consecutive readings

pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation; optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: March 14, 2016

AerostarSES LLC

GROUNDWATER SAMPLING LOG

Installation: Peterson AFB M2027.0003	Site: AREA 2 ~~FTA2~~	
WELL NO: PETER02-MW003	SAMPLE ID: PETER02-MW003-GW-049	DATE: 8-9-18

PURGING DATA

WELL DIAMETER (inches): 2.0"	TUBING DIAMETER (inches): 3/8	WELL SCREEN INTERVAL DEPTH: 30 Ft - 50 Ft	STATIC DEPTH TO WATER (feet BTOC): 48.62	PURGE PUMP TYPE OR BAILER: Geo Squirt

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY

(only fill out if applicable) = (50 Ft - 48.62 Ft) x 0.163 gal/ft = 0.22 gal

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME

(only fill out if applicable) NA ~~= gal (x Ft) + gal = gal~~

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): NA	FINAL PUMP OR TUBING DEPTH IN WELL (feet): NA	PURGING INITIATED AT: NA	PURGING ENDED AT: NA	TOTAL VOLUME PURGED (gallons): NA

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet BTOC)	pH (standard units)	TEMP. (°C)	COND. µS/cm	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: G. Wilks F. Johnson (AS)	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 1335	SAMPLING ENDED AT: 1340
PUMP OR TUBING DEPTH IN WELL (feet): NA	TUBING MATERIAL CODE: PE	FIELD-FILTERED: Y (N) Filtration Equipment Type:	Filter Size mm
FIELD DECONTAMINATION: PUMP Y (N)	TUBING (N (replaced)	DUPLICATE: Y (N)	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME (mL)	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH (Stanard Units)	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
PETER02-MW003-GW-049	~~4~~ 3	PE	125mL each				EPA 537M	NA	NA

REMARKS: Due to lack of water and historical data of slow recharging – bailing sample (6 RAYS) ~~4~~ 3 bottles due to high turbidity.

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

Stabilization Criteria for range of variation of last three consecutive readings

pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation; optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: March 14, 2016

AerostarSES LLC

GROUNDWATER SAMPLING LOG

Installation: Peterson AFB M2027.0003		Site: AREA 3	
WELL NO: PETER03-MW001	SAMPLE ID: PETER03-MW001-GW-068		DATE: 8-17-18

PURGING DATA

WELL DIAMETER (inches): 2.0"	TUBING DIAMETER (inches): 1/4	WELL SCREEN INTERVAL DEPTH: 60 Ft - 70 Ft	STATIC DEPTH TO WATER (feet BTOC): 65.6	PURGE PUMP TYPE OR BAILER: Bladder

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY

(only fill out if applicable) = (~~75~~ 70.4 Ft - 65.6 Ft) × 0.163 gal/ft = 0.78 gal

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME

(only fill out if applicable) NA gal = (x Ft) + gal = gal

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 68	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 68	PURGING INITIATED AT: 1108	PURGING ENDED AT: 1234	TOTAL VOLUME PURGED (gallons): 6.02

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet BTOC)	pH (standard units)	TEMP. (°C)	COND. µS/cm mS/cm	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1108	—	—	0.07	65.5	—	—	—	—	—	—	clear/cloudy/muddy	
1128	1.4	1.4	0.07	65.5	7.45	16.6	0.90	5.80	175.4	over range	Heavy	none
1140	0.74	2.24	0.07	65.5	7.52	15.7	0.88	5.81	165.3	500		
1150	0.70	2.94	0.07	65.5	7.62	15.6	0.87	5.91	156.3	198		
1200	0.70	3.64	0.07	65.5	7.63	15.6	0.87	6.27	151.1	100		
1210	0.76	4.34	0.07	65.5	7.64	15.6	0.87	6.23	147.0	58.9	Clear	
1220	0.70	5.04	0.07	65.5	7.65	15.6	0.88	6.23	144.0	41.0		
1230	0.70	5.74	0.07	65.5	7.68	15.7	0.88	6.21	140.8	29.2		
1234	0.28	6.02	0.07	65.5	7.69	15.6	0.88	6.20	135.0	17.7		

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: A. Willis J. Klein (ASL)	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 1234	SAMPLING ENDED AT: 1240
PUMP OR TUBING DEPTH IN WELL (feet): 68	TUBING MATERIAL CODE: PE	FIELD-FILTERED: Y (N) Filtration Equipment Type:	Filter Size mm
FIELD DECONTAMINATION: PUMP Y (N)	TUBING Y (N replaced)	DUPLICATE: Y (N)	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME (mL)	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH (Stanard Units)	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
PETER03-MW001-GW-068	2	PE	125ml each				EPA 537M	BP	250
MS/MSD	4	PE	125ml each				EPA 537M	BP	250

REMARKS:

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

Stabilization Criteria for range of variation of last three consecutive readings

pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation; optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: March 14, 2016

AerostarSES LLC

GROUNDWATER SAMPLING LOG

Installation: Peterson AFB M2027.0003 | Site: AREA 3

WELL NO: PETER03-MW002 | SAMPLE ID: PETER03-MW002-GW-071 | DATE: 8-16-18

PURGING DATA

WELL DIAMETER (inches): 2.0 | TUBING DIAMETER (inches): 1/4 | WELL SCREEN INTERVAL DEPTH: 66 Ft - 72 Ft bgs | STATIC DEPTH TO WATER (feet BTOC): 65.5 | PURGE PUMP TYPE OR BAILER: Bladder

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY

(only fill out if applicable) = (72 Ft - 65.5 Ft) x 0.163 gal/ft = 1.1 gal

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME

(only fill out if applicable) NA = gal (Ft) gal = gal

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 71 | FINAL PUMP OR TUBING DEPTH IN WELL (feet): 71 | PURGING INITIATED AT: 1346 | PURGING ENDED AT: 1550 | TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet BTOC)	pH (standard units)	TEMP. (°C)	COND. ~~µS/cm~~ mS/cm	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1346	—	—	0.09	65.1	—	—	—	—	—	—	Cloudy	none
1354	0.72	0.72	0.09	65.2	7.27	17.9	0.66	5.99	234.0	over range		
1406	0.90	1.62	0.09	65.2	7.16	16.0	0.61	6.29	205.6	over range		
1418	1.08	2.7	0.09	65.2	7.36	15.5	0.60	6.48	188.3	over range		
1425	0.63	3.33	0.09	65.2	7.39	15.3	0.60	6.59	174.1	341		
1434	0.81	4.14	0.09	65.2	7.42	15.1	0.59	6.46	180.6	601		
1450	1.44	5.58	0.09	65.2	7.50	14.9	0.59	6.30	174.3	303		
1505	1.35	6.93	0.09	65.2	7.54	15.0	0.60	6.32	172.3	213		
1517	1.17	8.1	0.09	65.2	7.53	14.9	0.60	6.35	171.5	115	clear	none
1525	0.63	8.73	0.09	65.2	7.50	14.8	0.60	6.67	171.6	81		
1532	0.63	9.36	0.09	65.2	7.51	14.9	0.60	6.69	170.1	61		
1538	0.54	9.9	0.09	65.2	7.50	14.8	0.60	6.65	170.2	43.9		
1545	0.63	10.53	0.09	65.2	7.49	14.7	0.60	6.60	170.2	24.4		
1550	0.45	10.93	0.09	65.2	7.48	14.6	0.60	6.56	170.5	18.2		

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: A. Willis J. Klein (AS) | SAMPLER(S) SIGNATURE(S): | SAMPLING INITIATED AT: 1550 | SAMPLING ENDED AT: 1552

PUMP OR TUBING DEPTH IN WELL (feet): 71 | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) | Filtration Equipment Type: | Filter Size mm

FIELD DECONTAMINATION: PUMP Y (N) TUBING Y (N (replaced)) | DUPLICATE: Y (N)

SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME (mL)	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH (Stanard Units)	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
PETER03-MW002-GW-071	2	PE	125ml each				EPA 537M	BP	350

REMARKS:

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

Stabilization Criteria for range of variation of last three consecutive readings

pH: ± 0.2 units Temperature: ± 0.2 °C Specific Conductance: ± 5% Dissolved Oxygen: all readings ≤ 20% saturation; optionally, ± 0.2 mg/L or ± 10% (whichever is greater) Turbidity: all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: March 14, 2016

AerostarSES LLC

GROUNDWATER SAMPLING LOG

Installation: Peterson AFB M2027.0003	Site: AREA 3	
WELL NO: PETER03-MW003	SAMPLE ID: PETER03-MW003-GW-073	DATE: 8-16-18

PURGING DATA

WELL DIAMETER (inches): 2.0"	TUBING DIAMETER (inches): 1/4	WELL SCREEN INTERVAL DEPTH: 65 Ft - 75 Ft	STATIC DEPTH TO WATER (feet BTOC): 69.43	PURGE PUMP TYPE OR BAILER: Bladder Pump

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY

(only fill out if applicable) = (75 Ft - 69.43 Ft) x 0.163 gal/ft = 0.91 gal

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME

(only fill out if applicable) NA = gal = (x Ft) + gal = gal

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 73	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 73	PURGING INITIATED AT: 1625	PURGING ENDED AT: 1708	TOTAL VOLUME PURGED (gallons): 2.58

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet BTOC)	pH (standard units)	TEMP. (°C)	COND. ~~µS/cm~~ mS/cm	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1625	—	—	0.09	69.42	—	—	—	—	—	—	Clear	none
1636	0.66	0.66	0.06	69.45	7.46	15.9	0.73	6.22	173.4	160		
1640	0.24	0.9	0.06	69.45	7.47	15.8	0.72	6.39	163.4	116		
1648	0.48	1.38	0.06	69.45	7.46	15.7	0.70	6.47	157.9	74.8		
1658	0.6	1.98	0.06	69.45	7.47	15.6	0.70	6.40	146.3	36.7		
1708	0.6	2.58	0.06	69.45	7.48	15.6	0.70	6.43	141.0	16.9		

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: A. Willis S. Klein CASL	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 1708	SAMPLING ENDED AT: 1710
PUMP OR TUBING DEPTH IN WELL (feet): 73	TUBING MATERIAL CODE: PE	FIELD-FILTERED: Y (N) Filtration Equipment Type:	Filter Size mm
FIELD DECONTAMINATION: PUMP Y (N)	TUBING Y (N (replaced))	DUPLICATE: Y (N)	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME (mL)	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH (Stanard Units)	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
PETER03-MW003-GW-073	2	PE	125mL Each				EPA 537M	BP	250

REMARKS:

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

Stabilization Criteria for range of variation of last three consecutive readings

pH: ± 0.2 units Temperature: ± 0.2 °C Specific Conductance: ± 5% Dissolved Oxygen: all readings ≤ 20% saturation; optionally, ± 0.2 mg/L or ± 10% (whichever is greater) Turbidity: all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: March 14, 2016

AerostarSES LLC

GROUNDWATER SAMPLING LOG

Installation: Peterson AFB M2027.0003		Site: MRSA 4	
WELL NO: PETER04-MW001	SAMPLE ID: PETER04-MW001-GW-060		DATE: 3-8-18

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH:	STATIC DEPTH TO WATER (feet BTOC):	PURGE PUMP TYPE OR BAILER:
2.00	1/4	54 Ft - 64 Ft	43.99	Bladder

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY

(only fill out if applicable) = (67 Ft - 43.99 Ft) x 0.163 gal/ft = 3.75 gal

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME

(only fill out if applicable) NA = gal = (x Ft) + gal = gal

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
60	60	0946	1205	9.73

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet BTOC)	pH (standard units)	TEMP. (°C)	COND. ~~µS/cm~~ mS/cm	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
0946	—	—	0.07	42.9	—	—	—	—	—	—	Turbid	none
0954	0.56	0.56	0.07	43.92	7.29	14.4	0.343	4.13	84.6	over range		
1024	2.1	2.66	0.07	43.92	7.53	13.9	0.337	7.63	92.0	over range		
1043	1.33	3.99	0.07	43.92	7.60	14.2	0.339	7.60	92.2	over range		
1049	0.42	4.41	0.07	43.92	7.60	14.2	0.339	7.59	93.5	904	Cloudy	
1105	1.12	5.53	0.07	43.92	7.60	14.3	0.340	7.61	94.2	697		
1120	1.05	6.58	0.07	43.92	7.60	14.3	0.339	7.61	95.0	558		
1130	0.70	7.28	0.07	43.92	7.60	14.3	0.341	7.60	96.1	494		
1140	0.70	7.98	0.07	43.92	7.60	14.4	0.340	7.55	96.7	534		
1150	0.70	8.68	0.07	43.92	7.60	14.4	0.341	7.50	96.5	457		
1157	0.49	9.17	0.07	43.92	7.61	14.3	0.339	7.44	97.7	486		
X 1205	0.56	9.73	0.07	43.92	7.61	14.3	0.339	7.43	97.8	541 X		

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
A. Willis J. Klein (ASL)		1205	1208

PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE: PE	FIELD-FILTERED: Y (N) Filtration Equipment Type:	Filter Size mm
60			

FIELD DECONTAMINATION: PUMP Y (N) TUBING Y (N) (replaced) DUPLICATE: Y (N)

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME (mL)	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH (Stanard Units)	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
PETER04-MW001-GW-060	2	PE	125mL each				EPA 537M	BP	250

REMARKS: X Turbidity is going up and down remaining around ~500. Stable parameters. Must leave due to escort having to leave, as well.

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

Stabilization Criteria for range of variation of last three consecutive readings

pH: ± 0.2 units Temperature: ± 0.2 °C Specific Conductance: ± 5% Dissolved Oxygen: all readings ≤ 20% saturation; optionally, ± 0.2 mg/L or ± 10% (whichever is greater) Turbidity: all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: March 14, 2016

AerostarSES LLC

GROUNDWATER SAMPLING LOG

Installation: Peterson AFB M2027.0003 | Site: AREA 4

WELL NO: PETER04-MW002 | SAMPLE ID: PETER04-MW002-GW-049 | DATE: 8-18-18

PURGING DATA

WELL DIAMETER (inches): 2.0" | TUBING DIAMETER (inches): NA | WELL SCREEN INTERVAL DEPTH: 40 Ft - 50 Ft | STATIC DEPTH TO WATER (feet BTOC): 45.5 | PURGE PUMP TYPE OR BAILER: BAILER No - Slow recharge, change to bladder

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY

(only fill out if applicable) = (53 Ft - 45.5 Ft) x 0.163 gal/ft = 1.22 gal

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME

(only fill out if applicable) NA = gal = (x Ft) + gal = gal

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 49 | FINAL PUMP OR TUBING DEPTH IN WELL (feet): 49 | PURGING INITIATED AT: 0717 | PURGING ENDED AT: 0918 | TOTAL VOLUME PURGED (gallons): 7.51

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet BTOC)	pH (standard units)	TEMP. (°C)	COND. µS/cm mS/cm	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
0717	—	—	0.11	*	—	—	—	—	—	—	Cloudy	turbid / no odor
0722	0.44	0.44	0.11	*	7.16	13.2	0.690	1.28	-42.8	over range	—	change to bladder
0737	—	—	0.07	45.58	—	—	—	—	—	—	Cloudy	none
0743	0.42	0.86	0.07	45.58	7.56	14.3	0.540	2.74	-52.4	over rang		
0754	0.77	1.63	0.07	45.58	7.67	14.1	0.426	4.71	-12.9	over range		
0800	0.42	2.05	0.07	45.58	7.78	13.8	0.382	5.16	12.2	484		
0818	1.26	3.31	0.07	45.58	7.85	13.7	0.350	5.93	40.3	173		
0836	1.26	4.57	0.07	45.58	7.87	13.9	0.341	6.11	53.8	86.6		
0855	1.33	5.9	0.07	45.58	7.88	13.9	0.338	6.20	61.8	53.8	Clear	
0918	1.61	7.51	0.07	45.58	7.89	14.1	0.337	6.22	67.9	19.2		

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: A. Willis J. Klein (ASL) | SAMPLER(S) SIGNATURE(S): | SAMPLING INITIATED AT: 0918 | SAMPLING ENDED AT: 0921

PUMP OR TUBING DEPTH IN WELL (feet): 49 | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | Filter Size mm

FIELD DECONTAMINATION: PUMP Y (N) TUBING Y (N) (replaced) | DUPLICATE: Y (N)

SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME (mL)	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH (Stanard Units)	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
PETER04-MW002-GW-049	2	PE	125mL each				EPA 537M	BP	250 mL/min

REMARKS: * No WL while bailing due to lack of room

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

Stabilization Criteria for range of variation of last three consecutive readings

pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation; optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: March 14, 2016

AerostarSES LLC

GROUNDWATER SAMPLING LOG

PROJECT: SI of AFFF Areas (Omaha)	Installation: Peterson AFB
WELL NO: PETER04-MW003	SAMPLE ID: PETER04-MW003-GW-060 DATE: 8-27-18

PURGING DATA

WELL DIAMETER (inches): 2.0"	TUBING DIAMETER (inches): 1/4	WELL SCREEN INTERVAL DEPTH: 49 Ft - 64 Ft	STATIC DEPTH TO WATER (feet): 51.83	PURGE PUMP TYPE OR BAILER: Bladder

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
=(65 - 51.83) X 0.163 gal/ft = 2.15 Gal

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
NA = ~~gal + (x Ft.) + gal = gal~~

Location (Circle one): Monitoring Well Temporary Well Other

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 60	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 60	PURGING INITIATED AT: 0800	PURGING ENDED AT: 0836	TOTAL VOLUME PURGED (gallons): 2.52

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. mS/cm or µS/cm	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
0800	—	—	0.07	51.5	—	—	—	—	—	—	clear	none
0814	0.98	0.98	0.07	51.5	7.70	15.0	0.78	4.56	132.0	210	cloudy	none
0822	0.56	1.54	0.07	51.5	7.79	14.5	0.77	3.96	124.4	84	clear	none
0830	0.56	2.1	0.07	51.5	7.78	14.4	0.77	3.97	119.0	37		
0836	0.42	2.52	0.07	51.5	7.79	14.2	0.76	3.98	117.0	14.3		

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: A. Willis, J. Klein (TSL)	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 0836	SAMPLING ENDED AT: ENDED AT: 0840
PUMP OR TUBING DEPTH IN WELL (feet): 60	TUBING MATERIAL CODE: PE	FIELD-FILTERED: Y (N) Filter Size mm Filtration Equipment Type:	
FIELD DECONTAMINATION: PUMP Y (N)	TUBING Y (N) (replaced)	DUPLICATE: Y (N)	

SAMPLE ID CODE	SAMPLE CONTAINER SPECIFICATION # CONTAINERS	MATERIAL CODE	VOLUME (mL)	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	Low Flow Sampling ✓	SAMPLE PUMP FLOW RATE (mL per minute)
PETER04-MW003-GW-060	2	PE	125	EPA 537M	BP	✓	250

REMARKS:

Well Abandoned? Y (N) Date Well Abandoned:

Well Measurement Method: (Probe) Tape Other _____

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

AerostarSES LLC

GROUNDWATER SAMPLING LOG

PROJECT: SI of AFFF Areas (Omaha)	Installation: Peterson AFB
WELL NO: PETER04-MW004	SAMPLE ID: PETER04-MW004-GW-085 / DATE: 8-27-18

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH:	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:
2.0	1/4	80 Ft - 90 Ft	55.65	BP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
=(90 - 55.65) X 0.163 gal/ft = 5.60 Gal

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
NA = gal + (x Ft) + gal = gal

Location (Circle one): Monitoring Well Temporary Well Other

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
85	85	1140	1253	5.11

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. mS/cm or µS/cm	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1140	—	—	0.07	54.3	—	—	—	—	—	—	clear	none
1152	0.84	0.84	0.07	54.3	7.47	17.2	1.07	3.56	171.1	497	cloudy	
1205	0.91	1.75	0.07	54.3	7.50	16.1	1.05	7.55	157.2	386		
1223	1.26	3.01	0.07	54.3	7.68	15.5	1.02	10.31	147.3	220		
1235	0.84	3.85	0.07	54.3	7.67	15.6	1.02	10.27	145.1	135	clear	
1247	0.84	4.69	0.07	54.3	7.65	15.7	1.03	10.20	142.6	37		
1253	0.42	5.11	0.07	54.3	7.64	15.9	1.03	10.25	142.1	19.6		

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
A. Willis, J Hein (AEC)		1253	ENDED AT: 1259

PUMP OR TUBING DEPTH IN WELL (feet): 85
TUBING MATERIAL CODE: PE
FIELD-FILTERED: Y (N) Filter Size mm
Filtration Equipment Type:
FIELD DECONTAMINATION: PUMP Y (N) TUBING Y (N) (replaced)
DUPLICATE: Y (N)

SAMPLE ID CODE	SAMPLE CONTAINER SPECIFICATION # CONTAINERS	MATERIAL CODE	VOLUME (mL)	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	Low Flow Sampling ✓	SAMPLE PUMP FLOW RATE (mL per minute)
PETER04-MW004-GW-085	2	PE	125	EPA 537M	BP	✓	250

REMARKS:

Well Abandoned? Y (N) Date Well Abandoned:

Well Measurement Method: (Probe) Tape Other _____

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

AerostarSES LLC

GROUNDWATER SAMPLING LOG

PROJECT: SI of AFFF Areas (Omaha)	Installation: Peterson AFB
WELL NO: PETER04-MW005	SAMPLE ID: PETER04-MW005-GW-060 / DATE: 8-27-18

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH:	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:
2.0"	1/4	60 Ft - 70 Ft	50.72	BP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (70 - 50.72) X 0.163 gal/ft = 3.14 Gal

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
NA ~~= gal + (x Ft) + gal = gal~~

Location (Circle one): Monitoring Well Temporary Well Other

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
60	60	0914	1112	8.26

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. mS/cm or µS/cm	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
0914	—	—	0.07	50.6	—	—	—	—	—	—	Cloudy	none
0934	1.4	1.4	0.07	50.6	7.43	15.5	0.57	5.78	106.1	425	Cloudy	
0942	0.56	1.96	0.07	50.6	7.45	15.4	0.57	5.78	106.2	389		
0955	0.91	2.87	0.07	50.6	7.57	15.0	0.55	5.99	106.5	264		
1010	1.05	3.92	0.07	50.6	7.57	15.2	0.54	5.29	106.6	141		
1026	1.12	5.04	0.07	50.6	7.58	15.3	0.52	5.52	106.4	114	CLEAR	
1038	0.84	5.88	0.07	50.6	7.58	15.4	0.53	5.54	106.3	79		
1050	0.84	6.72	0.07	50.6	7.57	15.5	0.52	5.58	106.5	46		
1104	0.98	7.7	0.07	50.6	7.58	15.3	0.52	5.78	102.5	24.3		
1112	0.56	8.26	0.07	50.6	7.58	15.2	0.52	5.58	103.5	15.1		

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
A. Willis / T. Klein (ASL)	[signature]	1112	1118

PUMP OR TUBING DEPTH IN WELL (feet): 60
TUBING MATERIAL CODE: PE
FIELD-FILTERED: Y (N) Filter Size mm
Filtration Equipment Type:
FIELD DECONTAMINATION: PUMP Y (N) TUBING Y (N) (replaced)
DUPLICATE: Y (N)

SAMPLE ID CODE	SAMPLE CONTAINER SPECIFICATION # CONTAINERS	MATERIAL CODE	VOLUME (mL)	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	Low Flow Sampling ✓	SAMPLE PUMP FLOW RATE (mL per minute)
PETER04-MW005-GW-0600	2	PE	125	EPA 537M	BP	✓	250

REMARKS:

Well Abandoned? Y (N) Date Well Abandoned:

Well Measurement Method: (Probe) Tape Other _____

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

AerostarSES LLC

GROUNDWATER SAMPLING LOG

PROJECT: SI of AFFF Areas (Omaha)	Installation: Peterson AFB
WELL NO: PETER04-MW008	SAMPLE ID: PETER04-MW008-GW-098 DATE: 8-24-18

PURGING DATA

WELL DIAMETER (inches): 2.0	TUBING DIAMETER (inches): 1/4	WELL SCREEN INTERVAL DEPTH: 91 Ft - 101 Ft	STATIC DEPTH TO WATER (feet): 94.08	PURGE PUMP TYPE OR BAILER: Bladder

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable) = (101 - 94.08) X 0.163 gal/ft = 1.13 Gal

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable) NA = gal + (x Ft) + gal = gal

Location (Circle one): Monitoring Well Temporary Well Other

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 98	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 98	PURGING INITIATED AT: 0726	PURGING ENDED AT: 0920	TOTAL VOLUME PURGED (gallons): 10.05

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. mS/cm or µS/cm	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
0726	—	—	0.09	94.35	—	—	—	—	—	—	Cloudy	none
0738	1.08	1.08	0.09	94.37	7.16	16.5	0.80	5.59	178.0	overrang	↓	↓
0758	1.8	2.88	0.09	94.37	7.45	15.9	0.78	5.85	155.9	overrang	↓	↓
0824	2.34	5.22	0.09	94.37	7.56	15.7	0.77	5.98	137.2	354	↓	↓
0832	0.72	5.94	0.09	94.37	7.57	15.9	0.78	5.97	133.5	213	↓	↓
0845	1.17	7.11	0.09	94.37	7.55	16.3	0.78	5.98	128.7	100	clear	↓
0900	1.08	8.19	0.09	94.37	7.56	16.4	0.79	5.97	127.2	56.0	↓	↓
0916	1.44	9.69	0.09	94.37	7.54	16.6	0.79	5.99	122.8	35.0	↓	↓
0920	0.36	10.05	0.09	94.37	7.55	16.7	0.79	5.99	120.9	19.6	↓	↓

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: A. Willis, J. Klein (AIL)	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 0920	SAMPLING ENDED AT: ENDED AT: 0930
PUMP OR TUBING DEPTH IN WELL (feet): 98	TUBING MATERIAL CODE: PE	FIELD-FILTERED: Y N Filter Size mm Filtration Equipment Type:	
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE ID CODE	SAMPLE CONTAINER SPECIFICATION # CONTAINERS	MATERIAL CODE	VOLUME (mL)	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	Low Flow Sampling ✓	SAMPLE PUMP FLOW RATE (mL per minute)
PETER04-MW008-GW-098	2	PE	125	ERA 537M	BP	✓	350
PETER04-MW008-GW-998	2	PE	125	↓	↓	✓	350

REMARKS:

Well Abandoned? Y N Date Well Abandoned:

Well Measurement Method: Probe Tape Other _____

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

AerostarSES

GROUNDWATER SAMPLING LOG

PROJECT: SI of AFFF Areas (Omaha)	Installation: Peterson AFB
WELL NO: PETER04-MW009	SAMPLE ID: PETER04-MW009-GW-090 — DATE: 8-24-18

PURGING DATA

WELL DIAMETER (inches): 2.0"	TUBING DIAMETER (inches): 1/4	WELL SCREEN INTERVAL DEPTH: 80 Ft - 100 Ft	STATIC DEPTH TO WATER (feet): 78.29	PURGE PUMP TYPE OR BAILER: Bladder

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable) = (108 - 78.29) x 0.163 gal/ft = 4.84 Gal

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable) NA = ~~gal + (x FL) + gal~~ = ~~gal~~ gal

Location (Circle one): Monitoring Well Temporary Well Other

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 90	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 90	PURGING INITIATED AT: 1028	PURGING ENDED AT: 1155	TOTAL VOLUME PURGED (gallons): 7.83

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. mS/cm or µS/cm	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1028	—	—	0.09	78.30	—	—	—	—	—	—	cloudy	none
1036	0.72	0.72	0.09	78.30	7.13	17.3	0.77	5.28	144.8	309		
1045	0.81	1.53	0.09	78.27	7.04	17.7	0.78	5.38	144.6	559		
1058	1.17	2.7	0.09	78.27	7.18	17.2	0.75	5.76	125.2	583		
1124	2.34	5.04	0.09	78.37	7.19	16.9	0.75	5.94	120.5	402		
1134	0.90	5.94	0.09	78.37	7.20	16.8	0.75	5.98	122.4	231		
* 1155	1.89	7.83	0.09	78.37	7.21	16.9	0.75	5.99	123.7	211		

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: A. Willis, J. Klein (ASC)	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 1155	SAMPLING ENDED AT: ENDED AT: 1159
PUMP OR TUBING DEPTH IN WELL (feet): 90	TUBING MATERIAL CODE: PE	FIELD-FILTERED: Y (N) Filter Size mm; Filtration Equipment Type:	
FIELD DECONTAMINATION: PUMP Y (N)	TUBING Y (N) (replaced)	DUPLICATE: Y (N)	

SAMPLE ID CODE	SAMPLE CONTAINER SPECIFICATION # CONTAINERS	MATERIAL CODE	VOLUME (mL)	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	Low Flow Sampling ✓	SAMPLE PUMP FLOW RATE (mL per minute)
PETER04-MW009-GW-090	2	PE	125	EPA 537M	BP	✓	350

REMARKS: * During development, turbidity did not clear up.

Well Abandoned? Y (N) Date Well Abandoned:

Well Measurement Method: (Probe) Tape Other _____

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

AerostarSES LLC

GROUNDWATER SAMPLING LOG

Installation: Peterson AFB M2027.0003 | Site: TRANSECT 3

WELL NO: PETER05-MW001 | SAMPLE ID: PETER05-MW001-GW-045 | DATE: 8-9-18

PURGING DATA

WELL DIAMETER (inches): 2.0" | TUBING DIAMETER (inches): 3/8" | WELL SCREEN INTERVAL DEPTH: 40 Ft - 50 Ft | STATIC DEPTH TO WATER (feet BTOC): 39.93 | PURGE PUMP TYPE OR BAILER: Geo squirt

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY

(only fill out if applicable) = (50 Ft - 39.93 Ft) x 0.163 gal/ft = 1.64 gal

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME

(only fill out if applicable) NA ~~= gal = (x ft) + gal = gal~~

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 45 | FINAL PUMP OR TUBING DEPTH IN WELL (feet): 45 | PURGING INITIATED AT: 0835 | PURGING ENDED AT: 0905 | TOTAL VOLUME PURGED (gallons): 3.33

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet BTOC)	pH (standard units)	TEMP. (°C)	COND. µS/cm mS/cm	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
0835	—	—	0.11	32.96	—	—	—	—	—	—	Clear	none
0842	0.77	0.77	0.11	40.68	6.59	14.8	0.480	0.51	98.0	81.7		
0848	0.66	1.43	0.11	40.68	6.52	15.1	0.484	0.50	104.8	36.4		
0854	0.66	2.09	0.11	40.68	6.52	15.1	0.486	0.51	106.2	28.8		
0858	0.44	2.53	0.11	40.68	6.52	15.3	0.483	0.53	107.4	27.4		
0905	0.77	3.33	0.11	40.68	6.51	15.4	0.483	0.52	108.2	15.4		

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: A. Willis E. Palmer (ASL) | SAMPLER(S) SIGNATURE(S): | SAMPLING INITIATED AT: 0905 | SAMPLING ENDED AT: 0908

PUMP OR TUBING DEPTH IN WELL (feet): 45 | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | Filter Size mm

FIELD DECONTAMINATION: PUMP Y (N) TUBING Y (N replaced) | DUPLICATE: Y (N)

SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME (mL)	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH (Standard Units)	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
PETER05-MW001-GW-045	2	PE	125mL each				EPA 537M	Geosquirt	400

REMARKS:

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

Stabilization Criteria for range of variation of last three consecutive readings

pH: ± 0.2 units Temperature: ± 0.2 °C Specific Conductance: ± 5% Dissolved Oxygen: all readings ≤ 20% saturation; optionally, ± 0.2 mg/L or ± 10% (whichever is greater) Turbidity: all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: March 14, 2016

AerostarSES LLC

GROUNDWATER SAMPLING LOG

Installation: Peterson AFB M2027.0003	Site: TRANSECT 3	
WELL NO: MW-2	SAMPLE ID: PETER-MW-2-GW-23.5	DATE: 9-9-18

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH:	STATIC DEPTH TO WATER (feet BTOC):	PURGE PUMP TYPE OR BAILER:
2.0	NA	15 Ft - 24 Ft	23.55	BAILER

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY

(only fill out if applicable) = (23.9 Ft - 23.55 Ft) x 0.163 gal/ft = 0.06 gal

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME

(only fill out if applicable) NA = gal = (x Ft) + gal = gal

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
NA	NA	NA	NA	NA

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet BTOC)	pH (standard units)	TEMP. (°C)	COND. µS/cm	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
		Slow Recharge / little work during development										
		* GRAB SAMPLE										

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.86

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
A. Willis F. Johnson (AS)		N	

PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE: PE	FIELD-FILTERED: Y (N) Filtration Equipment Type:	Filter Size mm
NA	NA		

FIELD DECONTAMINATION: PUMP Y (N) TUBING Y (N (replaced)) DUPLICATE: Y (N)

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME (mL)	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH (Stanard Units)	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
							EPA 537M		

REMARKS:

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

Stabilization Criteria for range of variation of last three consecutive readings

pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation; optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: March 14, 2016

AerostarSES LLC

GROUNDWATER SAMPLING LOG

Installation: Peterson AFB M2027.0003		Site: TRANSECT 3	
WELL NO: MW-~~2~~ 3	SAMPLE ID: PETER-MW-3-GW-028		DATE: 7-8-18

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH:	STATIC DEPTH TO WATER (feet BTOC):	PURGE PUMP TYPE OR BAILER:
NA 2.0	NA	20 Ft - 29 Ft	26.7	BAILER

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY

(only fill out if applicable) = (29.6 Ft - 26.7 Ft) x 0.163 gal/ft = 0.47 gal

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME

(only fill out if applicable) NA = ~~gal = (x Ft) + gal = gal~~

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
NA	NA	NA	NA	NA

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet BTOC)	pH (standard units)	TEMP. (°C)	COND. µS/cm	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
		SLOW RECHARGE DURING DEVELOPMENT										
	X											
		GRAB SAMPLE										

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
A. Willis & Johnson (ASL)		1025	1026

PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE: PE	FIELD-FILTERED: Y (N) Filtration Equipment Type:	Filter Size mm
NA			

FIELD DECONTAMINATION: PUMP Y (N) TUBING Y N (replaced) DUPLICATE: Y (N)

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME (mL)	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH (Stanard Units)	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
PETER-MW-3-GW-028	2	PE	125mL each				EPA 537M	Bailer	NA

REMARKS:

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

Stabilization Criteria for range of variation of last three consecutive readings

pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation; optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: March 14, 2016

AerostarSES LLC

GROUNDWATER SAMPLING LOG

NO SAMPLE - DRY

Grab sample collected 9/11/2018

Installation: Peterson AFB M2027.0003		Site: TRANSECT 3	
WELL NO: MW-4	SAMPLE ID: PETER-MW-4-GW-29.5		DATE: 7-7-18

PURGING DATA

WELL DIAMETER (inches): 2.0	TUBING DIAMETER (inches): NA	WELL SCREEN INTERVAL DEPTH: 20 Ft 29 Ft	STATIC DEPTH TO WATER (feet BTOC): 29.64	PURGE PUMP TYPE OR BAILER: BAILER

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY

(only fill out if applicable) = (29.64 Ft - 29.64 Ft) x 0.163 gal/ft = gal

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME

(only fill out if applicable) NA = gal + (x Ft) + gal + gal

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet BTOC)	pH (standard units)	TEMP. (°C)	COND. µS/cm	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)

NA

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: A. Willis, R. Johnson	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet): NA	TUBING MATERIAL CODE: PE NA	FIELD-FILTERED: Y (N) Filtration Equipment Type:	Filter Size mm
FIELD DECONTAMINATION: PUMP Y (N)	TUBING Y (N) (replaced)	DUPLICATE: Y (N)	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME (mL)	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH (Stanard Units)	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
PETER-MW-4 GW-29.5	Ø						EPA 537M	NA	NA

REMARKS: Unable to retrieve sample - DRY

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

Stabilization Criteria for range of variation of last three consecutive readings

pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation; optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: March 14, 2016

AerostarSES LLC

GROUNDWATER SAMPLING LOG

Installation: Peterson AFB M2027.0003	Site: TRANSECT 2
WELL NO: MW1-1	SAMPLE ID: PETER-MW1-1-GW-040 DATE: 8-8-17

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH:	STATIC DEPTH TO WATER (feet BTOC):	PURGE PUMP TYPE OR BAILER:
4"	3/8	27.51 Ft - 47.51 Ft	33.71	Geo squirt

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY

(only fill out if applicable) = (50.8 Ft - 33.71 Ft) x 0.653 gal/ft = 11.16 gal

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME

(only fill out if applicable) NA = gal + (x Ft) + gal = gal

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
40	40	0812	0932	12.0

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet BTOC)	pH (standard units)	TEMP. (°C)	CONO. ~~µS/cm~~ mS/cm	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
0812	—	—	0.15	33.68	—	—	—	—	—	—	clear	none
0820	1.2	1.2	0.15	33.80	6.57	13.1	1.22	0.73	119.8	4.36		
0825	0.75	1.95	0.15	33.80	6.61	13.2	1.12	0.68	112.3	3.39		
0830	0.75	2.7	0.15	33.80	6.61	13.2	1.24	0.67	115.1	3.51		
0840	1.5	4.2	0.15	33.80	6.63	13.3	1.33	0.61	105.2	2.23		
0850	1.5	5.7	0.15	33.80	6.65	13.2	1.30	0.59	102.4	2.02		
0900	1.5	7.2	0.15	33.80	6.66	13.2	1.30	0.55	98.9	1.26		
0910	1.5	8.7	0.15	33.80	6.67	13.1	1.28	0.54	96.6	1.01		
0920	1.5	10.2	0.15	33.80	6.66	13.1	1.29	0.52	97.4	1.13		
0930	1.5	11.7	0.15	33.80	6.66	13.1	1.28	0.50	97.9	0.78		
0932	0.3	12.0	0.15	33.80	6.67	13.1	1.28	0.48	97.8	0.65		

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: A. Willis/F. Johnson	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 0932	SAMPLING ENDED AT: 0934
PUMP OR TUBING DEPTH IN WELL (feet): 40	TUBING MATERIAL CODE: PE	FIELD-FILTERED: Y (N) Filtration Equipment Type:	Filter Size mm

FIELD DECONTAMINATION: PUMP Y (N) TUBING Y (N (replaced)) DUPLICATE: Y (N)

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME (mL)	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH (Stanard Units)	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
PETER-MW1-1-GW-040	2	PE	125mL each				EPA 537M	Geosquirt	600

REMARKS:

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

Stabilization Criteria for range of variation of last three consecutive readings

pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation; optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: March 14, 2016

AerostarSES LLC

GROUNDWATER SAMPLING LOG

Installation: Peterson AFB M2027.0003	Site: TRANSECT 3
WELL NO: MW1-2	SAMPLE ID: PETER-MW1-2-GW-045 DATE: 8-9-18

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH:	STATIC DEPTH TO WATER (feet BTOC):	PURGE PUMP TYPE OR BAILER:
4.0"	3/8	76.3 Ft - 56.3 Ft	39.31	Geosquirt

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY

(only fill out if applicable) = (56.6 Ft - 39.31 Ft) x 0.653 gal/ft = 11.29 gal

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME

(only fill out if applicable) NA = gal = (x Ft) + gal = gal

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
45	45	0940	1052	~~12.25~~

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet BTOC)	pH (standard units)	TEMP. (°C)	COND. µS/cm mS/cm	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
0940	—	—	0.17	39.25	—	—	—	—	—	—	clear	none
0945	0.85	0.85	0.17	39.75	6.56	14.1	1.29	1.04	126.4	2.65		
0950	0.85	1.70	0.17	39.75	6.50	14.1	1.28	0.86	122.2	5.2		
1007	2.04	3.74	0.17	39.75	6.52	14.4	1.34	0.73	122.1	8.83		
1012	1.7	5.45	0.17	39.75	6.51	14.4	1.36	0.63	120.1	6.53		
1022	1.7	7.15	0.17	39.75	6.51	14.3	1.38	0.60	118.4	5.38		
1032	1.7	8.85	0.17	39.75	6.51	14.3	1.39	0.57	116.9	3.63		
1042	1.7	10.55	0.17	39.75	6.51	14.4	1.40	0.63	115.4	3.38		
1052	1.7	12.25	0.17	39.75	6.51	14.3	1.40	0.65	115.3	2.41		

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
A. Willis F. Johnson (ASC)		1052	1054

PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE: PE	FIELD-FILTERED: Y (N) Filtration Equipment Type:	Filter Size mm
45			

FIELD DECONTAMINATION: PUMP Y (N) TUBING Y (N replaced) DUPLICATE: Y (N)

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME (mL)	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH (Stanard Units)	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
PETER-MW1-2-GW-045	2	PE	125 mL each				EPA 537M	Geosquirt	150

REMARKS:

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

Stabilization Criteria for range of variation of last three consecutive readings

pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation; optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: March 14, 2016

Tagged 8-7-18 historical data

AerostarSES LLC

GROUNDWATER SAMPLING LOG

Installation: Peterson AFB M2027.0003		Site: TRANSECT 2	
WELL NO: MW1-3		SAMPLE ID: PETER-MW2-3-GW-052	DATE: 8-8-18

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH:	STATIC DEPTH TO WATER (feet BTOC):	PURGE PUMP TYPE OR BAILER:
2.0"	NA	48.8 Ft - 58.8 Ft	50.67	BAILER

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable) = (53.5 Ft - 50.67 Ft) x 0.163 gal/ft = 0.135 gal

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable) NA = gal = (x Ft) + gal = gal

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
NA	NA	NA	NA	NA

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet BTOC)	pH (standard units)	TEMP. (°C)	COND. µS/cm	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
A. Willis / F. Johnson	[signature]	0730	0732

PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE: PE	FIELD-FILTERED: Y (N) Filtration Equipment Type:	Filter Size mm
NA			

FIELD DECONTAMINATION: PUMP Y (N) TUBING Y (N) (replaced) DUPLICATE: Y (N)

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME (mL)	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH (Standard Units)	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
PETER-MW1-3-GW-052	3	PE	125 mL				EPA 537M	BAILER	NA

REMARKS: * GRAB SAMPLE DUE TO LACK OF WATER AND SLOW RECHARGE. Silty water.

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

Stabilization Criteria for range of variation of last three consecutive readings
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation; optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: March 14, 2016

AerostarSES LLC

GROUNDWATER SAMPLING LOG

Installation: Peterson AFB M2027.0003	Site: TRANSECT 2
WELL NO: MW1-5A	SAMPLE ID: PETER-MW1-5A-GW-054 / DATE: 7-8-18

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH:	STATIC DEPTH TO WATER (feet BTOC):	PURGE PUMP TYPE OR BAILER:
4"	NA	27.4 Ft - 47.4 Ft	52.40	BAILER

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable) = (56.50 Ft - 52.40 Ft) x 0.653 gal/ft = 2.67 gal

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable) NA = gal = (Ft) + gal = gal

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
NA	NA	NA	NA	NA

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet BTOC)	pH (standard units)	TEMP. (°C)	COND. µS/cm	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)

NA

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
A. Willis / F. Johnson		0715	0716

PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED:	Filter Size
NA	PE NA	Y (N) Filtration Equipment Type:	µm

FIELD DECONTAMINATION: PUMP Y (N) TUBING Y (N (replaced)) DUPLICATE: Y (N)

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME (mL)	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH (Stanard Units)	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
PETER-MW1-5A-GW-054	2	PE	125mL each				EPA 537M	BAILER	NA

REMARKS: * Very silty well with slow recharge. Over 5 well volumes were taken out during development and well ran dry 3X. GRAB SAMPLE DUE TO DEPTH OF WELL and lack of water.

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

Stabilization Criteria for range of variation of last three consecutive readings

pH: ± 0.2 units Temperature: ± 0.2 °C Specific Conductance: ± 5% Dissolved Oxygen: all readings ≤ 20% saturation; optionally, ± 0.2 mg/L or ± 10% (whichever is greater) Turbidity: all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: March 14, 2016

AerostarSES LLC

GROUNDWATER SAMPLING LOG

Installation: Peterson AFB M2027.0003	Site: TRANSECT 3	
WELL NO: MW1-6	SAMPLE ID: PETER-MW1-6-GW-025	DATE: 8-8-17

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH:	STATIC DEPTH TO WATER (feet BTOC):	PURGE PUMP TYPE OR BAILER:
4.0	3/8	6.8 Ft - 26.8 Ft	19.21	Geosquirt

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable) = (30.7 Ft - 19.2 Ft) x 0.653 gal/ft = 7.5 gal

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable) NA = ___ gal = (___ x ___ Ft) + ___ gal = ___ gal

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
26	25	1126	1254	7.92

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet BTOC)	pH (standard units)	TEMP. (°C)	COND. µS/cm mS/cm	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1126	—	—	0.09	19.3	19.2	—	—	—	—	—	Clear	none
1134	0.72	0.72	0.09	19.87	6.44	13.8	0.67	0.34	120.1	13.2		
1154	1.8	2.52	0.09	20.00	6.50	14.4	0.68	0.41	112.2	10.7		
1214	1.8	4.32	0.09	20.08	6.50	14.3	0.68	0.47	107.9	10.9		
1234	1.8	6.12	0.09	20.08	6.48	14.5	0.69	0.21	101.6	10.7		
1254	1.8	7.92	0.09	20.1	6.48	14.3	0.68	0.19	98.1	10.6		

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
A. Willis K. Johnson (AS)		1254	1258

PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE: PE	FIELD-FILTERED: Y (N) Filtration Equipment Type:	Filter Size mm
25			

FIELD DECONTAMINATION: PUMP Y (N) TUBING Y (N (replaced)) DUPLICATE: Y (N)

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME (mL)	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH (Stanard Units)	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
PETER-MW1-6-GW-025 with MS/MSD	6	PE	125mL each				EPA 537M	Geosquirt	

REMARKS:

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

Stabilization Criteria for range of variation of last three consecutive readings
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation; optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: March 14, 2016

AerostarSES LLC

GROUNDWATER SAMPLING LOG

Installation: Peterson AFB M2027.0003 | Site: TRANSECT 3

WELL NO: MW1-7 | SAMPLE ID: PETER-MW1-7-GW-032 | DATE: 8-9-18

PURGING DATA

WELL DIAMETER (inches): 2.0" | TUBING DIAMETER (inches): 3/8" | WELL SCREEN INTERVAL DEPTH: 12.1 Ft - 32.0 Ft | STATIC DEPTH TO WATER (feet BTOC): 29.94 | PURGE PUMP TYPE OR BAILER: Geosquirt

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable) = (35.0 Ft - 29.94 Ft) × 0.163 gal/ft = 0.82 gal

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable) N/A = ~~gal (x Ft) + gal = gal~~ mb

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 32 | FINAL PUMP OR TUBING DEPTH IN WELL (feet): 32 | PURGING INITIATED AT: 1230 | PURGING ENDED AT: 1246 | TOTAL VOLUME PURGED (gallons): 1.76

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet BTOC)	pH (standard units)	TEMP. (°C)	COND. ~~pS/cm~~ mS/cm	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1230	—	—	0.11	29.30	—	—	—	—	—	—	Clear	none
1234	0.44	0.44	0.11	30.52	6.55	16.4	0.65	3.11	169.7	3.74		
1238	0.44	0.88	0.11	30.52	6.53	16.6	0.65	3.18	166.6	3.50		
1242	0.44	1.32	0.11	30.68	6.52	16.7	0.62	3.12	161.9	12.3		
1246	0.44	1.76	0.11	30.63	6.51	16.8	0.63	3.10	162.2	12.4		

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: A. Willis F. Johnson (Aztek) | SAMPLER(S) SIGNATURE(S): [signature] | SAMPLING INITIATED AT: 1246 | SAMPLING ENDED AT: 1248

PUMP OR TUBING DEPTH IN WELL (feet): 32 | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | Filter Size mm

FIELD DECONTAMINATION: PUMP Y (N) TUBING Y (N) (replaced) | DUPLICATE: Y (N)

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME (mL)	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH (Stanard Units)	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
PETER-MW1-7-GW-032	2	PE	125mL each				EPA 537M	Geosquirt	400

REMARKS:

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

Stabilization Criteria for range of variation of last three consecutive readings

pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation; optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: March 14, 2016

AerostarSES, LLC

GROUNDWATER SAMPLING LOG

Installation: Peterson AFB M2027.0003	Site: TRANSECT 3	
WELL NO: MW1-8	SAMPLE ID: PETER-MW1-8-GW-043	DATE: 8-9-18

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH:	STATIC DEPTH TO WATER (feet BTOC):	PURGE PUMP TYPE OR BAILER:
2.0"	3/8"	33.5 Ft - 43.5 Ft	41.0	Geo sq. vist

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY

(only fill out if applicable) = (46.87 Ft - 41.0 Ft) x 0.163 gal/ft = 0.96 gal

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME

(only fill out if applicable) NA ~~= gal = (x ft.) + gal = gal~~

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
43	43	0735	0755	3.2

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet BTOC)	pH (standard units)	TEMP. (°C)	COND. ~~µS/cm~~ mS/cm	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
0735	—	—	0.16	40.3	—	—	—	—	—	—	Clear	none
0740	0.8	0.8	0.16	41.25	6.27	15.0	1.62	0.85	166.2	30.7		
0746	0.96	1.76	0.16	41.29	6.32	15.1	1.82	0.57	148.1	12.6		
0750	0.64	2.4	0.16	41.30	6.33	15.2	1.84	0.31	142.6	17.0		
0755	0.8	3.2	0.16	41.30	6.34	15.2	1.86	0.31	138.0	10.6		

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88

TUBING INSIDE DIA. CAPACITY (Gal./FL): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
A. Willis F. Johnson (ASL)		0755	0759

PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE: PE	FIELD-FILTERED: Y (N) Filtration Equipment Type:	Filter Size mm
43			

FIELD DECONTAMINATION: PUMP Y (N) TUBING Y (N (replaced)) DUPLICATE (Y) N

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME (mL)	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH (Stanard Units)	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
PETER-MW1-8-GW-043	2	PE	125mL each				EPA 537M	Geo squirt	600
PETER-MW1-8-GW-943	2	PE	125mL each						

REMARKS:

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

Stabilization Criteria for range of variation of last three consecutive readings

pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation; optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: March 14, 2016

AerostarSES

GROUNDWATER SAMPLING LOG

PROJECT: SI of AFFF Areas (Omaha)	Installation: Peterson AFB

WELL NO: MW2-1	SAMPLE ID: PETER-MW2-1-GW-054	DATE: 8-21-17

PURGING DATA

WELL DIAMETER (inches): 4	TUBING DIAMETER (inches): 3/8	WELL SCREEN INTERVAL DEPTH: 49.2 Ft - 59.2 Ft	STATIC DEPTH TO WATER (feet): 43.63	PURGE PUMP TYPE OR BAILER: Geo squirt

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
=(62.6 - 43.63) X 0.653 gal/ft = 12.39 Gal

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
NA = gal + (x Ft) + gal = gal

Location (Circle one): Monitoring Well Temporary Well Other

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 54	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 54	PURGING INITIATED AT: 1140	PURGING ENDED AT: 1216	TOTAL VOLUME PURGED (gallons): 3.96

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. mS/cm or µS/cm	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1140	—	—	0.11	43.69	—	—	—	—	—	—	Clear	none
1145	0.55	0.55	0.11	43.70	7.25	15.2	0.63	5.89	127.4	6.13		
1156	1.21	1.76	0.11	43.70	7.14	14.1	0.61	6.17	129.1	3.27		
1206	1.1	2.86	0.11	43.70	7.15	14.4	0.61	6.13	127.8	1.34		
1216	1.1	3.96	0.11	43.70	7.16	14.6	0.61	6.02	127.2	1.76		

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: A. Willis, J. Klein (AFL)	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 1216	SAMPLING ENDED AT: ENDED AT: 1219
PUMP OR TUBING DEPTH IN WELL (feet): 54	TUBING MATERIAL CODE: PE	FIELD-FILTERED: Y N Filter Size mm Filtration Equipment Type:	
FIELD DECONTAMINATION: PUMP Y N	TUBING Y N (replaced)	DUPLICATE: Y N	

SAMPLE ID CODE	SAMPLE CONTAINER SPECIFICATION # CONTAINERS	MATERIAL CODE	VOLUME (mL)	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	Low Flow Sampling ✓	SAMPLE PUMP FLOW RATE (mL per minute)
PETER-MW2-1-GW-054	2	PE	125	EPA 537m	Geo squirt	✓	400

REMARKS:

Well Abandoned? Y N Date Well Abandoned:

Well Measurement Method: Probe Tape Other _____

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

AerostarSES LLC

GROUNDWATER SAMPLING LOG

Installation: Peterson AFB M2027.0003		Site: AREA 4	
WELL NO: MW2-2	SAMPLE ID: PETER-MW2-2-GW-045		DATE: 8-9-18

PURGING DATA

WELL DIAMETER (inches): 4.0"	TUBING DIAMETER (inches): 3/8	WELL SCREEN INTERVAL DEPTH: 40.6 Ft - 50.6 Ft	STATIC DEPTH TO WATER (feet BTOC): 40.28	PURGE PUMP TYPE OR BAILER: Geosquirt

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY

(only fill out if applicable) = (55.6 Ft - 40.28 Ft) x 0.653 gal/ft = 10.0 gal

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME

(only fill out if applicable) NA = gal = (x Ft) + gal = gal

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 45	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 45	PURGING INITIATED AT: 1545	PURGING ENDED AT: 1630	TOTAL VOLUME PURGED (gallons): 8.14

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet BTOC)	pH (standard units)	TEMP. (°C)	COND. ~~µS/cm~~ mS/cm	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1545	—	—	0.17	40.20	—	—	—	—	—	—	Clear	None
1550	1.02	1.02	0.17	40.35	7.67	13.5	0.79	6.07	150.1	3.10		
1555	1.02	2.02	0.17	40.35	7.32	13.4	0.75	5.47	131.7	1.22		
1600	1.02	3.04	0.17	40.35	7.33	13.5	0.75	5.42	117.6	1.25		
1610	1.70	4.74	0.17	40.35	7.35	13.4	0.74	5.57	108.2	1.30		
1620	1.70	6.44	0.17	40.35	7.36	13.6	0.75	5.73	105.2	1.20		
1630	1.70	8.14	0.17	40.35	7.36	13.5	0.74	5.77	104.5	1.48		

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: A. Willis F. Johnson (TSC)	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 1630	SAMPLING ENDED AT: 1633
PUMP OR TUBING DEPTH IN WELL (feet): 45	TUBING MATERIAL CODE: PE	FIELD-FILTERED: Y (N) Filtration Equipment Type:	Filter Size mm
FIELD DECONTAMINATION: PUMP Y (N)	TUBING Y (N replaced)	DUPLICATE: Y (N)	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME (mL)	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH (Stanard Units)	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
PETER-MW2-2-GW-045	2	PE	125mL Cable				EPA 537M	Geosquirt	650

REMARKS:

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

Stabilization Criteria for range of variation of last three consecutive readings

pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation; optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: March 14, 2016

AerostarSES

GROUNDWATER SAMPLING LOG

PROJECT: SI of AFFF Areas (Omaha)	Installation: Peterson AFB
WELL NO: MW2-3	SAMPLE ID: PETER-MW2-3-GW-045 DATE: 8-21-18

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH:	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:
4.0	3/8	40.7 Ft - 50.7 Ft	39.69	Geo squirt

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
=(54.9 - 39.69) X 0.653 gal/ft = 9.93 Gal

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
N/A = gal + (x Ft) + gal ~~Fl~~ gal

Location (Circle one): Monitoring Well Temporary Well Other

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
45	45	1018	1120	6.18

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. mS/cm or µS/cm	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
10.18	–	–	0.09	40.0	–	–	–	–	–	–	Clear	none
1033	1.34	1.35	0.09	40.1	7.26	14.3	0.59	7.13	148.9	10.42		
1045	1.08	2.43	0.09	40.1	7.15	13.5	0.58	6.96	144.6	5.78		
1100	1.35	3.78	0.09	40.1	7.15	13.4	0.58	6.77	144.7	2.65		
1110	1.2	4.98	0.12	40.1	7.16	13.6	0.59	5.99	141.7	1.83		
1120	1.2	6.18	0.12	40.1	7.16	13.6	0.59	5.90	141.1	1.99		

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.08; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT: ENDED AT:
A. Willis, J. Klein (ASL)	[signature]	1120	1123

PUMP OR TUBING DEPTH IN WELL (feet): 45
TUBING MATERIAL CODE: PE
FIELD-FILTERED: Y (N) Filter Size mm
Filtration Equipment Type:
FIELD DECONTAMINATION: PUMP Y (N) TUBING Y (N (replaced))
DUPLICATE: Y (N)

SAMPLE ID CODE	SAMPLE CONTAINER SPECIFICATION # CONTAINERS	MATERIAL CODE	VOLUME (mL)	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	Low Flow Sampling ✓	SAMPLE PUMP FLOW RATE (mL per minute)
PETER-MW2-3-GW-045	2	PE	125mL	EPA 537M	Geo squirt	✓	350 (450)

REMARKS:

Well Abandoned? Y (N) Date Well Abandoned:

Well Measurement Method: (Probe) Tape Other _____

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

AerostarSES LLC

GROUNDWATER SAMPLING LOG

PROJECT: SI of AFFF Areas (Omaha)	Installation: Peterson AFB
WELL NO: MW2-4	SAMPLE ID: PETER-MW2-4-GW-048 DATE: 7-21-18

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH:	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:
4.0	3/8	43.9 Ft - 53.9 Ft	39.73	Geosyntec

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (59 - 39.73) X 0.653 gal/ft = 12.58 Gal

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
NA = gal + (x Ft) + gal = gal

Location (Circle one): Monitoring Well Temporary Well Other

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
48	48	0816	0930	6.66

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. mS/cm or µS/cm	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
0816	—	—	0.09	39.74	—	—	—	—	—	—	Clear	none
0820	0.36	0.36	0.09	39.77	6.99	13.5	0.56	5.67	163.5	67.6		
0828	0.72	1.08	0.09	39.77	7.17	13.6	0.56	6.19	148.0	10.3		
0842	1.26	2.34	0.09	39.77	7.22	13.4	0.56	6.61	135.2	6.53		
0900	1.62	3.96	0.09	39.77	7.24	13.4	0.56	5.71	128.5	6.00		
0930	2.7	6.66	0.09	39.77	7.34	14.1	0.56	5.84	122.7	8.87		

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
A. Willis, J. Klein		0930	0934

PUMP OR TUBING DEPTH IN WELL (feet): 48
TUBING MATERIAL CODE: PE
FIELD-FILTERED: Y (N) Filter Size mm
Filtration Equipment Type:
FIELD DECONTAMINATION: PUMP Y (N) TUBING Y (N (replaced))
DUPLICATE: Y (N)

SAMPLE ID CODE	SAMPLE CONTAINER SPECIFICATION # CONTAINERS	MATERIAL CODE	VOLUME (mL)	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	Low Flow Sampling ✓	SAMPLE PUMP FLOW RATE (mL per minute)
PETER-MW2-4-GW-048	2	PE	125	EPA 537M	Geosyntec	✓	350

REMARKS:

Well Abandoned? Y (N) Date Well Abandoned:

Well Measurement Method: (Probe) Tape Other _____

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

AerostarSES LLC

GROUNDWATER SAMPLING LOG

PROJECT: SI of AFFF Areas (Omaha)	Installation: Peterson AFB
WELL NO: MW2-5	SAMPLE ID: PETER-MW2-5-GW-060 DATE: 8-21-18

PURGING DATA

WELL DIAMETER (inches): 4.0	TUBING DIAMETER (inches): 3/8	WELL SCREEN INTERVAL DEPTH: 49.6 Ft - 69.6 Ft	STATIC DEPTH TO WATER (feet): 50.37	PURGE PUMP TYPE OR BAILER: Geo Squirt

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (73.5 - 50.37) X 0.653 gal/ft = 15.20 Gal

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
NA = ~~gal + (x Ft) + gal = gal~~

Location (Circle one): Monitoring Well Temporary Well Other

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 60	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 60	PURGING INITIATED AT: 1514	PURGING ENDED AT: 1552	TOTAL VOLUME PURGED (gallons): 3.42

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. mS/cm or µS/cm	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1514	—	—	0.09	50.36	—	—	—	—	—	—	Clear	none
1520	0.54	0.54	0.09	50.4	6.98	14.7	0.57	6.94	133.9	4.09		
1532	1.08	1.62	0.09	50.4	6.96	14.7	0.64	5.68	126.1	1.71		
1542	0.9	2.52	0.09	50.4	6.94	14.5	0.62	5.40	129.5	0.95		
1552	0.9	3.42	0.09	50.4	6.94	14.5	0.62	5.47	122.9	0.70		

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0005; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: A. Willis, J. Klein (ASL)	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 1552	SAMPLING ENDED AT: 1555
PUMP OR TUBING DEPTH IN WELL (feet): 60	TUBING MATERIAL CODE: PE	FIELD-FILTERED: Y (N) Filter Size mm Filtration Equipment Type:	
FIELD DECONTAMINATION: PUMP Y (N)	TUBING Y (N (replaced))	DUPLICATE: Y (N)	

SAMPLE ID CODE	SAMPLE CONTAINER SPECIFICATION # CONTAINERS	MATERIAL CODE	VOLUME (mL)	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	Low Flow Sampling ✓	SAMPLE PUMP FLOW RATE (mL per minute)
PETER-MW2-5-GW-060	2	PE	125mL	EPA 537M	Geo Squirt	✓	350

REMARKS:

Well Abandoned? Y (N) Date Well Abandoned:

Well Measurement Method: (Probe) Tape Other _____

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

AerostarSES LLC

GROUNDWATER SAMPLING LOG

PROJECT: SI of AFFF Areas (Omaha)	Installation: Peterson AFB
WELL NO: MW4-1	SAMPLE ID: PETER-MW4-1-GW-068 / DATE: 8-21-18

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH:	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:
4.0	~~2~~ 1/4	58.4 Ft - 78.4 Ft	57.09	~~Gear~~ Bladder

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (77.9 - 57.09) X 0.653 gal/ft = 13.59 Gal

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
NA ~~= gal + (x ft) + gal = gal~~

Location (Circle one): Monitoring Well Temporary Well Other

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
68	68	1630	1705	3.29

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. mS/cm or µS/cm	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1630	—	—	0.07	57.11	—	—	—	—	—	—	Clear	none
1644	0.98	0.98	0.07	57.11	7.09	14.4	0.66	6.94	123.6	28.8		
1650	0.66	1.64	0.11	57.11	7.09	14.2	0.65	7.22	124.9	33.3		
1655	0.55	2.19	0.11	57.11	7.10	14.1	0.65	7.20	124.7	30.7		
1700	0.55	2.74	0.11	57.11	7.11	14.1	0.65	7.20	125.2	32.5		
1705	0.55	3.29	0.11	57.11	7.12	14.0	0.64	7.24	125.2	20.33		

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
A. Willis, J Klein (ASL)	[signature]	1705	1708

PUMP OR TUBING DEPTH IN WELL (feet): 68
TUBING MATERIAL CODE: PE
FIELD-FILTERED: Y (N) Filter Size mm
Filtration Equipment Type:
FIELD DECONTAMINATION: PUMP Y (N) TUBING Y (N) (replaced)
DUPLICATE: Y (N)

SAMPLE ID CODE	SAMPLE CONTAINER SPECIFICATION # CONTAINERS	MATERIAL CODE	VOLUME (mL)	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	Low Flow Sampling ✓	SAMPLE PUMP FLOW RATE (mL per minute)
PETER-MW4-1-GW-068	2	PE	125mL	EPA 537M	BP	✓	275

REMARKS:

Well Abandoned? Y (N) Date Well Abandoned:

Well Measurement Method: (Probe) Tape Other _____

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

AerostarSES LLC

GROUNDWATER SAMPLING LOG

Installation: Peterson AFB M2027.0003		Site: AREA4	
WELL NO: MW4-2	SAMPLE ID: PETER-MW4-2-GW-070		DATE: 8-17-18

PURGING DATA

WELL DIAMETER (inches): 4.0	TUBING DIAMETER (inches): 1/4	WELL SCREEN INTERVAL DEPTH: 61.8 Ft - 81.8 Ft	STATIC DEPTH TO WATER (feet BTOC): (N) ~~60.9~~ 60.39	PURGE PUMP TYPE OR BAILER: Bladder

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable) = (82.8 Ft - 60.39 Ft) x ~~.65~~ .65 gal/ft = ~~13.33~~ 14.63 gal *

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable) NA = gal = (x Ft) + gal = gal

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 70	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 70	PURGING INITIATED AT: 0948	PURGING ENDED AT: 1015	TOTAL VOLUME PURGED (gallons): 1.39 *

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet BTOC)	pH (standard units)	TEMP. (°C)	COND. ~~µS/cm~~ mS/cm	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
0948	—	—	0.07	60.95	—	—	—	—	—	—	Clear	none
0956	0.56	0.56	0.07	60.5	7.13	17.4	0.62	6.23	169.4	1.09		
1000	0.28	0.84	0.07	60.5	7.04	16.9	0.61	5.71	167.2	1.25		
1005	0.35	1.19	0.07	60.5	7.03	16.8	0.60	5.69	163.7	0.71		
1010	0.35	1.54	0.07	60.5	7.04	16.8	0.60	5.64	162.5	0.82		
1015	0.35	1.89	0.07	60.5	7.04	16.7	0.60	5.71	161.3	0.57		

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./FL): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: A. Willis J. Hein	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 1015	SAMPLING ENDED AT: 1017
PUMP OR TUBING DEPTH IN WELL (feet): 70	TUBING MATERIAL CODE: PE	FIELD-FILTERED: Y (N) Filtration Equipment Type:	Filter Size mm
FIELD DECONTAMINATION: PUMP Y (N)	TUBING Y (N) (replaced)	DUPLICATE: Y (N)	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME (mL)	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH (Stanard Units)	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
PETER-MW4-2-GW-070	2	PE	125mL each				EPA 537M	BP	250

REMARKS: * Due to close proximity of plane fueling, we were unable to spend the time needed to get one well volume.

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

Stabilization Criteria for range of variation of last three consecutive readings
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation; optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: March 14, 2016

AerostarSES LLC

GROUNDWATER SAMPLING LOG

Installation: Peterson AFB M2027.0003 | Site:

WELL NO: MW4-3 | SAMPLE ID: PETER-MW4-3-GW-069 | DATE: 8-17-18

PURGING DATA

WELL DIAMETER (inches): 4.0 | TUBING DIAMETER (inches): 1/4 | WELL SCREEN INTERVAL DEPTH: 64.3 Ft 74.3 Ft | STATIC DEPTH TO WATER (feet BTOC): 60.83 | PURGE PUMP TYPE OR BAILER: Bladder

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable) = (84.7 Ft - 60.83 Ft) x 0.653 gal/ft = 15.58 gal *

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable) NA = gal = (x Ft) + gal = gal

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 69 | FINAL PUMP OR TUBING DEPTH IN WELL (feet): 69 | PURGING INITIATED AT: 0808 | PURGING ENDED AT: 0823 | TOTAL VOLUME PURGED (gallons): * 1.05

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet BTOC)	pH (standard units)	TEMP. (°C)	COND. ~~µS/cm~~ mS/cm	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
0808	—	—	0.07	60.9	—	—	—	—	—	—	Clear	none
0810	0.14	0.14	0.07	60.2	7.06	19.0	0.67	5.56	177.9	4.64		
0816	0.42	0.56	0.07	60.2	6.99	16.3	0.63	6.16	176.0	4.53		
0820	0.28	0.84	0.07	60.2	6.98	16.2	0.62	6.17	178.2	3.54		
0823	0.21	1.05	0.07	60.2	6.97	16.3	0.62	6.17	177.2	2.76		

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: A. Willis J. Klein (AR) | SAMPLER(S) SIGNATURE(S): | SAMPLING INITIATED AT: 0823 | SAMPLING ENDED AT: 0825

PUMP OR TUBING DEPTH IN WELL (feet): 69 | TUBING MATERIAL CODE: PE | FIELD-FILTERED: Y (N) Filtration Equipment Type: | Filter Size mm

FIELD DECONTAMINATION: PUMP Y (N) TUBING Y (N) (replaced) | DUPLICATE: Y (N)

SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME (mL)	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH (Stanard Units)	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
PETER-MW4-3-GW-069	2	PE	125mL each				EPA 537M	BP	250

REMARKS: * Due to area - fueling station and proximity to planes only 4 readings w/ stable parameters and low turbidity were taken

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

Stabilization Criteria for range of variation of last three consecutive readings
pH: ± 0.2 units Temperature: ± 0.2 °C Specific Conductance: ± 5% Dissolved Oxygen: all readings ≤ 20% saturation; optionally, ± 0.2 mg/L or ± 10% (whichever is greater) Turbidity: all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: March 14, 2016

AerostarSES LLC

GROUNDWATER SAMPLING LOG

Installation: Peterson AFB M2027.0003	Site:
WELL NO: MW4-4	SAMPLE ID: PETER-MW4-4-GW-070 DATE: 8-17-18

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH:	STATIC DEPTH TO WATER (feet BTOC):	PURGE PUMP TYPE OR BAILER:
4.0	1/4	59.8 Ft - 89.8 Ft	60.18	Bladder

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable) = (91.40 Ft - 60.18 Ft) x 0.653 gal/ft = 20.38 gal *

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable) NA = gal = (x Ft) + gal = gal

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
70	70	0847	0915	* 1.96

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet BTOC)	pH (standard units)	TEMP. (°C)	COND. ~~µS/cm~~ mS/cm	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
0847	—	—	0.07	60.2	—	—	—	—	—	—	Clear	None
0855	0.56	0.56	0.07	60.2	7.01	16.7	0.63	5.87	153.5	30.9		
0900	0.35	0.91	0.07	60.2	6.93	16.0	0.62	5.67	156.0	43.7		
0905	0.35	1.26	0.07	60.2	6.97	15.8	0.62	5.97	154.0	60.4		
0910	0.35	1.61	0.07	60.2	6.98	15.7	0.62	5.00	153.1	65.6		
0915	0.35	1.96	0.07	60.2	7.00	15.6	0.62	5.99	152.2	71.1		

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
A. Willis / Z. Klein		0915	0921

PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE: PE	FIELD-FILTERED: Y (N) Filtration Equipment Type:	Filter Size mm
70			

FIELD DECONTAMINATION: PUMP Y (N) TUBING Y (N (replaced)) DUPLICATE: Y (N)

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME (mL)	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH (Stanard Units)	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
PETER-MW4-4-GW-070	2	PE	125mL each				EPA 537M	BP	250
MS/MSD	4	PE	125mL each				EPA 537M	BP	250

REMARKS: * Due to the close proximity of the well to the fueling station. We had to sample before grating one well volume.

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

Stabilization Criteria for range of variation of last three consecutive readings

pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation; optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: March 14, 2016

AerostarSES LLC

GROUNDWATER SAMPLING LOG

Installation: Peterson AFB M2027.0003	Site: TRANSECT 9
WELL NO: PAFB07MW01	SAMPLE ID: PETER-PAFB07MW01-GW-078 DATE: 8-2-18

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH:	STATIC DEPTH TO WATER (feet BTOC):	PURGE PUMP TYPE OR BAILER:
2.0"	NA	69 Ft - 79 Ft		BAILER

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY

(only fill out if applicable) = (Ft - Ft) x gal/ft = gal

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME

(only fill out if applicable) NA = gal = (x Ft) + gal = gal

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
NA	NA	NA	NA	NA

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet BTOC)	pH (standard units)	TEMP. (°C)	COND. µS/cm	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
			DUE TO lack of water AND slow recharge during development - Grab sample									

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 1515	SAMPLING ENDED AT: 1522
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE: PE	FIELD-FILTERED: Y (N) Filtration Equipment Type:	Filter Size mm

FIELD DECONTAMINATION: PUMP Y (N) TUBING Y (N (replaced)) DUPLICATE: (Y) N

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME (mL)	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH (Stanard Units)	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
PETER-PAFB07MW01-GW-078	2	PE	125mL each				EPA 537M	Bailer	NA
PETER-PAFB07MW01-GW-078	2	PE	125mL each						

REMARKS:

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

Stabilization Criteria for range of variation of last three consecutive readings

pH: ± 0.2 units Temperature: ± 0.2 °C Specific Conductance: ± 5% Dissolved Oxygen: all readings ≤ 20% saturation; optionally, ± 0.2 mg/L or ± 10% (whichever is greater) Turbidity: all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: March 14, 2016

triggered on historical screen 8-7-17

AerostarSES LLC

GROUNDWATER SAMPLING LOG

Installation: Peterson AFB M2027.0003		Site: TRANSECT 9	
WELL NO: PAFB07MW02		SAMPLE ID: PETER-PAFB07MW02-GW-086	DATE: 8-8-17

PURGING DATA

WELL DIAMETER (inches): 2.0"	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: 82.1 Ft - 92.1 Ft	STATIC DEPTH TO WATER (feet BTOC): 84.66	PURGE PUMP TYPE OR BAILER: BAILER

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable) = (87.3 Ft - 84.66 Ft) x 0.163 gal/ft = 0.43 gal

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable) NA gal = (x Ft) + gal = gal

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): NA	FINAL PUMP OR TUBING DEPTH IN WELL (feet): NA	PURGING INITIATED AT: NA	PURGING ENDED AT: NA	TOTAL VOLUME PURGED (gallons): NA

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet BTOC)	pH (standard units)	TEMP. (°C)	COND. µS/cm	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
Dole to slow recharge during DEVELOPMENT - GRAB SAMPLE												

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: Arwills J. Klein	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 1500	SAMPLING ENDED AT: 1502
PUMP OR TUBING DEPTH IN WELL (feet): N/A	TUBING MATERIAL CODE: PE N	FIELD-FILTERED: Y (N) Filtration Equipment Type:	Filter Size mm
FIELD DECONTAMINATION: PUMP (N)	TUBING Y (N) (replaced)	DUPLICATE: Y (N)	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME (mL)	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH (Stanard Units)	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
Peter-PAFB07MW02-GW-086	2	PE	125mL each				EPA 537M	BAILER	NA

REMARKS:

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

Stabilization Criteria for range of variation of last three consecutive readings
pH: ± 0.2 units Temperature: ± 0.2 °C Specific Conductance: ± 5% Dissolved Oxygen: all readings ≤ 20% saturation; optionally, ± 0.2 mg/L or ± 10% (whichever is greater) Turbidity: all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: March 14, 2016

AerostarSES LLC

GROUNDWATER SAMPLING LOG

PROJECT: SI of AFFF Areas (Omaha)	Installation: Peterson AFB
WELL NO: PAFB07MW03	SAMPLE ID: PETER-PAFB07MW03-GW-090 DATE: 8-19-18

PURGING DATA

WELL DIAMETER (inches): 2.0	TUBING DIAMETER (inches): 1/4	WELL SCREEN INTERVAL DEPTH: 75 Ft - 85 Ft	STATIC DEPTH TO WATER (feet): 87.78	PURGE PUMP TYPE OR BAILER: Bladder

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
=(92.9 - 87.78) X 0.163 gal/ft = 0.79 Gal

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable) NA ~~= gal + (x Ft) + gal = gal~~

Location (Circle one): Monitoring Well Temporary Well Other

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 90	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 90	PURGING INITIATED AT: 1125	PURGING ENDED AT: 1150	TOTAL VOLUME PURGED (gallons): 1.75

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. mS/cm or µS/cm	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1125	—	—	0.07	87.78	—	—	—	—	—	—	Cloudy	none
1138	0.91	0.91	0.07	87.78	7.18	16.4	0.94	5.93	73.2	32.2	CLEAR	none
1142	0.28	1.19	0.07	87.78	7.17	15.7	0.93	5.97	74.9	9.04	↓	↓
1146	0.28	1.47	0.07	87.78	7.18	15.7	0.92	6.10	74.3	8.97	↓	↓
1150	0.28	1.75	0.07	87.78	7.18	15.6	0.92	6.16	73.4	5.03	↓	↓

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: A.Willis, J.Klein (PASL)	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 1150	SAMPLING ENDED AT: ENDED AT: 1154
PUMP OR TUBING DEPTH IN WELL (feet): 90	TUBING MATERIAL CODE: PE	FIELD-FILTERED: Y (N) Filtration Equipment Type:	Filter Size mm
FIELD DECONTAMINATION: PUMP Y (N)	TUBING Y (N) (replaced)	DUPLICATE: Y (N)	

SAMPLE ID CODE	SAMPLE CONTAINER SPECIFICATION # CONTAINERS	MATERIAL CODE	VOLUME (mL)	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	Low Flow Sampling ✓	SAMPLE PUMP FLOW RATE (mL per minute)
PETER-PAFB07MW03-GW-090	2	PE	125	EPA 537M	BP	✓	250

REMARKS:

Well Abandoned? Y (N) Date Well Abandoned:

Well Measurement Method: (Probe) Tape Other _____

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

AerostarSES LLC

SAMPLE COLLECTION LOG
SEDIMENT / SURFACE WATER / GROUNDWATER (GRAB)

Project Name: Site Inspections of AFFF Areas (USACE Omaha District)

ASL Project No: M2027.0003

Installation: ~~Buckley~~ AFB Peterson

Date: 8-24-18

Sample Technician(s): A. Willis, J. Klein

Station ID: PETER-T02-MW006

Location Description:

225' NE of Peterson vision center

Type(s) of Sample (circle all that apply): Sediment Surface Water Groundwater

Sample Collected from (circle one): Channel/Ditch Holding Pond/Lagoon Lake/Pond River/Stream Trench Other monitoring well

SEDIMENT SAMPLE

Sample ID: Sample Collection Time:

Sample Depth: Sediment Description:

Collection Method: Analysis/Method: EPA 537M

Sample Container: Preservative: NONE

SURFACE WATER SAMPLE

Sample ID: Sample Collection Time:

Sample Depth: Collection Method:

Analysis/Method: EPA 537M Sample Container:

Preservative: NONE Water Quality (circle one): Clear Cloudy Turbid Other

GROUNDWATER SAMPLE (GRAB)

Sample ID: PETER-T02-MW006-GW-053 Sample Collection Time: 1550

Sample Depth: 53 Collection Method: GRAB (Bailer)

Analysis/Method: EPA 537M Sample Container: 125mL PE

Preservative: NONE Water Quality (circle one): Clear Cloudy Turbid Other

COMMENTS: MS/MSD

* Due to depth of well, lack of water, and slow recharge, time was changed to a grab sample

AerostarSES LLC

SAMPLE COLLECTION LOG
SEDIMENT / SURFACE WATER / GROUNDWATER (GRAB)

Project Name: Site Inspections of AFFF Areas (USACE Omaha District)

ASL Project No: M2027.0003

Installation: **Buckley AFB**

Date: 9-10-18

Sample Technician(s): A. Willis, J. Klein

Station ID:

Location Description:

175' WEST OF MILTON E. PROBY PKWY

Type(s) of Sample (circle all that apply): Sediment Surface Water Groundwater

Sample Collected from (circle one): Channel/Ditch Holding Pond/Lagoon Lake/Pond River/Stream Trench Other monitoring well

SEDIMENT SAMPLE

Sample ID: Sample Collection Time:

Sample Depth: Sediment Description:

Collection Method: Analysis/Method: EPA 537M

Sample Container: Preservative: NONE

SURFACE WATER SAMPLE

Sample ID: Sample Collection Time:

Sample Depth: Collection Method:

Analysis/Method: EPA 537M Sample Container:

Preservative: NONE Water Quality (circle one): Clear Cloudy Turbid Other

GROUNDWATER SAMPLE (GRAB)

Sample ID: PETER-TIL-MW004-GW-070 Sample Collection Time: 1020

Sample Depth: 70' Collection Method: Bailer

Analysis/Method: EPA 537M Sample Container: 3 x 125mL each PE

Preservative: NONE Water Quality (circle one): Clear Cloudy Turbid Other

COMMENTS:

AerostarSES LLC

SAMPLE COLLECTION LOG
SEDIMENT / SURFACE WATER / GROUNDWATER (GRAB)

Project Name: Site Inspections of AFFF Areas (USACE Omaha District)

ASL Project No: M2027.0003

Installation: ~~Buckley~~ AFB PETERSON AFB

Date: 9-11-18

Sample Technician(s): A. Willis, J. Klein

Station ID:

Location Description:

4001 SW of ENT AVE, 15' S of Fire training Plane

Type(s) of Sample (circle all that apply): Sediment Surface Water Groundwater

Sample Collected from (circle one): Channel/Ditch Holding Pond/Lagoon Lake/Pond River/Stream Trench Other monitoring well

SEDIMENT SAMPLE

Sample ID: Sample Collection Time:

Sample Depth: Sediment Description:

Collection Method: Analysis/Method: EPA 537M

Sample Container: Preservative: NONE

SURFACE WATER SAMPLE

Sample ID: Sample Collection Time:

Sample Depth: Collection Method:

Analysis/Method: EPA 537M Sample Container:

Preservative: NONE Water Quality (circle one): Clear Cloudy Turbid Other

GROUNDWATER SAMPLE (GRAB)

Sample ID: PETER-MW-4-GW-029 Sample Collection Time: 0915

Sample Depth: 29 Collection Method: Bailer - GRAB

Analysis/Method: EPA 537M Sample Container: 3, 125mL PE

Preservative: NONE Water Quality (circle one): Clear Cloudy Turbid Other

COMMENTS:

AerostarSES LLC

SAMPLE COLLECTION LOG

Project Name: SI of AFFF Areas (Omaha)

ASL Project No: M2027.0003

Installation: Peterson AFB

Date: 9.13.18

Sample Technician(s): J. Klein, A. Willis

Station ID: T12-MW003

Location Description: ~400', NE of the intersection of Chester and Milton E Proby Pkwy

Surface Water and/or Sediment Sample Collected from (circle one): Channel/Ditch, Holding Pond/Lagoon, Lake/Pond, River/Stream, Trench, Other (monitoring well)

SEDIMENT SAMPLE

Sample ID: _____ Sample Collection Time: _____

Sample Depth: _____ Sediment Description: _____

Collection Method: _____ Analysis/Method: _____

Sample Container: _____ Preservative: _____

SURFACE WATER SAMPLE

Sample ID: _____ Sample Collection Time: _____

Sample Depth: _____ Collection Method: _____

Analysis/Method: _____ Sample Container: _____

Preservative: _____ Water Quality (circle one): Clear Cloudy Turbid Other

Groundwater Sample Collected from (circle one): Hydropunch, Monitoring Well, Temporary Well, Other _____

GROUNDWATER SAMPLE

Sample ID: PETER-T12-MW003-GW-053 Sample Collection Time: 1612

Sample Depth: 53 Collection Method: BAILER

Analysis/Method: EPA 537M Sample Container: 125mL PE

Preservative: NA Water Quality (circle one): Clear Cloudy Turbid Other

REMARKS: WL at 52.7 - grab sample

Appendix E

Monitoring Well Construction Details

Table E-1 Monitoring Well Construction Details

Transect	Well Identification	Paleochannel	Northing[1] (feet)	Easting[1] (feet)	Top of Casing Elevation[2,3] (feet)	Well Pad Elevation[2,3]	Total Boring Depth (feet-bgs)	Approximate Depth Groundwater Encountered During Drilling (feet-bgs)	Screened Interval (feet-bgs)
1	PETER-T01-MW002	Broadway	1362013.73	3222326.72	6172.21	6172.69	37.0	21	25.3-35.3
	PETER-T01-MW004		1361645.18	3222876.35	6168.18	6168.55	35.0	20	24.3-34.3
2	PETER-T02-MW006		1364789.16	3225700.57	6226.13	6226.53	59.0	50	45.6-55.6
3	PETER-T03-MW002		1362208.60	3224358.01	6184.97	6185.32	50.0	30	39.4-49.4
	PETER-T03-MW004		1362051.10	3223878.59	6174.28	6174.74	35.0	29	20.0-30.0
4	PETER-T04-MW004		1360825.59	3225822.89	6178.87	6179.23	84.0	59	55.2-65.2
	PETER-T04-MW006		1360395.66	3225055.02	6164.09	6164.54	60.0	40	49.6-59.6
5	PETER-T05-MW001		1358058.74	3227572.38	6153.58	6153.93	70.0	50	59.0-69.0
	PETER-T05-MW005		1359387.87	3227526.70	6169.19	6169.47	70.0	52	59.6-69.6
	PETER-T05-MW006		1358389.73	3227919.58	6160.00	6160.30	65.0	50	54.3-64.3
7	PETER-T07-MW003		1355187.20	3227485.27	6111.66	6112.03	80.0	59.5	64.8-74.8
	PETER-T07-MW004		1354861.50	3228180.58	6113.08	6113.44	70.0	56	59.4-69.4
	PETER-T07-MW006		1352865.77	3226196.31	6094.07	6094.34	95.0	75	84.2-94.2
8	PETER-T08-MW001	Windmill Gulch	1354958.68	3232594.15	6174.14	6174.57	83.0	70	70.1-80.1
11	PETER-T11-MW001		1347726.97	3226555.57	6059.44	6059.87	85.0	Not Encountered	60.4-70.4
12	PETER-T12-MW003		1346529.62	3225173.42	6019.51	6019.89	55.0	Not Encountered	44.3-54.3
13	PETER-T13-MW001	Broadway	1350605.76	3222515.08	6021.72	6022.06	80.0	61	69.5-79.5
	PETER-T13-MW003		1350966.69	3222521.15	6023.44	6023.86	85.0	67	74.5-84.5
	PETER-T13-MW004		1350218.71	3222514.32	6020.45	6020.80	80.0	63	69.5-79.5
	PETER-T13-MW006	N/A	1348990.50	3222389.37	6041.99	6042.35	115.0	97	104.7-114.7
14	PETER-T14-MW002A	Windmill Gulch	1346308.45	3222438.14	5986.32	5986.84	60.0	Not Encountered	39.9-49.9

[1]Coordinates are recorded in US survey feet using the US State Plane 1983 coordinate system, Colorado Central Zone.
[2]Elevations are referenced to NAVD 1988.
[3]All wells were installed with flushmount wellhead completions.
bgs = below ground surface N/A = not applicable PETER = ERPIMS code for Peterson Air Force Base

Appendix F

Groundwater Level Measurements

Table F-1 Groundwater Level Measurements and Elevations

Site Name	Well Identification	Paleochannel	New/Existing	Northing[1]	Easting[1]	Top of Casing Elevation[2]	Ground Surface or Well Pad Elevation[2]	Wellhead Completion	Screened Interval (ft bgs)	Depth to Water[3] (feet btoc)	Groundwater Elevation[2,3]
AFFF Area 1 Site 8 (FT003)	PETER01-MW001	Windmill Gulch	Existing	1352961.32	3229817.20	6137.81	6137.95	Flushmount	82-92	86.86	6050.95
	PETER01-MW002	N/A	Existing	1352687.56	3229163.57	6140.43	6140.49	Flushmount	90-100	95.04	6045.39
	PETER01-MW003	Windmill Gulch	Existing	1352904.68	3230073.59	6130.73	6130.91	Flushmount	76.6-86.6	77.90	6052.83
AFFF Area 2 Fire Station #1 (Building 218)	PETER02-MW001	Broadway	Existing	1359930.64	3226776.74	6173.80	6174.39	Flushmount	50.5-60.5	51.41	6122.39
	PETER02-MW002	Broadway	Existing	1359949.39	3226666.14	6174.12	6174.25	Flushmount	30-40	Dry	Dry
	PETER02-MW003	Broadway	Existing	1359855.69	3226755.87	6169.09	6169.30	Flushmount	35-50	48.07	6121.02
AFFF Area 3 Fire Station #2 (Building 2032)	PETER03-MW001	Windmill Gulch	Existing	1355805.02	3233285.12	6181.62	6181.58	Flushmount	60-70	64.32	6117.30
	PETER03-MW002	Windmill Gulch	Existing	1355554.36	3233452.01	6180.59	6180.78	Flushmount	66-76	64.47	6116.12
	PETER03-MW003	Windmill Gulch	Existing	1355616.93	3233185.22	6181.19	6181.37	Flushmount	65-75	68.08	6113.11
AFFF Area 4 Golf Course/Leach Field (WP006) Detention Pond #3 Site 5 (FT002)	PETER04-MW001	Broadway	Existing	1356261.36	3230250.21	6139.21	6139.32	Flushmount	54-64	43.28	6095.93
	PETER04-MW002	Broadway	Existing	1356043.81	3230076.07	6137.16	6137.37	Flushmount	40-50	45.02	6092.14
	PETER04-MW003	Broadway	Existing	1355726.15	3229782.77	6137.85	6138.02	Flushmount	49-64	51.64	6086.21
	PETER04-MW004	Broadway	Existing	1356948.89	3228509.26	6139.90	6140.03	Flushmount	80-90	55.12	6084.78
	PETER04-MW005	Broadway	Existing	1356326.53	3229136.11	6131.45	6131.64	Flushmount	60-70	51.16	6080.29
	PETER04-MW008	Windmill Gulch	Existing	1350874.08	3227438.41	6099.84	6100.10	Flushmount	91-101	94.21	6005.63
	PETER04-MW009	Windmill Gulch	Existing	1347982.75	3222338.36	6016.45	6016.54	Flushmount	80-100	78.22	5938.23
AFFF Area 5 Current FTA	PETER05-MW001	Broadway	Existing	1363127.58	3224559.37	6203.31	6203.42	Flushmount	40-50	40.70	6162.61
	MW-2	Broadway	Existing	1363463.06	3224136.32	6204.84	6204.86	Flushmount	15-24	23.35	6181.49
	MW-3	Broadway	Existing	1363345.52	3224166.86	6205.03	6205.01	Flushmount	20-29	26.50	6178.53
	MW-4	Broadway	Existing	1363340.31	3224270.00	6205.00	6204.97	Flushmount	20-29	28.75	6176.25
Deicing Ponds	DE-ICING NORTH	Broadway	Existing	1351707.75	3225583.90	6078.75	6079.22	Flushmount	Unknown	77.90	6000.85
	DE-ICING SOUTH	Broadway	Existing	1351464.80	3225359.42	6077.41	6077.90	Flushmount	Unknown	81.90	5995.51
IRP Site 1	MW1-1	Broadway	Existing	1364025.64	3224336.36	6215.91	6214.69	Above Ground	27.5-47.5	34.01	6181.90
	MW1-2	Broadway	Existing	1362921.68	3224264.85	6197.83	6198.40	Flushmount	36.3-56.3	38.80	6159.03
	MW1-3	Broadway	Existing	1363706.39	3225182.91	6212.49	6213.02	Flushmount	48.8-58.8	51.60	6160.89
	MW1-5A	Broadway	Existing	1364266.48	3225024.62	6216.18	6216.68	Flushmount	Unknown	49.85	6166.33
	MW1-6	Broadway	Existing	1363126.84	3223882.85	6196.98	6197.25	Flushmount	6.8-26.8	19.39	6177.59
	MW1-7	Broadway	Existing	1362610.50	3223892.55	6190.24	6190.53	Flushmount	12.1-32.0	28.48	6161.76
	MW1-8	Broadway	Existing	1363419.32	3224622.57	6208.48	6207.41	Above Ground	33.5-43.5	40.62	6167.86
IRP Site 2	MW2-1	Broadway	Existing	1357761.43	3229093.71	6142.47	6141.31	Above Ground	49.2-59.2	43.85	6098.62
	MW2-2	Broadway	Existing	1357535.97	3229441.97	6139.76	6138.37	Above Ground	40.6-50.6	40.43	6099.33
	MW2-3	Broadway	Existing	1357812.80	3229264.47	6140.71	6139.25	Above Ground	40.7-50.7	39.87	6100.84
	MW2-4	Broadway	Existing	1357941.77	3229416.30	6142.99	6141.10	Above Ground	43.9-53.9	39.79	6103.20
	MW2-5	Broadway	Existing	1357938.65	3229022.45	6150.64	6148.72	Above Ground	49.6-69.6	50.46	6100.18
IRP Site 4	MW4-1	Broadway	Existing	1357654.67	3228793.26	6152.36	6152.38	Flushmount	54.8-74.8	57.41	6094.95
	MW4-2	Broadway	Existing	1357784.60	3228441.07	6155.36	6155.78	Flushmount	61.8-81.8	67.70	6087.66
	MW4-3	Broadway	Existing	1357576.50	3228592.88	6153.19	6153.62	Flushmount	64.3-84.3	60.39	6092.80
	MW4-4	Broadway	Existing	1357680.27	3228270.65	6152.81	6153.18	Flushmount	59.8-89.8	60.12	6092.69
IRP Site 7	PAFB07MW01	Windmill Gulch	Existing	1351616.68	3230171.03	6123.53	6121.23	Above Ground	69-79	79.83	6043.70
	PAFB07MW02	Windmill Gulch	Existing	1351467.84	3230066.19	6126.31	6124.40	Above Ground	82.1-92.1	84.49	6041.82
	PAFB07MW03	Windmill Gulch	Existing	1351564.43	3229898.19	6127.87	6125.13	Above Ground	75-85	87.71	6040.16

Site Name	Well Identification	Paleochannel	New/Existing	Northing[1]	Easting[1]	Top of Casing Elevation[2]	Ground Surface or Well Pad Elevation[2]	Wellhead Completion	Screened Interval (ft bgs)	Depth to Water[3] (feet btoc)	Groundwater Elevation[2,3]
Transect 1	PETER-T01-MW002	Broadway	New	1362013.73	3222326.72	6172.21	6172.69	Flushmount	25.3-35.3	26.10	6146.11
	PETER-T01-MW004	Broadway	New	1361645.18	3222876.35	6168.18	6168.55	Flushmount	24.3-34.3	27.08	6141.10
Transect 2	PETER-T02-MW006	Broadway	New	1364789.16	3225700.57	6226.13	6226.53	Flushmount	45.6-55.6	50.31	6175.82
Transect 3	PETER-T03-MW002	Broadway	New	1362208.60	3224358.01	6184.97	6185.32	Flushmount	39.4-49.4	Dry	Dry
	PETER-T03-MW004	Broadway	New	1362051.10	3223878.59	6174.28	6174.74	Flushmount	20.0-30.0	25.75	6148.53
Transect 4	PETER-T04-MW004	Broadway	New	1360825.59	3225822.89	6178.87	6179.23	Flushmount	55.2-65.2	51.30	6127.57
	PETER-T04-MW006	Broadway	New	1360395.66	3225055.02	6164.09	6164.54	Flushmount	49.6-59.6	53.45	6110.64
Transect 5	PETER-T05-MW001	Broadway	New	1358058.74	3227572.38	6153.58	6153.93	Flushmount	59.0-69.0	58.65	6094.93
	PETER-T05-MW005	Broadway	New	1359387.87	3227526.70	6169.19	6169.47	Flushmount	59.6-69.6	51.53	6117.66
	PETER-T05-MW006	Broadway	New	1358389.73	3227919.58	6160.00	6160.30	Flushmount	54.3-64.3	58.20	6101.80
Transect 7	PETER-T07-MW003	Broadway	New	1355187.20	3227485.27	6111.66	6112.03	Flushmount	64.8-74.8	55.81	6055.85
	PETER-T07-MW004	Broadway	New	1354861.50	3228180.58	6113.08	6113.44	Flushmount	59.4-69.4	56.59	6056.49
	PETER-T07-MW006	Broadway	New	1352865.77	3226196.31	6094.07	6094.34	Flushmount	84.2-94.2	77.00	6017.07
Transect 8	PETER-T08-MW001	Windmill Gulch	New	1354958.68	3232594.15	6174.14	6174.57	Flushmount	70.1-80.1	72.96	6101.18
Transect 11	PETER-T11-MW001	Windmill Gulch	New	1347726.97	3226555.57	6059.44	6059.87	Flushmount	60.4-70.4	69.60	5989.84
Transect 12	PETER-T12-MW003	Windmill Gulch	New	1346529.62	3225173.42	6019.51	6019.89	Flushmount	44.3-54.3	51.02	5968.49
Transect 13	PETER-T13-MW001	Broadway	New	1350605.76	3222515.08	6021.72	6022.06	Flushmount	69.5-79.5	62.86	5958.86
	PETER-T13-MW003	Broadway	New	1350966.69	3222521.15	6023.44	6023.86	Flushmount	74.5-84.5	62.55	5960.89
	PETER-T13-MW004	Broadway	New	1350218.71	3222514.32	6020.45	6020.80	Flushmount	69.5-79.5	63.82	5956.63
	PETER-T13-MW006	N/A	New	1348990.50	3222389.37	6041.99	6042.35	Flushmount	104.7-114.7	95.02	5946.97
Transect 14	PETER-T14-MW002A	Windmill Gulch	New	1346308.45	3222438.14	5986.32	5986.84	Flushmount	39.9-49.9	48.40	5937.92

[1]Coordinates are recorded in US survey feet using the US State Plane 1983 coordinate system, Colorado Central Zone.
[2]Elevations are recorded in feet and referenced to NAVD 1988.
[3]All water level measurements were taken on 9/12/18 with the exception of well PETER-T14-002A which was measured on 9/13/18.
bgs = below ground surface
ft = feet
PETER = ERPIMS code for Peterson Air Force Base
btoc = below top of casing
N/A = not applicable

Appendix G

Data Validation Report,

Case Narratives,

and

Validated Sample Results Forms

DATA VALIDATION REPORT

M2032.0001 (Omaha) Peterson AFB Phase II

SAMPLE DELIVERY GROUPs: B8K3933, B8L4817, B8M4034 and B8O0597

Prepared for

Aerostar SES LLC

September 13, 2018

TABLE OF CONTENTS

ACRONYMS AND ABBREVIATIONS iii

I. INTRODUCTION 1

II. Sample Management 5

III. Method Analysis – Perfluorinated Compounds by Modified EPA Method 537 9

III.1. Holding Times 9

III.2. Calibration 9

III.2.1. Initial Calibration 9

III.2.2. Continuing Calibration 9

III.3. Quality Control Samples 9

III.3.1. Method Blanks 9

III.3.2. Laboratory Control Samples 9

III.3.3. Matrix Spike/Matrix Spike Duplicate 9

III.3.4. Laboratory Duplicates 10

III.4. Field QC Samples 10

III.4.1. Field Blanks and Equipment Blanks 11

III.4.2. Field Duplicates 12

III.5. Internal Standards Performance 12

III.5.1. Extracted Internal Standard Recovery 12

III.5.2. Injected Internal Standard Recovery 12

III.6. Compound Identification 12

III.7. Compound Quantification and Reported Detection Limits 13

III.8. System Performance 14

IV. Summary and Conclusions 15

IV.1. Precision 15

IV.2. Accuracy 15

IV.3. Representativeness 15
IV.4. Comparability 15
IV.5. Completeness 15

V. References 16

TABLES

1 – Sample Identification
2 – Data Qualifier Reference
3 – Reason Code Reference
4 – FB/EB Detects
5 – Field Duplicates

ACRONYMS AND ABBREVIATIONS

°C	Celsius
%	Percent
%D	percent difference
B	blank contamination
CB	calibration blank
CCAL	continuing calibration
CCB	continuing calibration blank
CCV	continuing calibration verification
COC	chain of custody
CLP	Contract Laboratory Program
EPA	US Environmental Protection Agency
ER	equipment rinsate
FB	field blank
FD	field duplicate
ICAL	initial calibration
ICB	initial calibration blank
ICL	instrument calibration limit
ICV	initial calibration verification
IS	internal standard
J	estimated value
LCS	laboratory control sample
LOD	limit of detection
LOQ	limit of quantification
MB	method blank
MDL	method detection limit
MS	matrix spike
MSD	matrix spike duplicate
ND	nondetect
PARCC	precision, accuracy, representativeness, comparability, completeness
PFC	perfluorinated compound
QAPP	Quality Assurance Program Plan
QC	quality control
QSM	Quality Systems Manual
R	Rejected
RL	reporting limit
RPD	relative percent difference
RRF	relative response factor
RSD	relative standard deviation
SDG	sample delivery group
TB	trip blank
U	not detected
UJ	not detected; associated value is an estimate

I. INTRODUCTION

Task Order Title: M2032.0001 (Omaha) Peterson AFB Phase II

Contract: W9128F-15-D-0051

MEC^X Project No.: 1529.001H.00

Sample Delivery Group: B8K3933, B8L4817, B8M4034, B8O0597

Project Manager: Jenny Vance

Matrix: Water

QC Level: Stage 2B, Stage 4

No. of Samples: 90

Laboratory: Maxxam

TABLE 1 - SAMPLE IDENTIFICATION

Sample Name	Lab Sample Name	Matrix	Collection	Method	Validation Level
PETER02-MW001-GW-055	HLE192	WG	2018-08-09 14:55	E537M	Stage 2B
PETER02-MW001-GW-955	HLE193	WG	2018-08-09 14:55	E537M	Stage 2B
PETER02-MW003-GW-049	HLE191	WG	2018-08-09 13:35	E537M	Stage 2B
PETER05-MW001-GW-045	HLE188	WG	2018-08-09 09:05	E537M	Stage 2B
PETER-MW1-1-GW-040	HLE178	WG	2018-08-08 09:32	E537M	Stage 2B
PETER-MW1-2-GW-045	HLE189	WG	2018-08-09 10:52	E537M	Stage 2B
PETER-MW1-3-GW-052	HLE177	WG	2018-08-08 07:30	E537M	Stage 2B
PETER-MW1-5A-GW-054	HLE176	WG	2018-08-08 07:15	E537M	Stage 2B
PETER-MW1-6-GW-025	HLE181	WG	2018-08-08 12:54	E537M	Stage 2B
PETER-MW1-7-GW-032	HLE190	WG	2018-08-09 12:46	E537M	Stage 2B
PETER-MW1-8-GW-043	HLE186	WG	2018-08-09 07:55	E537M	Stage 4
PETER-MW1-8-GW-943	HLE187	WG	2018-08-09 07:55	E537M	Stage 4
PETER-MW2-2-GW-045	HLE194	WG	2018-08-09 16:30	E537M	Stage 2B
PETER-MW-2-GW-23.5	HLE180	WG	2018-08-08 10:40	E537M	Stage 2B
PETER-MW-3-GW-028	HLE179	WG	2018-08-08 10:25	E537M	Stage 2B
PETER-PAFB07MW01-GW-078	HLE183	WG	2018-08-08 15:15	E537M	Stage 2B
PETER-PAFB07MW01-GW-978	HLE184	WG	2018-08-08 15:15	E537M	Stage 2B

Sample Name	Lab Sample Name	Matrix	Collection	Method	Validation Level
PETER-PAFB07MW02-GW-086	HLE182	WG	2018-08-08 15:00	E537M	Stage 2B
PETER-RS-001	HLE175	WQ	2018-08-08 07:08	E537M	Stage 2B
PETER-RS-002	HLE185	WQ	2018-08-09 07:20	E537M	Stage 2B
PETER01-MW001-GW-089	HNM447	WG	2018-08-20 12:05	E537M	Stage 2B
PETER01-MW002-GW-098	HNM449	WG	2018-08-20 15:42	E537M	Stage 2B
PETER01-MW003-GW-082	HNM448	WG	2018-08-20 15:00	E537M	Stage 2B
PETER03-MW001-GW-068	HNM434	WG	2018-08-17 12:34	E537M	Stage 2B
PETER03-MW002-GW-071	HNM428	WG	2018-08-16 15:50	E537M	Stage 4
PETER03-MW003-GW-073	HNM429	WG	2018-08-16 17:08	E537M	Stage 2B
PETER04-MW001-GW-060	HNM438	WG	2018-08-18 12:05	E537M	Stage 2B
PETER04-MW002-GW-049	HNM437	WG	2018-08-18 09:18	E537M	Stage 2B
PETER-DE-ICINGPOND5-GW-090	HNM440	WG	2018-08-18 17:05	E537M	Stage 2B
PETER-DE-ICINGPONDN-GW-085	HNM441	WG	2018-08-18 17:20	E537M	Stage 2B
PETER-MW4-2-GW-070	HNM433	WG	2018-08-17 10:15	E537M	Stage 2B
PETER-MW4-3-GW-069	HNM431	WG	2018-08-17 08:23	E537M	Stage 2B
PETER-MW4-4-GW-070	HNM432	WG	2018-08-17 09:15	E537M	Stage 2B
PETER-PAFB07MW03-GW-090	HNM445	WG	2018-08-19 11:50	E537M	Stage 2B
PETER-RS-003	HNM426	WQ	2018-08-16 10:40	E537M	Stage 2B
PETER-RS-004	HNM430	WQ	2018-08-17 07:30	E537M	Stage 2B
PETER-RS-005	HNM436	WQ	2018-08-18 07:15	E537M	Stage 2B
PETER-RS-006	HNM442	WQ	2018-08-19 08:45	E537M	Stage 2B
PETER-RS-007	HNM446	WQ	2018-08-20 11:35	E537M	Stage 2B
PETER-T01-MW004-GW-032	HNM443	WG	2018-08-19 09:28	E537M	Stage 2B
PETER-T03-MW004-GW-028	HNM444	WG	2018-08-19 10:25	E537M	Stage 2B
PETER-T04-MW004-GW-060	HNM427	WG	2018-08-16 11:30	E537M	Stage 4
PETER-T05-MW005-GW-065	HNM439	WG	2018-08-18 16:05	E537M	Stage 2B
PETER-T05-MW006-GW-060	HNM435	WG	2018-08-17 15:00	E537M	Stage 2B

Sample Name	Lab Sample Name	Matrix	Collection	Method	Validation Level
PETER04-MW003-GW-060	HPM351	WG	2018-08-27 08:36	E537M	Stage 2B
PETER04-MW004-GW-085	HPM356	WG	2018-08-27 12:53	E537M	Stage 2B
PETER04-MW005-GW-060	HPM352	WG	2018-08-27 11:12	E537M	Stage 2B
PETER04-MW008-GW-098	HPM342	WG	2018-08-24 09:20	E537M	Stage 2B
PETER04-MW008-GW-998	HPM343	WG	2018-08-24 09:20	E537M	Stage 2B
PETER04-MW009-GW-090	HPM344	WG	2018-08-24 11:55	E537M	Stage 4
PETER-MW2-1-GW-054	HPM337	WG	2018-08-21 12:16	E537M	Stage 4
PETER-MW2-3-GW-045	HPM336	WG	2018-08-21 11:20	E537M	Stage 2B
PETER-MW2-4-GW-048	HPM335	WG	2018-08-21 09:30	E537M	Stage 2B
PETER-MW2-5-GW-060	HPM339	WG	2018-08-21 15:52	E537M	Stage 2B
PETER-MW4-1-GW-068	HPM340	WG	2018-08-21 17:05	E537M	Stage 2B
PETER-RS-008	HPM338	WQ	2018-08-21 08:10	E537M	Stage 2B
PETER-RS-009	HPM341	WQ	2018-08-24 07:00	E537M	Stage 2B
PETER-RS-010	HPM348	WQ	2018-08-26 07:35	E537M	Stage 2B
PETER-RS-011	HPM350	WQ	2018-08-27 07:50	E537M	Stage 2B
PETER-RS-012	HPM353	WQ	2018-08-28 08:05	E537M	Stage 2B
PETER-T01-MW002-GW-030	HPM345	WG	2018-08-24 15:05	E537M	Stage 2B
PETER-T01-MW002-GW-930	HPM346	WG	2018-08-24 15:05	E537M	Stage 2B
PETER-T02-MW006-GW-053	HPM347	WG	2018-08-24 15:50	E537M	Stage 2B
PETER-T08-MW001-GW-074	HPM349	WG	2018-08-26 08:42	E537M	Stage 2B
PETER-T13-MW004-GW-075	HPM355	WG	2018-08-28 11:43	E537M	Stage 2B
PETER-T13-MW006-GW-110	HPM354	WG	2018-08-28 10:14	E537M	Stage 2B
PETER-MW-4-GW-029	HTH587	WG	2018-09-11 09:15	E537	Stage 2B
PETER-RS-013	HTH568	WQ	2018-09-05 09:50	E537	Stage 2B
PETER-RS-014	HTH572	WQ	2018-09-06 14:00	E537	Stage 2B
PETER-RS-015	HTH575	WQ	2018-09-07 09:30	E537	Stage 2B
PETER-RS-016	HTH581	WQ	2018-09-10 09:18	E537	Stage 2B
PETER-RS-018	HTH586	WQ	2018-09-11 09:08	E537	Stage 2B

Sample Name	Lab Sample Name	Matrix	Collection	Method	Validation Level
PETER-RS-019	HTH588	WQ	2018-09-13 09:40	E537	Stage 2B
PETER-SB-001	HTH578	WQ	2018-09-08 08:25	E537	Stage 2B
PETER-SB-002	HTH579	WQ	2018-09-08 08:35	E537	Stage 2B
PETER-SB-003	HTH580	WQ	2018-09-08 07:15	E537	Stage 2B
PETER-T04-MW006-GW-057	HTH576	WG	2018-09-07 10:50	E537	Stage 4
PETER-T05-MW001-GW-064	HTH577	WG	2018-09-07 12:56	E537	Stage 2B
PETER-T07-MW003-GW-069	HTH573	WG	2018-09-06 15:35	E537	Stage 2B
PETER-T07-MW003-GW-969	HTH574	WG	2018-09-06 15:35	E537	Stage 2B
PETER-T07-MW004-GW-064	HTH571	WG	2018-09-06 13:38	E537	Stage 4
PETER-T07-MW006-GW-089	HTH583	WG	2018-09-10 12:54	E537	Stage 2B
PETER-T11-MW001-GW-070	HTH582	WG	2018-09-10 10:20	E537	Stage 2B
PETER-T12-MW003-GW-053	HTH630	WG	2018-09-13 16:12	E537	Stage 2B
PETER-T13-MW001-GW-075	HTH569	WG	2018-09-05 10:50	E537	Stage 2B
PETER-T13-MW003-GW-079	HTH570	WG	2018-09-05 13:02	E537	Stage 2B
PETER-T14-MW002A-GW-049	HTH589	WG	2018-09-13 09:50	E537	Stage 2B
PETER-T14-MW002A-GW-949	HTH590	WG	2018-09-13 09:50	E537	Stage 2B
PETER-WS-001	HTH584	SO	2018-09-11 08:00	E537	Stage 4
PETER-WW-001	HTH585	WG	2018-09-11 08:00	E537	Stage 2B

II. SAMPLE MANAGEMENT

According to the case narratives and the chain-of-custody (COC) provided by the laboratory for sample delivery groups (SDGs) B8K3933, B8L4817, B8M4034 and B8O0597:

- Cooler temperatures recorded on the COCs were within the temperature limits of ≤6°C and ≥0°C.
- Field and laboratory personnel signed and dated the COCs.
- The COCs noted custody seals were present and intact on the coolers upon receipt at the laboratory.
- The case narratives for these SDGs noted no issues with sample management.
- Notations on the COCs indicated that due to high turbidity, extra sample volume was collected for the following samples: PETER-MW1-3-GW-052 and PETER02-MW003-GW-049 (SDG B8K3933), and PETER-T11-MW001-GW-070, PETER-T14-MW002A-GW-049, PETER-T14-MW002A-GW-949, PETER-MW-4-GW-029, and PETER-T12-MW003-GW-053 (SDG B8O0597).

TABLE 2 - DATA QUALIFIER REFERENCE

Qualifier	Definition
R	The sample results are rejected because of serious deficiencies in the ability to analyze the sample and to meet quality control (QC) criteria. The presence or absence of the analyte cannot be verified.
U	The analyte was analyzed for but was nondetect (ND) above the reported sample quantification limit.
B	The reported concentration is less than 5 times the concentration reported in an associated field or lab blank.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample. J- denotes a low bias for the sample results and J+ for a high bias.
UJ	The material was analyzed for but was ND. The associated value is an estimate and may be inaccurate or imprecise.

TABLE 3 - REASON CODE REFERENCE

Reason Code	Definition
01	Sample received outside of 4+/-2 degrees Celsius (°C)
01A	Improper sample preservation
02	Holding time exceeded
02A	Extraction
02B	Analysis
03	Instrument performance – outside criteria
03A*	Bromofluorobenzene (BFB)
03B*	Decafluorotriphenylphosphine (DFTPP)
03C*	dichlorodiphenyltrichloroethane (DDT) and/or endrin % breakdown exceeds criteria
03D	Retention time windows
03E	Resolution
04	ICAL results outside specified criteria
04A	Compound mean RRF QC criteria not met
04B	Individual % RSD criteria not met
04C	$r < 0.995$ or $r^2 < 0.99$
04D	ICAL % Recovery
05	Continuing calibration results outside specified criteria

Reason Code	Definition
05A	Compound mean RRF QC criteria not met
05B	Compound % Difference QC criteria not met
06	Result qualified as a result of the 5x/10x blank correction
06A	Method or preparation blank
06B	ICB or CCB
06C	ER
06D	TB
06E	FB
07	Surrogate recoveries outside control limits
07A	Sample
07B	Associated MB or LCS
08	MS/MSD/Duplicate results outside criteria
08A	MS and/or MSD recovery not within control limits (accuracy)
08B	% RPD outside acceptance criteria (precision)
09*	Post digestion spike outside criteria graphite furnace atomic absorption (GFAA)
10	Internal standards outside specified control limits
10A	Recovery
10B	Retention time
11	LCS recoveries outside specified limits
11A	Recovery
11B	% RPD (if run in duplicate)
12*	Interference check standard
13*	Serial dilution
14*	Tentatively identified compounds
15	Quantification
16	Multiple results available; alternate analysis preferred
17	Field duplicate RPD criteria is exceeded
18*	Percent difference between original and second column exceeds QC criteria
19	Professional judgment was used to qualify the data
20*	Pesticide clean-up checks
21	Target compound identification

Reason Code	Definition
22*	Radiological calibration
23*	Radiological quantification
24	Reported result and/or lab qualifier revised to reflect validation findings

*Indicates that this code is not expected to apply to the evaluation of PFAS analyses

L. Calvin of MEC[X] reviewed these SDGs September 13 to October 15, 2018.

III.1. HOLDING TIMES

SDGs B8K3933, B8L4817, B8M4034, B8O0597

Although the case narratives indicated several samples in SDGs B8K3933 and B8O0597 were re-extracted outside of the method holding time, the holding times specified in the QAPP were met. The water samples and the soil sample were extracted within 28 days of collection and analyzed within 45 days of extraction. The soil sample, PETER-WS-001 in SDG B8O0597, was re-extracted and re-analyzed for PFDoA within holding times.

III.2. CALIBRATION

Calibration criteria were met.

III.2.1. *INITIAL CALIBRATION*

SDGs B8K3933, B8L4817, B8M4034, B8O0597

Initial calibration criteria were met. Recoveries were within 70-130% for the lowest level of each initial calibration and 75-125% for the remaining levels, and all correlation coefficient r^2 values were within the control limit of ≥0.990 or r values ≥0.995. Applicable %RSDs were within the control limit of ≤20%. The calculated peak asymmetry factors were within the control range of 0.8-1.5. MEC[X] noted the laboratory utilized as the calibration method a weighted (1/X) linear initial calibration standard curve not forced through zero.

III.2.2. *CONTINUING CALIBRATION*

SDGs B8K3933, B8L4817, B8M4034, B8O0597

Initial calibration verification (ICV) and continuing calibration verification (CCV) recoveries were within the control limits of 75-125%. Low-level check standard (ISC) recoveries were within the control limits of 70-130%.

III.3. QUALITY CONTROL SAMPLES

III.3.1. *METHOD BLANKS*

SDGs B8K3933, B8L4817, B8M4034, B8O0597

The method blanks associated with the samples had no target analyte detects above the detection limits (DLs).

III.3.2. *LABORATORY CONTROL SAMPLES*

SDGs B8K3933, B8L4817, B8M4034, B8O0597

Recoveries were within the control limits of 70-130%, and RPDs for LCS/LCSD pairs were within the control limit of ≤30%.

III.3.3. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

Recoveries and RPDs affecting sample data were within the control limits of 70-130% and ≤30%, respectively. Qualifications were not assigned for recovery outliers not occurring in both the MS and

MSD, or for RPD outliers or high recoveries if the outlier compound was not detected in the parent sample. If the parent sample concentration of an analyte exceeded 4× the spike amount, recoveries and the RPD were not evaluated.

SDG B8K3933
Sample PETER-MW1-6-GW-025 was designated for MS/MSD analysis on the COC; however, the case narrative for this SDG noted that due to high concentrations of target analytes in the native sample, the sample was analyzed as a laboratory matrix duplicate. RPDs for the duplicate results were within the control limit of ≤30%. An MS only was analyzed for sample PETER02-MW003-GW-049. Recoveries were within the control limits listed above.

SDG B8L4817
MS/MSD analyses were performed on water samples PETER-MW4-4-GW-070 and PETER03-MW001-GW-068. Recoveries and RPDs were within the control limits listed above.

SDG B8M4034
MS/MSD analyses were performed on water sample PETER-T02-MW006-GW-053. Recoveries and RPDs were within the control limits listed above.

SDG B8O0597
MS/MSD analyses were performed on water sample PETER-T12-MW003-GW-053 and on soil sample PETER-WS-001. PFDoA was recovered above the control limits of 70-130% at 133% in the MSD only of sample PETER-WS-001. Qualifications were not assigned for the single outlier. Remaining recoveries and all RPDs were within the control limits for both MS/MSD pairs.

III.3.4. *LABORATORY DUPLICATES*

The laboratory performed laboratory duplicate analyses for some QC batches without MS/MSD analyses to demonstrate batch precision. Not all laboratory duplicate analyses were performed on samples from these SDGs. RPDs for detects above the LOQ were within the control limit of ≤30%, and detects below the LOQ were within the reasonable control limit of ±LOQ.

SDG B8K3933
The following samples were analyzed as laboratory duplicates: PETER-MW-2-GW-23.5 (PFHxA, PFHxS, and PFOS only), PETER-MW1-6-GW-025 (all analytes), and PETER-MW1-7-GW-032 (PFOS only). Results were within the control limits listed above.

SDGs B8L4817, B8M4034
Laboratory duplicates were not analyzed in these SDGs.

SDG B8O0597
Sample PETER-T14-MW002A-GW-049 was analyzed as a laboratory duplicate. Results were within the control limits listed above.

III.4. FIELD QC SAMPLES

MEC^X evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below.

III.4.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

The field blanks and equipment blanks are listed in the table below. Except for two equipment blanks in SDG B8O0597, no detects were reported in the field or equipment blanks. The equipment blanks with detects, PETER-RS-014 and PETER-RS-019, were taken on the bladder pump and bailer, respectively, used to collect the groundwater samples. As a conservative measure, results for PFOS and PFOA detected below the LOQ in undiluted analyses of the respective associated site samples were qualified as possible equipment blank contamination (B) in SDG B8O0597. Detects above the LOQ exceeded 5× the equipment blank cconcentrations, and required no qualification.

Table 4-FB/EB Detects

SDG B8K3933

Field or Equipment Blank	Detects	Concentration	LOQ
PETER-RS-001 (EB)	none	N/A	N/A
PETER-RS-001 (EB)	none	N/A	N/A

SDG B8L4817

Field or Equipment Blank	Detects	Concentration	LOQ
PETER-RS-003 (EB)	none	N/A	N/A
PETER-RS-004 (EB)	none	N/A	N/A
PETER-RS-005 (EB)	none	N/A	N/A
PETER-RS-006 (EB)	none	N/A	N/A
PETER-RS-007 (EB)	none	N/A	N/A

SDG B8M4034

Field or Equipment Blank	Detects	Concentration	LOQ
PETER-RS-008 (EB)	none	N/A	N/A
PETER-RS-009 (EB)	none	N/A	N/A
PETER-RS-010 (EB)	none	N/A	N/A
PETER-RS-011 (EB)	none	N/A	N/A
PETER-RS-012 (EB)	none	N/A	N/A

SDG B8O0597

Field or Equipment Blank	Detects	Concentration	LOQ
PETER-SB-001 (FB)	none	N/A	N/A
PETER-SB-002 (FB)	none	N/A	N/A
PETER-SB-003 (FB)	none	N/A	N/A
PETER-RS-013 (EB)	none	N/A	N/A
PETER-RS-014 (EB)	PFOS	0.0081 µg/L	0.020 µg/L
PETER-RS-015 (EB)	none	N/A	N/A
PETER-RS-016 (EB)	none	N/A	N/A
PETER-RS-018 (EB)	none	N/A	N/A
PETER-RS-019 (EB)	PFOA	0.0061 µg/L	0.020 µg/L

III.4.2. *FIELD DUPLICATES*

Field duplicate pairs are listed in the table below. RPDs for common detects above the LOQ were within the control limit of ≤30%, and detects below the LOQ in one or both samples of a pair were within the reasonable control limit of ±LOQ.

Table 5-FD RPDs

SDG B8K3933

Parent Sample	Field Duplicate	Target Analyte	RPD Outliers
PETER-PAFB07MW01-GW-078	PETER-PAFB07MW01-GW-978	N/A	none
PETER-MW1-8-GW-043	PETER-MW1-8-GW-943	N/A	none
PETER02-MW001-GW-055	PETER02-MW001-GW-955	N/A	none

SDG B8L4817

This SDG had no identified field duplicate samples.

SDG B8M4034

Parent Sample	Field Duplicate	Target Analyte	RPD Outliers
PETER04-MW008-GW-098	PETER04-MW008-GW-998	N/A	none
PETER-T01-MW002-GW-030	PETER-T01-MW002-GW-930	N/A	none

SDG B8O0597

Parent Sample	Field Duplicate	Target Analyte	RPD Outliers
PETER-T07-MW003-GW-069	PETER-T07-MW003-GW-969	N/A	none
PETER-T14-MW002A-GW-049	PETER-T14-MW002A-GW-949	N/A	none

III.5. INTERNAL STANDARDS PERFORMANCE

III.5.1. *EXTRACTED INTERNAL STANDARD RECOVERY*

SDGs B8K3933, B8L4817, B8M4034, B8O0597

As stated on the certificate of analysis for the samples, "Per- and polyfluoroalkyl substances (PFAS) as identified as surrogates on the certificate of analysis represent the extracted internal standard." All extracted internal standard recoveries were within DoD QSM 5.1.1 Table B-15 criteria of 50-150%.

III.5.2. *INJECTED INTERNAL STANDARD RECOVERY*

SDGs B8K3933, B8L4817, B8M4034, B8O0597

The applicable labeled internal standard recoveries were all within the control limits of ±50% of the peak areas of the daily initial continuing calibration standard. Injection internal standards were added post-extraction by the laboratory as required by the DoD QSM 5.1.1 Table B-15.

III.6. COMPOUND IDENTIFICATION

SDGs B8K3933, B8L4817, B8M4034, B8O0597

Compound identification was verified for site samples PETER-MW1-8-GW-043 and PETER-MW1-8-GW-943 (SDG B8K3933), PETER-T04-MW004-GW-060 and PETER03-MW002-GW-071 (SDG

B8L4817), PETER-MW2-1-GW-054 and PETER04-MW009-GW-090 (SDG B8M4034), and PETER-T13-MW001-GW-075 and PETER-T04-MW006-GW-057 (SDG B8O0597). The laboratory analyzed for 18 perfluorinated compounds by Modified EPA Method 537. Review of retention times, the ion chromatograms and ion transitions (parent > daughter) indicated no issues with compound identification.

III.7. Compound Quantification and Reported Detection Limits

Calculations were verified and sample results reported on the sample result summaries were verified against the raw data for the sample listed above (see Compound Identification section). Quantitation verification was limited based upon the significant figures presented in the raw data and were therefore estimations of the actual sample amounts. The reviewer considered the concentration verified within that limitation. The laboratory calculated and reported compound-specific detection limits. Detects below the LOQ were qualified as estimated (J). Nondetects are valid to the LOD.

The laboratory integrated isomeric forms for the PFCs with linear and branched isomers as required by Revision 1.1 of EPA Method 537.

Most samples were initially analyzed undiluted. The samples listed below were reanalyzed at one or more dilutions to report various target analytes within the linear range of the calibration. Analytes were reported from the least dilute analysis possible of multiple dilutions to report all target analytes within the linear calibration range.

<u>SDG B8K3933</u>
Based on screening results, 11 of 18 site samples were extracted or re-extracted using reduced volumes, resulting in various effective dilutions, all for one or more analytes including PFOS, PFHxA, and PFHxS. Of those 11, two, PETER-MW-2-GW-23.5 and PETER-MW1-7-GW-032, initially analyzed at effective 100× dilutions, were reanalyzed as high-level samples at further 10× dilutions, both for PFOS, and PETER-MW-2-GW-23.5 also for PFHxA and PFHxS.

<u>SDG B8L4817</u>
Based on screening results, four of 19 site samples were extracted or re-extracted using reduced volumes; samples PETER-T04-MW004-GW-060, PETER04-MW002-GW-049, and PETER-T03-MW004-GW-028 at effective 10× dilutions for one or more specific target analytes. Sample PETER01-MW001-GW-089 was initially analyzed at a 2× dilution and was reanalyzed at a 20× dilution for several target analytes.

<u>SDG B8M4034</u>
The case narrative noted that a reduced volume was extracted for sample PETER-T13-MW006-GW-110 (effective 10× dilution) to report PFOS. Remaining results were reported from the undiluted analysis.

<u>SDG B8O0597</u>
The case narrative noted that based on screening, a reduced volume was extracted for sample PETER-MW-4-GW-029 (effective 100× dilution), primarily to report PFHxA and PFHxS. Due to turbidity and coloration, a reduced volume was extracted for sample PETER-T11-MW001-GW-070 (effective 10× dilution) to avoid interference in the preparation process. The sample had no detects.

III.8. System Performance

SDGs B8K3933, B8L4817, B8M4034, B8O0597

No issues were noted with system performance.

IV. SUMMARY AND CONCLUSIONS

MEC^X evaluated a total of 1,242 data records from field samples during the validation and qualified 5 records (0.4% of the data) as estimated values (JB for detects below the LOQ). The qualification was required for potential equipment blank contamination. Nondetect compounds were flagged (U) to indicate that the compound was analyzed for but not detected above the laboratory limit of detection (LOD). Detects below the limit of quantitation (LOQ) and above the detection limit (DL) were qualified as estimated (J). Specific qualifications were discussed in the text above.

Overall, the quality of the data was acceptable. The precision and accuracy results were acceptable. Other data quality indicators (DQI) (representativeness, comparability and completeness) met the project objectives. Each of these DQIs is discussed below.

IV.1. PRECISION

Precision is a measure of the agreement between duplicate sample measurements of the same quantity and is reflected in the relative percent difference (RPD) between spikes and the RPD for the field duplicate pair analysis. Precision was considered acceptable for the project.

IV.2. ACCURACY

Accuracy is measured by the results from the recovery of known amounts of compounds or elements from calibration, method blanks, equipment blanks, field blanks, laboratory control samples (LCS), matrix spikes (MS), internal standard recoveries and surrogate recoveries. There were 17 results qualified for potential equipment blank contamination. Accuracy was considered acceptable for the project.

IV.3. REPRESENTATIVENESS

The measures of representativeness – sample handling, analytical blank analysis, were met. Designated analytical protocols were followed. The laboratory did utilize a weighted 1/X calibration curve which was not forced through zero. Although this is a deviation from Method 537, it is acceptable on DoD projects and was considered acceptable by the reviewer. Holding times were met for all analyses. No analytical problems were noted which would impact data representativeness.

IV.4. COMPARABILITY

The samples were analyzed using appropriate approved methods of analysis. All data were reported correctly using standard units.

IV.5. COMPLETENESS

Completeness is the amount of validated data compared to the planned amount of data and is expressed as a percentage of the usable data divided by the total number of data points. Of the 1,242 target data points, no data points were rejected, resulting in a completeness of 100%.

V. REFERENCES

Aerostar, 2016. *Final Quality Assurance Project Plan for Site Inspection of Aqueous Film Forming Foam Areas, Multiple Sites United States Air Force Installations*, March 2016

Aerostar, 2017. *Final Expanded Site Inspection Field Sampling Plan Attachment 1 to Final Uniform Federal Policy (UFP) Quality Assurance Project Plan (QAPP) for Site Inspection of Aqueous Film Forming Foam Areas, Multiple Sites, United States Air Force Installations, Addendum 8, Field Sampling Plan for Peterson Air Force Base, El Paso County, Colorado,* November 2017.

Department of Defense (DOD), 2018. *DoD Quality Systems Manual for Environmental Laboratories,* Version 5.1.1, 2018.

EPA, 2009. *Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS),* Version 1.1, September 2009. EPA Document #: EPA/600/R-08/092.

EPA, 2014. *EPA Contract Laboratory Program (CLP) National Functional Guidelines for Superfund Organic Methods Data Review*, EPA/540-R-014-002.

EPA (U.S. Environmental Protection Agency), January 2009. OSWER 9200-1-85. *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use.* EPA-540/R-08-005.

Prepared for: Aerostar SES LLC

Project: M2027.003 (OMAHA)
PETERSON AFB

Analytical Data Package
(Level IV)

Analysis: PFOS and PFOA in water (Method 537 mod.)

Maxxam Job #: B8K3933

Maxxam Analytics International
6740 Campobello Rd.
Mississauga, Ontario, Canada
L5N 2L8
1-800-668-0639
www.maxxamanalytics.com

I hereby certify that to the best of my knowledge all analytical data presented in this report:

- Has been checked for completeness.
- Is accurate, legible and error free.
- Has been conducted in accordance with approved SOP's and that all deviations are clearly listed in the Case Narrative.
- This report has been generated in .pdf format.

Review Performed By:

Project Manager

Maxxam
A Bureau Veritas Group Company

Stephanie Pollen
2018.09.11
09:00:33
-04'00'

Maxxam Analytics International
6740 Campobello Rd.
Mississauga, Ontario, Canada
L5N 2L8
1-800-668-0639
www.maxxamanalytics.com

Glossary of Terms

- ***Detection Limit (DL)*** this can also be called ***Method Detection Limit (MDL***): The lowest concentration or amount of the target analyte that can be identified, measured, and reported with confidence that the analyte concentration is not a false positive value. (Clarification): The smallest analyte concentration that can be demonstrated to be different from zero or a blank concentration at the 99% level of confidence. At the DL, the false positive rate (Type I error) is 1%.

- ***Limit of Detection (LOD*)**: An estimate of the minimum amount of a substance that an analytical process can reliably detect. An LOD is analyte- and matrix-specific and may be laboratory-dependent. (Clarification): The smallest amount or concentration of a substance that must be present in a sample in order to be detected at a high level of confidence (99%). At the LOD, the false negative rate (Type II error) is 1%.

- ***Limits of Quantitation (LOQ)*** this can also be called ***Reporting Detection Limit (RDL)***: The minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. (Clarification): The lowest concentration that produces a quantitative result within specified limits of precision and bias. For DoD projects, the LOQ shall be set at or above the concentration of the lowest initial calibration standard.

- ***Acceptance Criteria*** are values used by the laboratory to determine that a process is in control.

- ***Accuracy*** is the degree of agreement of a measured value with the true or expected value.

- ***Calibration Standards*** are a set of solutions containing the analytes of interest at a specified concentration.

- ***Calibration Verification Standard*** consists of a calibration standard solution of intermediate concentration (mid-point initial calibration level) used to access whether the initial calibration is still valid

- ***Certified Reference Material*** is a stable homogenous material that is certified by repetitive analysis from a supplier who is certified to generate said materials.

- ***Internal Standard*** a deuterated or ^{13}C-labelled analyte that is added to a sample extract prior to instrumental analysis to compensate for injection variability.

- ***Isomer*** is a member of a group of compounds that differ from each other only in the locations of a specific number of common substituent atoms or groups of atoms on the parent compound.

- ***Method Blank*** is a laboratory control sample using reagents that are known to be free of contamination.

- ***Precision*** is the degree of agreement between the data generated from repetitive measurements under specific conditions.

- ***Quality Assurance*** is a system of activities whose purpose is to provide the producer or user of a product with the assurance that the product meets a defined standard of quality.

- ***Quality Control*** is the overall system of activities whose purpose is to control the quality of a product so that it meets the needs of the end user.

- ***RSD*** is the relative standard deviation.

- ***Blank Spike*** is a laboratory control sample that has been fortified with native analytes of interest.

- ***Window Defining Mixture*** is a solution containing only the earliest and latest eluting congeners within each homologous group of target analytes on a specified GC column.

- ***RPD*** or Relative Percent Difference. A measure used to compare duplicate sample analysis.

- ***EMPC/NDR –*** Peak detected does not meet ratio criteria and has resulted in a higher detection limit.

1.0 Project Narrative

Maxxam Analytics International
6740 Campobello Rd.
Mississauga, Ontario, Canada
L5N 2L8
1-800-668-0639
www.maxxamanalytics.com

Maxxam Job: B8K3933

Sample Analysis

Samples were initially pre-screened and estimated concentrations were obtained so that appropriate sample volumes could be extracted on QC batches 5689192 (2018/08/23) and 5690293 (2018/08/23). Due to high concentrations, the following samples were analyzed for selected analytes using reduced sample extraction volumes:

HLE179	*PETER-MW-3-GW-028*	*All analytes*
HLE180	*PETER-MW-2-GW-23.5*	*All analytes*
HLE186	*PETER-MW1-8-GW-043*	*Perfluorohexanoic acid (PFHxA), Perfluorohexanesulfonate (PFHxS)*
HLE187	*PETER-MW1-8-GW-943*	*Perfluorohexanoic acid (PFHxA), Perfluorohexanesulfonate (PFHxS)*
HLE188	*PETER05-MW001-GW-045*	*Perfluorobutanesulfonate (PFBS), Perfluorohexanoic acid (PFHxA), Perfluorohexanesulfonate (PFHxS), Perfluorooctanesulfonate (PFOS)*
HLE189	*PETER-MW1-2-GW-045*	*All analytes*
HLE190	*PETER-MW1-7-GW-032*	*All analytes*

Detection limits were adjusted accordingly.

In addition, the following samples were analyzed by high level analysis with serial dilution on QC batch 5681627 (2018/08/17), with project approval by the client:

HLE180	*PETER-MW-2-GW-23.5*	*Perfluorohexanoic acid (PFHxA), Perfluorohexanesulfonate (PFHxS), Perfluorooctanesulfonate (PFOS)*
HLE190	*PETER-MW1-7-GW-032*	*Perfluorooctanesulfonate (PFOS)*

Detection limits were adjusted accordingly.

Sample HLE179 *(PETER-MW-3-GW-028)* was initially analyzed on QC bactch 5689192 (2018/08/23). Due to high concentrations, the sample was re-extracted and re-analyzed for Perfluorohexanoic acid (PFHxA), Perfluorohexanesulfonate (PFHxS) and Perfluorooctanesulfonate (PFOS) using a further reduced sample volume on QC batch 5697129 (2018/08/28-29), past the method defined hold time. Because of their chemical structures, per- and polyfluorinated alkyl substances (PFAS) are chemically and biologically stable in the environment and resist typical environmental degradation processes. This would suggest the hold time exceedance would not have a significant impact on the data quality. Detection limits were adjusted accordingly.

QC Samples

Matrix Spike and Matrix Spike Duplicate (MS/MSD) was required for sample HLE181 *(PETER-MW1-6-GW-025)* on QC batch 5689192 (2018/08/23) but not prepared due to high concentrations of target analytes in the native sample. A Matrix Duplicate (MD) was analyzed instead.

Extracted Internal Standard Analytes

The extracted internal standard analyte $^{13}C_2$-Perfluorotetradecanoic acid ($^{13}C_2$-PFTeDA) is used to quantify native Perfluorotridecanoic acid (PFTrDA) & Perfluorotetradecanoic acid (PFTeDA). The recovery observed for this extracted internal standard analyte was below the defined lower control limit (LCL) for the following sample on QC batch 5689192 (2018/08/23):

HLE184 *PETER-PAFB07MW01-GW-978*

The sample was re-extracted and re-analyzed for the associated native analytes on QC batch 5697129 (2018/08/28-29), past the method defined hold time. Because of their chemical structures, per- and polyfluorinated alkyl substances (PFAS) are chemically and biologically stable in the environment and resist typical environmental degradation processes. This would suggest the hold time exceedance would not have a significant impact on the data quality. Acceptable extracted internal standard analyte recovery was obtained on re-analysis.

Quantitation of PFAS

Many PFAS (e.g. PFOS) have several isomeric forms that may show up as separate or partially-merged peaks in the analytical chromatograms. These peaks will be integrated and the areas summed such that the result represents the concentration of the sum of the linear and branched isomers, per USEPA (2009). Instrumentation is calibrated using certified quantitative standards containing only the linear isomer for all target analytes, except Perfluorooctane sulfonate (PFOS) and Perfluorohexane sulfonate (PFHxS), which are calibrated using certified branched and linear isomer mixtures. As additional certified reference materials containing branched and linear isomers become commercially available, they will be incorporated into the analytical method.

Data Qualifiers

U – Analyte was not detected and is reported as less than the LOD or as defined by the customer. The LOD has been adjusted for any dilution or concentration of the sample.

J – The reported result is an estimated value (e.g., matrix interference was observed, or the analyte was detected at a concentration outside the calibration range).

Sin Chii Chia, B.Sc.
schia@maxxam.ca
Office 905 817 5700

PROJECT NARRATIVE

Maxxam Analytics
Client Project #: M2027.003 (OMAHA)

Client: Aerostar SES LLC
Client Project: M2027.003 (OMAHA)

I. SAMPLE RECEIPT/ANALYSIS

a) Sample Listing

Maxxam ID	Client Sample ID	Date Sampled	Date Received	Date Prepped	Date Run	Initial Calibration
PFOS and PFOA in water by SPE/LCMS						
HLE175	PETER-RS-001	2018/08/08	2018/08/10	2018/08/20	2018/08/23	2018/08/23
HLE176	PETER-MW1-5A-GW-054	2018/08/08	2018/08/10	2018/08/20	2018/08/23	2018/08/23
HLE177	PETER-MW1-3-GW-052	2018/08/08	2018/08/10	2018/08/20	2018/08/23	2018/08/23
HLE178	PETER-MW1-1-GW-040	2018/08/08	2018/08/10	2018/08/20	2018/08/23	2018/08/23
HLE179	PETER-MW-3-GW-028	2018/08/08	2018/08/10	2018/08/20	2018/08/23	2018/08/23 & 2018/08/28-29
HLE180	PETER-MW-2-GW-23.5	2018/08/08	2018/08/10	2018/08/20	2018/08/23	2018/08/23 & 2018/08/17
HLE180 Dup	PETER-MW-2-GW-23.5	2018/08/08	2018/08/10	2018/08/15	2018/08/17	2018/08/17
HLE181	PETER-MW1-6-GW-025	2018/08/08	2018/08/10	2018/08/20	2018/08/23	2018/08/23
HLE181 Dup	PETER-MW1-6-GW-025	2018/08/08	2018/08/10	2018/08/20	2018/08/23	2018/08/23
HLE182	PETER-PAFB07MW02-GW-086	2018/08/08	2018/08/10	2018/08/20	2018/08/23	2018/08/23
HLE183	PETER-PAFB07MW01-GW-078	2018/08/08	2018/08/10	2018/08/20	2018/08/23	2018/08/23
HLE184	PETER-PAFB07MW01-GW-978	2018/08/08	2018/08/10	2018/08/20	2018/08/23	2018/08/23 & 2018/08/28-29
HLE185	PETER-RS-002	2018/08/09	2018/08/10	2018/08/21	2018/08/23	2018/08/23
HLE186	PETER-MW1-8-GW-043	2018/08/09	2018/08/10	2018/08/21	2018/08/23	2018/08/23
HLE187	PETER-MW1-8-GW-943	2018/08/09	2018/08/10	2018/08/21	2018/08/23	2018/08/23
HLE188	PETER05-MW001-GW-045	2018/08/09	2018/08/10	2018/08/21	2018/08/23	2018/08/23
HLE189	PETER-MW1-2-GW-045	2018/08/09	2018/08/10	2018/08/21	2018/08/23	2018/08/23
HLE190	PETER-MW1-7-GW-032	2018/08/09	2018/08/10	2018/08/21	2018/08/23	2018/08/23 & 2018/08/17
HLE190 Dup	PETER-MW1-7-GW-032	2018/08/09	2018/08/10	2018/08/15	2018/08/17	2018/08/17
HLE191	PETER02-MW003-GW-049	2018/08/09	2018/08/10	2018/08/21	2018/08/23	2018/08/23
HLE192	PETER02-MW001-GW-055	2018/08/09	2018/08/10	2018/08/21	2018/08/23	2018/08/23
HLE193	PETER02-MW001-GW-955	2018/08/09	2018/08/10	2018/08/21	2018/08/23	2018/08/23
HLE194	PETER-MW2-2-GW-045	2018/08/09	2018/08/10	2018/08/21	2018/08/23	2018/08/23

Run Date is defined as the date of injection of the last calibration standard (12 hours or less) prior to the samples analyzed within that run sequence. Therefore the time of calibration injection that defines the run date is always within 12 hours of the time of sample injection.

b) Shipping Problems: Samples were received with temperature less than 10 degrees Celsius. Cooler custody seal was present.

c) Documentation Problems: High level analysis was required for samples PETER-MW1-7-GW-032 and PETER-MW-2-GW-23.5. Client consented to proceed with the analysis.

II. SAMPLE PREP:

No problems encountered

III. SAMPLE ANALYSIS:

See also comments within the appropriate Certificate of Analysis

a) Hold Times: Due to rework requirements, sample "PETER-MW-3-GW-028" was analyzed for PFHxA, PFHxS, and PFOS and sample PETER-PAFB07MW01-GW-978 was analyzed for PFTeDA and PFTrDA past hold time.

b) Instrument Calibration: all within control limits

c) Quality Control: All applicable QC meets control criteria, except where otherwise noted.

d) All analytes requiring manual intergration(s) are noted on the sample chromatograms

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for other than the conditions detailed above.

In addition, I certify, that to the best of my knowledge and belief, the data as reported are true and accurate. Release of the data contained in this data package has been authorized by the cognizant laboratory official or his/her designee, as verified by this signature.

Steph Fallon

Project Manager- Site Assessment and Remediation/ Ultra Trace

2018/09/11

Date

AerostarSES LLC

1006 Floyd Culler Court
Oak Ridge, TN 37830
865-481-7837

Chain of Analysis F

10-Aug-18 13:18
Stephanie Pollen
B8K3933

0303

Page 1 of 2

Project Name: Site Inspection of Aqueous Film Forming Foam Areas, Multiple Sites, United States Air Force Installations

Job No.: M2027.0003 (Omaha

Installation: PETERSON MAF ENV-961

Aerostar Project Manager: Brian Odom, BOdom@specproenv.com (478) 397-4906
Send Data to: Jenny Vance, jvance@aerostar.net (865) 483-7904

Sampler(s): A. Willis, F. Johnson

Laboratory Name/Address: Maxxam Analytics, Inc, 6740 Campobello Rd., Mississauga, Ontario, L5N2L8

Laboratory Shipping Address: Maxxam Analytics, c/o FedEx Depot, 299 Cayuga Rd., Cheektowaga, NY 14225
Please indicate "HOLD FOR PICKUP"

Contact: Stephanie Pollen
Phone: (905) 817-5830
email: Spollen@maxxam.ca

Sample Types:
N = Normal
FD = Field Duplicate
AB = Ambient Blank or Field Reagent Blank
EB = Equipment Rinsate

Matrix:
WG = Groundwater
SO = Soil
WP = Potable Water
SE = Sediment
WS = Surface Water
WQ = Field QC (AB, EB)

MAXXAM use only	Sample ID	Date Collected	Time Collected	Sample Type	Matrix	PFAS (see list of 18 analytes below)					NOTES
	PETER-RS-001	8/8/2018	0708	EB	WQ	2					Assoc. w/ sample PETER-MW1-5A-GW-054 taken through BAILER
	PETER-MW1-5A-GW-054	8/8/2018	0715	N	WG	2					
	PETER-MW1-3-GW-052	8/8/2018	0730	N	WG	3					extra due to high turbidity
	PETER-MW1-1-GW-040	8/8/2018	0932	N	WG	2					
	~~PETER-MW-4-GW-29.5~~	~~8/7/2018~~		N	WG						DRY
	PETER-MW-3-GW-028	8/7/2018	1025	N	WG						
	PETER-MW-2-GW-23.5	8/7/2018	1040	N	WG	2					
	PETER-MW1-6-GW-025	8/7/2018	1254	N	WG	6					MS/MSD
	PETER-PAFB07MW02-GW-086	8/8/2018	1500	N	WG	2					
	PETER-PAFB07MW01-GW-078	8/8/2018	1515	N	WG	2					
	PETER-PAFB07MW01-GW-978	8/8/2018	1515	FD	WG	2					
	PETER-RS-002	8/9/2018	0720	EB	WQ	2					
	PETER-MW1-8-GW-043	8/9/2018	0755	N	WG	2					
	PETER-MW1-8-GW-943	8/9/2018	0755	FD	WG	2					
	PETEROS-MW001-GW-045	8/9/2018	0905	N	WG	2					
					Total # of Containers	31					

RELINQUISHED BY:
Signature: Date/Time: 8/9/2018 1930
Printed Name: ASL Willis Firm: ASL
Signature: Date/Time:
Printed Name: Firm:

RECEIVED BY:
Signature: Date/Time: 2018/08/10 13:18
Printed Name: Firm:
Signature: Date/Time:
Printed Name: Firm:

Analyte List:

ANALYTE	ERPIMS PAR CODE	CAS	Contaminant	ERPIMS PAR CODE	CAS
Perfluorooctanesulfonic acid	PFOS	1763-23-1	Perfluorotetradecanoic acid	PFTEA	[illegible]
Perfluorooctanoic acid	PFOA	335-67-1	Perfluorotridecanoic acid	PFTRDA	72629-94-8
Perfluorononanoic acid	PFNA	375-95-1	Perfluoroundecanoic acid	PFUNA	2058-94-8
Perfluorohexanesulfonic acid	PFHXSA	355-46-4	6:2 Fluorotelomer sulfonate	6:2FTS	27619-97-2
Perfluoroheptanoic acid	PFHPA	375-85-9	8:2 Fluorotelomer sulfonate	8:2FTS	39108-34-4
Perfluorobutanesulfonic acid	PFBSA	375-73-5	Perfluorobutanoic acid	PFBA	375-22-4
Perfluorodecanoic acid	PFDA	335-76-2	Perfluorodecanesulfonic acid	PFDS	335-77-3
Perfluorododecanoic acid	PFDOA	307-55-1	Perfluorooctane sulfonamide	FOSA	754-91-6
Perfluorohexanoic acid	PFHXA	307-24-4	Perfluoropentanoic Acid	PFPA	2706-90-3

3.7 | 8.1 | 5.4

AerostarSES LLC

1006 Floyd Culler Court
Oak Ridge, TN 37830
865-481-7837

Chain of Custody Record/ Analysis Request Number: 0304

BSK 3933

Page 2 of 2

Project Name: Site Inspection of Aqueous Film Forming Foam Areas, Multiple Sites, United States Air Force Installations

Job No.: M2027.0003 (Omaha)

Installation: PETERSON

Aerostar Project Manager: Brian Odom, BOdom@specproenv.com (478) 397-4906
Send Data to: Jenny Vance, jvance@aerostar.net (865) 483-7904

Sampler(s): A. Willis, F. Johnson

Laboratory Name/Address: Maxxam Analytics, Inc, 6740 Campobello Rd., Mississauga, Ontario L5N2L8

Laboratory Shipping Address: Maxxam Analytics, c/o FedEx Depot, 299 Cayuga Rd., Cheektowaga, NY 14225

Please indicate "HOLD FOR PICKUP"

Contact: Stephanie Pollen
Phone: (905) 817-5830
email: Spollen@maxxam.ca

ANALYSIS

Sample Types:
N = Normal
FD = Field Duplicate
AB = Ambient Blank or Field Reagent Blank
EB = Equipment Rinsate

Matrix:
WG = Groundwater
SO = Soil
WP = Potable Water
SE = Sediment
WS = Surface Water
WQ = Field QC (AB, EB)

MAXXAM use only	Sample ID	Date Collected	Time Collected	Sample Type	Matrix	PFAS (see list of 18 analytes below)						NOTES
•	PETER-MW1-2-GW-045	8/9/2018	1052	N	WG	2						
•	PETER-MW1-7-GW-032	8/9/2018	1246	N	WG	2						
•	PETER02-MW003-GW-049	8/9/2018	1335	N	WG	3						Extra bottle to account for high turbidity
•	PETER02-MW001-GW-055	8/9/2018	1455	N	WG	2						
•	PETER02-MW001-GW-955	8/9/2018	1455	FD	WG	2						
•	PETER-MW2-2-GW-045	8/9/2018	1630	N	WG	2						
					Total # of Containers	13						

RELINQUISHED BY:
Signature: Date/Time: 8/9/2018 · 1930
Printed Name: A. Willis Firm: ASL
Signature: Date/Time:
Printed Name: Firm:

RECEIVED BY:
Signature: Date/Time: 2018/08/10 13:18
Printed Name: Judd Johnson Firm:
Signature: Date/Time:
Printed Name: Firm:

Analyte List:

ANALYTE	ERPIMS PAR CODE	CAS	Contaminant	ERPIMS PAR CODE	CAS
Perfluorooctanesulfonic acid	PFOS	1763-23-1	Perfluorotetradecanoic acid	PFTEA	376-06-7
Perfluorooctanoic acid	PFOA	335-67-1	Perfluorotridecanoic acid	PFTRDA	72629-94-8
Perfluorononanoic acid	PFNA	375-95-1	Perfluoroundecanoic acid	PFUNA	2058-94-8
Perfluoroheptanesulfonic acid	PFHPS	375-92-8	6:2 Fluorotelomer sulfonate	6:2FTS	27619-97-2
Perfluoroheptanoic acid	PFHPA	375-85-9	8:2 Fluorotelomer sulfonate	8:2FTS	39108-34-4
Perfluorobutanesulfonic acid	PFBS	375-73-5	Perfluorobutanoic acid	PFBA	375-22-4
Perfluorodecanoic acid	PFDA	335-76-2	Perfluorodecanesulfonic acid	PFDS	335-77-3
Perfluorododecanoic acid	PFDOA	307-55-1	Perfluorooctane sulfonamide	FOSA	754-91-6
Perfluoroheptanoic acid	PFHPA	307-24-4	Perfluoropentanoic Acid	PFPA	2706-90-3

3.71 5.11 5.4

Prepared for: Aerostar SES LLC

Project: M2027.003 (OMAHA)
PETERSON AFB

Analytical Data Package
(Level IV)

Analysis: PFOS and PFOA in water (Method 537 mod.)

Maxxam Job #: B8L4817

Maxxam Analytics International
6740 Campobello Rd.
Mississauga, Ontario, Canada
L5N 2L8
1-800-668-0639
www.maxxamanalytics.com

I hereby certify that to the best of my knowledge all analytical data presented in this report:

- Has been checked for completeness.
- Is accurate, legible and error free.
- Has been conducted in accordance with approved SOP's and that all deviations are clearly listed in the Case Narrative.
- This report has been generated in .pdf format.

Review Performed By:

Project Manager

Maxxam
A Bureau Veritas Group Company

Stephanie Pollen
2018.09.11
09:54:07
-04'00'

Maxxam Analytics International
6740 Campobello Rd.
Mississauga, Ontario, Canada
L5N 2L8
1-800-668-0639
www.maxxamanalytics.com

Glossary of Terms

- ***Detection Limit (DL)*** this can also be called ***Method Detection Limit (MDL***): The lowest concentration or amount of the target analyte that can be identified, measured, and reported with confidence that the analyte concentration is not a false positive value. (Clarification): The smallest analyte concentration that can be demonstrated to be different from zero or a blank concentration at the 99% level of confidence. At the DL, the false positive rate (Type I error) is 1%.

- ***Limit of Detection (LOD*)**: An estimate of the minimum amount of a substance that an analytical process can reliably detect. An LOD is analyte- and matrix-specific and may be laboratory-dependent. (Clarification): The smallest amount or concentration of a substance that must be present in a sample in order to be detected at a high level of confidence (99%). At the LOD, the false negative rate (Type II error) is 1%.

- ***Limits of Quantitation (LOQ)*** this can also be called ***Reporting Detection Limit (RDL)***: The minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. (Clarification): The lowest concentration that produces a quantitative result within specified limits of precision and bias. For DoD projects, the LOQ shall be set at or above the concentration of the lowest initial calibration standard.

- ***Acceptance Criteria*** are values used by the laboratory to determine that a process is in control.

- ***Accuracy*** is the degree of agreement of a measured value with the true or expected value.

- ***Calibration Standards*** are a set of solutions containing the analytes of interest at a specified concentration.

- ***Calibration Verification Standard*** consists of a calibration standard solution of intermediate concentration (mid-point initial calibration level) used to access whether the initial calibration is still valid

- ***Certified Reference Material*** is a stable homogenous material that is certified by repetitive analysis from a supplier who is certified to generate said materials.

- ***Internal Standard*** a deuterated or ^{13}C-labelled analyte that is added to a sample extract prior to instrumental analysis to compensate for injection variability.

- ***Isomer*** is a member of a group of compounds that differ from each other only in the locations of a specific number of common substituent atoms or groups of atoms on the parent compound.

- ***Method Blank*** is a laboratory control sample using reagents that are known to be free of contamination.

- ***Precision*** is the degree of agreement between the data generated from repetitive measurements under specific conditions.

- ***Quality Assurance*** is a system of activities whose purpose is to provide the producer or user of a product with the assurance that the product meets a defined standard of quality.

- ***Quality Control*** is the overall system of activities whose purpose is to control the quality of a product so that it meets the needs of the end user.

- ***RSD*** is the relative standard deviation.

- ***Blank Spike*** is a laboratory control sample that has been fortified with native analytes of interest.

- ***Window Defining Mixture*** is a solution containing only the earliest and latest eluting congeners within each homologous group of target analytes on a specified GC column.

- ***RPD*** or Relative Percent Difference. A measure used to compare duplicate sample analysis.

- ***EMPC/NDR –*** Peak detected does not meet ratio criteria and has resulted in a higher detection limit.

1.0 Project Narrative

Maxxam Analytics International
6740 Campobello Rd.
Mississauga, Ontario, Canada
L5N 2L8
1-800-668-0639
www.maxxamanalytics.com

Maxxam Job: B8L4817

Sample Analysis

Samples were initially pre-screened and estimated concentrations were obtained so that appropriate sample volumes could be extracted on QC batches 5697129 (2018/08/28-29) and 5706905 (2018/09/04). Due to high concentrations, the following samples were analyzed for selected analytes using reduced sample extraction volumes:

HNM427	*PETER-T04-MW004-GW-060*	*Perfluorobutanesulfonate (PFBS), Perfluoropentanoic acid (PFPeA), Perfluorohexanoic acid (PFHxA), Perfluorohexanesulfonate (PFHxS), Perfluorooctanesulfonate (PFOS)*
HNM437	*PETER04-MW002-GW-049*	*Perfluorohexanesulfonate (PFHxS)*
HNM444	*PETER-TO3-MW004-GW-028*	*Perfluorohexanesulfonate (PFHxS), Perfluorooctanesulfonate (PFOS)*
HNM447	*PETER01-MW-001-GW-089*	*All analytes*

Detection limits were adjusted accordingly.

Quantitation of PFAS

Many PFAS (e.g. PFOS) have several isomeric forms that may show up as separate or partially-merged peaks in the analytical chromatograms. These peaks will be integrated and the areas summed such that the result represents the concentration of the sum of the linear and branched isomers, per USEPA (2009). Instrumentation is calibrated using certified quantitative standards containing only the linear isomer for all target analytes, except Perfluorooctane sulfonate (PFOS) and Perfluorohexane sulfonate (PFHxS), which are calibrated using certified branched and linear isomer mixtures. As additional certified reference materials containing branched and linear isomers become commercially available, they will be incorporated into the analytical method.

Data Qualifiers

U – Analyte was not detected and is reported as less than the LOD or as defined by the customer. The LOD has been adjusted for any dilution or concentration of the sample.

J – The reported result is an estimated value (e.g., matrix interference was observed, or the analyte was detected at a concentration outside the calibration range).

Sin Chii Chia, B.Sc.
schia@maxxam.ca
Office 905 817 5700

PROJECT NARRATIVE

Maxxam Analytics
Client Project #: M2027.003 (OMAHA)

Client: Aerostar SES LLC
Client Project: M2027.003 (OMAHA)

I. SAMPLE RECEIPT/ANALYSIS

a) Sample Listing

Maxxam ID	Client Sample ID	Date Sampled	Date Received	Date Prepped	Date Run	Initial Calibration
PFOS and PFOA in water by SPE/LCMS						
HNM426	PETER-RS-003	2018/08/16	2018/08/21	2018/08/24	2018/08/28	2018/08/28-29
HNM427	PETER-T04-MW004-GW-060	2018/08/16	2018/08/21	2018/08/24	2018/08/29	2018/08/28-29
HNM428	PETER03-MW002-GW-071	2018/08/16	2018/08/21	2018/08/24	2018/08/29	2018/08/28-29
HNM429	PETER03-MW003-GW-073	2018/08/16	2018/08/21	2018/08/24	2018/08/29	2018/08/28-29
HNM430	PETER-RS-004	2018/08/17	2018/08/21	2018/08/24	2018/08/29	2018/08/28-29
HNM431	PETER-MW4-3-GW-069	2018/08/17	2018/08/21	2018/08/24	2018/08/29	2018/08/28-29
HNM432	PETER-MW4-4-GW-070	2018/08/17	2018/08/21	2018/08/24	2018/08/29	2018/08/28-29
HNM433	PETER-MW4-2-GW-070	2018/08/17	2018/08/21	2018/08/24	2018/08/29	2018/08/28-29
HNM434	PETER03-MW001-GW-068	2018/08/17	2018/08/21	2018/08/30	2018/09/04	2018/09/04
HNM435	PETER-T05-MW006-GW-060	2018/08/17	2018/08/21	2018/08/24	2018/08/29	2018/08/28-29
HNM436	PETER-RS-005	2018/08/18	2018/08/21	2018/08/24	2018/08/29	2018/08/28-29
HNM437	PETER04-MW002-GW-049	2018/08/18	2018/08/21	2018/08/24	2018/08/29	2018/08/28-29
HNM438	PETER04-MW001-GW-060	2018/08/18	2018/08/21	2018/08/24	2018/08/29	2018/08/28-29
HNM439	PETER-T05-MW005-GW-065	2018/08/18	2018/08/21	2018/08/24	2018/08/29	2018/08/28-29
HNM440	PETER-DE-ICINGPOND5-GW-090	2018/08/18	2018/08/21	2018/08/30	2018/09/04	2018/09/04
HNM441	PETER-DE-ICINGPONDN-GW-085	2018/08/18	2018/08/21	2018/08/30	2018/09/04	2018/09/04
HNM442	PETER-RS-006	2018/08/19	2018/08/21	2018/08/30	2018/09/04	2018/09/04
HNM443	PETER-T01-MW004-GW-032	2018/08/19	2018/08/21	2018/08/30	2018/09/04	2018/09/04
HNM444	PETER-T03-MW004-GW-028	2018/08/19	2018/08/21	2018/08/30	2018/09/04	2018/09/04
HNM445	PETER-PAFB07MW03-GW-090	2018/08/19	2018/08/21	2018/08/30	2018/09/04	2018/09/04
HNM446	PETER-RS-007	2018/08/20	2018/08/21	2018/08/30	2018/09/04	2018/09/04
HNM447	PETER01-MW001-GW-089	2018/08/20	2018/08/21	2018/08/30	2018/09/04	2018/09/04
HNM448	PETER01-MW003-GW-082	2018/08/20	2018/08/21	2018/08/30	2018/09/04	2018/09/04
HNM449	PETER01-MW002-GW-098	2018/08/20	2018/08/21	2018/08/30	2018/09/04	2018/09/04

Run Date is defined as the date of injection of the last calibration standard (12 hours or less) prior to the samples analyzed within that run sequence. Therefore the time of calibration injection that defines the run date is always within 12 hours of the time of sample injection.

b) Shipping Problems: Samples were received with temperature less than 10 degrees Celsius. Cooler custody seal was present.

c) Documentation Problems: Sample PETER-T05-MW006-GW-060 had 6 containers listed on the COC, however only 2 bottles were received.

II. SAMPLE PREP:

No problems encountered

III. SAMPLE ANALYSIS:

See also comments within the appropriate Certificate of Analysis

a) Hold Times: all within recommended hold times

b) Instrument Calibration: all within control limits

c) Quality Control: All applicable QC meets control criteria, except where otherwise noted.

d) All analytes requiring manual intergration(s) are noted on the sample chromatograms

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for other than the conditions detailed above.

In addition, I certify, that to the best of my knowledge and belief, the data as reported are true and accurate. Release of the data contained in this data package has been authorized by the cognizant laboratory official or his/her designee, as verified by this signature.

Steph Fallon

Project Manager- Site Assessment and Remediation/ Ultra Trace

2018/09/11

Date

AerostarSES LLC

1006 Floyd Culler Court
Oak Ridge, TN 37830
865-481-7837

Chain of Custody Record/ Analysis Request Number:

21-Aug-18 14:10
Stephanie Pollen
B8L4817
GID ENV-972

201

Page 1 of 2

AIR

Project Name: Site Inspection of Aqueous Film Forming Foam Areas, Multiple Sites, United States Air Force Installations

Job No.: M2027.0003 (Omaha)
Installation: Peterson

Aerostar Project Manager: Brian Odom, BOdom@specproenv.com (478) 397-4906
Send Data to: Jenny Vance, jvance@aerostar.net (865) 483-7904

Sampler(s): A. Willis, J. Klein

Laboratory Name/Address: Maxxam Analytics, Inc 6740 Campobello Rd. Mississauga, Ontario L5N2L8

Laboratory Shipping Address: Maxxam Analytics c/o FedEx Depot 299 Cayuga Rd. Cheektowaga, NY 14225
Please indicate "HOLD FOR PICKUP"

Contact: Melissa DiGrazia
Phone: (905) 817-5700, ext. 5784
email: MDiGrazia@maxxam.ca

Sample Types:
N = Normal
FD = Field Duplicate
AB = Ambient Blank or Field Reagent Blank
EB = Equipment Rinsate

Matrix:
WG = Groundwater
SO = Soil
WP = Potable Water
SE = Sediment
WS = Surface Water
WQ = Field QC (AB, EB)

MAXXAM use only	Sample ID	Date Collected	Time Collected	Sample Type	Matrix	PFAS (see list of 18 analytes below)						NOTES
	PETER-RS-003	2018/8/16	1040	EB	WQ	2						taken off of bladder pump associated w/ PETER-T04-MW004-GW-060
	PETER-T04-MW004-GW-060	2018/8/16	1130	N	WG	2						
	PETER03-MW002-GW-071	2018/8/16	1550	N	WG	2						
	PETER03-MW003-GW-073	2018/8/16	1708	N	WG	2						
	PETER-RS-004	2018/8/17	0730	EB	WQ	2						taken off of Bladder pump associated w/ PETER-MW4-3-GW-069
	PETER-MW4-3-GW-069	2018/8/17	0823	N	WG	2						
	PETER-MW4-4-GW-070	2018/8/17	0915	N	WG	6						MS/MSD
	PETER-MW4-2-GW-070	2018/8/17	1015	N	WG	2						
	PETER03-MW001-GW-068	2018/8/17	1234	N	WG	6						MS/MSD
	PETER-T05-MW006-GW-060	2018/8/17	1500	N	WG	6						
	PETER-RS-005	2018/8/18	0715	EB	WQ	2						taken off of Bladder pump associated w/ PETER04-MW002-GW-049
	PETER04-MW002-GW-049	2018/8/18	0918	N	WG	2						
	PETER04-MW001-GW-060	2018/8/18	1205	N	WG	2						
	PETER-T05-MW005-GW-065	2018/8/18	1605	N	WG	2						
	PETER-DE-ICING Pond 5-GW-090	2018/8/18	1705	N	WG	2						
					Total # of Containers	42						

RELINQUISHED BY:
Signature: Date/Time: 8/22/18 1930
Printed Name: Ash Willis Firm: ASL
Signature: Date/Time:
Printed Name: Firm:

RECEIVED BY:
Signature: Date/Time: 2018/08/21 14:10
Printed Name: Firm:
Signature: Date/Time:
Printed Name: Firm:

Analyte List:

ANALYTE	ERPIMS PAR CODE	CAS	Contaminant	ERPIMS PAR CODE	CAS
Perfluorooctanesulfonic acid	PFOS	1763-23-1	Perfluorotetradecanoic acid	PFTEA	376-06-7
Perfluorooctanoic acid	PFOA	335-67-1	Perfluorotridecanoic acid	PFTRIA	72629-94-8
Perfluorononanoic acid	PFNA	375-95-1	Perfluoroundecanoic acid	PFUNA	2058-94-8
Perfluorohexanesulfonic acid	PFHXSA	355-46-4	6:2 Fluorotelomer sulfonate	62FTS	27619-97-2
Perfluoroheptanoic acid	PFHPA	375-85-9	8:2 Fluorotelomer sulfonate	82FTS	39108-34-4
Perfluorobutanesulfonic acid	PFBSA	375-73-5	Perfluorobutanoic acid	PFBA	375-22-4
Perfluorodecanoic acid	PFDA	335-76-2	Perfluorodecanesulfonic acid	PFDS	335-77-3
Perfluorododecanoic acid	PFDOA	307-55-1	Perfluorooctanesulfonamide	FOSA	754-91-6
Perfluorohexanoic acid	PFHXA	307-24-4	Perfluoropentanoic Acid	PFPA	2706-90-3

custody seal present 5.7/5.8/5.4

AIR SES, LLC

1006 Floyd Culler Court
Oak Ridge, TN 37830
865-481-7837

Chain of Custody Record/ Analysis Request Number: 202

Page 2 of 2

Project Name: Site Inspection of Aqueous Film Forming Foam Areas, Multiple Sites, United States Air Force Installations

Job No.: M2027.0003 (Omaha)

Installation: PETERSON

Aerostar Project Manager: Brian Odom, BOdom@specproenv.com (478) 397-4906
Send Data to: Jenny Vance, jvance@aerostar.net (865) 483-7904

Sampler(s): A. Willis, J. Klein

Laboratory Name/Address: Maxxam Analytics, Inc, 6740 Campobello Rd., Mississauga, Ontario L5N2L8

Laboratory Shipping Address: Maxxam Analytics, c/o FedEx Depot, 299 Cayuga Rd., Cheektowaga, NY 14225
Please indicate "HOLD FOR PICKUP"

Contact: Melissa DiGrazia
Phone: (905) 817-5700, ext. 5784
email: MDiGrazia@maxxam.ca

ANALYSIS

Sample Types:
N = Normal
FD = Field Duplicate
AB = Ambient Blank or Field Reagent Blank
EB = Equipment Rinsate

Matrix:
WG = Groundwater
SO = Soil
WP = Potable Water
SE = Sediment
WS = Surface Water
WQ = Field QC (AB, EB)

MAXXAM use only	Sample ID	Date Collected	Time Collected	Sample Type	Matrix	PFAS (see list of 18 analytes below)						NOTES
	PETER-DE-ICINGPondN-GW-035	2018/8/18	1720	N	WG	2						
	PETER-RS-006	2018/8/19	0845	EB	WQ	2						taken off of Groundwater associated w/ Peter-T01-MW004-GW-032
	PETER-T01-MW004-GW-032	2018/8/19	0928	N	WG	2						
	PETER-T03-MW004-GW-028	2018/8/19	1025	N	WG	2						
	PETER-PAFB07MW03-GW-090	2018/8/19	1150	N	WG	2						
	PETER-RS-007	2018/8/20	1135	EB	WQ	2						taken off of Bailer dump, associated w/ PETER01-MW001-GW-089
	PETER01-MW001-GW-089	2018/8/20	1205	N	WG	2						
	PETER01-MW003-GW-082	2018/8/20	1500	N	WG	2						
	PETER01-MW002-GW-098	2018/8/20	1542	N	WG	2						
					Total # of Containers	18						

RELINQUISHED BY:
Signature: Date/Time: 8/20/18 1930
Printed Name: Ash Willis Firm: ASL

RECEIVED BY:
Signature: Juwaid Usman Date/Time: 2018/08/21 1410
Printed Name: Firm:

Signature: Date/Time:
Printed Name: Firm:

Signature: Date/Time:
Printed Name: Firm:

Analyte List:

ANALYTE	ERPIMS PAR CODE	CAS	Contaminant	ERPIMS PAR CODE	CAS
Perfluorooctanesulfonic acid	PFOS	1763-23-1	Perfluorotetradecanoic acid	PFTEA	376-06-7
Perfluorooctanoic acid	PFOA	335-67-1	Perfluorotridecanoic acid	PFTRIA	72629-94-8
Perfluorononanoic acid	PFNA	375-95-1	Perfluoroundecanoic acid	PFUNA	2058-94-8
Perfluorohexanesulfonic acid	PFHXSA	355-46-4	6:2 Fluorotelomer sulfonate	62FTS	27619-97-2
Perfluoroheptanoic acid	PFHPA	375-85-9	8:2 Fluorotelomer sulfonate	82FTS	39108-34-4
Perfluorobutanesulfonic acid	PFBSA	375-73-5	Perfluorobutanoic acid	PFBA	375-22-4
Perfluorodecanoic acid	PFDA	335-76-2	Perfluorodecanesulfonic acid	PFDS	335-77-3
Perfluorododecanoic acid	PFDOA	307-55-1	Perfluorooctane sulfonamide	FOSA	754-91-6
Perfluorobutanoic acid	PFBXA	307-24-4	Perfluoropentanoic Acid	PFPA	2706-90-3

Custody seal present 5.7/5.8/5.4

Prepared for: Aerostar SES LLC

Project: M2027.003 (OMAHA)
PETERSON AFB

Analytical Data Package
(Level IV)

Analysis: PFOS and PFOA in water (Method 537 mod.)

Maxxam Job #: B8M4034

Maxxam Analytics International
6740 Campobello Rd.
Mississauga, Ontario, Canada
L5N 2L8
1-800-668-0639
www.maxxamanalytics.com

Table of Contents

Maxxam Analytics International
6740 Campobello Rd.
Mississauga, Ontario, Canada
L5N 2L8
1-800-668-0639
www.maxxamanalytics.com

Table of Contents

Certification Page

1. Project Narrative

2. Sample Management Records

   2.1 Sample Custody

3. Analytical Results

   3.1 Summary Report

   3.2 Sample Chromatograms

4. QA/QC Data

5. Initial Calibration

6. Continuing Calibration

Last Page

I hereby certify that to the best of my knowledge all analytical data presented in this report:

- Has been checked for completeness.
- Is accurate, legible and error free.
- Has been conducted in accordance with approved SOP's and that all deviations are clearly listed in the Case Narrative.
- This report has been generated in .pdf format.

Review Performed By:

Project Manager

Maxxam
A Bureau Veritas Group Company

Stephanie Pollen
2018.09.19
11:35:41 -04'00'

Maxxam Analytics International
6740 Campobello Rd.
Mississauga, Ontario, Canada
L5N 2L8
1-800-668-0639
www.maxxamanalytics.com

Glossary of Terms

- ***Detection Limit (DL)*** this can also be called ***Method Detection Limit (MDL***): The lowest concentration or amount of the target analyte that can be identified, measured, and reported with confidence that the analyte concentration is not a false positive value. (Clarification): The smallest analyte concentration that can be demonstrated to be different from zero or a blank concentration at the 99% level of confidence. At the DL, the false positive rate (Type I error) is 1%.

- ***Limit of Detection (LOD*)**: An estimate of the minimum amount of a substance that an analytical process can reliably detect. An LOD is analyte- and matrix-specific and may be laboratory-dependent. (Clarification): The smallest amount or concentration of a substance that must be present in a sample in order to be detected at a high level of confidence (99%). At the LOD, the false negative rate (Type II error) is 1%.

- ***Limits of Quantitation (LOQ)*** this can also be called ***Reporting Detection Limit (RDL)***: The minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. (Clarification): The lowest concentration that produces a quantitative result within specified limits of precision and bias. For DoD projects, the LOQ shall be set at or above the concentration of the lowest initial calibration standard.

- ***Acceptance Criteria*** are values used by the laboratory to determine that a process is in control.

- ***Accuracy*** is the degree of agreement of a measured value with the true or expected value.

- ***Calibration Standards*** are a set of solutions containing the analytes of interest at a specified concentration.

- ***Calibration Verification Standard*** consists of a calibration standard solution of intermediate concentration (mid-point initial calibration level) used to access whether the initial calibration is still valid

- ***Certified Reference Material*** is a stable homogenous material that is certified by repetitive analysis from a supplier who is certified to generate said materials.

- ***Internal Standard*** a deuterated or ^{13}C-labelled analyte that is added to a sample extract prior to instrumental analysis to compensate for injection variability.

- ***Isomer*** is a member of a group of compounds that differ from each other only in the locations of a specific number of common substituent atoms or groups of atoms on the parent compound.

- ***Method Blank*** is a laboratory control sample using reagents that are known to be free of contamination.

- ***Precision*** is the degree of agreement between the data generated from repetitive measurements under specific conditions.

- ***Quality Assurance*** is a system of activities whose purpose is to provide the producer or user of a product with the assurance that the product meets a defined standard of quality.

- ***Quality Control*** is the overall system of activities whose purpose is to control the quality of a product so that it meets the needs of the end user.

- ***RSD*** is the relative standard deviation.

- ***Blank Spike*** is a laboratory control sample that has been fortified with native analytes of interest.

- ***Window Defining Mixture*** is a solution containing only the earliest and latest eluting congeners within each homologous group of target analytes on a specified GC column.

- ***RPD*** or Relative Percent Difference. A measure used to compare duplicate sample analysis.

- ***EMPC/NDR –*** Peak detected does not meet ratio criteria and has resulted in a higher detection limit.

1.0 Project Narrative

Maxxam Analytics International
6740 Campobello Rd.
Mississauga, Ontario, Canada
L5N 2L8
1-800-668-0639
www.maxxamanalytics.com

Maxxam Job: B8M4034

Sample Analysis

Samples were initially pre-screened and estimated concentrations were obtained so that appropriate sample volumes could be extracted on QC batches 5709990 (2018/09/04) and 5715285 (2018/09/11). Due to high concentration, the following sample was analyzed for Perfluorooctanesulfonate (PFOS) using a reduced sample extraction volume:

HPM354 *PETER-T13-MW006-GW-110*

Detection limit was adjusted accordingly.

Low extracted internal standard analyte recoveries were obtained for the following sample on QC batch 5709990 (2018/09/04):

HPM335 *PETER-MW2-4-GW-048*

The sample was re-extracted and re-analyzed for all analytes on QC batch 5713755 (2018/09/05-06). Acceptable extracted internal standard analyte recoveries were obtained on re-analysis.

Quantitation of PFAS

Many PFAS (e.g. PFOS) have several isomeric forms that may show up as separate or partially-merged peaks in the analytical chromatograms. These peaks will be integrated and the areas summed such that the result represents the concentration of the sum of the linear and branched isomers, per USEPA (2009). Instrumentation is calibrated using certified quantitative standards containing only the linear isomer for all target analytes, except Perfluorooctane sulfonate (PFOS) and Perfluorohexane sulfonate (PFHxS), which are calibrated using certified branched and linear isomer mixtures. As additional certified reference materials containing branched and linear isomers become commercially available, they will be incorporated into the analytical method.

Data Qualifiers

U – Analyte was not detected and is reported as less than the LOD or as defined by the customer. The LOD has been adjusted for any dilution or concentration of the sample.

J – The reported result is an estimated value (e.g., matrix interference was observed, or the analyte was detected at a concentration outside the calibration range).

Sin Chii Chia, B.Sc.
schia@maxxam.ca
Office 905 817 5700

PROJECT NARRATIVE

Maxxam Analytics
Client Project #: M2027.003 (OMAHA)

Client: Aerostar SES LLC
Client Project: M2027.003 (OMAHA)

I. SAMPLE RECEIPT/ANALYSIS

a) Sample Listing

Maxxam ID	Client Sample ID	Date Sampled	Date Received	Date Prepped	Date Run	Initial Calibration
PFOS and PFOA in water by SPE/LCMS						
HPM335	PETER-MW2-4-GW-048	2018/08/21	2018/08/29	2018/09/04	2018/09/06	2018/09/05-06
HPM336	PETER-MW2-3-GW-045	2018/08/21	2018/08/29	2018/08/31	2018/09/04	2018/09/04
HPM337	PETER-MW2-1-GW-054	2018/08/21	2018/08/29	2018/08/31	2018/09/04	2018/09/04
HPM338	PETER-RS-008	2018/08/21	2018/08/29	2018/08/31	2018/09/04	2018/09/04
HPM339	PETER-MW2-5-GW-060	2018/08/21	2018/08/29	2018/08/31	2018/09/04	2018/09/04
HPM340	PETER-MW4-1-GW-068	2018/08/21	2018/08/29	2018/08/31	2018/09/04	2018/09/04
HPM341	PETER-RS-009	2018/08/24	2018/08/29	2018/08/31	2018/09/04	2018/09/04
HPM342	PETER04-MW008-GW-098	2018/08/24	2018/08/29	2018/08/31	2018/09/04	2018/09/04
HPM343	PETER04-MW008-GW-998	2018/08/24	2018/08/29	2018/08/31	2018/09/04	2018/09/04
HPM344	PETER04-MW009-GW-090	2018/08/24	2018/08/29	2018/08/31	2018/09/04	2018/09/04
HPM345	PETER-T01-MW002-GW-030	2018/08/24	2018/08/29	2018/08/31	2018/09/04	2018/09/04
HPM346	PETER-T01-MW002-GW-930	2018/08/24	2018/08/29	2018/08/31	2018/09/04	2018/09/04
HPM347	PETER-T02-MW006-GW-053	2018/08/24	2018/08/29	2018/08/31	2018/09/04	2018/09/04
HPM348	PETER-RS-010	2018/08/26	2018/08/29	2018/08/31	2018/09/04	2018/09/04
HPM349	PETER-T08-MW001-GW-074	2018/08/26	2018/08/29	2018/08/31	2018/09/04	2018/09/04
HPM350	PETER-RS-011	2018/08/27	2018/08/29	2018/09/05	2018/09/11	2018/09/11
HPM351	PETER04-MW003-GW-060	2018/08/27	2018/08/29	2018/09/05	2018/09/11	2018/09/11
HPM352	PETER04-MW005-GW-060	2018/08/27	2018/08/29	2018/09/05	2018/09/11	2018/09/11
HPM353	PETER-RS-012	2018/08/28	2018/08/29	2018/09/05	2018/09/11	2018/09/11
HPM354	PETER-T13-MW006-GW-110	2018/08/28	2018/08/29	2018/09/05	2018/09/11	2018/09/11
HPM355	PETER-T13-MW004-GW-075	2018/08/28	2018/08/29	2018/09/05	2018/09/11	2018/09/11
HPM356	PETER04-MW004-GW-085	2018/08/27	2018/08/29	2018/09/05	2018/09/11	2018/09/11

Run Date is defined as the date of injection of the last calibration standard (12 hours or less) prior to the samples analyzed within that run sequence. Therefore the time of calibration injection that defines the run date is always within 12 hours of the time of sample injection.

b) Shipping Problems: Samples were received with temperature less than 10 degrees Celsius. Cooler custody seal was present.

c) Documentation Problems: none encountered

II. SAMPLE PREP:

No problems encountered

III. SAMPLE ANALYSIS:

See also comments within the appropriate Certificate of Analysis

a) Hold Times: all within recommended hold times

b) Instrument Calibration: all within control limits

c) Quality Control: All applicable QC meets control criteria, except where otherwise noted.

d) All analytes requiring manual intergration(s) are noted on the sample chromatograms

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for other than the conditions detailed above.

In addition, I certify, that to the best of my knowledge and belief, the data as reported are true and accurate. Release of the data contained in this data package has been authorized by the cognizant laboratory official or his/her designee, as verified by this signature.

Steph Fallon

Project Manager- Site Assessment and Remediation/ Ultra Trace

2018/09/19

Date

2. Sample Management Records

Maxxam Analytics International
6740 Campobello Rd
Mississauga, Ontario, Canada
L5N 2L8
1-800-668-0639
www.maxxamanalytics.com

2.1 Sample Custody

Maxxam Analytics International
6740 Campobello Rd
Mississauga, Ontario, Canada
L5N 2L8
1-800-668-0639
www.maxxamanalytics.com

AerostarSES, LLC

1006 Floyd Culler Court
Oak Ridge, TN 37830
865-481-7837

Chain of Custody Record/ Analysis Request Number: 199

Page 1 of 2

Project Name: Site Inspection of Aqueous Film Forming Foam Areas, Multiple Sites, United States Air Force Installations

Job No.: M2027.0003 (Omaha)

Installation: Peterson AFB

Aerostar Project Manager: Brian Odom, BOdom@specproenv.com (478) 397-4906
Send Data to: Jenny Vance, jvance@aerostar.net (865) 483-7904

Sampler(s): A. Willis, J. Klein

Laboratory Name/Address: Maxxam Analytics, Inc, 6740 Campobello Rd., Mississauga, Ontario, L5N2L8

Laboratory Shipping Address: Maxxam Analytics, c/o FedEx Depot, 299 Cayuga Rd., Cheektowaga, NY 14225
Please indicate "HOLD FOR PICKUP"

Contact: Melissa DiGrazia
Phone: (905) 817-5700, ext. 5784
email: MDiGrazia@maxxam.ca

Sample Types:
N = Normal
FD = Field Duplicate
AB = Ambient Blank or Field Reagent Blank
EB = Equipment Rinsate

Matrix:
WG = Groundwater
SO = Soil
WP = Potable Water
SE = Sediment
WS = Surface Water
WQ = Field QC (AB, EB)

ANALYSIS

MAXXAM use only	Sample ID	Date Collected	Time Collected	Sample Type	Matrix	PFAS (see list of 18 analytes below)						NOTES
•	PETER-MW2-4-GW-048	2018/08/21	0930	N	WG	2						
•	PETER-MW2-3-GW-045	2018/08/21	1120	N	WG	2						
•	PETER-MW2-1-GW-054	2018/08/21	1216	N	WG	2						
•	PETER-RS-007	2018/08/21	0810	EB	WQ	2						taken off of geosquirt associated w/ PETER-MW2-4-GW-048
•	PETER-MW2-5-GW-060	2018/08/21	1552	N	WG	2						
•	PETER-MW4-1-GW-068	2018/08/21	1705	N	WG	2						
•	PETER-RS-009	2018/08/24	0700	EB	WQ	2						taken off of Bladder pump associated w/ PETER04-MW008-GW-098
•	PETER04-MW008-GW-098	2018/08/24	0920	N	WG	2						
•	PETER04-MW008-GW-998	2018/08/24	0920	FD	WG	2						
•	PETER04-MW009-GW-090	2018/08/24	1155	N	WG	2						
•	PETER-T01-MW002-GW-030	2018/08/24	1505	N	WG	2						
•	PETER-T01-MW002-GW-930	2018/08/24	1505	FD	WG	2						
•	PETER-T02-MW006-GW-053	2018/08/24	1550	N	WG	6						MS/MSD
•	PETER-RS-010	2018/08/28	0735	EB	WQ	2						taken off of bladder pump associated w/ PETER-T08-MW001-GW-074
•	PETER-T08-MW001-GW-074	2018/08/26	0842	N	WG	2						
					Total # of Containers	34						

RELINQUISHED BY:
Signature: [signature] Date/Time: 8/28/18 1950
Printed Name: ASL willis Firm: ASL
Signature: Date/Time:
Printed Name: Firm:

RECEIVED BY: 4.7/4.6/5.1
Signature: [signature] Date/Time: 2018/08/29 13:57
Printed Name: PARAMJEET SINGH Firm: Custody seal present
Signature: Date/Time:
Printed Name: Firm:

Analyte List:

ANALYTE	ERPIMS PAR COD
Perfluorooctanesulfonic acid	PFOS
Perfluorooctanoic acid	PFOA
Perfluorononanoic acid	PFNA
Perfluorohexanesulfonic acid	PFHXS
Perfluoroheptanoic acid	PFHPA
Perfluorobutanesulfonic acid	PFBSA
Perfluorodecanoic acid	PFDA
Perfluorododecanoic acid	PFDOA
Perfluorohexanoic acid	PFHXA

29-Aug-18 13:57
Stephanie Pollen
B8M4034
J_L ENV-932

AerostarSES LLC

1006 Floyd Culler Court
Oak Ridge, TN 37830
865-481-7837

Chain of Custody Record/ Analysis Request Number: 200

Page 2 of 2

Project Name: Site Inspection of Aqueous Film Forming Foam Areas, Multiple Sites, United States Air Force Installations

Job No.: M2027.0003 (Omaha)

Installation: Peterson

Aerostar Project Manager: Brian Odom, BOdom@specprcenv.com (478) 397-4906
Send Data to: Jenny Vance, jvance@aerostar.net (865) 483-7904

Sampler(s): A. Willis, J. Hein

Laboratory Name/Address: Maxxam Analytics, Inc, 6740 Campobello Rd., Mississauga, Ontario, L5N2L8

Laboratory Shipping Address: Maxxam Analytics, c/o FedEx Depot, 299 Cayuga Rd., Cheektowaga, NY 14225
Please indicate "HOLD FOR PICKUP"

Contact: Melissa DiGrazia
Phone: (905) 817-5700, ext. 5784
email: MDiGrazia@maxxam.ca

ANALYSIS: PFAS (see list of 18 analytes below)

Sample Types:
N = Normal
FD = Field Duplicate
AB = Ambient Blank or Field Reagent Blank
EB = Equipment Rinsate

Matrix:
WG = Groundwater
SO = Soil
WP = Potable Water
SE = Sediment
WS = Surface Water
WQ = Field QC (AB, EB)

MAXXAM use only	Sample ID	Date Collected	Time Collected	Sample Type	Matrix	PFAS (see list of 18 analytes below)					NOTES
•	PETER-RS-011	2018/8/27	0750	N	WG	2					taken off of bladder pump - Associated w/ PETER04-MW003-GW-060
•	PETER04-MW003-GW-060	2018/8/27	0836	N	WG	2					
•	PETER04-MW005-GW-060	2018/8/27	1112	N	WG	2					
•	PETER-RS-012	2018/8/28	0805	EB	WQ	2					taken off of BP. Associate w/ PETER-T13-MW006-GW-110
•	PETER-T13-MW006-GW-110	2018/8/28	1014	N	WG	2					
•	PETER-T13-MW004-GW-075	2018/8/28	1143	N	WG	2					
•	PETER04-MW004-GW-085	2018/8/27	1253	N	WG	2					
					Total # of Containers	14					

RELINQUISHED BY:
Signature: Date/Time: 8/28/18 1930
Printed Name: Ash Willis Firm: ASC
Signature: Date/Time:
Printed Name: Firm:

RECEIVED BY:
Signature: SEE PAGE 1 Date/Time:
Printed Name: Firm:
Signature: Date/Time:
Printed Name: Firm:

Analyte List:

ANALYTE	ERPIMS PAR CODE	CAS	Contaminant	ERPIMS PAR CODE	CAS
Perfluorooctanesulfonic acid	PFOS	1763-23-1	Perfluorotetradecanoic acid	PFTEA	376-06-7
Perfluorooctanoic acid	PFOA	335-67-1	Perfluorotridecanoic acid	PFTRIA	72629-94-8
Perfluorononanoic acid	PFNA	375-95-1	Perfluoroundecanoic acid	PFUNA	2058-94-8
Perfluorohexanesulfonic acid	PFHXSA	355-46-4	6:2 Fluorotelomer sulfonate	62FTS	27619-97-2
Perfluoroheptanoic acid	PFHPA	375-85-9	8:2 Fluorotelomer sulfonate	82FTS	39108-34-4
Perfluorobutanesulfonic acid	PFBSA	375-73-5	Perfluorobutanoic acid	PFBA	375-22-4
Perfluorodecanoic acid	PFDA	335-76-2	Perfluorodecanesulfonic acid	PFDS	335-77-3
Perfluorododecanoic acid	PFDOA	307-55-1	Perfluorooctane sulfonamide	FOSA	754-91-6
Perfluorohexanoic acid	PFHXA	307-24-4	Perfluoropentanoic Acid	PFPA	2706-90-3

Prepared for: Aerostar SES LLC

Project: M2027.003 (OMAHA)
PETERSON AFB

Analytical Data Package
(Level IV)

Analysis: PFOS and PFOA in water and soil (Method 537 mod.)

Maxxam Job #: B8O0597

Maxxam Analytics International
6740 Campobello Rd.
Mississauga, Ontario, Canada
L5N 2L8
1-800-668-0639
www.maxxamanalytics.com

I hereby certify that to the best of my knowledge all analytical data presented in this report:

- Has been checked for completeness.
- Is accurate, legible and error free.
- Has been conducted in accordance with approved SOP's and that all deviations are clearly listed in the Case Narrative.
- This report has been generated in .pdf format.

Review Performed By:

Project Manager

Maxxam
A Bureau Veritas Group Company

Stephanie Pollen
2018.10.11
11:45:38
-04'00'

Maxxam Analytics International
6740 Campobello Rd.
Mississauga, Ontario, Canada
L5N 2L8
1-800-668-0639
www.maxxamanalytics.com

Glossary of Terms

- ***Detection Limit (DL)*** this can also be called ***Method Detection Limit (MDL***): The lowest concentration or amount of the target analyte that can be identified, measured, and reported with confidence that the analyte concentration is not a false positive value. (Clarification): The smallest analyte concentration that can be demonstrated to be different from zero or a blank concentration at the 99% level of confidence. At the DL, the false positive rate (Type I error) is 1%.

- ***Limit of Detection (LOD*)**: An estimate of the minimum amount of a substance that an analytical process can reliably detect. An LOD is analyte- and matrix-specific and may be laboratory-dependent. (Clarification): The smallest amount or concentration of a substance that must be present in a sample in order to be detected at a high level of confidence (99%). At the LOD, the false negative rate (Type II error) is 1%.

- ***Limits of Quantitation (LOQ)*** this can also be called ***Reporting Detection Limit (RDL)***: The minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. (Clarification): The lowest concentration that produces a quantitative result within specified limits of precision and bias. For DoD projects, the LOQ shall be set at or above the concentration of the lowest initial calibration standard.

- ***Acceptance Criteria*** are values used by the laboratory to determine that a process is in control.

- ***Accuracy*** is the degree of agreement of a measured value with the true or expected value.

- ***Calibration Standards*** are a set of solutions containing the analytes of interest at a specified concentration.

- ***Calibration Verification Standard*** consists of a calibration standard solution of intermediate concentration (mid-point initial calibration level) used to access whether the initial calibration is still valid

- ***Certified Reference Material*** is a stable homogenous material that is certified by repetitive analysis from a supplier who is certified to generate said materials.

- ***Internal Standard*** a deuterated or ^{13}C-labelled analyte that is added to a sample extract prior to instrumental analysis to compensate for injection variability.

- ***Isomer*** is a member of a group of compounds that differ from each other only in the locations of a specific number of common substituent atoms or groups of atoms on the parent compound.

- ***Method Blank*** is a laboratory control sample using reagents that are known to be free of contamination.

- ***Precision*** is the degree of agreement between the data generated from repetitive measurements under specific conditions.

- ***Quality Assurance*** is a system of activities whose purpose is to provide the producer or user of a product with the assurance that the product meets a defined standard of quality.

- ***Quality Control*** is the overall system of activities whose purpose is to control the quality of a product so that it meets the needs of the end user.

- ***RSD*** is the relative standard deviation.

- ***Blank Spike*** is a laboratory control sample that has been fortified with native analytes of interest.

- ***Window Defining Mixture*** is a solution containing only the earliest and latest eluting congeners within each homologous group of target analytes on a specified GC column.

- ***RPD*** or Relative Percent Difference. A measure used to compare duplicate sample analysis.

- ***EMPC/NDR –*** Peak detected does not meet ratio criteria and has resulted in a higher detection limit.

1.0 Project Narrative

Maxxam Analytics International
6740 Campobello Rd.
Mississauga, Ontario, Canada
L5N 2L8
1-800-668-0639
www.maxxamanalytics.com

Maxxam Job: B8O0597 – Soil Analysis

Sample Analysis

The sample was initially analyzed on QC batch 5747190 (2018/09/30).

Due to low recovery of the $^{13}C_2$-Perfluorododecanoic acid ($^{13}C_2$-PFDoA) extracted internal standard analyte in the Method Blank, the sample was re-extracted and re-analyzed for the associated native analyte Perfluorododecanoic acid (PFDoA) on QC batch 5765332 (2018/10/03).

Quantitation of PFAS

Many PFAS (e.g. PFOS) have several isomeric forms that may show up as separate or partially-merged peaks in the analytical chromatograms. These peaks will be integrated and the areas summed such that the result represents the concentration of the sum of the linear and branched isomers, per USEPA (2009). Instrumentation is calibrated using certified quantitative standards containing only the linear isomer for all target analytes, except Perfluorooctane sulfonate (PFOS) and Perfluorohexane sulfonate (PFHxS), which are calibrated using certified branched and linear isomer mixtures. As additional certified reference materials containing branched and linear isomers become commercially available, they will be incorporated into the analytical method.

Data Qualifiers

U – Analyte was not detected and is reported as less than the LOD or as defined by the customer. The LOD has been adjusted for any dilution or concentration of the sample.

J – The reported result is an estimated value (e.g., matrix interference was observed, or the analyte was detected at a concentration outside the calibration range).

Sin Chii Chia, B.Sc.
schia@maxxam.ca
Office 905 817 5700

Maxxam Job: B8O0597 – Water Analysis

Sample Analysis

Samples were initially pre-screened and estimated concentrations were obtained so that appropriate sample volumes could be extracted on QC batches 5738115 (2018/09/28), 5739951 (2018/09/28), 5744681 (2018/09/26), 5747222 (2018/09/28) and 5750380 (2018/09/26-27). Due to high concentrations, the following sample was analyzed using a reduced sample extraction volume:

HTH587 *PETER-MW-4-GW-029*

Detection limits were adjusted accordingly.

The following sample was observed to be turbid and discoloured:

HTH582 *PETER-T11-MW001-GW-070*

A reduced sample volume was extracted in order to prevent clogging of the solid phase extraction (SPE) cartridge. Detection limits were adjusted accordingly.

Due to failure of QC acceptance criteria on QC batch 5739951 (2018/09/28), samples were re-extracted and re-analyzed on QC batch 5759873 (2018/10/02), past the method defined hold time. Because of their chemical structures, per- and polyfluorinated alkyl substances (PFAS) are chemically and biologically stable in the environment and resist typical environmental degradation processes. This would suggest the hold time exceedance would not have a significant impact on the data quality.

Quantitation of PFAS

Many PFAS (e.g. PFOS) have several isomeric forms that may show up as separate or partially-merged peaks in the analytical chromatograms. These peaks will be integrated and the areas summed such that the result represents the concentration of the sum of the linear and branched isomers, per USEPA (2009). Instrumentation is calibrated using certified quantitative standards containing only the linear isomer for all target analytes, except Perfluorooctane sulfonate (PFOS) and Perfluorohexane sulfonate (PFHxS), which are calibrated using certified branched and linear isomer mixtures. As additional certified reference materials containing branched and linear isomers become commercially available, they will be incorporated into the analytical method.

Data Qualifiers

U – Analyte was not detected and is reported as less than the LOD or as defined by the customer. The LOD has been adjusted for any dilution or concentration of the sample.

J – The reported result is an estimated value (e.g., matrix interference was observed, or the analyte was detected at a concentration outside the calibration range).

Sin Chii Chia, B.Sc.
schia@maxxam.ca
Office 905 817 5700

PROJECT NARRATIVE

Maxxam Analytics
Client Project #: M2027.003 (OMAHA)

Client: Aerostar SES LLC
Client Project: M2027.003 (OMAHA)

I. SAMPLE RECEIPT/ANALYSIS

a) Sample Listing

Maxxam ID	Client Sample ID	Date Sampled	Date Received	Date Prepped	Date Run	Initial Calibration
PFOS and PFOA in soil by SPE/LCMS						
HTH584	PETER-WS-001	2018/09/11	2018/09/14	2018/09/24	2018/09/30	2018/09/30 & 2018/10/03
PFOS and PFOA in water by SPE/LCMS						
HTH568	PETER-RS-013	2018/09/05	2018/09/14	2018/09/18	2018/09/28	2018/09/28
HTH569	PETER-T13-MW001-GW-075	2018/09/05	2018/09/14	2018/09/18	2018/09/28	2018/09/28
HTH570	PETER-T13-MW003-GW-079	2018/09/05	2018/09/14	2018/09/18	2018/09/28	2018/09/28
HTH571	PETER-T07-MW004-GW-064	2018/09/06	2018/09/14	2018/10/01	2018/10/02	2018/10/02
HTH572	PETER-RS-014	2018/09/06	2018/09/14	2018/10/01	2018/10/02	2018/10/02
HTH573	PETER-T07-MW003-GW-069	2018/09/06	2018/09/14	2018/10/01	2018/10/02	2018/10/02
HTH574	PETER-T07-MW003-GW-969	2018/09/06	2018/09/14	2018/10/01	2018/10/02	2018/10/02
HTH575	PETER-RS-015	2018/09/07	2018/09/14	2018/10/01	2018/10/02	2018/10/02
HTH576	PETER-T04-MW006-GW-057	2018/09/07	2018/09/14	2018/10/01	2018/10/02	2018/10/02
HTH577	PETER-T05-MW001-GW-064	2018/09/07	2018/09/14	2018/10/01	2018/10/02	2018/10/02
HTH578	PETER-SB-001	2018/09/08	2018/09/14	2018/10/01	2018/10/02	2018/10/02
HTH579	PETER-SB-002	2018/09/08	2018/09/14	2018/10/01	2018/10/02	2018/10/02
HTH580	PETER-SB-003	2018/09/08	2018/09/14	2018/10/01	2018/10/02	2018/10/02
HTH581	PETER-RS-016	2018/09/10	2018/09/14	2018/09/21	2018/09/26	2018/09/26
HTH582	PETER-T11-MW001-GW-070	2018/09/10	2018/09/14	2018/09/21	2018/09/26	2018/09/26
HTH583	PETER-T07-MW006-GW-089	2018/09/10	2018/09/14	2018/09/21	2018/09/26	2018/09/26
HTH585	PETER-WW-001	2018/09/11	2018/09/14	2018/09/24	2018/09/29	2018/09/28
HTH586	PETER-RS-018	2018/09/11	2018/09/14	2018/09/24	2018/09/29	2018/09/28
HTH587	PETER-MW-4-GW-029	2018/09/11	2018/09/14	2018/09/24	2018/09/29	2018/09/28
HTH588	PETER-RS-019	2018/09/13	2018/09/14	2018/09/25	2018/09/26	2018/09/26-27
HTH589	PETER-T14-MW002A-GW-049	2018/09/13	2018/09/14	2018/09/25	2018/09/26	2018/09/26-27
HTH589 Dup	PETER-T14-MW002A-GW-049	2018/09/13	2018/09/14	2018/09/25	2018/09/26	2018/09/26-27
HTH590	PETER-T14-MW002A-GW-949	2018/09/13	2018/09/14	2018/09/25	2018/09/26	2018/09/26-27
HTH630	PETER-T12-MW003-GW-053	2018/09/13	2018/09/14	2018/09/25	2018/09/26	2018/09/26-27

Run Date is defined as the date of injection of the last calibration standard (12 hours or less) prior to the samples analyzed within that run sequence. Therefore the time of calibration injection that defines the run date is always within 12 hours of the time of sample injection.

b) Shipping Problems: Samples were received with cooler temperature less than 10 degrees Celsius.

c) Documentation Problems:

II. SAMPLE PREP:

No problems encountered

III. SAMPLE ANALYSIS:

See also comments within the appropriate Certificate of Analysis

a) Hold Times: Due to rework requirements, the following samples were re-analyzed past hold time:
PETER-T07-MW004-GW-064, PETER-RS-014, PETER-T07-MW003-GW-069, PETER-T07-MW003-GW-969, PETER-RS-015, PETER-T04-MW006-GW-057, PETER-T05-MW001-GW-064, PETER-SB-001, PETER-SB-002, and PETER-SB-003.

b) Instrument Calibration: all within control limits

c) Quality Control: All applicable QC meets control criteria, except where otherwise noted.

d) All analytes requiring manual intergration(s) are noted on the sample chromatograms

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for other than the conditions detailed above.

In addition, I certify, that to the best of my knowledge and belief, the data as reported are true and accurate. Release of the data contained in this data package has been authorized by the cognizant laboratory official or his/her designee, as verified by this signature.

Steph Pallin

Project Manager- Site Assessment and Remediation/ Ultra Trace

2018/10/11

Date

AerostarSES LLC

1006 Floyd Culler Court
Oak Ridge, TN 37830
865-481-7837

Chain of Custody Record/ Analysis Request Number: 205

Page 1 of 2

AIR

Project Name: Site Inspection of Aqueous Film Forming Foam Areas, Multiple Sites, United States Air Force Installations

Job No.: M2027.0003 (Omaha)

Installation: PETERSON

Aerostar Project Manager: Brian Odom, BOdom@specproenv.com (478) 397-4906
Send Data to: Jenny Vance, jvance@aerostar.net (865) 483-7904

Sampler(s): N. Willis, J. Klein

Laboratory Name/Address: Maxxam Analytics, Inc, 6740 Campobello Rd., Mississauga, Ontario, L5N2L8

Laboratory Shipping Address: Maxxam Analytics, c/o FedEx Depot, 299 Cayuga Rd., Cheektowaga, NY 14225

Please indicate "HOLD FOR PICKUP"

Contact: Melissa DiGrazia
Phone: (905) 817-5700, ext. 5784
email: MDiGrazia@maxxam.ca

ANALYSIS

Sample Types:
N = Normal
FD = Field Duplicate
AB = Ambient Blank or Field Reagent Blank
EB = Equipment Rinsate

Matrix:
WG = Groundwater
SO = Soil
WP = Potable Water
SE = Sediment
WS = Surface Water
WQ = Field QC (AB, EB)

MAXXAM use only	Sample ID	Date Collected	Time Collected	Sample Type	Matrix	PFAS (see list of 18 analytes below)						NOTES
•	PETER-RS-013	2018/09/05	0950	EB	WQ	2						taken off of Bladder Pump associated w/ PETER-T13-MW001-GW-075
•	PETER-T13-MW001-GW-075	2018/09/05	1050	N	WG	2						
•	PETER-T13-MW003-GW-079	2018/09/05	1302	N	WG	2						
•	PETER-T07-MW004-GW-064	2018/09/06	1338	N	WG	2						
•	PETER-RS-014	2018/09/06	1400	EB	WQ	2						taken off of bladder pump associated w/ PETER-T07-MW003-GW-069
•	PETER-T07-MW003-GW-069	2018/09/06	1535	N	WG	2						
•	PETER-T07-MW003-GW-969	2018/09/06	1535	FD	WG	2						
•	PETER-RS-015	2018/09/07	0930	EB	WQ	2						taken off of bladder pump associated w/ PETER-T04-MW006-GW-057
•	PETER-T04-MW006-GW-057	2018/09/07	1050	N	WG	2						
•	PETER-T05-MW001-GW-064	2018/09/07	1256	N	WG	2						
•	PETER-SB-001	2018/09/08	0825	AB	WQ	2						See J. Meshaw log book for wells
•	PETER-SB-002	2018/09/08	0835	AB	WQ	2						See J. Meshaw logbook for wells
•	PETER-SB-003	2018/09/08	0715	AB	WQ	2						see J. Meshaw logbook for wells
•	PETER-RS-016	2018/09/10	0918	EB	WQ	2						taken off of powder associated w/
•	PETER-T11-MW001-GW-070	2018/09/10	1020	N	WG	3						high turbidity
					Total # of Containers	31						

RELINQUISHED BY:
Signature: Date/Time: 9/13/18 1600
Printed Name: Ash Willis Firm: ASC

RECEIVED BY:
Signature: Date/Time: 1353 09/14
Firm: SYS.015.7

Signature: Date/Time:
Printed Name: Firm:

Date/Time:
Firm:

International Solid Sample
Heat Treat Required
High Risk material

Analyte List:

ANALYTE	ERPIMS PAR CODE
Perfluorooctanesulfonic acid	PFOS
Perfluorooctanoic acid	PFOA
Perfluorononanoic acid	PFNA
Perfluoroheptanesulfonic acid	PFHpS
Perfluoroheptanoic acid	PFHpA
Perfluorobutanesulfonic acid	PFBS
Perfluorohexanoic acid	PFHxA
Perfluorodecanoic acid	PFDA
Perfluorohexanesulfonic acid	PFHxS

14-Sep-18 13:53
Stephanie Pollen
B8O0597
J L ENV-1119, 1302

AerostarSES LLC

1006 Floyd Culler Court
Oak Ridge, TN 37830
865-481-7837

Chain of Custody Record/ Analysis Request Number: 0252

Page 2 of 2

Project Name: Site Inspection of Aqueous Film Forming Foam Areas, Multiple Sites, United States Air Force Installations

Job No.: M2027.0003 (Omaha)

Installation: PETERSON

Aerostar Project Manager: Brian Odom, BOdom@specproenv.com (478) 397-4906
Send Data to: Jenny Vance, jvance@aerostar.net (865) 483-7904

Sampler(s): A.Willis, J. Klein

Laboratory Name/Address: Maxxam Analytics, Inc, 6740 Campobello Rd., Mississauga, Ontario, L5N2L8

Laboratory Shipping Address: Maxxam Analytics, c/o FedEx Depot, 299 Cayuga Rd., Cheektowaga, NY 14225

Please indicate "HOLD FOR PICKUP"

Contact: Stephanie Pollen
Phone: (905) 817-5830
email: Spollen@maxxam.ca

ANALYSIS

Sample Types:
N = Normal
FD = Field Duplicate
AB = Ambient Blank or Field Reagent Blank
EB = Equipment Rinsate

Matrix:
WG = Groundwater
SO = Soil
WP = Potable Water
SE = Sediment
WS = Surface Water
WQ = Field QC (AB, EB)

MAXXAM use only	Sample ID	Date Collected	Time Collected	Sample Type	Matrix	PFAS (see list of 18 analytes below)						NOTES
•	PETER-T07-MW006-GW-029	2018/09/10	1254	N	WG	2						
•	PETER-WS-001	2018/09/11	0800	N	SO	1						
•	PETER-WW-001	2018/09/11	0800	N	WG	2						
•	PETER-RS-018	2018/09/11	0908	EB	WQ	2						taken off of bailer associated w/ PETER-MW-4-GW-029
•	PETER-MW-4-GW-029	2018/09/11	0915	N	WG	3						high turbidity
•	PETER-RS-019	2018/09/13	0940	EB	WQ	2						Taken off of bailer associated w/ PETER-T14-MW002-GW-
	~~PETER-T14-MW002-GW-0~~	~~2018/09/13~~	—	~~N~~	~~WG~~							
•	PETER-T14-MW002A-GW-029	2018/09/13	0950	N	WG	3						high turbidity
•	PETER-T14-MW002A-GW-929	2018/09/13	0950	FD	WG	3						high turbidity
					Total # of Containers	18						

RELINQUISHED BY:
Signature: Date/Time: 9/13/18 1600
Printed Name: Ash Willis Firm: ASL
Signature: Date/Time:
Printed Name: Firm:

RECEIVED BY:
Signature: Date/Time: 13:53 W 09/14
Printed Name: MARK MRK Firm: S.4/S.0/S.7
Signature: Date/Time:
Printed Name: Firm:

Analyte List:

ANALYTE	ERPIMS PAR CODE	CAS	Contaminant	ERPIMS PAR CODE	CAS
Perfluorooctanesulfonic acid	PFOS	1763-23-1	Perfluorotetradecanoic acid	PFTEA	376-06-7
Perfluorooctanoic acid	PFOA	335-67-1	Perfluorotridecanoic acid	PFTRIA	72629-94-8
Perfluorononanoic acid	PFNA	375-95-1	Perfluoroundecanoic acid	PFUNA	2058-94-8
Perfluorohexanesulfonic acid	PFHXSA	355-46-4	6:2 Fluorotelomer sulfonate	62FTS	27619-97-2
Perfluoroheptanoic acid	PFHPA	375-85-9	8:2 Fluorotelomer sulfonate	82FTS	39108-34-4
Perfluorobutanesulfonic acid	PFBSA	375-73-5	Perfluorobutanoic acid	PFBA	375-22-4
Perfluorodecanoic acid	PFDA	335-76-2	Perfluorodecanesulfonic acid	PFDS	335-77-3
Perfluorododecanoic acid	PFDOA	307-55-1	Perfluorooctane sulfonamide	FOSA	754-91-6
Perfluorobutanoic acid	PFBOA	307-24-4	Perfluoropentanoic Acid	PFPA	2706-90-3

Maxxam Analytics

15 of 2192

AerostarSES LLC

1006 Floyd Culler Court
Oak Ridge, TN 37830
865-481-7837

Chain of Custody Record/ Analysis Request Number: 0309

Page 1 of 1

Project Name: Site Inspection of Aqueous Film Forming Foam Areas, Multiple Sites, United States Air Force Installations

Job No.: M2027.0003 (Omaha)

Installation: Peterson

Aerostar Project Manager: Brian Odom, BOdom@specproenv.com (478) 397-4906
Send Data to: Jenny Vance, jvance@aerostar.net (865) 483-7904

Sampler(s): A. Willis, J. Klein

Laboratory Name/Address: Maxxam Analytics, Inc, 6740 Campobello Rd., Mississauga, Ontario, L5N2L8

Laboratory Shipping Address: Maxxam Analytics, c/o FedEx Depot, 299 Cayuga Rd., Cheektowaga, NY 14225

Please indicate "HOLD FOR PICKUP"

Contact: Stephanie Pollen
Phone: (905) 817-5830
email: Spollen@maxxam.ca

ANALYSIS

Sample Types:
N = Normal
FD = Field Duplicate
AB = Ambient Blank or Field Reagent Blank
EB = Equipment Rinsate

Matrix:
WG = Groundwater
SO = Soil
WP = Potable Water
SE = Sediment
WS = Surface Water
WQ = Field QC (AB, EB)

MAXXAM use only	Sample ID	Date Collected	Time Collected	Sample Type	Matrix	PFAS (see list of 18 analytes below)						NOTES
	PETER-T12-MW006-GW-053	2018/9/13	1612	N	WG	3						high turbidity

Total # of Containers 3

14-Sep-18 13:53
Stephanie Pollen
B8O0597
J_L ENV-1119

RELINQUISHED BY:
Signature: Date/Time: 9/13/18 1800
Printed Name: Ash Willis Firm: ASL
Signature: Date/Time:
Printed Name: Firm:

RECEIVED BY:
Signature: Date/Time: 2018/09/14 13:53
Printed Name: Firm:
Signature: Date/Time:
Printed Name: Firm:

2.5/8/3.7

Analyte List:

ANALYTE	ERPIMS PAR CODE	CAS	Contaminant	ERPIMS PAR CODE	CAS
Perfluorooctanesulfonic acid	PFOS	1763-23-1	Perfluorotetradecanoic acid	PFTEA	376-06-7
Perfluorooctanoic acid	PFOA	335-67-1	Perfluorotridecanoic acid	PFTRIA	72629-94-8
Perfluorononanoic acid	PFNA	375-95-1	Perfluoroundecanoic acid	PFUNA	2058-94-8
Perfluorohexanesulfonic acid	PFHXSA	355-46-4	6:2 Fluorotelomer sulfonate	62FTS	27619-97-2
Perfluoroheptanoic acid	PFHPA	375-85-9	8:2 Fluorotelomer sulfonate	82FTS	39108-34-4
Perfluorobutanesulfonic acid	PFBSA	375-73-5	Perfluorobutanoic acid	PFBA	375-22-4
Perfluorodecanoic acid	PFDA	335-76-2	Perfluorodecanesulfonic acid	PFDS	335-77-3
Perfluorododecanoic acid	PFDOA	307-55-1	Perfluorooctane sulfonamide	FOSA	754-91-6
Perfluorohexanoic acid	PFHXA	307-24-4	Perfluoropentanoic Acid	PFPA	2706-90-3

Maxxam Analytics

16 of 2192

Validated Sample Result Forms: B8K3933

Analysis Method: EPA 537 m

Sample Name PETER02-MW001-GW-055 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HLE192 **Sample Date/Time:** 2018-08-09 14:55 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.015	0.0066	0.015	0.020	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	0.011	0.0054	0.015	0.020	ug/L	J	J	
PERFLUOROBUTANOIC ACID	375-22-4	0.0083	0.0055	0.015	0.020	ug/L	J	J	
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	0.0098	0.0074	0.015	0.020	ug/L	J	J	
PERFLUOROHEXANE SULFONATE	108427-53-8	0.10	0.0056	0.015	0.020	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	0.021	0.0035	0.010	0.020	ug/L			
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	0.0093	0.0060	0.015	0.020	ug/L	J	J	
PERFLUOROOCTANOIC ACID	335-67-1	0.057	0.0033	0.010	0.020	ug/L			
PERFLUOROPENTANOIC ACID	2706-90-3	0.014	0.0075	0.018	0.020	ug/L	J	J	
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER02-MW001-GW-955 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HLE193 **Sample Date/Time:** 2018-08-09 14:55 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.015	0.0066	0.015	0.020	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	0.011	0.0054	0.015	0.020	ug/L	J	J	
PERFLUOROBUTANOIC ACID	375-22-4	0.0088	0.0055	0.015	0.020	ug/L	J	J	
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	0.011	0.0074	0.015	0.020	ug/L	J	J	
PERFLUOROHEXANE SULFONATE	108427-53-8	0.10	0.0056	0.015	0.020	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	0.022	0.0035	0.010	0.020	ug/L			
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	0.0071	0.0060	0.015	0.020	ug/L	J	J	
PERFLUOROOCTANOIC ACID	335-67-1	0.057	0.0033	0.010	0.020	ug/L			
PERFLUOROPENTANOIC ACID	2706-90-3	0.015	0.0075	0.018	0.020	ug/L	J	J	
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER02-MW003-GW-049 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HLE191 **Sample Date/Time:** 2018-08-09 13:35 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.015	0.0066	0.015	0.020	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	0.041	0.0054	0.015	0.020	ug/L			
PERFLUOROBUTANOIC ACID	375-22-4	0.031	0.0055	0.015	0.020	ug/L			
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	0.048	0.0074	0.015	0.020	ug/L			
PERFLUOROHEXANE SULFONATE	108427-53-8	0.72	0.0056	0.015	0.020	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	0.16	0.0035	0.010	0.020	ug/L			
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	0.047	0.0060	0.015	0.020	ug/L			
PERFLUOROOCTANOIC ACID	335-67-1	0.24	0.0033	0.010	0.020	ug/L			
PERFLUOROPENTANOIC ACID	2706-90-3	0.083	0.0075	0.018	0.020	ug/L			
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER05-MW001-GW-045 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HLE188 **Sample Date/Time:** 2018-08-09 09:05 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	0.18	0.0066	0.015	0.020	ug/L			
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	1.3	0.054	0.15	0.20	ug/L			
PERFLUOROBUTANOIC ACID	375-22-4	0.36	0.0055	0.015	0.020	ug/L			
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	0.20	0.0074	0.015	0.020	ug/L			
PERFLUOROHEXANE SULFONATE	108427-53-8	3.8	0.056	0.15	0.20	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	2.1	0.035	0.10	0.20	ug/L			
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	1.6	0.060	0.15	0.20	ug/L			
PERFLUOROOCTANOIC ACID	335-67-1	0.16	0.0033	0.010	0.020	ug/L			
PERFLUOROPENTANOIC ACID	2706-90-3	0.63	0.0075	0.018	0.020	ug/L			
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-MW1-1-GW-040 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HLE178 **Sample Date/Time:** 2018-08-08 09:32 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.015	0.0066	0.015	0.020	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	0.014	0.0054	0.015	0.020	ug/L	J	J	
PERFLUOROBUTANOIC ACID	375-22-4	0.018	0.0055	0.015	0.020	ug/L	J	J	
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	0.011	0.0074	0.015	0.020	ug/L	J	J	
PERFLUOROHEXANE SULFONATE	108427-53-8	0.032	0.0056	0.015	0.020	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	0.030	0.0035	0.010	0.020	ug/L			
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	0.040	0.0060	0.015	0.020	ug/L			
PERFLUOROOCTANOIC ACID	335-67-1	0.011	0.0033	0.010	0.020	ug/L	J	J	
PERFLUOROPENTANOIC ACID	2706-90-3	0.028	0.0075	0.018	0.020	ug/L			
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-MW1-2-GW-045 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HLE189 **Sample Date/Time:** 2018-08-09 10:52 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	4.6	0.066	0.15	0.20	ug/L			
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.15	0.066	0.15	0.20	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	8.4	0.054	0.15	0.20	ug/L			
PERFLUOROBUTANOIC ACID	375-22-4	3.8	0.055	0.15	0.20	ug/L			
PERFLUORODECANE SULFONATE	335-77-3	<0.15	0.060	0.15	0.20	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.15	0.061	0.15	0.20	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.10	0.050	0.10	0.20	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	1.7	0.074	0.15	0.20	ug/L			
PERFLUOROHEXANE SULFONATE	108427-53-8	21	0.56	1.5	2.0	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	20	0.35	1.0	2.0	ug/L			
PERFLUORONONANOIC ACID	375-95-1	<0.18	0.087	0.18	0.20	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.10	0.034	0.10	0.20	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	12	0.60	1.5	2.0	ug/L			
PERFLUOROOCTANOIC ACID	335-67-1	2.3	0.033	0.10	0.20	ug/L			
PERFLUOROPENTANOIC ACID	2706-90-3	5.5	0.075	0.18	0.20	ug/L			
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.10	0.027	0.10	0.20	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.10	0.038	0.10	0.20	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.10	0.025	0.10	0.20	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-MW1-3-GW-052 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HLE177 **Sample Date/Time:** 2018-08-08 07:30 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	0.023	0.0066	0.015	0.020	ug/L			
8:2 FLUOROTELOMER SULFONATE	39108-34-4	0.020	0.0066	0.015	0.020	ug/L	J	J	
PERFLUOROBUTANE SULFONATE	29420-43-3	<0.015	0.0054	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANOIC ACID	375-22-4	<0.015	0.0055	0.015	0.020	ug/L	U	U	
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	0.017	0.0061	0.015	0.020	ug/L	J	J	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	<0.015	0.0074	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANE SULFONATE	108427-53-8	0.022	0.0056	0.015	0.020	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	0.015	0.0035	0.010	0.020	ug/L	J	J	
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	0.011	0.0034	0.010	0.020	ug/L	J	J	
PERFLUOROOCTANE SULFONATE	1763-23-1	0.12	0.0060	0.015	0.020	ug/L			
PERFLUOROOCTANOIC ACID	335-67-1	0.014	0.0033	0.010	0.020	ug/L	J	J	
PERFLUOROPENTANOIC ACID	2706-90-3	0.0089	0.0075	0.018	0.020	ug/L	J	J	
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	0.0028	0.0025	0.010	0.020	ug/L	J	J	

Analysis Method: EPA 537 m

Sample Name PETER-MW1-5A-GW-054 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HLE176 **Sample Date/Time:** 2018-08-08 07:15 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.015	0.0066	0.015	0.020	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	0.0093	0.0054	0.015	0.020	ug/L	J	J	
PERFLUOROBUTANOIC ACID	375-22-4	<0.015	0.0055	0.015	0.020	ug/L	U	U	
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	<0.015	0.0074	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANE SULFONATE	108427-53-8	0.019	0.0056	0.015	0.020	ug/L	J	J	
PERFLUOROHEXANOIC ACID	307-24-4	0.024	0.0035	0.010	0.020	ug/L			
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	0.0070	0.0060	0.015	0.020	ug/L	J	J	
PERFLUOROOCTANOIC ACID	335-67-1	0.013	0.0033	0.010	0.020	ug/L	J	J	
PERFLUOROPENTANOIC ACID	2706-90-3	0.017	0.0075	0.018	0.020	ug/L	J	J	
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-MW1-6-GW-025 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HLE181 **Sample Date/Time:** 2018-08-08 12:54 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	2.3	0.66	1.5	2.0	ug/L			
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<1.5	0.66	1.5	2.0	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	9.9	0.54	1.5	2.0	ug/L			
PERFLUOROBUTANOIC ACID	375-22-4	3.8	0.55	1.5	2.0	ug/L			
PERFLUORODECANE SULFONATE	335-77-3	<1.5	0.60	1.5	2.0	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<1.5	0.61	1.5	2.0	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<1.0	0.50	1.0	2.0	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	1.4	0.74	1.5	2.0	ug/L	J	J	
PERFLUOROHEXANE SULFONATE	108427-53-8	30	0.56	1.5	2.0	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	17	0.35	1.0	2.0	ug/L			
PERFLUORONONANOIC ACID	375-95-1	<1.8	0.87	1.8	2.0	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<1.0	0.34	1.0	2.0	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	78	0.60	1.5	2.0	ug/L			
PERFLUOROOCTANOIC ACID	335-67-1	2.8	0.33	1.0	2.0	ug/L			
PERFLUOROPENTANOIC ACID	2706-90-3	5.2	0.75	1.8	2.0	ug/L			
PERFLUOROTETRADECANOIC ACID	376-06-7	<1.0	0.27	1.0	2.0	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<1.0	0.38	1.0	2.0	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<1.0	0.25	1.0	2.0	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-MW1-6-GW-025LR **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HLE181LR **Sample Date/Time:** 2018-08-08 12:54 **Validation Level:**

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	2.4	0.66		2.0	ug/L			
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<	0.66	1.5000	2.0	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	9.6	0.54		2.0	ug/L			
PERFLUOROBUTANOIC ACID	375-22-4	3.8	0.55		2.0	ug/L			
PERFLUORODECANE SULFONATE	335-77-3	<	0.60	1.5000	2.0	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<	0.61	1.5000	2.0	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<	0.50	1.0000	2.0	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	1.4	0.74		2.0	ug/L	J	J	
PERFLUOROHEXANE SULFONATE	108427-53-8	30	0.56		2.0	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	17	0.35		2.0	ug/L			
PERFLUORONONANOIC ACID	375-95-1	<	0.87	1.8000	2.0	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<	0.34	1.0000	2.0	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	75	0.60		2.0	ug/L			
PERFLUOROOCTANOIC ACID	335-67-1	2.9	0.33		2.0	ug/L			
PERFLUOROPENTANOIC ACID	2706-90-3	5.1	0.75		2.0	ug/L			
PERFLUOROTETRADECANOIC ACID	376-06-7	<	0.27	1.0000	2.0	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<	0.38	1.0000	2.0	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<	0.25	1.0000	2.0	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-MW1-7-GW-032 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HLE190 **Sample Date/Time:** 2018-08-09 12:46 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	4.3	0.66	1.5	2.0	ug/L			
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<1.5	0.66	1.5	2.0	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	12	0.54	1.5	2.0	ug/L			
PERFLUOROBUTANOIC ACID	375-22-4	4.6	0.55	1.5	2.0	ug/L			
PERFLUORODECANE SULFONATE	335-77-3	<1.5	0.60	1.5	2.0	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<1.5	0.61	1.5	2.0	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<1.0	0.50	1.0	2.0	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	2.1	0.74	1.5	2.0	ug/L			
PERFLUOROHEXANE SULFONATE	108427-53-8	36	0.56	1.5	2.0	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	20	0.35	1.0	2.0	ug/L			
PERFLUORONONANOIC ACID	375-95-1	<1.8	0.87	1.8	2.0	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<1.0	0.34	1.0	2.0	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	170	3.3	7.0	8.0	ug/L			
PERFLUOROOCTANOIC ACID	335-67-1	4.0	0.33	1.0	2.0	ug/L			
PERFLUOROPENTANOIC ACID	2706-90-3	6.3	0.75	1.8	2.0	ug/L			
PERFLUOROTETRADECANOIC ACID	376-06-7	<1.0	0.27	1.0	2.0	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<1.0	0.38	1.0	2.0	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<1.0	0.25	1.0	2.0	ug/L	U	U	

Sample Name PETER-MW1-7-GW-032LR **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HLE190LR **Sample Date/Time:** 2018-08-09 12:46 **Validation Level:**

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
PERFLUOROOCTANE SULFONATE	1763-23-1	170	3.3		8.0	ug/L			

Analysis Method: EPA 537 m

Sample Name PETER-MW1-8-GW-043 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HLE186 **Sample Date/Time:** 2018-08-09 07:55 **Validation Level:** Stage 4

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	0.028	0.0066	0.015	0.020	ug/L			
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	0.64	0.0054	0.015	0.020	ug/L			
PERFLUOROBUTANOIC ACID	375-22-4	0.30	0.0055	0.015	0.020	ug/L			
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	0.20	0.0074	0.015	0.020	ug/L			
PERFLUOROHEXANE SULFONATE	108427-53-8	2.2	0.056	0.15	0.20	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	1.2	0.035	0.10	0.20	ug/L			
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	0.22	0.0060	0.015	0.020	ug/L			
PERFLUOROOCTANOIC ACID	335-67-1	0.14	0.0033	0.010	0.020	ug/L			
PERFLUOROPENTANOIC ACID	2706-90-3	0.70	0.0075	0.018	0.020	ug/L			
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-MW1-8-GW-943 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HLE187 **Sample Date/Time:** 2018-08-09 07:55 **Validation Level:** Stage 4

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	0.024	0.0066	0.015	0.020	ug/L			
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	0.61	0.0054	0.015	0.020	ug/L			
PERFLUOROBUTANOIC ACID	375-22-4	0.31	0.0055	0.015	0.020	ug/L			
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	0.21	0.0074	0.015	0.020	ug/L			
PERFLUOROHEXANE SULFONATE	108427-53-8	2.3	0.056	0.15	0.20	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	1.3	0.035	0.10	0.20	ug/L			
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	0.24	0.0060	0.015	0.020	ug/L			
PERFLUOROOCTANOIC ACID	335-67-1	0.14	0.0033	0.010	0.020	ug/L			
PERFLUOROPENTANOIC ACID	2706-90-3	0.70	0.0075	0.018	0.020	ug/L			
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-MW2-2-GW-045 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HLE194 **Sample Date/Time:** 2018-08-09 16:30 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.015	0.0066	0.015	0.020	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	0.014	0.0054	0.015	0.020	ug/L	J	J	
PERFLUOROBUTANOIC ACID	375-22-4	<0.015	0.0055	0.015	0.020	ug/L	U	U	
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	<0.015	0.0074	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANE SULFONATE	108427-53-8	0.022	0.0056	0.015	0.020	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	0.011	0.0035	0.010	0.020	ug/L	J	J	
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUOROOCTANOIC ACID	335-67-1	<0.010	0.0033	0.010	0.020	ug/L	U	U	
PERFLUOROPENTANOIC ACID	2706-90-3	0.0080	0.0075	0.018	0.020	ug/L	J	J	
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-MW-2-GW-23.5 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HLE180 **Sample Date/Time:** 2018-08-08 10:40 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	8.3	0.66	1.5	2.0	ug/L			
8:2 FLUOROTELOMER SULFONATE	39108-34-4	5.0	0.66	1.5	2.0	ug/L			
PERFLUOROBUTANE SULFONATE	29420-43-3	60	0.54	1.5	2.0	ug/L			
PERFLUOROBUTANOIC ACID	375-22-4	21	0.55	1.5	2.0	ug/L			
PERFLUORODECANE SULFONATE	335-77-3	0.92	0.60	1.5	2.0	ug/L	J	J	
PERFLUORODECANOIC ACID	335-76-2	1.5	0.61	1.5	2.0	ug/L	J	J	
PERFLUORODODECANOIC ACID	307-55-1	0.74	0.50	1.0	2.0	ug/L	J	J	
PERFLUOROHEPTANOIC ACID	375-85-9	9.8	0.74	1.5	2.0	ug/L			
PERFLUOROHEXANE SULFONATE	108427-53-8	130	2.6	6.0	8.0	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	140	2.7	6.0	8.0	ug/L			
PERFLUORONONANOIC ACID	375-95-1	1.3	0.87	1.8	2.0	ug/L	J	J	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	0.96	0.34	1.0	2.0	ug/L	J	J	
PERFLUOROOCTANE SULFONATE	1763-23-1	120	3.3	7.0	8.0	ug/L			
PERFLUOROOCTANOIC ACID	335-67-1	11	0.33	1.0	2.0	ug/L			
PERFLUOROPENTANOIC ACID	2706-90-3	27	0.75	1.8	2.0	ug/L			
PERFLUOROTETRADECANOIC ACID	376-06-7	<1.0	0.27	1.0	2.0	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<1.0	0.38	1.0	2.0	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	0.97	0.25	1.0	2.0	ug/L	J	J	

Sample Name PETER-MW-2-GW-23.5LR **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HLE180LR **Sample Date/Time:** 2018-08-08 10:40 **Validation Level:**

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
PERFLUOROHEXANE SULFONATE	108427-53-8	150	2.6		8.0	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	140	2.7		8.0	ug/L			
PERFLUOROOCTANE SULFONATE	1763-23-1	120	3.3		8.0	ug/L			

Analysis Method: EPA 537 m

Sample Name PETER-MW-3-GW-028 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HLE179 **Sample Date/Time:** 2018-08-08 10:25 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	6.3	0.066	0.15	0.20	ug/L			
8:2 FLUOROTELOMER SULFONATE	39108-34-4	0.19	0.033	0.075	0.10	ug/L			
PERFLUOROBUTANE SULFONATE	29420-43-3	8.6	0.054	0.15	0.20	ug/L			
PERFLUOROBUTANOIC ACID	375-22-4	4.3	0.028	0.075	0.10	ug/L			
PERFLUORODECANE SULFONATE	335-77-3	<0.075	0.030	0.075	0.10	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.075	0.031	0.075	0.10	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.050	0.025	0.050	0.10	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	2.0	0.037	0.075	0.10	ug/L			
PERFLUOROHEXANE SULFONATE	108427-53-8	29	0.28	0.75	1.0	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	27	0.18	0.50	1.0	ug/L			
PERFLUORONONANOIC ACID	375-95-1	0.13	0.044	0.090	0.10	ug/L			
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.050	0.017	0.050	0.10	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	30	0.30	0.75	1.0	ug/L			
PERFLUOROOCTANOIC ACID	335-67-1	2.8	0.017	0.050	0.10	ug/L			
PERFLUOROPENTANOIC ACID	2706-90-3	6.4	0.075	0.18	0.20	ug/L			
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.050	0.014	0.050	0.10	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.050	0.019	0.050	0.10	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	0.017	0.013	0.050	0.10	ug/L	J	J	

Analysis Method: EPA 537 m

Sample Name PETER-PAFB07MW01-GW-078 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HLE183 **Sample Date/Time:** 2018-08-08 15:15 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.015	0.0066	0.015	0.020	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	0.069	0.0054	0.015	0.020	ug/L			
PERFLUOROBUTANOIC ACID	375-22-4	0.16	0.0055	0.015	0.020	ug/L			
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	0.038	0.0074	0.015	0.020	ug/L			
PERFLUOROHEXANE SULFONATE	108427-53-8	0.092	0.0056	0.015	0.020	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	0.13	0.0035	0.010	0.020	ug/L			
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUOROOCTANOIC ACID	335-67-1	0.026	0.0033	0.010	0.020	ug/L			
PERFLUOROPENTANOIC ACID	2706-90-3	0.45	0.0075	0.018	0.020	ug/L			
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-PAFB07MW01-GW-978 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HLE184 **Sample Date/Time:** 2018-08-08 15:15 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	0.0073	0.0066	0.015	0.020	ug/L	J	J	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	0.076	0.0054	0.015	0.020	ug/L			
PERFLUOROBUTANOIC ACID	375-22-4	0.14	0.0055	0.015	0.020	ug/L			
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	0.037	0.0074	0.015	0.020	ug/L			
PERFLUOROHEXANE SULFONATE	108427-53-8	0.076	0.0056	0.015	0.020	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	0.13	0.0035	0.010	0.020	ug/L			
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUOROOCTANOIC ACID	335-67-1	0.024	0.0033	0.010	0.020	ug/L			
PERFLUOROPENTANOIC ACID	2706-90-3	0.44	0.0075	0.018	0.020	ug/L			
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-PAFB07MW02-GW-086 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HLE182 **Sample Date/Time:** 2018-08-08 15:00 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.015	0.0066	0.015	0.020	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	0.045	0.0054	0.015	0.020	ug/L			
PERFLUOROBUTANOIC ACID	375-22-4	0.030	0.0055	0.015	0.020	ug/L			
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	0.047	0.0074	0.015	0.020	ug/L			
PERFLUOROHEXANE SULFONATE	108427-53-8	0.068	0.0056	0.015	0.020	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	0.12	0.0035	0.010	0.020	ug/L			
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUOROOCTANOIC ACID	335-67-1	0.018	0.0033	0.010	0.020	ug/L	J	J	
PERFLUOROPENTANOIC ACID	2706-90-3	0.061	0.0075	0.018	0.020	ug/L			
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-RS-001 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HLE175 **Sample Date/Time:** 2018-08-08 07:08 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.015	0.0066	0.015	0.020	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	<0.015	0.0054	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANOIC ACID	375-22-4	<0.015	0.0055	0.015	0.020	ug/L	U	U	
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	<0.015	0.0074	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANE SULFONATE	108427-53-8	<0.015	0.0056	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANOIC ACID	307-24-4	<0.010	0.0035	0.010	0.020	ug/L	U	U	
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUOROOCTANOIC ACID	335-67-1	<0.010	0.0033	0.010	0.020	ug/L	U	U	
PERFLUOROPENTANOIC ACID	2706-90-3	<0.018	0.0075	0.018	0.020	ug/L	U	U	
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-RS-002 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HLE185 **Sample Date/Time:** 2018-08-09 07:20 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.015	0.0066	0.015	0.020	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	<0.015	0.0054	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANOIC ACID	375-22-4	<0.015	0.0055	0.015	0.020	ug/L	U	U	
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	<0.015	0.0074	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANE SULFONATE	108427-53-8	<0.015	0.0056	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANOIC ACID	307-24-4	<0.010	0.0035	0.010	0.020	ug/L	U	U	
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUOROOCTANOIC ACID	335-67-1	<0.010	0.0033	0.010	0.020	ug/L	U	U	
PERFLUOROPENTANOIC ACID	2706-90-3	<0.018	0.0075	0.018	0.020	ug/L	U	U	
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Validated Sample Result Forms: B8L4817

Analysis Method: EPA 537 m

Sample Name PETER01-MW001-GW-089 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HNM447 **Sample Date/Time:** 2018-08-20 12:05 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.030	0.013	0.030	0.040	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.030	0.013	0.030	0.040	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	3.4	0.11	0.30	0.40	ug/L			
PERFLUOROBUTANOIC ACID	375-22-4	4.6	0.11	0.30	0.40	ug/L			
PERFLUORODECANE SULFONATE	335-77-3	<0.030	0.012	0.030	0.040	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.030	0.012	0.030	0.040	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.020	0.010	0.020	0.040	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	<0.030	0.015	0.030	0.040	ug/L	U	U	
PERFLUOROHEXANE SULFONATE	108427-53-8	<0.030	0.011	0.030	0.040	ug/L	U	U	
PERFLUOROHEXANOIC ACID	307-24-4	1.4	0.0070	0.020	0.040	ug/L			
PERFLUORONONANOIC ACID	375-95-1	<0.036	0.017	0.036	0.040	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.020	0.0068	0.020	0.040	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	<0.030	0.012	0.030	0.040	ug/L	U	U	
PERFLUOROOCTANOIC ACID	335-67-1	<0.020	0.0066	0.020	0.040	ug/L	U	U	
PERFLUOROPENTANOIC ACID	2706-90-3	5.0	0.15	0.36	0.40	ug/L			
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.020	0.0054	0.020	0.040	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.020	0.0076	0.020	0.040	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.020	0.0050	0.020	0.040	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER01-MW002-GW-098 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HNM449 **Sample Date/Time:** 2018-08-20 15:42 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.015	0.0066	0.015	0.020	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	0.040	0.0054	0.015	0.020	ug/L			
PERFLUOROBUTANOIC ACID	375-22-4	0.030	0.0055	0.015	0.020	ug/L			
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	<0.015	0.0074	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANE SULFONATE	108427-53-8	<0.015	0.0056	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANOIC ACID	307-24-4	0.059	0.0035	0.010	0.020	ug/L			
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUOROOCTANOIC ACID	335-67-1	<0.010	0.0033	0.010	0.020	ug/L	U	U	
PERFLUOROPENTANOIC ACID	2706-90-3	0.10	0.0075	0.018	0.020	ug/L			
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER01-MW003-GW-082 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HNM448 **Sample Date/Time:** 2018-08-20 15:00 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.015	0.0066	0.015	0.020	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	0.0093	0.0054	0.015	0.020	ug/L	J	J	
PERFLUOROBUTANOIC ACID	375-22-4	0.013	0.0055	0.015	0.020	ug/L	J	J	
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	<0.015	0.0074	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANE SULFONATE	108427-53-8	0.016	0.0056	0.015	0.020	ug/L	J	J	
PERFLUOROHEXANOIC ACID	307-24-4	0.055	0.0035	0.010	0.020	ug/L			
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUOROOCTANOIC ACID	335-67-1	<0.010	0.0033	0.010	0.020	ug/L	U	U	
PERFLUOROPENTANOIC ACID	2706-90-3	0.016	0.0075	0.018	0.020	ug/L	J	J	
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER03-MW001-GW-068 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HNM434 **Sample Date/Time:** 2018-08-17 12:34 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.015	0.0066	0.015	0.020	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	<0.015	0.0054	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANOIC ACID	375-22-4	<0.015	0.0055	0.015	0.020	ug/L	U	U	
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	<0.015	0.0074	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANE SULFONATE	108427-53-8	<0.015	0.0056	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANOIC ACID	307-24-4	0.014	0.0035	0.010	0.020	ug/L	J	J	
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUOROOCTANOIC ACID	335-67-1	0.014	0.0033	0.010	0.020	ug/L	J	J	
PERFLUOROPENTANOIC ACID	2706-90-3	0.012	0.0075	0.018	0.020	ug/L	J	J	
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER03-MW002-GW-071 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HNM428 **Sample Date/Time:** 2018-08-16 15:50 **Validation Level:** Stage 4

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.015	0.0066	0.015	0.020	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	0.13	0.0054	0.015	0.020	ug/L			
PERFLUOROBUTANOIC ACID	375-22-4	0.023	0.0055	0.015	0.020	ug/L			
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	0.019	0.0074	0.015	0.020	ug/L	J	J	
PERFLUOROHEXANE SULFONATE	108427-53-8	0.15	0.0056	0.015	0.020	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	0.089	0.0035	0.010	0.020	ug/L			
PERFLUORONONANOIC ACID	375-95-1	0.010	0.0087	0.018	0.020	ug/L	J	J	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	0.013	0.0060	0.015	0.020	ug/L	J	J	
PERFLUOROOCTANOIC ACID	335-67-1	0.079	0.0033	0.010	0.020	ug/L			
PERFLUOROPENTANOIC ACID	2706-90-3	0.059	0.0075	0.018	0.020	ug/L			
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER03-MW003-GW-073 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HNM429 **Sample Date/Time:** 2018-08-16 17:08 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.015	0.0066	0.015	0.020	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	0.17	0.0054	0.015	0.020	ug/L			
PERFLUOROBUTANOIC ACID	375-22-4	0.045	0.0055	0.015	0.020	ug/L			
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	0.015	0.0074	0.015	0.020	ug/L	J	J	
PERFLUOROHEXANE SULFONATE	108427-53-8	<0.015	0.0056	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANOIC ACID	307-24-4	0.13	0.0035	0.010	0.020	ug/L			
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	0.018	0.0060	0.015	0.020	ug/L	J	J	
PERFLUOROOCTANOIC ACID	335-67-1	0.019	0.0033	0.010	0.020	ug/L	J	J	
PERFLUOROPENTANOIC ACID	2706-90-3	0.073	0.0075	0.018	0.020	ug/L			
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER04-MW001-GW-060 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HNM438 **Sample Date/Time:** 2018-08-18 12:05 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.015	0.0066	0.015	0.020	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	0.044	0.0054	0.015	0.020	ug/L			
PERFLUOROBUTANOIC ACID	375-22-4	0.011	0.0055	0.015	0.020	ug/L	J	J	
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	<0.015	0.0074	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANE SULFONATE	108427-53-8	<0.015	0.0056	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANOIC ACID	307-24-4	0.20	0.0035	0.010	0.020	ug/L			
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUOROOCTANOIC ACID	335-67-1	0.0087	0.0033	0.010	0.020	ug/L	J	J	
PERFLUOROPENTANOIC ACID	2706-90-3	0.017	0.0075	0.018	0.020	ug/L	J	J	
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER04-MW002-GW-049 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HNM437 **Sample Date/Time:** 2018-08-18 09:18 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.015	0.0066	0.015	0.020	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	0.18	0.0054	0.015	0.020	ug/L			
PERFLUOROBUTANOIC ACID	375-22-4	0.026	0.0055	0.015	0.020	ug/L			
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	0.19	0.0074	0.015	0.020	ug/L			
PERFLUOROHEXANE SULFONATE	108427-53-8	1.5	0.056	0.15	0.20	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	0.62	0.0035	0.010	0.020	ug/L			
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUOROOCTANOIC ACID	335-67-1	0.028	0.0033	0.010	0.020	ug/L			
PERFLUOROPENTANOIC ACID	2706-90-3	0.043	0.0075	0.018	0.020	ug/L			
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-DE-ICINGPOND5-GW-090 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HNM440 **Sample Date/Time:** 2018-08-18 17:05 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	0.019	0.0066	0.015	0.020	ug/L	J	J	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	0.045	0.0066	0.015	0.020	ug/L			
PERFLUOROBUTANE SULFONATE	29420-43-3	0.046	0.0054	0.015	0.020	ug/L			
PERFLUOROBUTANOIC ACID	375-22-4	0.021	0.0055	0.015	0.020	ug/L			
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	0.039	0.0074	0.015	0.020	ug/L			
PERFLUOROHEXANE SULFONATE	108427-53-8	0.23	0.0056	0.015	0.020	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	0.084	0.0035	0.010	0.020	ug/L			
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	0.012	0.0034	0.010	0.020	ug/L	J	J	
PERFLUOROOCTANE SULFONATE	1763-23-1	0.58	0.0060	0.015	0.020	ug/L			
PERFLUOROOCTANOIC ACID	335-67-1	0.047	0.0033	0.010	0.020	ug/L			
PERFLUOROPENTANOIC ACID	2706-90-3	0.064	0.0075	0.018	0.020	ug/L			
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-DE-ICINGPONDN-GW-085 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HNM441 **Sample Date/Time:** 2018-08-18 17:20 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	0.018	0.0066	0.015	0.020	ug/L	J	J	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	0.026	0.0066	0.015	0.020	ug/L			
PERFLUOROBUTANE SULFONATE	29420-43-3	0.057	0.0054	0.015	0.020	ug/L			
PERFLUOROBUTANOIC ACID	375-22-4	0.025	0.0055	0.015	0.020	ug/L			
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	0.052	0.0074	0.015	0.020	ug/L			
PERFLUOROHEXANE SULFONATE	108427-53-8	0.28	0.0056	0.015	0.020	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	0.12	0.0035	0.010	0.020	ug/L			
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	0.0054	0.0034	0.010	0.020	ug/L	J	J	
PERFLUOROOCTANE SULFONATE	1763-23-1	0.53	0.0060	0.015	0.020	ug/L			
PERFLUOROOCTANOIC ACID	335-67-1	0.062	0.0033	0.010	0.020	ug/L			
PERFLUOROPENTANOIC ACID	2706-90-3	0.085	0.0075	0.018	0.020	ug/L			
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-MW4-2-GW-070 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HNM433 **Sample Date/Time:** 2018-08-17 10:15 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.015	0.0066	0.015	0.020	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	0.0092	0.0054	0.015	0.020	ug/L	J	J	
PERFLUOROBUTANOIC ACID	375-22-4	<0.015	0.0055	0.015	0.020	ug/L	U	U	
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	<0.015	0.0074	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANE SULFONATE	108427-53-8	0.038	0.0056	0.015	0.020	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	0.012	0.0035	0.010	0.020	ug/L	J	J	
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUOROOCTANOIC ACID	335-67-1	0.013	0.0033	0.010	0.020	ug/L	J	J	
PERFLUOROPENTANOIC ACID	2706-90-3	<0.018	0.0075	0.018	0.020	ug/L	U	U	
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-MW4-3-GW-069 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HNM431 **Sample Date/Time:** 2018-08-17 08:23 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.015	0.0066	0.015	0.020	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	0.025	0.0054	0.015	0.020	ug/L			
PERFLUOROBUTANOIC ACID	375-22-4	0.012	0.0055	0.015	0.020	ug/L	J	J	
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	0.010	0.0074	0.015	0.020	ug/L	J	J	
PERFLUOROHEXANE SULFONATE	108427-53-8	0.025	0.0056	0.015	0.020	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	0.034	0.0035	0.010	0.020	ug/L			
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUOROOCTANOIC ACID	335-67-1	0.0083	0.0033	0.010	0.020	ug/L	J	J	
PERFLUOROPENTANOIC ACID	2706-90-3	0.027	0.0075	0.018	0.020	ug/L			
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-MW4-4-GW-070 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HNM432 **Sample Date/Time:** 2018-08-17 09:15 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.015	0.0066	0.015	0.020	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	0.032	0.0054	0.015	0.020	ug/L			
PERFLUOROBUTANOIC ACID	375-22-4	0.021	0.0055	0.015	0.020	ug/L			
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	0.025	0.0074	0.015	0.020	ug/L			
PERFLUOROHEXANE SULFONATE	108427-53-8	0.047	0.0056	0.015	0.020	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	0.067	0.0035	0.010	0.020	ug/L			
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUOROOCTANOIC ACID	335-67-1	0.012	0.0033	0.010	0.020	ug/L	J	J	
PERFLUOROPENTANOIC ACID	2706-90-3	0.051	0.0075	0.018	0.020	ug/L			
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-PAFB07MW03-GW-090 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HNM445 **Sample Date/Time:** 2018-08-19 11:50 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.015	0.0066	0.015	0.020	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	0.15	0.0054	0.015	0.020	ug/L			
PERFLUOROBUTANOIC ACID	375-22-4	0.092	0.0055	0.015	0.020	ug/L			
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	0.067	0.0074	0.015	0.020	ug/L			
PERFLUOROHEXANE SULFONATE	108427-53-8	0.19	0.0056	0.015	0.020	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	0.38	0.0035	0.010	0.020	ug/L			
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUOROOCTANOIC ACID	335-67-1	0.046	0.0033	0.010	0.020	ug/L			
PERFLUOROPENTANOIC ACID	2706-90-3	0.29	0.0075	0.018	0.020	ug/L			
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-RS-003 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HNM426 **Sample Date/Time:** 2018-08-16 10:40 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.015	0.0066	0.015	0.020	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	<0.015	0.0054	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANOIC ACID	375-22-4	<0.015	0.0055	0.015	0.020	ug/L	U	U	
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	<0.015	0.0074	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANE SULFONATE	108427-53-8	<0.015	0.0056	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANOIC ACID	307-24-4	<0.010	0.0035	0.010	0.020	ug/L	U	U	
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUOROOCTANOIC ACID	335-67-1	<0.010	0.0033	0.010	0.020	ug/L	U	U	
PERFLUOROPENTANOIC ACID	2706-90-3	<0.018	0.0075	0.018	0.020	ug/L	U	U	
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-RS-004 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HNM430 **Sample Date/Time:** 2018-08-17 07:30 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.015	0.0066	0.015	0.020	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	<0.015	0.0054	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANOIC ACID	375-22-4	<0.015	0.0055	0.015	0.020	ug/L	U	U	
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	<0.015	0.0074	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANE SULFONATE	108427-53-8	<0.015	0.0056	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANOIC ACID	307-24-4	<0.010	0.0035	0.010	0.020	ug/L	U	U	
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUOROOCTANOIC ACID	335-67-1	<0.010	0.0033	0.010	0.020	ug/L	U	U	
PERFLUOROPENTANOIC ACID	2706-90-3	<0.018	0.0075	0.018	0.020	ug/L	U	U	
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-RS-005 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HNM436 **Sample Date/Time:** 2018-08-18 07:15 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.015	0.0066	0.015	0.020	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	<0.015	0.0054	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANOIC ACID	375-22-4	<0.015	0.0055	0.015	0.020	ug/L	U	U	
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	<0.015	0.0074	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANE SULFONATE	108427-53-8	<0.015	0.0056	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANOIC ACID	307-24-4	<0.010	0.0035	0.010	0.020	ug/L	U	U	
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUOROOCTANOIC ACID	335-67-1	<0.010	0.0033	0.010	0.020	ug/L	U	U	
PERFLUOROPENTANOIC ACID	2706-90-3	<0.018	0.0075	0.018	0.020	ug/L	U	U	
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-RS-006 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HNM442 **Sample Date/Time:** 2018-08-19 08:45 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.015	0.0066	0.015	0.020	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	<0.015	0.0054	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANOIC ACID	375-22-4	<0.015	0.0055	0.015	0.020	ug/L	U	U	
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	<0.015	0.0074	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANE SULFONATE	108427-53-8	<0.015	0.0056	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANOIC ACID	307-24-4	<0.010	0.0035	0.010	0.020	ug/L	U	U	
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUOROOCTANOIC ACID	335-67-1	<0.010	0.0033	0.010	0.020	ug/L	U	U	
PERFLUOROPENTANOIC ACID	2706-90-3	<0.018	0.0075	0.018	0.020	ug/L	U	U	
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-RS-007 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HNM446 **Sample Date/Time:** 2018-08-20 11:35 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.015	0.0066	0.015	0.020	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	<0.015	0.0054	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANOIC ACID	375-22-4	<0.015	0.0055	0.015	0.020	ug/L	U	U	
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	<0.015	0.0074	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANE SULFONATE	108427-53-8	<0.015	0.0056	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANOIC ACID	307-24-4	<0.010	0.0035	0.010	0.020	ug/L	U	U	
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUOROOCTANOIC ACID	335-67-1	<0.010	0.0033	0.010	0.020	ug/L	U	U	
PERFLUOROPENTANOIC ACID	2706-90-3	<0.018	0.0075	0.018	0.020	ug/L	U	U	
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-T01-MW004-GW-032 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HNM443 **Sample Date/Time:** 2018-08-19 09:28 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.015	0.0066	0.015	0.020	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	0.044	0.0054	0.015	0.020	ug/L			
PERFLUOROBUTANOIC ACID	375-22-4	0.019	0.0055	0.015	0.020	ug/L	J	J	
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	0.013	0.0074	0.015	0.020	ug/L	J	J	
PERFLUOROHEXANE SULFONATE	108427-53-8	0.16	0.0056	0.015	0.020	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	0.065	0.0035	0.010	0.020	ug/L			
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	0.063	0.0060	0.015	0.020	ug/L			
PERFLUOROOCTANOIC ACID	335-67-1	0.028	0.0033	0.010	0.020	ug/L			
PERFLUOROPENTANOIC ACID	2706-90-3	0.036	0.0075	0.018	0.020	ug/L			
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-T03-MW004-GW-028 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HNM444 **Sample Date/Time:** 2018-08-19 10:25 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	0.060	0.0066	0.015	0.020	ug/L			
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	0.61	0.0054	0.015	0.020	ug/L			
PERFLUOROBUTANOIC ACID	375-22-4	0.21	0.0055	0.015	0.020	ug/L			
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	0.079	0.0074	0.015	0.020	ug/L			
PERFLUOROHEXANE SULFONATE	108427-53-8	1.7	0.056	0.15	0.20	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	0.81	0.0035	0.010	0.020	ug/L			
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	0.030	0.0034	0.010	0.020	ug/L			
PERFLUOROOCTANE SULFONATE	1763-23-1	3.9	0.060	0.15	0.20	ug/L			
PERFLUOROOCTANOIC ACID	335-67-1	0.15	0.0033	0.010	0.020	ug/L			
PERFLUOROPENTANOIC ACID	2706-90-3	0.32	0.0075	0.018	0.020	ug/L			
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-T04-MW004-GW-060 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HNM427 **Sample Date/Time:** 2018-08-16 11:30 **Validation Level:** Stage 4

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	0.59	0.0066	0.015	0.020	ug/L			
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	1.3	0.054	0.15	0.20	ug/L			
PERFLUOROBUTANOIC ACID	375-22-4	0.93	0.0055	0.015	0.020	ug/L			
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	0.53	0.0074	0.015	0.020	ug/L			
PERFLUOROHEXANE SULFONATE	108427-53-8	6.4	0.056	0.15	0.20	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	4.1	0.035	0.10	0.20	ug/L			
PERFLUORONONANOIC ACID	375-95-1	0.040	0.0087	0.018	0.020	ug/L			
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	3.4	0.060	0.15	0.20	ug/L			
PERFLUOROOCTANOIC ACID	335-67-1	0.56	0.0033	0.010	0.020	ug/L			
PERFLUOROPENTANOIC ACID	2706-90-3	2.5	0.075	0.18	0.20	ug/L			
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-T05-MW005-GW-065 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HNM439 **Sample Date/Time:** 2018-08-18 16:05 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.015	0.0066	0.015	0.020	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	0.0062	0.0054	0.015	0.020	ug/L	J	J	
PERFLUOROBUTANOIC ACID	375-22-4	<0.015	0.0055	0.015	0.020	ug/L	U	U	
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	<0.015	0.0074	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANE SULFONATE	108427-53-8	0.023	0.0056	0.015	0.020	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	0.012	0.0035	0.010	0.020	ug/L	J	J	
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUOROOCTANOIC ACID	335-67-1	0.0057	0.0033	0.010	0.020	ug/L	J	J	
PERFLUOROPENTANOIC ACID	2706-90-3	0.0098	0.0075	0.018	0.020	ug/L	J	J	
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-T05-MW006-GW-060 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HNM435 **Sample Date/Time:** 2018-08-17 15:00 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	0.018	0.0066	0.015	0.020	ug/L	J	J	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	0.017	0.0054	0.015	0.020	ug/L	J	J	
PERFLUOROBUTANOIC ACID	375-22-4	0.0087	0.0055	0.015	0.020	ug/L	J	J	
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	0.013	0.0074	0.015	0.020	ug/L	J	J	
PERFLUOROHEXANE SULFONATE	108427-53-8	0.098	0.0056	0.015	0.020	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	0.037	0.0035	0.010	0.020	ug/L			
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUOROOCTANOIC ACID	335-67-1	0.18	0.0033	0.010	0.020	ug/L			
PERFLUOROPENTANOIC ACID	2706-90-3	0.024	0.0075	0.018	0.020	ug/L			
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Validated Sample Result Forms: B8M4034

Analysis Method: EPA 537 m

Sample Name PETER04-MW003-GW-060 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HPM351 **Sample Date/Time:** 2018-08-27 08:36 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.015	0.0066	0.015	0.020	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	0.28	0.0054	0.015	0.020	ug/L			
PERFLUOROBUTANOIC ACID	375-22-4	0.067	0.0055	0.015	0.020	ug/L			
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	0.052	0.0074	0.015	0.020	ug/L			
PERFLUOROHEXANE SULFONATE	108427-53-8	0.20	0.0056	0.015	0.020	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	0.93	0.0035	0.010	0.020	ug/L			
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUOROOCTANOIC ACID	335-67-1	0.019	0.0033	0.010	0.020	ug/L	J	J	
PERFLUOROPENTANOIC ACID	2706-90-3	0.18	0.0075	0.018	0.020	ug/L			
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER04-MW004-GW-085 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HPM356 **Sample Date/Time:** 2018-08-27 12:53 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.015	0.0066	0.015	0.020	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	0.0095	0.0054	0.015	0.020	ug/L	J	J	
PERFLUOROBUTANOIC ACID	375-22-4	<0.015	0.0055	0.015	0.020	ug/L	U	U	
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	<0.015	0.0074	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANE SULFONATE	108427-53-8	0.016	0.0056	0.015	0.020	ug/L	J	J	
PERFLUOROHEXANOIC ACID	307-24-4	0.013	0.0035	0.010	0.020	ug/L	J	J	
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUOROOCTANOIC ACID	335-67-1	0.0057	0.0033	0.010	0.020	ug/L	J	J	
PERFLUOROPENTANOIC ACID	2706-90-3	0.013	0.0075	0.018	0.020	ug/L	J	J	
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER04-MW005-GW-060 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HPM352 **Sample Date/Time:** 2018-08-27 11:12 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	0.0069	0.0066	0.015	0.020	ug/L	J	J	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	0.10	0.0066	0.015	0.020	ug/L			
PERFLUOROBUTANE SULFONATE	29420-43-3	0.031	0.0054	0.015	0.020	ug/L			
PERFLUOROBUTANOIC ACID	375-22-4	0.048	0.0055	0.015	0.020	ug/L			
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	0.070	0.0061	0.015	0.020	ug/L			
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	0.11	0.0074	0.015	0.020	ug/L			
PERFLUOROHEXANE SULFONATE	108427-53-8	0.21	0.0056	0.015	0.020	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	0.13	0.0035	0.010	0.020	ug/L			
PERFLUORONONANOIC ACID	375-95-1	0.043	0.0087	0.018	0.020	ug/L			
PERFLUOROOCTANE SULFONAMIDE	754-91-6	0.024	0.0034	0.010	0.020	ug/L			
PERFLUOROOCTANE SULFONATE	1763-23-1	0.55	0.0060	0.015	0.020	ug/L			
PERFLUOROOCTANOIC ACID	335-67-1	0.12	0.0033	0.010	0.020	ug/L			
PERFLUOROPENTANOIC ACID	2706-90-3	0.12	0.0075	0.018	0.020	ug/L			
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	0.0045	0.0025	0.010	0.020	ug/L	J	J	

Analysis Method: EPA 537 m

Sample Name PETER04-MW008-GW-098 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HPM342 **Sample Date/Time:** 2018-08-24 09:20 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.015	0.0066	0.015	0.020	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	0.056	0.0054	0.015	0.020	ug/L			
PERFLUOROBUTANOIC ACID	375-22-4	0.016	0.0055	0.015	0.020	ug/L	J	J	
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	0.016	0.0074	0.015	0.020	ug/L	J	J	
PERFLUOROHEXANE SULFONATE	108427-53-8	0.024	0.0056	0.015	0.020	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	0.15	0.0035	0.010	0.020	ug/L			
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUOROOCTANOIC ACID	335-67-1	0.018	0.0033	0.010	0.020	ug/L	J	J	
PERFLUOROPENTANOIC ACID	2706-90-3	0.032	0.0075	0.018	0.020	ug/L			
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER04-MW008-GW-998 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HPM343 **Sample Date/Time:** 2018-08-24 09:20 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.015	0.0066	0.015	0.020	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	0.057	0.0054	0.015	0.020	ug/L			
PERFLUOROBUTANOIC ACID	375-22-4	0.016	0.0055	0.015	0.020	ug/L	J	J	
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	0.016	0.0074	0.015	0.020	ug/L	J	J	
PERFLUOROHEXANE SULFONATE	108427-53-8	0.025	0.0056	0.015	0.020	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	0.15	0.0035	0.010	0.020	ug/L			
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUOROOCTANOIC ACID	335-67-1	0.021	0.0033	0.010	0.020	ug/L			
PERFLUOROPENTANOIC ACID	2706-90-3	0.033	0.0075	0.018	0.020	ug/L			
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER04-MW009-GW-090 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HPM344 **Sample Date/Time:** 2018-08-24 11:55 **Validation Level:** Stage 4

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.015	0.0066	0.015	0.020	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	0.028	0.0054	0.015	0.020	ug/L			
PERFLUOROBUTANOIC ACID	375-22-4	0.012	0.0055	0.015	0.020	ug/L	J	J	
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	0.0090	0.0074	0.015	0.020	ug/L	J	J	
PERFLUOROHEXANE SULFONATE	108427-53-8	0.016	0.0056	0.015	0.020	ug/L	J	J	
PERFLUOROHEXANOIC ACID	307-24-4	0.040	0.0035	0.010	0.020	ug/L			
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUOROOCTANOIC ACID	335-67-1	<0.010	0.0033	0.010	0.020	ug/L	U	U	
PERFLUOROPENTANOIC ACID	2706-90-3	0.026	0.0075	0.018	0.020	ug/L			
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-MW2-1-GW-054 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HPM337 **Sample Date/Time:** 2018-08-21 12:16 **Validation Level:** Stage 4

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.015	0.0066	0.015	0.020	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	0.0089	0.0054	0.015	0.020	ug/L	J	J	
PERFLUOROBUTANOIC ACID	375-22-4	0.0065	0.0055	0.015	0.020	ug/L	J	J	
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	0.0082	0.0074	0.015	0.020	ug/L	J	J	
PERFLUOROHEXANE SULFONATE	108427-53-8	0.026	0.0056	0.015	0.020	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	0.011	0.0035	0.010	0.020	ug/L	J	J	
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	0.048	0.0060	0.015	0.020	ug/L			
PERFLUOROOCTANOIC ACID	335-67-1	<0.010	0.0033	0.010	0.020	ug/L	U	U	
PERFLUOROPENTANOIC ACID	2706-90-3	0.010	0.0075	0.018	0.020	ug/L	J	J	
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-MW2-3-GW-045 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HPM336 **Sample Date/Time:** 2018-08-21 11:20 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	0.013	0.0066	0.015	0.020	ug/L	J	J	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	0.0099	0.0054	0.015	0.020	ug/L	J	J	
PERFLUOROBUTANOIC ACID	375-22-4	0.0097	0.0055	0.015	0.020	ug/L	J	J	
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	0.015	0.0074	0.015	0.020	ug/L	J	J	
PERFLUOROHEXANE SULFONATE	108427-53-8	0.048	0.0056	0.015	0.020	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	0.021	0.0035	0.010	0.020	ug/L			
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	0.075	0.0060	0.015	0.020	ug/L			
PERFLUOROOCTANOIC ACID	335-67-1	0.010	0.0033	0.010	0.020	ug/L	J	J	
PERFLUOROPENTANOIC ACID	2706-90-3	0.019	0.0075	0.018	0.020	ug/L	J	J	
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-MW2-4-GW-048 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HPM335 **Sample Date/Time:** 2018-08-21 09:30 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.015	0.0066	0.015	0.020	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	0.010	0.0066	0.015	0.020	ug/L	J	J	
PERFLUOROBUTANE SULFONATE	29420-43-3	<0.015	0.0054	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANOIC ACID	375-22-4	<0.015	0.0055	0.015	0.020	ug/L	U	U	
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	<0.015	0.0074	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANE SULFONATE	108427-53-8	0.021	0.0056	0.015	0.020	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	0.0070	0.0035	0.010	0.020	ug/L	J	J	
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	0.27	0.0060	0.015	0.020	ug/L			
PERFLUOROOCTANOIC ACID	335-67-1	<0.010	0.0033	0.010	0.020	ug/L	U	U	
PERFLUOROPENTANOIC ACID	2706-90-3	<0.018	0.0075	0.018	0.020	ug/L	U	U	
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-MW2-5-GW-060 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HPM339 **Sample Date/Time:** 2018-08-21 15:52 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.015	0.0066	0.015	0.020	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	0.021	0.0054	0.015	0.020	ug/L			
PERFLUOROBUTANOIC ACID	375-22-4	0.013	0.0055	0.015	0.020	ug/L	J	J	
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	0.013	0.0074	0.015	0.020	ug/L	J	J	
PERFLUOROHEXANE SULFONATE	108427-53-8	0.057	0.0056	0.015	0.020	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	0.035	0.0035	0.010	0.020	ug/L			
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUOROOCTANOIC ACID	335-67-1	0.010	0.0033	0.010	0.020	ug/L	J	J	
PERFLUOROPENTANOIC ACID	2706-90-3	0.036	0.0075	0.018	0.020	ug/L			
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-MW4-1-GW-068 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HPM340 **Sample Date/Time:** 2018-08-21 17:05 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.015	0.0066	0.015	0.020	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	0.028	0.0054	0.015	0.020	ug/L			
PERFLUOROBUTANOIC ACID	375-22-4	0.016	0.0055	0.015	0.020	ug/L	J	J	
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	0.019	0.0074	0.015	0.020	ug/L	J	J	
PERFLUOROHEXANE SULFONATE	108427-53-8	0.060	0.0056	0.015	0.020	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	0.045	0.0035	0.010	0.020	ug/L			
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	0.0084	0.0060	0.015	0.020	ug/L	J	J	
PERFLUOROOCTANOIC ACID	335-67-1	0.0096	0.0033	0.010	0.020	ug/L	J	J	
PERFLUOROPENTANOIC ACID	2706-90-3	0.045	0.0075	0.018	0.020	ug/L			
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-RS-008 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HPM338 **Sample Date/Time:** 2018-08-21 08:10 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.015	0.0066	0.015	0.020	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	<0.015	0.0054	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANOIC ACID	375-22-4	<0.015	0.0055	0.015	0.020	ug/L	U	U	
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	<0.015	0.0074	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANE SULFONATE	108427-53-8	<0.015	0.0056	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANOIC ACID	307-24-4	<0.010	0.0035	0.010	0.020	ug/L	U	U	
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUOROOCTANOIC ACID	335-67-1	<0.010	0.0033	0.010	0.020	ug/L	U	U	
PERFLUOROPENTANOIC ACID	2706-90-3	<0.018	0.0075	0.018	0.020	ug/L	U	U	
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-RS-009 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HPM341 **Sample Date/Time:** 2018-08-24 07:00 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.015	0.0066	0.015	0.020	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	<0.015	0.0054	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANOIC ACID	375-22-4	<0.015	0.0055	0.015	0.020	ug/L	U	U	
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	<0.015	0.0074	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANE SULFONATE	108427-53-8	<0.015	0.0056	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANOIC ACID	307-24-4	<0.010	0.0035	0.010	0.020	ug/L	U	U	
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUOROOCTANOIC ACID	335-67-1	<0.010	0.0033	0.010	0.020	ug/L	U	U	
PERFLUOROPENTANOIC ACID	2706-90-3	<0.018	0.0075	0.018	0.020	ug/L	U	U	
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-RS-010 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HPM348 **Sample Date/Time:** 2018-08-26 07:35 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.015	0.0066	0.015	0.020	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	<0.015	0.0054	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANOIC ACID	375-22-4	<0.015	0.0055	0.015	0.020	ug/L	U	U	
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	<0.015	0.0074	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANE SULFONATE	108427-53-8	<0.015	0.0056	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANOIC ACID	307-24-4	<0.010	0.0035	0.010	0.020	ug/L	U	U	
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUOROOCTANOIC ACID	335-67-1	<0.010	0.0033	0.010	0.020	ug/L	U	U	
PERFLUOROPENTANOIC ACID	2706-90-3	<0.018	0.0075	0.018	0.020	ug/L	U	U	
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-RS-011 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HPM350 **Sample Date/Time:** 2018-08-27 07:50 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.015	0.0066	0.015	0.020	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	<0.015	0.0054	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANOIC ACID	375-22-4	<0.015	0.0055	0.015	0.020	ug/L	U	U	
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	<0.015	0.0074	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANE SULFONATE	108427-53-8	<0.015	0.0056	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANOIC ACID	307-24-4	<0.010	0.0035	0.010	0.020	ug/L	U	U	
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUOROOCTANOIC ACID	335-67-1	<0.010	0.0033	0.010	0.020	ug/L	U	U	
PERFLUOROPENTANOIC ACID	2706-90-3	<0.018	0.0075	0.018	0.020	ug/L	U	U	
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-RS-012 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HPM353 **Sample Date/Time:** 2018-08-28 08:05 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.015	0.0066	0.015	0.020	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	<0.015	0.0054	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANOIC ACID	375-22-4	<0.015	0.0055	0.015	0.020	ug/L	U	U	
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	<0.015	0.0074	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANE SULFONATE	108427-53-8	<0.015	0.0056	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANOIC ACID	307-24-4	<0.010	0.0035	0.010	0.020	ug/L	U	U	
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUOROOCTANOIC ACID	335-67-1	<0.010	0.0033	0.010	0.020	ug/L	U	U	
PERFLUOROPENTANOIC ACID	2706-90-3	<0.018	0.0075	0.018	0.020	ug/L	U	U	
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-T01-MW002-GW-030 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HPM345 **Sample Date/Time:** 2018-08-24 15:05 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.015	0.0066	0.015	0.020	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	0.014	0.0054	0.015	0.020	ug/L	J	J	
PERFLUOROBUTANOIC ACID	375-22-4	0.010	0.0055	0.015	0.020	ug/L	J	J	
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	0.0093	0.0061	0.015	0.020	ug/L	J	J	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	0.012	0.0074	0.015	0.020	ug/L	J	J	
PERFLUOROHEXANE SULFONATE	108427-53-8	0.052	0.0056	0.015	0.020	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	0.024	0.0035	0.010	0.020	ug/L			
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	0.11	0.0060	0.015	0.020	ug/L			
PERFLUOROOCTANOIC ACID	335-67-1	0.017	0.0033	0.010	0.020	ug/L	J	J	
PERFLUOROPENTANOIC ACID	2706-90-3	0.019	0.0075	0.018	0.020	ug/L	J	J	
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-T01-MW002-GW-930 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HPM346 **Sample Date/Time:** 2018-08-24 15:05 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.015	0.0066	0.015	0.020	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	0.014	0.0054	0.015	0.020	ug/L	J	J	
PERFLUOROBUTANOIC ACID	375-22-4	0.011	0.0055	0.015	0.020	ug/L	J	J	
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	0.0087	0.0061	0.015	0.020	ug/L	J	J	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	0.011	0.0074	0.015	0.020	ug/L	J	J	
PERFLUOROHEXANE SULFONATE	108427-53-8	0.050	0.0056	0.015	0.020	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	0.024	0.0035	0.010	0.020	ug/L			
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	0.11	0.0060	0.015	0.020	ug/L			
PERFLUOROOCTANOIC ACID	335-67-1	0.016	0.0033	0.010	0.020	ug/L	J	J	
PERFLUOROPENTANOIC ACID	2706-90-3	0.017	0.0075	0.018	0.020	ug/L	J	J	
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-T02-MW006-GW-053 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HPM347 **Sample Date/Time:** 2018-08-24 15:50 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.015	0.0066	0.015	0.020	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	0.0074	0.0054	0.015	0.020	ug/L	J	J	
PERFLUOROBUTANOIC ACID	375-22-4	<0.015	0.0055	0.015	0.020	ug/L	U	U	
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	<0.015	0.0074	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANE SULFONATE	108427-53-8	0.0066	0.0056	0.015	0.020	ug/L	J	J	
PERFLUOROHEXANOIC ACID	307-24-4	0.0093	0.0035	0.010	0.020	ug/L	J	J	
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUOROOCTANOIC ACID	335-67-1	<0.010	0.0033	0.010	0.020	ug/L	U	U	
PERFLUOROPENTANOIC ACID	2706-90-3	0.0079	0.0075	0.018	0.020	ug/L	J	J	
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-T08-MW001-GW-074 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HPM349 **Sample Date/Time:** 2018-08-26 08:42 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.015	0.0066	0.015	0.020	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	0.015	0.0054	0.015	0.020	ug/L	J	J	
PERFLUOROBUTANOIC ACID	375-22-4	<0.015	0.0055	0.015	0.020	ug/L	U	U	
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	<0.015	0.0074	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANE SULFONATE	108427-53-8	0.0064	0.0056	0.015	0.020	ug/L	J	J	
PERFLUOROHEXANOIC ACID	307-24-4	0.010	0.0035	0.010	0.020	ug/L	J	J	
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUOROOCTANOIC ACID	335-67-1	<0.010	0.0033	0.010	0.020	ug/L	U	U	
PERFLUOROPENTANOIC ACID	2706-90-3	0.010	0.0075	0.018	0.020	ug/L	J	J	
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-T13-MW004-GW-075 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HPM355 **Sample Date/Time:** 2018-08-28 11:43 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	0.15	0.0066	0.015	0.020	ug/L			
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	0.079	0.0054	0.015	0.020	ug/L			
PERFLUOROBUTANOIC ACID	375-22-4	0.057	0.0055	0.015	0.020	ug/L			
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	0.053	0.0074	0.015	0.020	ug/L			
PERFLUOROHEXANE SULFONATE	108427-53-8	0.31	0.0056	0.015	0.020	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	0.19	0.0035	0.010	0.020	ug/L			
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	0.13	0.0060	0.015	0.020	ug/L			
PERFLUOROOCTANOIC ACID	335-67-1	0.087	0.0033	0.010	0.020	ug/L			
PERFLUOROPENTANOIC ACID	2706-90-3	0.17	0.0075	0.018	0.020	ug/L			
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-T13-MW006-GW-110 **Matrix Type:** **Result Type:** TRG

Lab Sample Name: HPM354 **Sample Date/Time:** 2018-08-28 10:14 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	0.030	0.0066	0.015	0.020	ug/L			
8:2 FLUOROTELOMER SULFONATE	39108-34-4	0.088	0.0066	0.015	0.020	ug/L			
PERFLUOROBUTANE SULFONATE	29420-43-3	0.14	0.0054	0.015	0.020	ug/L			
PERFLUOROBUTANOIC ACID	375-22-4	0.060	0.0055	0.015	0.020	ug/L			
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	0.12	0.0074	0.015	0.020	ug/L			
PERFLUOROHEXANE SULFONATE	108427-53-8	0.59	0.0056	0.015	0.020	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	0.37	0.0035	0.010	0.020	ug/L			
PERFLUORONONANOIC ACID	375-95-1	0.020	0.0087	0.018	0.020	ug/L	J	J	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	0.016	0.0034	0.010	0.020	ug/L	J	J	
PERFLUOROOCTANE SULFONATE	1763-23-1	1.6	0.060	0.15	0.20	ug/L			
PERFLUOROOCTANOIC ACID	335-67-1	0.18	0.0033	0.010	0.020	ug/L			
PERFLUOROPENTANOIC ACID	2706-90-3	0.16	0.0075	0.018	0.020	ug/L			
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Validated Sample Result Forms: B8O0597

Analysis Method: EPA 537 m

Sample Name PETER-MW-4-GW-029 **Matrix Type:** W **Result Type:** TRG

Lab Sample Name: HTH587 **Sample Date/Time:** 2018-09-11 09:15 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	15	0.66	1.5	2.0	ug/L			
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<1.5	0.66	1.5	2.0	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	16	0.54	1.5	2.0	ug/L			
PERFLUOROBUTANOIC ACID	375-22-4	11	0.55	1.5	2.0	ug/L			
PERFLUORODECANE SULFONATE	335-77-3	<1.5	0.60	1.5	2.0	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<1.5	0.61	1.5	2.0	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<1.0	0.50	1.0	2.0	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	5.5	0.74	1.5	2.0	ug/L			
PERFLUOROHEXANE SULFONATE	108427-53-8	70	0.56	1.5	2.0	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	57	0.35	1.0	2.0	ug/L			
PERFLUORONONANOIC ACID	375-95-1	<1.8	0.87	1.8	2.0	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<1.0	0.34	1.0	2.0	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	80	0.60	1.5	2.0	ug/L			
PERFLUOROOCTANOIC ACID	335-67-1	8.0	0.33	1.0	2.0	ug/L			
PERFLUOROPENTANOIC ACID	2706-90-3	17	0.75	1.8	2.0	ug/L			
PERFLUOROTETRADECANOIC ACID	376-06-7	<1.0	0.27	1.0	2.0	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<1.0	0.38	1.0	2.0	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<1.0	0.25	1.0	2.0	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-RS-013 **Matrix Type:** W **Result Type:** TRG

Lab Sample Name: HTH568 **Sample Date/Time:** 2018-09-05 09:50 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.015	0.0066	0.015	0.020	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	<0.015	0.0054	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANOIC ACID	375-22-4	<0.015	0.0055	0.015	0.020	ug/L	U	U	
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	<0.015	0.0074	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANE SULFONATE	108427-53-8	<0.015	0.0056	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANOIC ACID	307-24-4	<0.010	0.0035	0.010	0.020	ug/L	U	U	
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUOROOCTANOIC ACID	335-67-1	<0.010	0.0033	0.010	0.020	ug/L	U	U	
PERFLUOROPENTANOIC ACID	2706-90-3	<0.018	0.0075	0.018	0.020	ug/L	U	U	
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-RS-014 **Matrix Type:** W **Result Type:** TRG

Lab Sample Name: HTH572 **Sample Date/Time:** 2018-09-06 14:00 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.015	0.0066	0.015	0.020	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	<0.015	0.0054	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANOIC ACID	375-22-4	<0.015	0.0055	0.015	0.020	ug/L	U	U	
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	<0.015	0.0074	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANE SULFONATE	108427-53-8	<0.015	0.0056	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANOIC ACID	307-24-4	<0.010	0.0035	0.010	0.020	ug/L	U	U	
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	0.0081	0.0060	0.015	0.020	ug/L	J	J	
PERFLUOROOCTANOIC ACID	335-67-1	<0.010	0.0033	0.010	0.020	ug/L	U	U	
PERFLUOROPENTANOIC ACID	2706-90-3	<0.018	0.0075	0.018	0.020	ug/L	U	U	
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-RS-015 **Matrix Type:** W **Result Type:** TRG

Lab Sample Name: HTH575 **Sample Date/Time:** 2018-09-07 09:30 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.015	0.0066	0.015	0.020	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	<0.015	0.0054	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANOIC ACID	375-22-4	<0.015	0.0055	0.015	0.020	ug/L	U	U	
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	<0.015	0.0074	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANE SULFONATE	108427-53-8	<0.015	0.0056	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANOIC ACID	307-24-4	<0.010	0.0035	0.010	0.020	ug/L	U	U	
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUOROOCTANOIC ACID	335-67-1	<0.010	0.0033	0.010	0.020	ug/L	U	U	
PERFLUOROPENTANOIC ACID	2706-90-3	<0.018	0.0075	0.018	0.020	ug/L	U	U	
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-RS-016 **Matrix Type:** W **Result Type:** TRG

Lab Sample Name: HTH581 **Sample Date/Time:** 2018-09-10 09:18 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.015	0.0066	0.015	0.020	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	<0.015	0.0054	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANOIC ACID	375-22-4	<0.015	0.0055	0.015	0.020	ug/L	U	U	
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	<0.015	0.0074	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANE SULFONATE	108427-53-8	<0.015	0.0056	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANOIC ACID	307-24-4	<0.010	0.0035	0.010	0.020	ug/L	U	U	
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUOROOCTANOIC ACID	335-67-1	<0.010	0.0033	0.010	0.020	ug/L	U	U	
PERFLUOROPENTANOIC ACID	2706-90-3	<0.018	0.0075	0.018	0.020	ug/L	U	U	
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-RS-018 **Matrix Type:** W **Result Type:** TRG

Lab Sample Name: HTH586 **Sample Date/Time:** 2018-09-11 09:08 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.015	0.0066	0.015	0.020	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	<0.015	0.0054	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANOIC ACID	375-22-4	<0.015	0.0055	0.015	0.020	ug/L	U	U	
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	<0.015	0.0074	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANE SULFONATE	108427-53-8	<0.015	0.0056	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANOIC ACID	307-24-4	<0.010	0.0035	0.010	0.020	ug/L	U	U	
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUOROOCTANOIC ACID	335-67-1	<0.010	0.0033	0.010	0.020	ug/L	U	U	
PERFLUOROPENTANOIC ACID	2706-90-3	<0.018	0.0075	0.018	0.020	ug/L	U	U	
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-RS-019 **Matrix Type:** W **Result Type:** TRG

Lab Sample Name: HTH588 **Sample Date/Time:** 2018-09-13 09:40 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.015	0.0066	0.015	0.020	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	<0.015	0.0054	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANOIC ACID	375-22-4	<0.015	0.0055	0.015	0.020	ug/L	U	U	
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	<0.015	0.0074	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANE SULFONATE	108427-53-8	<0.015	0.0056	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANOIC ACID	307-24-4	<0.010	0.0035	0.010	0.020	ug/L	U	U	
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUOROOCTANOIC ACID	335-67-1	0.0061	0.0033	0.010	0.020	ug/L	J	J	
PERFLUOROPENTANOIC ACID	2706-90-3	<0.018	0.0075	0.018	0.020	ug/L	U	U	
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-SB-001 **Matrix Type:** W **Result Type:** TRG

Lab Sample Name: HTH578 **Sample Date/Time:** 2018-09-08 08:25 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.015	0.0066	0.015	0.020	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	<0.015	0.0054	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANOIC ACID	375-22-4	<0.015	0.0055	0.015	0.020	ug/L	U	U	
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	<0.015	0.0074	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANE SULFONATE	108427-53-8	<0.015	0.0056	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANOIC ACID	307-24-4	<0.010	0.0035	0.010	0.020	ug/L	U	U	
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUOROOCTANOIC ACID	335-67-1	<0.010	0.0033	0.010	0.020	ug/L	U	U	
PERFLUOROPENTANOIC ACID	2706-90-3	<0.018	0.0075	0.018	0.020	ug/L	U	U	
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-SB-002 **Matrix Type:** W **Result Type:** TRG

Lab Sample Name: HTH579 **Sample Date/Time:** 2018-09-08 08:35 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.015	0.0066	0.015	0.020	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	<0.015	0.0054	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANOIC ACID	375-22-4	<0.015	0.0055	0.015	0.020	ug/L	U	U	
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	<0.015	0.0074	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANE SULFONATE	108427-53-8	<0.015	0.0056	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANOIC ACID	307-24-4	<0.010	0.0035	0.010	0.020	ug/L	U	U	
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUOROOCTANOIC ACID	335-67-1	<0.010	0.0033	0.010	0.020	ug/L	U	U	
PERFLUOROPENTANOIC ACID	2706-90-3	<0.018	0.0075	0.018	0.020	ug/L	U	U	
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-SB-003 **Matrix Type:** W **Result Type:** TRG

Lab Sample Name: HTH580 **Sample Date/Time:** 2018-09-08 07:15 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.015	0.0066	0.015	0.020	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	<0.015	0.0054	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANOIC ACID	375-22-4	<0.015	0.0055	0.015	0.020	ug/L	U	U	
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	<0.015	0.0074	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANE SULFONATE	108427-53-8	<0.015	0.0056	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANOIC ACID	307-24-4	<0.010	0.0035	0.010	0.020	ug/L	U	U	
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUOROOCTANOIC ACID	335-67-1	<0.010	0.0033	0.010	0.020	ug/L	U	U	
PERFLUOROPENTANOIC ACID	2706-90-3	<0.018	0.0075	0.018	0.020	ug/L	U	U	
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-T04-MW006-GW-057 **Matrix Type:** W **Result Type:** TRG

Lab Sample Name: HTH576 **Sample Date/Time:** 2018-09-07 10:50 **Validation Level:** Stage 4

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.015	0.0066	0.015	0.020	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	0.18	0.0054	0.015	0.020	ug/L			
PERFLUOROBUTANOIC ACID	375-22-4	0.11	0.0055	0.015	0.020	ug/L			
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	0.076	0.0074	0.015	0.020	ug/L			
PERFLUOROHEXANE SULFONATE	108427-53-8	0.78	0.0056	0.015	0.020	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	0.48	0.0035	0.010	0.020	ug/L			
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	0.065	0.0060	0.015	0.020	ug/L			
PERFLUOROOCTANOIC ACID	335-67-1	0.076	0.0033	0.010	0.020	ug/L			
PERFLUOROPENTANOIC ACID	2706-90-3	0.33	0.0075	0.018	0.020	ug/L			
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-T05-MW001-GW-064 **Matrix Type:** W **Result Type:** TRG

Lab Sample Name: HTH577 **Sample Date/Time:** 2018-09-07 12:56 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	0.015	0.0079	0.018	0.024	ug/L	J	J	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.018	0.0079	0.018	0.024	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	0.083	0.0065	0.018	0.024	ug/L			
PERFLUOROBUTANOIC ACID	375-22-4	0.048	0.0066	0.018	0.024	ug/L			
PERFLUORODECANE SULFONATE	335-77-3	<0.018	0.0072	0.018	0.024	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.018	0.0073	0.018	0.024	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.012	0.0060	0.012	0.024	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	0.078	0.0089	0.018	0.024	ug/L			
PERFLUOROHEXANE SULFONATE	108427-53-8	0.82	0.0067	0.018	0.024	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	0.20	0.0042	0.012	0.024	ug/L			
PERFLUORONONANOIC ACID	375-95-1	<0.022	0.010	0.022	0.024	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.012	0.0041	0.012	0.024	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	0.070	0.0072	0.018	0.024	ug/L			
PERFLUOROOCTANOIC ACID	335-67-1	1.0	0.0040	0.012	0.024	ug/L			
PERFLUOROPENTANOIC ACID	2706-90-3	0.14	0.0090	0.022	0.024	ug/L			
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.012	0.0032	0.012	0.024	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.012	0.0046	0.012	0.024	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.012	0.0030	0.012	0.024	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-T07-MW003-GW-069 **Matrix Type:** W **Result Type:** TRG

Lab Sample Name: HTH573 **Sample Date/Time:** 2018-09-06 15:35 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.015	0.0066	0.015	0.020	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	0.028	0.0054	0.015	0.020	ug/L			
PERFLUOROBUTANOIC ACID	375-22-4	0.018	0.0055	0.015	0.020	ug/L	J	J	
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	0.019	0.0074	0.015	0.020	ug/L	J	J	
PERFLUOROHEXANE SULFONATE	108427-53-8	0.077	0.0056	0.015	0.020	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	0.061	0.0035	0.010	0.020	ug/L			
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	0.016	0.0060	0.015	0.020	ug/L	J	JB	06C
PERFLUOROOCTANOIC ACID	335-67-1	0.019	0.0033	0.010	0.020	ug/L	J	J	
PERFLUOROPENTANOIC ACID	2706-90-3	0.061	0.0075	0.018	0.020	ug/L			
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-T07-MW003-GW-969 **Matrix Type:** W **Result Type:** TRG

Lab Sample Name: HTH574 **Sample Date/Time:** 2018-09-06 15:35 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.015	0.0066	0.015	0.020	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	0.030	0.0054	0.015	0.020	ug/L			
PERFLUOROBUTANOIC ACID	375-22-4	0.019	0.0055	0.015	0.020	ug/L	J	J	
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	0.018	0.0074	0.015	0.020	ug/L	J	J	
PERFLUOROHEXANE SULFONATE	108427-53-8	0.089	0.0056	0.015	0.020	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	0.064	0.0035	0.010	0.020	ug/L			
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	0.018	0.0060	0.015	0.020	ug/L	J	JB	06C
PERFLUOROOCTANOIC ACID	335-67-1	0.017	0.0033	0.010	0.020	ug/L	J	J	
PERFLUOROPENTANOIC ACID	2706-90-3	0.059	0.0075	0.018	0.020	ug/L			
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-T07-MW004-GW-064 **Matrix Type:** W **Result Type:** TRG

Lab Sample Name: HTH571 **Sample Date/Time:** 2018-09-06 13:38 **Validation Level:** Stage 4

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.015	0.0066	0.015	0.020	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	0.024	0.0054	0.015	0.020	ug/L			
PERFLUOROBUTANOIC ACID	375-22-4	0.013	0.0055	0.015	0.020	ug/L	J	J	
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	0.012	0.0061	0.015	0.020	ug/L	J	J	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	0.021	0.0074	0.015	0.020	ug/L			
PERFLUOROHEXANE SULFONATE	108427-53-8	0.093	0.0056	0.015	0.020	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	0.040	0.0035	0.010	0.020	ug/L			
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	0.023	0.0034	0.010	0.020	ug/L			
PERFLUOROOCTANE SULFONATE	1763-23-1	0.31	0.0060	0.015	0.020	ug/L			
PERFLUOROOCTANOIC ACID	335-67-1	0.019	0.0033	0.010	0.020	ug/L	J	J	
PERFLUOROPENTANOIC ACID	2706-90-3	0.034	0.0075	0.018	0.020	ug/L			
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-T07-MW006-GW-089 **Matrix Type:** W **Result Type:** TRG

Lab Sample Name: HTH583 **Sample Date/Time:** 2018-09-10 12:54 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	0.035	0.0066	0.015	0.020	ug/L			
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	0.039	0.0054	0.015	0.020	ug/L			
PERFLUOROBUTANOIC ACID	375-22-4	0.027	0.0055	0.015	0.020	ug/L			
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	0.030	0.0074	0.015	0.020	ug/L			
PERFLUOROHEXANE SULFONATE	108427-53-8	0.22	0.0056	0.015	0.020	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	0.094	0.0035	0.010	0.020	ug/L			
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	0.0047	0.0034	0.010	0.020	ug/L	J	J	
PERFLUOROOCTANE SULFONATE	1763-23-1	0.25	0.0060	0.015	0.020	ug/L			
PERFLUOROOCTANOIC ACID	335-67-1	0.037	0.0033	0.010	0.020	ug/L			
PERFLUOROPENTANOIC ACID	2706-90-3	0.084	0.0075	0.018	0.020	ug/L			
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-T11-MW001-GW-070 **Matrix Type:** W **Result Type:** TRG

Lab Sample Name: HTH582 **Sample Date/Time:** 2018-09-10 10:20 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.15	0.066	0.15	0.20	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.15	0.066	0.15	0.20	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	<0.15	0.054	0.15	0.20	ug/L	U	U	
PERFLUOROBUTANOIC ACID	375-22-4	<0.15	0.055	0.15	0.20	ug/L	U	U	
PERFLUORODECANE SULFONATE	335-77-3	<0.15	0.060	0.15	0.20	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.15	0.061	0.15	0.20	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.10	0.050	0.10	0.20	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	<0.15	0.074	0.15	0.20	ug/L	U	U	
PERFLUOROHEXANE SULFONATE	108427-53-8	<0.15	0.056	0.15	0.20	ug/L	U	U	
PERFLUOROHEXANOIC ACID	307-24-4	<0.10	0.035	0.10	0.20	ug/L	U	U	
PERFLUORONONANOIC ACID	375-95-1	<0.18	0.087	0.18	0.20	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.10	0.034	0.10	0.20	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	<0.15	0.060	0.15	0.20	ug/L	U	U	
PERFLUOROOCTANOIC ACID	335-67-1	<0.10	0.033	0.10	0.20	ug/L	U	U	
PERFLUOROPENTANOIC ACID	2706-90-3	<0.18	0.075	0.18	0.20	ug/L	U	U	
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.10	0.027	0.10	0.20	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.10	0.038	0.10	0.20	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.10	0.025	0.10	0.20	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-T12-MW003-GW-053 **Matrix Type:** W **Result Type:** TRG

Lab Sample Name: HTH630 **Sample Date/Time:** 2018-09-13 16:12 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.015	0.0066	0.015	0.020	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	<0.015	0.0054	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANOIC ACID	375-22-4	<0.015	0.0055	0.015	0.020	ug/L	U	U	
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	<0.015	0.0074	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANE SULFONATE	108427-53-8	<0.015	0.0056	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANOIC ACID	307-24-4	<0.010	0.0035	0.010	0.020	ug/L	U	U	
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUOROOCTANOIC ACID	335-67-1	0.0070	0.0033	0.010	0.020	ug/L	J	JB	06C
PERFLUOROPENTANOIC ACID	2706-90-3	<0.018	0.0075	0.018	0.020	ug/L	U	U	
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-T13-MW001-GW-075 **Matrix Type:** W **Result Type:** TRG

Lab Sample Name: HTH569 **Sample Date/Time:** 2018-09-05 10:50 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	0.035	0.0066	0.015	0.020	ug/L			
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	0.033	0.0054	0.015	0.020	ug/L			
PERFLUOROBUTANOIC ACID	375-22-4	0.023	0.0055	0.015	0.020	ug/L			
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	0.027	0.0074	0.015	0.020	ug/L			
PERFLUOROHEXANE SULFONATE	108427-53-8	0.12	0.0056	0.015	0.020	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	0.078	0.0035	0.010	0.020	ug/L			
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	0.051	0.0060	0.015	0.020	ug/L			
PERFLUOROOCTANOIC ACID	335-67-1	0.039	0.0033	0.010	0.020	ug/L			
PERFLUOROPENTANOIC ACID	2706-90-3	0.059	0.0075	0.018	0.020	ug/L			
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-T13-MW003-GW-079 **Matrix Type:** W **Result Type:** TRG

Lab Sample Name: HTH570 **Sample Date/Time:** 2018-09-05 13:02 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	0.010	0.0066	0.015	0.020	ug/L	J	J	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	0.028	0.0054	0.015	0.020	ug/L			
PERFLUOROBUTANOIC ACID	375-22-4	0.016	0.0055	0.015	0.020	ug/L	J	J	
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	0.024	0.0074	0.015	0.020	ug/L			
PERFLUOROHEXANE SULFONATE	108427-53-8	0.11	0.0056	0.015	0.020	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	0.060	0.0035	0.010	0.020	ug/L			
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0034	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	0.0075	0.0060	0.015	0.020	ug/L	J	J	
PERFLUOROOCTANOIC ACID	335-67-1	0.076	0.0033	0.010	0.020	ug/L			
PERFLUOROPENTANOIC ACID	2706-90-3	0.046	0.0075	0.018	0.020	ug/L			
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-T14-MW002A-GW-049 **Matrix Type:** W **Result Type:** TRG

Lab Sample Name: HTH589 **Sample Date/Time:** 2018-09-13 09:50 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.017	0.0073	0.017	0.022	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.017	0.0073	0.017	0.022	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	<0.017	0.0059	0.017	0.022	ug/L	U	U	
PERFLUOROBUTANOIC ACID	375-22-4	<0.017	0.0061	0.017	0.022	ug/L	U	U	
PERFLUORODECANE SULFONATE	335-77-3	<0.017	0.0066	0.017	0.022	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.017	0.0067	0.017	0.022	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.011	0.0055	0.011	0.022	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	<0.017	0.0081	0.017	0.022	ug/L	U	U	
PERFLUOROHEXANE SULFONATE	108427-53-8	<0.017	0.0062	0.017	0.022	ug/L	U	U	
PERFLUOROHEXANOIC ACID	307-24-4	<0.011	0.0039	0.011	0.022	ug/L	U	U	
PERFLUORONONANOIC ACID	375-95-1	<0.020	0.0096	0.020	0.022	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.011	0.0037	0.011	0.022	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	0.0099	0.0066	0.017	0.022	ug/L	J	J	
PERFLUOROOCTANOIC ACID	335-67-1	0.0058	0.0036	0.011	0.022	ug/L	J	JB	06C
PERFLUOROPENTANOIC ACID	2706-90-3	0.014	0.0083	0.020	0.022	ug/L	J	J	
PERFLUOROTETRADECANOIC ACID	376-06-7	0.0080	0.0030	0.011	0.022	ug/L	J	J	
PERFLUOROTRIDECANOIC ACID	72629-94-8	0.0083	0.0042	0.011	0.022	ug/L	J	J	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.011	0.0028	0.011	0.022	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-T14-MW002A-GW-949 **Matrix Type:** W **Result Type:** TRG

Lab Sample Name: HTH590 **Sample Date/Time:** 2018-09-13 09:50 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.016	0.0069	0.016	0.021	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.016	0.0069	0.016	0.021	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	<0.016	0.0057	0.016	0.021	ug/L	U	U	
PERFLUOROBUTANOIC ACID	375-22-4	<0.016	0.0058	0.016	0.021	ug/L	U	U	
PERFLUORODECANE SULFONATE	335-77-3	<0.016	0.0063	0.016	0.021	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.016	0.0064	0.016	0.021	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.011	0.0053	0.011	0.021	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	<0.016	0.0078	0.016	0.021	ug/L	U	U	
PERFLUOROHEXANE SULFONATE	108427-53-8	<0.016	0.0059	0.016	0.021	ug/L	U	U	
PERFLUOROHEXANOIC ACID	307-24-4	<0.011	0.0037	0.011	0.021	ug/L	U	U	
PERFLUORONONANOIC ACID	375-95-1	<0.019	0.0091	0.019	0.021	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.011	0.0036	0.011	0.021	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	0.0097	0.0063	0.016	0.021	ug/L	J	J	
PERFLUOROOCTANOIC ACID	335-67-1	0.0050	0.0035	0.011	0.021	ug/L	J	JB	06C
PERFLUOROPENTANOIC ACID	2706-90-3	0.010	0.0079	0.019	0.021	ug/L	J	J	
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.011	0.0028	0.011	0.021	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.011	0.0040	0.011	0.021	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.011	0.0026	0.011	0.021	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-WS-001 **Matrix Type:** SO **Result Type:** TRG

Lab Sample Name: HTH584 **Sample Date/Time:** 2018-09-11 08:00 **Validation Level:** Stage 4

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.79	0.26	0.79	0.99	ug/kg	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.79	0.33	0.79	0.99	ug/kg	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	<0.50	0.17	0.50	0.99	ug/kg	U	U	
PERFLUOROBUTANOIC ACID	375-22-4	<0.50	0.23	0.50	0.99	ug/kg	U	U	
PERFLUORODECANE SULFONATE	335-77-3	<0.79	0.39	0.79	0.99	ug/kg	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.79	0.28	0.79	0.99	ug/kg	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.78	0.27	0.78	0.97	ug/kg	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	<0.50	0.19	0.50	0.99	ug/kg	U	U	
PERFLUOROHEXANE SULFONATE	108427-53-8	0.34	0.24	0.50	0.99	ug/kg	J	J	
PERFLUOROHEXANOIC ACID	307-24-4	<0.50	0.14	0.50	0.99	ug/kg	U	U	
PERFLUORONONANOIC ACID	375-95-1	<0.50	0.22	0.50	0.99	ug/kg	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.50	0.14	0.50	0.99	ug/kg	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	<0.79	0.26	0.79	0.99	ug/kg	U	U	
PERFLUOROOCTANOIC ACID	335-67-1	0.59	0.25	0.79	0.99	ug/kg	J	J	
PERFLUOROPENTANOIC ACID	2706-90-3	<0.79	0.25	0.79	0.99	ug/kg	U	U	
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.79	0.31	0.79	0.99	ug/kg	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.79	0.33	0.79	0.99	ug/kg	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.79	0.34	0.79	0.99	ug/kg	U	U	

Analysis Method: EPA 537 m

Sample Name PETER-WW-001 **Matrix Type:** W **Result Type:** TRG

Lab Sample Name: HTH585 **Sample Date/Time:** 2018-09-11 08:00 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.015	0.0066	0.015	0.020	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.015	0.0066	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	<0.015	0.0054	0.015	0.020	ug/L	U	U	
PERFLUOROBUTANOIC ACID	375-22-4	<0.015	0.0055	0.015	0.020	ug/L	U	U	
PERFLUORODECANE SULFONATE	335-77-3	<0.015	0.0060	0.015	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.015	0.0061	0.015	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0050	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	<0.015	0.0074	0.015	0.020	ug/L	U	U	
PERFLUOROHEXANE SULFONATE	108427-53-8	0.013	0.0056	0.015	0.020	ug/L	J	J	
PERFLUOROHEXANOIC ACID	307-24-4	0.012	0.0035	0.010	0.020	ug/L	J	J	
PERFLUORONONANOIC ACID	375-95-1	<0.018	0.0087	0.018	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	0.023	0.0034	0.010	0.020	ug/L			
PERFLUOROOCTANE SULFONATE	1763-23-1	0.17	0.0060	0.015	0.020	ug/L			
PERFLUOROOCTANOIC ACID	335-67-1	0.0097	0.0033	0.010	0.020	ug/L	J	J	
PERFLUOROPENTANOIC ACID	2706-90-3	0.0087	0.0075	0.018	0.020	ug/L	J	J	
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0027	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0025	0.010	0.020	ug/L	U	U	

Appendix H

IDW Disposal,

IDW Analytical Data,

and

Waste Manifest

Table H-1 Investigative-Derived Waste Disposal

Site Name	Well Identification	Media	Disposal Method
AFFF Area 1 Site 8 (FT002)	PETER01-MW001	Water	Poured on ground
	PETER01-MW002		
	PETER01-MW003		
AFFF Area 2 Fire Station #1 (Building 218)	PETER02-MW001	Water	Poured on ground
	PETER02-MW002		
	PETER02-MW003		
AFFF Area 3 Fire Station #2 (Building 2032)	PETER03-MW001	Water	Poured on ground
	PETER03-MW002		
	PETER03-MW003		
AFFF Area 4 Golf Course/ Leach Field (WP006), Detention Pond #3, Site 5 (FT003)	PETER04-MW001	Water	Poured on ground
	PETER04-MW002		
	PETER04-MW003		
	PETER04-MW004		
	PETER04-MW005		
	PETER04-MW008		
	PETER04-MW009		
AFFF Area 5 Current FTA	PETER05-MW001	Water	Poured on ground
	MW-2		
	MW-3		
	MW-4		
COSMA Deicing Ponds	DE-ICING NORTH	Water	Poured on ground
	DE-ICING SOUTH		
IRP Site 1	MW1-1	Water	Poured on ground
	MW1-2		
	MW1-3	Water	Drummed
	MW1-5A		
	MW1-6	Water	Poured on ground
	MW1-7		
	MW1-8		
IRP Site 2	MW2-1	Water	Poured on ground
	MW2-2		
	MW2-3		
	MW2-4		
	MW2-5		
IRP Site 4	MW4-1	Water	Poured on ground
	MW4-2	Water	Drummed
	MW4-3		
	MW4-4		
IRP Site 7	PAFB07MW01	Water	Poured on ground
	PAFB07MW02		
	PAFB07MW03		

Site Name	Well Identification	Media	Disposal Method
Transect 1	PETER-T01-MW002	Soil and water	Poured/spread on ground
	PETER-T01-MW004		
Transect 2	PETER-T02-MW006	Soil and Water	Poured/spread on ground
Transect 3	PETER-T03-MW002	Soil and Water	Drummed
	PETER-T03-MW004	Soil and Water	Poured/spread on ground
Transect 4	PETER-T04-MW004	Soil and Water	Drummed
	PETER-T04-MW006	Soil and Water	Poured/spread on ground
Transect 5	PETER-T05-MW001		
	PETER-T05-MW005	Soil and Water	Drummed
	PETER-T05-MW006		
Transect 7	PETER-T07-MW003	Soil and Water	Poured/spread on ground
	PETER-T07-MW004		
	PETER-T07-MW006		
Transect 8	PETER-T08-MW001		
Transect 11	PETER-T11-MW001		
Transect 12	PETER-T12-MW003		
Transect 13	PETER-T13-MW001		
	PETER-T13-MW003		
	PETER-T13-MW004		
	PETER-T13-MW006		
Transect 14	PETER-T14-MW002A		

AFFF = aqueous film forming foam
FTA = fire training area
COSMA = Colorado Springs Municipal Airport
IRP = Installation Restoration Program

V18112216

D91805721365 SC PPW 7/12/2018

Please print or type. Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
CO9571924191	1	(800) 483-3718	012558160 FLE

5. Generator's Name and Mailing Address
Peterson AFB
580 Goodfellow St Bldg 1324
Colorado Springs, CO 80914
Generator's Phone: (866) 948-5027

Generator's Site Address (if different than mailing address)
Platte Avenue
Colorado Springs, CO 80916

6. Transporter 1 Company Name: Clean Harbors Environmental Services, Inc.
U.S. EPA ID Number: MAD039322250

7. Transporter 2 Company Name
U.S. EPA ID Number

8. Designated Facility Name and Site Address
Clean Harbors Environmental Services, Inc.
2247 South Highway 71
Kimball, NE 69145
Facility's Phone: (308) 235-4012
U.S. EPA ID Number: NED981723513

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
	1 NON HAZARDOUS, NON D.O.T. REGULATED, (SOIL)	10	DM	550	G	
	2 NON HAZARDOUS, NON D.O.T. REGULATED LIQUID, (WATER)	26	DM	1430	G	
	3.					
	4.					

14. Special Handling Instructions and Additional Information
1.CH1379266
2.CH1379269

Contract retained by generator confers agency authority on initial transporter to add or substitute additional transporters on generator's behalf

15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Misty Howell
Signature: Misty Howell
Month 11 Day 15 Year 18

GENERATOR

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: DALE SHOREY
Signature: Dale Shorey
Month 11 Day 15 Year 18
Transporter 2 Printed/Typed Name
Signature
Month Day Year

DESIGNATED FACILITY

18. Discrepancy
18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:
18b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone:
18c. Signature of Alternate Facility (or Generator)
Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H040	H040		

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name: Jessica Gibson
Signature
Month 11 Day 16 Year 18

EPA Form 8700-22 (Rev. 12-17) Previous editions are obsolete. DESIGNATED FACILITY TO EPA's e-MANIFEST SYSTEM

Clean Harbors has the appropriate permits for and will accept the waste the generator is shipping.

CT LABORATORIES

delivering more than data from your environmental analyses

JENNY VANCE
AEROSTAR SES LLC
1006 FLOYD CULLER CIRCLE
OAK RIDGE, TN 37830

and

MELISSA DI GRAZIA
MAXXAM
6740 CAMPOBELLA RD
MISSISSAUGA, ON, CANADA L5N 2L8

PROJECT SITE: AFFF Site Investigation (IDW), Peterson AFB, CO

WORK ORDER/CONTRACT #: W9128F-15-D-0051

PROJECT #: M2027.0003

SDG: 139370

PREPARED: October 4, 2018

DOCUMENT PAGES: 1605

The data contained in the following report have been reviewed by the appropriate CT Laboratories LLC's staff members. In addition, CT Laboratories LLC certifies that to the best of our knowledge that the analyses reported herein are true, complete and correct within the limits of the methods employed and that they follow the applicable requirements as specified by the project plan, state-specific, NELAC or DOD QSM requirements. The estimated uncertainty of measurement is only available upon request. The reported results relate only to the tested samples. This report shall not be reproduced, except in full, without written approval of CT Laboratories LLC.

APPROVED BY: _____ LABORATORY DIRECTOR

APPROVED BY: _____ PROJECT MANAGER

Certifications: IL (NELAP 002413), KS (NELAP E-10368), KY (0023), WI (157066030), DOD ELAP (A2LA 3806.01), VA (7608), MD (344), LA (NELAP 115843), ISO17025 (A2LA 3806.01, GA EDP Stipulation (Accreditor: LA NELAP, ACC#: E971111, Scope: Non-potable water solid and chemical materials, biological tissue, Effective: 12/10/2014, Expires: annually

CT Laboratories LLC • 1230 Lange Court • Baraboo, WI 53913 • 608-356-2760
www.ctlaboratories.com

ACCREDITED IN ACCORDANCE WITH nelac

CT LABORATORIES

delivering more than data from your environmental analyses

Table of Contents

Section	Page
Cover Page	1
Table of Contents	2
Case Narrative and Summary of Detects (if applicable)	3
Data Qualifier Sheet	9
Sample Delivery Group Summary	11
QC Batch Cross Reference	12
VOC QC Summary Documents	14
VOC Sample Data Documents	41
VOC ICAL Documents	54
VOC CCV Documents	184
VOC QC Documents	214
VOC Logbook Documents	238
SVOC QC Summary Documents	273
SVOC Sample Data Documents	303
SVOC ICAL Documents	312
SVOC CCV Documents	410
SVOC QC Documents	433
SVOC Logbook Documents	458
Pesticide and Herbicides QC Summary Documents	494
Pesticide and Herbicides Sample Data Documents	509
Pesticide and Herbicides ICAL Documents	518
Pesticide and Herbicides CCV Documents	728
Pesticide and Herbicides QC Documents	752
Pesticide and Herbicides Logbook Documents	775
PCB QC Summary Documents	807
PCB Sample Data Documents	821
PCB ICAL Documents	826
PCB CCV Documents	1025
PCB QC Documents	1038
PCB Logbook Documents	1053
Metals CLP Forms Documents	1084
Metals Raw Data Documents	1131
Metals Logbook Documents	1253
Inorganic CLP Forms Documents	1468
Inorganic Raw Data Documents	1522
Inorganic Logbook Documents	1535
Chain of Custody, PM Confirmation and Sample Condition Forms	1604

CT LABORATORIES

delivering more than data from your environmental analyses

Case Narrative

Client: MAXXAM/Aerostar SES LLC
Project: Peterson AFB (IDW), CO
Sample Receipt Date(s): 09-13-2018
SDG #: 139370

One solid IDW sample and one aqueous IDW sample were analyzed for a variety of analyses, including: pH, flashpoint, cyanide, sulfide, RCRA metals, DRO, pesticides, PCBs, SVOCs, herbicides, GRO and VOC's. The solid sulfide analysis was sub-contracted to Microbac Laboratories, Marietta, OH. The assigned sample ID numbers, date sampled, and date received are indicated in the attached Project Summary. The samples were received intact and the samples at a temperature within method specified acceptance limits. Any exceptions are noted below. The analyses were performed, where applicable, following QSM 5.0 requirements.

Manual integrations may have been performed on the data provided with this package. If manual integrations were performed, Reason #(s) were included on the raw data that corresponds to the "Index Key for Manual Integration Rationale." The raw data includes a "Before" and "After" manual integration illustration. The manual integrations were initialed and dated by the analyst, as well as, by the person reviewing the data.

Sample Analysis and Quality Control

Volatile Analysis:

The samples were analyzed using US EPA Methods 8260C (VOCs) and 8015C (GRO). All samples were analyzed within the holding time. The following summaries of quality control procedures are included:

Surrogate Recovery Data
Matrix Spike/Matrix Spike Duplicate Recovery Data
Laboratory Control Spike Data
Method Blank Data
Initial Calibration Summary
Calibration Check Summary
Analysis Run Log
Prep Log
Chromatograms

All analysis results met the method specified quality control criteria with the following exceptions:

Detailed reports were provided for the 8260 data for all detected compounds, as well as, for those compounds manually integrated (if applicable). Compounds not reported on the form 1's were either not detected or did not meet identification criteria so they were reported as non-detects.

Compounds that may not meet the recommended minimum average response factor (ARF) criteria for 8260C (such as several of the ketones) are analyzed at concentrations 2 to 50 times higher than normal to make up for their lack of response. However, the ARF on the response factor (RF) forms do not reflect this change in concentration. These compounds may be "flagged" on RF forms as a result.

VOC (8260C) TCLP Analysis

Chloroform was detected in the Initial Calibration Blank (ICB) for calibration curve W100218.

Analytical Run # 153915

The samples from this SDG were prepared for TCLP extraction past the 14 day hold time. The sample results were qualified with an "H" flag.

Chloroform was detected in the Method Blank (MB). Detections of this compound in the associated samples were qualified with a "B" flag.

GRO (8015C) Aqueous/Solid Analyses

Analytical Run # 153497

All analytical results for this run met the method/project specified quality control criteria.

Analytical Run # 153498

Due to an autosampler addition error the surrogate recoveries for this run were high. The results for this surrogate (1,4-dichlorobenzene$_{d4}$) were qualified with an "S" flag.

Semi-volatile Analysis:

The samples were analyzed using US EPA Methods 8270D (SVOCs) and 8015C (DRO). All samples were analyzed within the holding time. The following summaries of quality control procedures are included:

Surrogate Recovery Data
Matrix Spike/Matrix Spike Duplicate Recovery Data
Laboratory Control Spike Data
Method Blank Data
Initial Calibration Summary
Calibration Check Summary
Analysis Run Log
Prep Log
Chromatograms

All analysis results met the method specified quality control criteria with the following exceptions:

Some samples may have been analyzed and/or reanalyzed diluted to obtain results for all target compounds within the calibration range of the instrument.

Samples suspected of being poorly purged, improperly prepped, mis-injected, or potentially contaminated from carryover were reanalyzed and reported accordingly.

Detailed reports were provided for the 8270 data for all detected compounds, as well as, for those compounds manually integrated (if applicable).

SVOCs (8270D) TCLP Analyses

Analytical Run #153655

All analysis results met the method/project specified quality control criteria.

DRO (8015C) Aqueous/Solid Analyses

Analytical Run # 153374 and 153405

All analytical results for this run met the method/project specified quality control criteria.

Pesticide/Herbicide Analyses:

The samples were analyzed using US EPA Methods 8081B (pesticides) and 8151A (herbicides). All samples were analyzed within the holding time. The following summaries of quality control procedures are included:

Surrogate Recovery Data
Matrix Spike/Matrix Spike Duplicate Recovery Data
Laboratory Control Spike Data
Method Blank Data
Initial Calibration Summary
Calibration Check Summary
Analysis Run Log
Prep Log
Chromatograms

All analysis results met the method specified quality control criteria with the following exceptions:

Some samples may have been analyzed and/or reanalyzed diluted to obtain results for all target compounds within the calibration range of the instrument.

Samples suspected of being poorly purged, improperly prepped, mis-injected, or potentially contaminated from carryover were reanalyzed and reported accordingly.

Pesticides (8081B) TCLP Analyses

Analytical Run #153654

All analysis results for this SDG met the method/project specified quality control criteria.

Herbicides (8151A) TCLP Analyses

Analytical Run # 153704

All analysis results for this SDG met the method/project specified quality control criteria.

PCB Analysis:

The samples were analyzed using US EPA Method 8082A (PCBs). All samples were analyzed within the holding time. The following summaries of quality control procedures are included:

Surrogate Recovery Data
Matrix Spike/Matrix Spike Duplicate Recovery Data
Laboratory Control Spike Data
Method Blank Data
Initial Calibration Summary
Calibration Check Summary
Analysis Run Log
Prep Log
Chromatograms

All analysis results met the method specified quality control criteria with the following exceptions:

Some samples may have been analyzed and/or reanalyzed diluted to obtain results for all target compounds within the calibration range of the instrument.

Samples suspected of being poorly purged, improperly prepped, mis-injected, or potentially contaminated from carryover were reanalyzed and reported accordingly.

PCBs (8082A) Aqueous/Solid Analyses

Analytical Run # 153371

All analysis results for this SDG met the method/project specified quality control criteria.

Analytical Run # 153406

Initial CCV 003 (analyzed 09/19/2018 13:17) had a high response for Aroclor 1016 peak #2 on channel B. The total Aroclors were within the QC limits on both channels.

Metals:

The samples were analyzed using US EPA Methods 6010C (ICP) and 7470A (Hg). All samples were analyzed within the holding time. The following summaries of quality control procedures are included:

Initial and Continuing Calibration Verification
Blanks Summary
ICP Interference Check Data
Spike Sample Recovery
Duplicates Data
Laboratory Control Sample Data
Analysis Run Log

All analysis results met the method specified quality control criteria with the following exceptions:

Continuing Calibration Verifications standards were analyzed at two levels (CCV1 & CCV2) with potentially differing wavelengths. Data associated with CCV's were evaluated based on the concentration of the element in the samples and compared to the appropriate CCV level/wavelength. Some samples may have been analyzed and/or reanalyzed diluted to obtain results for all target analytes within the calibration range of the instrument.

ICP Metals (6010C) TCLP Analysis
Analytical Run # 153457

Lead was detected in the Method Blank (MB) greater than the Method Detection Limit (MDL) but less than ½ the Reporting Limit (RL). The affected samples were reported and qualified with a "B" flag when the MB result was greater than $1/10^{th}$ of the sample results.

The Serial Dilution (L) for sample # 175864 was not applicable for silver, arsenic, cadmium, chromium, lead, and selenium because the parent sample raw results were less than 50 times the Limit of Quantitation (LOQ). A Post Digestion Spike (PDS) was analyzed and was unacceptable for silver and lead. The parent sample was reported and qualified with an "M" flag for the failing elements.

The L for sample # 175864 was not acceptable for barium because the result exceeded the Relative Percent Difference (RPD) limit. A PDS was analyzed and was acceptable for barium. The parent sample was reported and qualified with an "M" flag for the failing element.

The Duplicate (DUP) for sample # 175864 was not applicable for silver, arsenic, cadmium, chromium, lead, and selenium because the parent sample results were less than five times the LOQ. A Matrix Spike Duplicate (MSD) was analyzed to demonstrate precision and was acceptable. The parent sample was reported and not qualified.

The DUP for sample # 175864 was not acceptable for barium because the result exceeded the RPD limit. The parent sample was reported and qualified with a "Y" flag for the failing element.

The Matrix Spike (MS) and/or MSD for sample # 175864 exceeded the recovery limit for cadmium, lead, selenium, and silver. A PDS was analyzed and was unacceptable for silver and lead. The parent sample was reported and qualified with an "M" flag for the failing elements.

CVAA Mercury (7470A) TCLP Analysis
Analytical Run # 153413

The DUP for sample # 175864 was not applicable for mercury because the parent sample result was less than five times the LOQ. An MSD was analyzed to demonstrate precision and was acceptable. The parent sample was reported and not qualified.

Inorganics:

The samples were analyzed using US EPA Methods 9034 (sulfide), 9012A (cyanide), 1010 (flashpoint) and 9045D/9040C (pH). All samples were analyzed within the holding time. The following summaries of quality control procedures are included:

Initial and Continuing Calibration Verification
Blanks Summary
ICP Interference Check Data
Spike Sample Recovery
Duplicates Data
Laboratory Control Sample Data
Analysis Run Log

All analysis results met the method specified quality control criteria with the following exceptions:

Flashpoint (1010) Solid/Aqueous Analyses

Analytical Run # 153357

All analytical results for this run met the method/project specified quality control criteria.

pH (9045D/9040C) Solid/Aqueous Analyses

Analytical Run # 153208 & 153209

All analytical results for this run met the method/project specified quality control criteria.

Sulfide (9034) Aqueous Analyses

Analytical Run # 153311

The Matrix Spike (MS) and the Matrix Spike Duplicate (MSD) for sample # 175867 had a low recovery. The parent sample result was qualified with an “M” flag.

The MS and the MSD for sample # 175867 exceeded Relative Percent Difference (RPD) limits. The parent sample result was qualified with a “Y” flag.

Cyanide (9012A) Aqueous Analyses

Analytical Run # 153658

All analytical results for this run met the method/project specified quality control criteria.

Cyanide (9012A) Solid Analyses

Analytical Run # 153509

All analytical results for this run met the method/project specified quality control criteria.

CT LABORATORIES

delivering more than data from your environmental analyses

Data Qualifiers

Code	Description
A	Analyte averaged calibration criteria within acceptable limits.
B	Analyte detected in associated Method Blank.
C	Toxicity present in BOD sample.
D	Diluted Out.
E	Safe, No Total Coliform detected.
F	Unsafe, Total Coliform detected, no E. Coli detected.
G	Unsafe, Total Coliform detected and E. Coli detected.
H	Holding time exceeded.
J	Estimated value.
L	Significant peaks were detected outside the chromatographic window.
M	Matrix spike and/or Matrix Spike Duplicate recovery outside acceptance limits.
N	Insufficient BOD oxygen depletion.
O	Complete BOD oxygen depletion.
P	Concentration of analyte differs more than 40% between primary and confirmation analysis.
Q	Laboratory Control Sample outside acceptance limits.
R	See Narrative at end of report.
S	Surrogate standard recovery outside acceptance limits due to apparent matrix effects.
T	Sample received with improper preservation or temperature.
U	Analyte concentration was not above the detection level.
V	Raised Quantitation or Reporting Limit due to limited sample amount or dilution for matrix background interference.
W	Sample amount received was below program minimum.
X	Analyte exceeded calibration range.
Y	Replicate/Duplicate precision outside acceptance limits.
Z	Calibration criteria exceeded.

CT LABORATORIES

delivering more than data from your environmental analyses

MANUAL INTEGRATION REASON CODES

CTLaboratories has identified four general cases with valid reasons supporting the use of manual integration techniques. These codes are used on chromatograms in this data package to document the reasons for manual integrations per CTLaboratories' SOP SS-10 current revision.

#1: **Data system failed to select the correct peak or missed the peak entirely.**
In some cases the chromatography system selects and integrates the "wrong peak". In this case the analyst must correct the selection and force the system to integrate the proper peak. In other instances the system may miss the peak completely. In this case the analyst manually integrated the peak

#2: **Data System Splits the Peak Incorrectly or Integrates a False Peak as a Rider Peak.**
This phenomenon is common at low concentrations where the signal to noise ratio is low. A single compound (peak) is incorrectly split into multiple peaks or integrated as a main peak with one or more rider peaks resulting in low or high area counts for the target compound.

#3: Improperly Integrated Isomers and/or coeluting compounds.
For when the system fails to distinguish coeluting compounds and or isomers. The integration areas and concentrations may be inaccurate, and they must be corrected by manual integration. Prime examples are compounds that are unresolved and integrated improperly when present at low concentrations in standards or samples.

#4: System Established Incorrect Baseline.
There are numerous situations in chromatography where the system establishes the baseline incorrectly. Some baseline errors will be obvious to the analyst and may be corrected via manual procedures.

#5: Miscellaneous.
Some situations involving integration errors may require in-depth review and technical judgment. These cases should be brought to the attention of the group supervisor. If the form of manual integration is not clearly covered by these four cases, then review and approval by the group supervisor or the *QA/QC* Supervisor will be required.

1230 Lange Court • Baraboo, WI 53913 • 608-356-2760
www.ctlaboratories.com

CT LABORATORIES
delivering more than data from your environmental analyses

1230 Lange Court • Baraboo, WI 53913 • 608-356-2760
www.ctlaboratories.com

Sample Delivery Group

139370

Project Name: SI AFFF
Project #: M2027.0003

JENNY VANCE
AEROSTAR SES LLC
1006 FLOYD CULLER CT
OAK RIDGE, TN 37830

CT Sample #	Folder #	Client Sample #	Sample Description	Matrix	Date Sampled	Date Received
175864	139370		PETER-WS-001	TCLP	09/11/2008	09/13/2018
175865	139370		PETER-WS-001	SOIL	09/11/2018	09/13/2018
175866	139370		PETER-WW-001	TCLP	09/11/2018	09/13/2018
175867	139370		PETER-WW-001	GROUND WATER	09/11/2018	09/13/2018

CT LABORATORIES
delivering more than data from your environmental analyses
1230 Lange Court • Baraboo, WI 53913 • 608-356-2760
www.ctlaboratories.com

QC Batch Cross Reference Summary

JENNY VANCE
AEROSTAR SES LLC
1006 FLOYD CULLER CT
OAK RIDGE, TN 37830

Copy: LNatzke@aerostar.net

Project Name:	SI AFFF
Project #:	M2027.0003
Report Date:	10/04/2018
Date Received:	09/13/2018
SDG #:	139370

Inorganic Parameters

CTI LAB#:	Parameter	Method	Matrix	Prep Batch #	Analytical Run #
175865	Solids, Percent	EPA 8000C	SOIL		153245

CTI LAB#:	Parameter	Method	Matrix	Prep Batch #	Analytical Run #
175865	pH	EPA 9045D	SOIL		153209
175867	pH	EPA 9040C	GROUND WATER		153208

CTI LAB#:	Parameter	Method	Matrix	Prep Batch #	Analytical Run #
175865	Flashpoint	EPA 1010	SOIL		153357
175867	Flashpoint	EPA 1010	GROUND WATER		153357

CTI LAB#:	Parameter	Method	Matrix	Prep Batch #	Analytical Run #
175865	Cyanide QSM	EPA 9012A	SOIL	68746	153509
175867	Cyanide QSM	EPA 9012A	GROUND WATER	68845	153658

CTI LAB#:	Parameter	Method	Matrix	Prep Batch #	Analytical Run #
175867	Sulfide, Total QSM	EPA 9034	GROUND WATER		153311

Metal Parameters

CTI LAB#:	Parameter	Method	Matrix	Prep Batch #	Analytical Run #
175864	ICP Metals QSM TCLP 5.0	EPA 6010C	TCLP	68685	153457
175866	ICP Metals QSM TCLP 5.0	EPA 6010C	TCLP	68685	153457

CTI LAB#:	Parameter	Method	Matrix	Prep Batch #	Analytical Run #
175864	Mercury QSM TCLP	EPA 7470A	TCLP	68707	153413
175866	Mercury QSM TCLP	EPA 7470A	TCLP	68707	153413

CT LABORATORIES
delivering more than data from your environmental analyses

Project Name: SI AFFF
Project #: M2027.0003
SDG #: 139370

Organic Parameters

CTI LAB#:	Parameter	Method	Matrix	Prep Batch #	Analytical Run #
175864	Pesticides TCLP	EPA 8081B	TCLP	68735	153654
175866	Pesticides TCLP	EPA 8081B	TCLP	68735	153654

CTI LAB#:	Parameter	Method	Matrix	Prep Batch #	Analytical Run #
175865	GRO QSM 5.0	EPA 8015C	SOIL	68745	153498
175867	GRO QSM 5.0	EPA 8015C	GROUND WATER		153497

CTI LAB#:	Parameter	Method	Matrix	Prep Batch #	Analytical Run #
175864	VOC's by 8260 TCLP 5.0	EPA 8260C	TCLP		153915
175866	VOC's by 8260 TCLP 5.0	EPA 8260C	TCLP		153915

CTI LAB#:	Parameter	Method	Matrix	Prep Batch #	Analytical Run #
175865	PCB	EPA 8082A	SOIL	68676	153371
175867	PCB	EPA 8082A	GROUND WATER	68675	153406

CTI LAB#:	Parameter	Method	Matrix	Prep Batch #	Analytical Run #
175865	DRO 8015 QSM	EPA 8015C	SOIL	68672	153374
175867	DRO 8015 QSM	EPA 8015C	GROUND WATER	68670	153405

CTI LAB#:	Parameter	Method	Matrix	Prep Batch #	Analytical Run #
175864	SVOC 8270 QSM TCLP	EPA 8270D	TCLP	68734	153655
175866	SVOC 8270 QSM TCLP	EPA 8270D	TCLP	68734	153655

CTI LAB#:	Parameter	Method	Matrix	Prep Batch #	Analytical Run #
175864	HERBICIDES TCLP	EPA 8151A	TCLP	68741	153704
175866	HERBICIDES TCLP	EPA 8151A	TCLP	68741	153704

VOLATILE ORGANIC ANALYSIS QUALITY CONTROL SUMMARY DOCUMENTS

CT LABORATORIES
delivering more than data from your environmental analyses

1A

VOLATILE ORGANICS ANALYSIS

Sample Description

PETER-WS-001

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Matrix:	SOIL	SDG No.:	139370
Sample wt/vol:	10.01 (g/mL)	CTL Sample ID:	175865
% Solids:	93.6	Date Received:	09/13/2018
Soil Extract Vol:	10.0 (mL)	Date/Time Prepared:	09/21/2018 / 08:00
Analytical Method:	EPA 8015C	Analytical Prep Batch #	68745
Analytical Run #:	153498	Dilution Factor:	1.00
Date & Time Analyzed:	09/21/2018 / 22:49	GPC Cleanup Date/Time:	/
TCLP / SPLP / MLP or ASTM Procedure Extraction Date (*if applicable*):			/
ICAL Calibration #:		Concentration Units:	mg/kg

CAS NO.	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
GASCOMP	Gasoline Range Organics	3.2	U	1.7	3.2	6.4	6.4

CT LABORATORIES
delivering more than data from your environmental analyses

1A

VOLATILE ORGANICS ANALYSIS

Sample Description

PETER-WS-001

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Matrix:	TCLP	SDG No.:	139370
Sample wt/vol:	(g/mL)	CTL Sample ID:	175864
% Solids:		Date Received:	09/13/2018
Soil Extract Vol:	(mL)	Date/Time Prepared:	/
Analytical Method:	EPA 8260C	Analytical Prep Batch #	
Analytical Run #:	153915	Dilution Factor:	100.00
Date & Time Analyzed:	10/02/2018 / 23:38	GPC Cleanup Date/Time:	/
TCLP / SPLP / MLP or ASTM Procedure Extraction Date (*if applicable*):			09/27/2018 / 15:30
ICAL Calibration #:	W100218.	Concentration Units:	mg/L

CAS NO.	Analyte	Concentration	Qualifiers		DL	LOD	LOQ	RL
75-35-4	1,1-Dichloroethene	0.050	U	H	0.024	0.050	0.10	0.10
107-06-2	1,2-Dichloroethane	0.050	U	H	0.030	0.050	0.10	0.10
78-93-3	2-Butanone	0.10	U	H	0.24	0.10	2.0	2.0
71-43-2	Benzene	0.050	U	H	0.019	0.050	0.10	0.10
56-23-5	Carbon tetrachloride	0.050	U	H	0.023	0.050	0.10	0.10
108-90-7	Chlorobenzene	0.050	U	H	0.024	0.050	0.10	0.10
67-66-3	Chloroform	0.021	J	HB	0.015	0.025	0.050	0.050
127-18-4	Tetrachloroethene	0.050	U	H	0.030	0.050	0.10	0.10
79-01-6	Trichloroethene	0.050	U	H	0.021	0.050	0.10	0.10
75-01-4	Vinyl chloride	0.029	J	H	0.018	0.050	0.10	0.10

CT LABORATORIES
delivering more than data from your environmental analyses

1A

VOLATILE ORGANICS ANALYSIS

Sample Description

PETER-WW-001

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Matrix:	TCLP	SDG No.:	139370
Sample wt/vol:	(g/mL)	CTL Sample ID:	175866
% Solids:		Date Received:	09/13/2018
Soil Extract Vol:	(mL)	Date/Time Prepared:	/
Analytical Method:	EPA 8260C	Analytical Prep Batch #	
Analytical Run #:	153915	Dilution Factor:	100.00
Date & Time Analyzed:	10/03/2018 / 00:08	GPC Cleanup Date/Time:	/
TCLP / SPLP / MLP or ASTM Procedure Extraction Date (*if applicable*):			09/27/2018 / 15:30
ICAL Calibration #:	W100218.	Concentration Units:	mg/L

CAS NO.	Analyte	Concentration	Qualifiers		DL	LOD	LOQ	RL
75-35-4	1,1-Dichloroethene	0.050	U	H	0.024	0.050	0.10	0.10
107-06-2	1,2-Dichloroethane	0.050	U	H	0.030	0.050	0.10	0.10
78-93-3	2-Butanone	0.10	U	H	0.24	0.10	2.0	2.0
71-43-2	Benzene	0.050	U	H	0.019	0.050	0.10	0.10
56-23-5	Carbon tetrachloride	0.050	U	H	0.023	0.050	0.10	0.10
108-90-7	Chlorobenzene	0.050	U	H	0.024	0.050	0.10	0.10
67-66-3	Chloroform	0.024	J	HB	0.015	0.025	0.050	0.050
127-18-4	Tetrachloroethene	0.050	U	H	0.030	0.050	0.10	0.10
79-01-6	Trichloroethene	0.050	U	H	0.021	0.050	0.10	0.10
75-01-4	Vinyl chloride	0.050	U	H	0.018	0.050	0.10	0.10

CT LABORATORIES
delivering more than data from your environmental analyses

1A

VOLATILE ORGANICS ANALYSIS

Sample Description

PETER-WW-001

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Matrix:	GROUND WATER	SDG No.:	139370
Sample wt/vol:	(g/mL)	CTL Sample ID:	175867
% Solids:		Date Received:	09/13/2018
Soil Extract Vol:	(mL)	Date/Time Prepared:	/
Analytical Method:	EPA 8015C	Analytical Prep Batch #	
Analytical Run #:	153497	Dilution Factor:	1.00
Date & Time Analyzed:	09/25/2018 / 19:21	GPC Cleanup Date/Time:	/
TCLP / SPLP / MLP or ASTM Procedure Extraction Date (*if applicable*):			/
ICAL Calibration #:		Concentration Units:	ug/L

CAS NO.	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
GASCOMP	Gasoline Range Organics	50	U	23	50	100	100

CT LABORATORIES
delivering more than data from your environmental analyses

1A-2

VOLATILE ORGANICS ANALYSIS (MB or CCB)

Sample Description

METHOD BLANK

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Matrix:		SDG No.:	139370
Sample wt/vol:	(g/mL)	CTL Sample ID:	182970
% Solids:		Date Received:	09/13/2018
Soil Extract Vol:	(mL)	Date/Time Prepared:	/
Analytical Method:	EPA 8015C	Analytical Prep Batch #	
Analytical Run #:	153497	Dilution Factor:	1.00
Cleanup Date/Time/Type:	. . ,		
TCLP / SPLP / MLP or ASTM Procedure Extraction Date (*if applicable*):			/
ICAL Calibration #:		Concentration Units:	ug/L

CAS NO.	Analyte	Analysis Date/Time		Concentration	Qualifiers	DL/LOD	RL	*Control Limit*
GASCOMP	Gasoline Range Organics	09/25/2018	18:09	23	U	23	100	***50***

CT LABORATORIES
delivering more than data from your environmental analyses

1A-2

VOLATILE ORGANICS ANALYSIS (MB or CCB)

Sample Description

METHOD BLANK

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Matrix:		SDG No.:	139370
Sample wt/vol:	10.0 (g/mL)	CTL Sample ID:	183162
% Solids:		Date Received:	09/13/2018
Soil Extract Vol:	10.0 (mL)	Date/Time Prepared:	09/21/2018 / 08:00
Analytical Method:	EPA 8015C	Analytical Prep Batch #	68745
Analytical Run #:	153498	Dilution Factor:	1.00
Cleanup Date/Time/Type:	. . ,		
TCLP / SPLP / MLP or ASTM Procedure Extraction Date (*if applicable*):			/
ICAL Calibration #:		Concentration Units:	mg/kg

CAS NO.	Analyte	Analysis Date/Time		Concentration	Qualifiers	DL/LOD	RL	*Control Limit*
GASCOMP	Gasoline Range Organics	09/21/2018	22:13	1.6	U	1.6	6.0	***3.0***

CT LABORATORIES
delivering more than data from your environmental analyses

1A-2

VOLATILE ORGANICS ANALYSIS (MB or CCB)

Sample Description

METHOD BLANK

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Matrix:		SDG No.:	139370
Sample wt/vol:	(g/mL)	CTL Sample ID:	188284
% Solids:		Date Received:	09/13/2018
Soil Extract Vol:	(mL)	Date/Time Prepared:	/
Analytical Method:	EPA 8260C	Analytical Prep Batch #	0
Analytical Run #:	153915	Dilution Factor:	100.00
Cleanup Date/Time/Type:	. . ,		
TCLP / SPLP / MLP or ASTM Procedure Extraction Date (*if applicable*):			09/27/2018 / 15:30
ICAL Calibration #:	W100218.	Concentration Units:	mg/L

CAS NO.	Analyte	Analysis Date/Time		Concentration	Qualifiers	DL/LOD	RL	*Control Limit*
75-35-4	1,1-Dichloroethene	10/02/2018	23:08	0.00024	U	0.00024	0.00050	***0.00025***
107-06-2	1,2-Dichloroethane	10/02/2018	23:08	0.0003	U	0.0003	0.0010	***0.0005***
78-93-3	2-Butanone	10/02/2018	23:08	0.0024	U	0.0024	0.020	***0.0100***
71-43-2	Benzene	10/02/2018	23:08	0.00019	U	0.00019	0.00050	***0.00025***
56-23-5	Carbon tetrachloride	10/02/2018	23:08	0.00023	U	0.00023	0.00050	***0.00025***
108-90-7	Chlorobenzene	10/02/2018	23:08	0.00024	U	0.00024	0.00050	***0.00025***
67-66-3	Chloroform	10/02/2018	23:08	0.0230	B	0.00015	0.00050	***0.00025***
127-18-4	Tetrachloroethene	10/02/2018	23:08	0.0003	U	0.0003	0.0010	***0.0005***
79-01-6	Trichloroethene	10/02/2018	23:08	0.00021	U	0.00021	0.00050	***0.00025***
75-01-4	Vinyl chloride	10/02/2018	23:08	0.00018	U	0.00018	0.00050	***0.00025***

CT LABORATORIES
delivering more than data from your environmental analyses

2A

WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Analytical Method:	EPA 8015C	SDG:	139370
Analytical Run #:	153497	ICAL Calibration #:	

CTLab #	**175867**				
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
SURROGATE: 12DCBd4	100	122	70	130	

CTLab #	**182967**	Sample Type:		Normal Field Sample	
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
SURROGATE: 12DCBd4	100	114	80	120	

CTLab #	**182968**	Sample Type:		Lab Control Spike	
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
SURROGATE: 12DCBd4	100	118	70	130	

CTLab #	**182969**	Sample Type:		Normal Field Sample	
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
SURROGATE: 12DCBd4	100	116	70	130	

CTLab #	**182970**	Sample Type:		Method Blank	
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
SURROGATE: 12DCBd4	100	122	70	130	

CTLab #	**183140**	Sample Type:		Normal Field Sample	
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
SURROGATE: 12DCBd4	100	113	80	120	

CT LABORATORIES
delivering more than data from your environmental analyses

2A

WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Analytical Method:	EPA 8260C	SDG:	139370
Analytical Run #:	153915	ICAL Calibration #:	W100218.

CTLab #	175864				
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
1,2 Dichloroethane-d4	100	103	81	118	
Bromofluorobenzene	100	110	85	114	
d8-Toluene	100	96	89	112	
Dibromofluoromethane	100	100	80	119	

CTLab #	175866				
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
1,2 Dichloroethane-d4	100	107	81	118	
Bromofluorobenzene	100	101	85	114	
d8-Toluene	100	98	89	112	
Dibromofluoromethane	100	101	80	119	

CTLab #	188280	Sample Type:		Lab Control Spike	
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
1,2 Dichloroethane-d4	100	101	81	118	
Bromofluorobenzene	100	103	85	114	
d8-Toluene	100	99.0	89	112	
Dibromofluoromethane	100	94.0	80	119	

CTLab #	188283	Sample Type:		Normal Field Sample	
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
1,2 Dichloroethane-d4	100	106	80	120	
Bromofluorobenzene	100	101	80	120	
d8-Toluene	100	99.0	80	120	
Dibromofluoromethane	100	95.0	80	120	

CTLab #	188284	Sample Type:		Method Blank	
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
1,2 Dichloroethane-d4	100	107	70	120	
Bromofluorobenzene	100	105	75	120	
d8-Toluene	100	100	85	120	
Dibromofluoromethane	100	100	85	115	

CTLab #	188394	Sample Type:		Normal Field Sample	
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
1,2 Dichloroethane-d4	100	100	50	150	
Bromofluorobenzene	100	101	50	150	
d8-Toluene	100	98.0	50	150	
Dibromofluoromethane	100	98.0	50	150	

CT LABORATORIES
delivering more than data from your environmental analyses

2A

WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Analytical Method:	EPA 8260C	SDG:	139370
Analytical Run #:	153915	ICAL Calibration #:	W100218.

CTLab #	**188395**	Sample Type:	Matrix Spike		
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
1,2 Dichloroethane-d4	100	100	81	118	
Bromofluorobenzene	100	102	85	114	
d8-Toluene	100	99.0	89	112	
Dibromofluoromethane	100	101	80	119	

CTLab #	**188903**	Sample Type:	Matrix Spike Duplicate		
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
1,2 Dichloroethane-d4	100	99.0	81	118	
Bromofluorobenzene	100	101	85	114	
d8-Toluene	100	99.0	89	112	
Dibromofluoromethane	100	101	80	119	

CT LABORATORIES
delivering more than data from your environmental analyses

2B

SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Analytical Method:	EPA 8015C	SDG:	139370
Analytical Run #:	153498	ICAL Calibration #:	

CTLab #	175865				
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
SURROGATE: 12DCBd4	100	182	70	130	*FAIL*
CTLab #	**182971**	Sample Type:		Normal Field Sample	
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
SURROGATE: 12DCBd4	100	169	80	120	*FAIL*
CTLab #	**183160**	Sample Type:		Normal Field Sample	
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
SURROGATE: 12DCBd4	100	174	80	120	*FAIL*
CTLab #	**183162**	Sample Type:		Method Blank	
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
SURROGATE: 12DCBd4	100	181	70	130	*FAIL*
CTLab #	**183163**	Sample Type:		Lab Control Spike	
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
SURROGATE: 12DCBd4	100	142	70	130	*FAIL*
CTLab #	**183164**	Sample Type:		Normal Field Sample	
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
SURROGATE: 12DCBd4	100	176	70	130	*FAIL*

CT LABORATORIES
delivering more than data from your environmental analyses

3A

Sample Description

PETER-WS-001

WATER VOLATILE MATRIX SPIKE RECOVERY

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

Matrix: TCLP

SDG No.: 139370

Analytical Method: EPA 8260C

Concentration Units: mg/L

Analytical Run #: 153915

Sample No.: 188395

Parent Sample No.: 175864

Analytical Prep Batch #: 0

Analytical Preparation Date/Time:

ICAL Calibration #: W100218.

Analyte	Analysis Date/Time		Control Limit (%R)	Spike Result	Parent Result	Spike Amount	%R
1,1-Dichloroethene	10/03/2018	01:08	71-131	0.962	BDL	1.00	96
1,2-Dichloroethane	10/03/2018	01:08	73-128	1.04	BDL	1.00	104
2-Butanone	10/03/2018	01:08	56-143	9.24	BDL	10.0	92
Benzene	10/03/2018	01:08	79-120	1.05	BDL	1.00	105
Carbon tetrachloride	10/03/2018	01:08	72-136	1.06	BDL	1.00	106
Chlorobenzene	10/03/2018	01:08	82-118	1.07	BDL	1.00	107
Chloroform	10/03/2018	01:08	79-124	0.986	0.021	1.00	96
Tetrachloroethene	10/03/2018	01:08	74-129	1.00	BDL	1.00	100
Trichloroethene	10/03/2018	01:08	79-123	1.03	BDL	1.00	103
Vinyl chloride	10/03/2018	01:08	58-137	0.970	0.029	1.00	94

Spike Recovery: 0 out of 10 outside QC limits

CT LABORATORIES
delivering more than data from your environmental analyses

3A

Sample Description

PETER-WS-001

WATER VOLATILE MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

Matrix: TCLP

SDG No.: 139370

Analytical Method: EPA 8260C

Concentration Units: mg/L

Analytical Run #: 153915

Sample No.: 188903

Parent Sample No.: 188395

Analytical Prep Batch #: 0

Analytical Preparation Date/Time:

ICAL Calibration #: W100218.

Analyte	Analysis Date/Time		Spike Result	Spike Amount	%R	%RPD	Control Limits (%R)	Control Limits (%RPD)
1,1-Dichloroethene	10/03/2018	01:39	1.07	1.00	107	10	71-131	20
1,2-Dichloroethane	10/03/2018	01:39	1.06	1.00	106	1	73-128	20
2-Butanone	10/03/2018	01:39	9.97	10.0	100	8	56-143	20
Benzene	10/03/2018	01:39	1.05	1.00	105	1	79-120	20
Carbon tetrachloride	10/03/2018	01:39	1.04	1.00	104	2	72-136	20
Chlorobenzene	10/03/2018	01:39	1.07	1.00	107	0	82-118	20
Chloroform	10/03/2018	01:39	0.995	1.00	97	1	79-124	20
Tetrachloroethene	10/03/2018	01:39	1.06	1.00	106	5	74-129	20
Trichloroethene	10/03/2018	01:39	1.02	1.00	102	1	79-123	20
Vinyl chloride	10/03/2018	01:39	1.10	1.00	107	13	58-137	20

RPD or Spike Recovery: 0 out of 10 outside QC limits

CT LABORATORIES
delivering more than data from your environmental analyses

3A

Sample Description

LCS

WATER VOLATILE LAB CONTROL SAMPLE

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

Sample No.: 182968

SDG No.: 139370

Analytical Method: EPA 8015C

Concentration Units: ug/L

Sample No.: 182968

Parent Sample No.: 0

Analytical Prep Batch #:

Analytical Preparation Date/Time:

Analytical Run #: 153497

ICAL Calibration #:

Analyte	Analysis Date/Time		Control Limit (%R)	Spike Result	Parent Result	Spike Amount	%R
Gasoline Range Organics	09/25/2018	16:57	78-122	380		400	95

Spike Recovery: 0 out of 1 outside limits

CT LABORATORIES
delivering more than data from your environmental analyses

3A

Sample Description

LCS

WATER VOLATILE LAB CONTROL SAMPLE

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

Sample No.: 188280

SDG No.: 139370

Analytical Method: EPA 8260C

Concentration Units: mg/L

Sample No.: 188280

Parent Sample No.: 0

Analytical Prep Batch #: 0

Analytical Preparation Date/Time:

Analytical Run #: 153915

ICAL Calibration #: W100218.

Analyte	Analysis Date/Time		Control Limit (%R)	Spike Result	Parent Result	Spike Amount	%R
1,1-Dichloroethene	10/02/2018	21:36	71-131	1.09		1.00	109
1,2-Dichloroethane	10/02/2018	21:36	73-128	1.12		1.00	112
2-Butanone	10/02/2018	21:36	56-143	11.2		10.0	112
Benzene	10/02/2018	21:36	79-120	1.07		1.00	107
Carbon tetrachloride	10/02/2018	21:36	72-136	1.12		1.00	112
Chlorobenzene	10/02/2018	21:36	82-118	1.09		1.00	109
Chloroform	10/02/2018	21:36	79-124	1.04		1.00	104
Tetrachloroethene	10/02/2018	21:36	74-129	1.09		1.00	109
Trichloroethene	10/02/2018	21:36	79-123	1.07		1.00	107
Vinyl chloride	10/02/2018	21:36	58-137	0.989		1.00	99

Spike Recovery: 0 out of 10 outside limits

CT LABORATORIES
delivering more than data from your environmental analyses

3A

WATER VOLATILE LAB CONTROL SAMPLE

Sample Description

LCSD

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

Sample No.: 182969

SDG No.: 139370

Analytical Method: EPA 8015C

Concentration Units: ug/L

Analytical Run #: 153497 Sample No.: 182969 Parent Sample No.: 182968

Analytical Prep Batch #: Analytical Preparation Date/Time:

ICAL Calibration #:

Analyte	Analysis Date/Time	Spike Result	Parent Result	Spike Amount	%R	%RPD	Control Limit (%R)	Control Limit (%RPD)
Gasoline Range Organics	09/25/2018 21:10	375	380	400	94	1	78-122	20

RPD or
Spike Recovery: 0 out of 1 outside QC limits

CT LABORATORIES
delivering more than data from your environmental analyses

3B

Sample Description

LCS

SOIL VOLATILE LAB CONTROL SAMPLE

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

Sample No.: 183163

SDG No.: 139370

Analytical Method: EPA 8015C

Concentration Units: mg/kg

Sample No.: 183163

Parent Sample No.: 0

Analytical Prep Batch #: 68745

Analytical Preparation Date/Time: 09/21/2018 08:00

Analytical Run #: 153498

ICAL Calibration #: 8015p1s091218

Analyte	Analysis Date/Time		Control Limit (%R)	Spike Result	Parent Result	Spike Amount	%R
Gasoline Range Organics	09/21/2018	21:02	79-122	18.0		20.0	90

Spike Recovery: 0 out of 1 outside limits

CT LABORATORIES
delivering more than data from your environmental analyses

3B

SOIL VOLATILE LAB CONTROL SAMPLE

Sample Description

LCSD

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

Sample No.: 183164

SDG No.: 139370

Analytical Method: EPA 8015C

Concentration Units: mg/kg

Analytical Run #: 153498

Sample No.: 183164

Parent Sample No.: 183163

Analytical Prep Batch #: 68745

Analytical Preparation Date/Time: 09/21/2018 08:00

ICAL Calibration #:

Analyte	Analysis Date/Time	Spike Result	Parent Result	Spike Amount	%R	%RPD	Control Limit (%R)	Control Limit (%RPD)
Gasoline Range Organics	09/21/2018 23:25	18.7	18.0	20.0	94	4	79-122	

RPD or Spike Recovery: 0 out of 1 outside QC limits

CT LABORATORIES
delivering more than data from your environmental analyses

4A

VOLATILE METHOD BLANK SUMMARY

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Sample ID:	182970	SDG No.:	139370
Matrix:	LIQUID	Date Extracted:	
Date Analyzed:	09/25/2018	Time Analyzed:	18:09
Analytical Method:	EPA 8015C	Extraction Method:	NONE
Analytical Run #:	153497	Extraction Batch #:	
		ICAL Calibration #:	

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES AND QC:

SEQUENCE	SAMPLE DESCRIPTION	SAMPLE ID	DATE/TIME ANALYZED	CALIBRATION # ID
1	CCV	182967	09/25/2018 16:21	
2	LCSW	182968	09/25/2018 16:57	
3	MBW	182970	09/25/2018 18:09	
4	PETER-WW-001	175867	09/25/2018 19:21	
5	LCSDW	182969	09/25/2018 21:10	
6	CCV	183140	09/25/2018 22:21	

CT LABORATORIES
delivering more than data from your environmental analyses

4A

VOLATILE METHOD BLANK SUMMARY

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Sample ID:	183162	SDG No.:	139370
Matrix:	SOLID	Date Extracted:	09/21/2018
Date Analyzed:	09/21/2018	Time Analyzed:	22:13
Analytical Method:	EPA 8015C	Extraction Method:	SW5035
Analytical Run #:	153498	Extraction Batch #:	68745
		ICAL Calibration #:	

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES AND QC:

SEQUENCE	SAMPLE DESCRIPTION	SAMPLE ID	DATE/TIME ANALYZED	CALIBRATION # ID
1	CCV	182971	09/21/2018 20:26	
2	LCSS	183163	09/21/2018 21:02	8015p1s091218
3	MBS	183162	09/21/2018 22:13	
4	PETER-WS-001	175865	09/21/2018 22:49	
5	LCSDS	183164	09/21/2018 23:25	
6	CCV	183160	09/22/2018 00:37	

CT LABORATORIES
delivering more than data from your environmental analyses

4A

VOLATILE METHOD BLANK SUMMARY

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Sample ID:	188284	SDG No.:	139370
Matrix:	LIQUID	Date Extracted:	
Date Analyzed:	10/02/2018	Time Analyzed:	23:08
Analytical Method:	EPA 8260C	Extraction Method:	NONE
Analytical Run #:	153915	Extraction Batch #:	0
		ICAL Calibration #:	W100218.

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES AND QC:

SEQUENCE	SAMPLE DESCRIPTION	SAMPLE ID	DATE/TIME ANALYZED	CALIBRATION # ID
1	BFB	188279	10/02/2018 20:49	
2	CCV	188283	10/02/2018 21:06	W100218.
3	LCSW	188280	10/02/2018 21:36	W100218.
4	MBW	188284	10/02/2018 23:08	W100218.
5	PETER-WS-001	175864	10/02/2018 23:38	W100218.
6	PETER-WW-001	175866	10/03/2018 00:08	W100218.
7	PETER-WS-001MSW	188395	10/03/2018 01:08	W100218.
8	PETER-WS-001MSDW	188903	10/03/2018 01:39	W100218.
9	CCVF	188394	10/03/2018 02:10	W100218.

BFB

Data File : C:\INSTARCH\Data\OCT0218\BFB1.D Vial: 1
Acq On : 2 Oct 2018 10:24 Operator: AGK-RLD
Sample : BFB Injection Inst : VMS3
Misc : 50 ng Inj. Multiplr: 1.00
Integration File: VOC.P

Method : C:\INSTARCH\METHODS\W100218.M
Title : 8260C Waters Method

Spectrum Information: Average of 4.657 to 4.669 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	22.1	22115	PASS
75	95	30	60	53.9	53910	PASS
95	95	100	100	100.0	100000	PASS
96	95	5	9	8.3	8323	PASS
173	174	0.00	2	1.0	911	PASS
174	95	50	100	95.3	95283	PASS
175	174	5	9	7.4	7034	PASS
176	174	95	101	97.5	92924	PASS
177	176	5	9	8.1	7493	PASS

W100218.M Wed Oct 03 09:05:53 2018

pl_ilog
Injection Log Summary Report

Method : C:\INSTARCH\METHODS\W100218.M
Title : 8260C Waters Method
Start (Tune) File ID : C:\INSTARCH\DATA\OCT0218\BFB1.D
Injection Date : 2 Oct 2018 Log Time Period (hrs) : ALL
Injection Time : 10:24 Total files within period : 17
Sample Directory : C:\INSTARCH\DATA\OCT0218\

Injection Log Summary Table

File ID	Multiplier I	S	T	Sample Name Misc Info	Date	Time
WCAL1	1.00	1.00	1.00	INITIAL CALIB. PT1 0.50/5.00 ug/L, 5.0	2 Oct 2018	11:42
WCAL2	1.00	1.00	1.00	INITIAL CALIB. PT2 2.00/20.0 ug/L, 5.0	2 Oct 2018	12:12
WCAL3	1.00	1.00	1.00	INITIAL CALIB. PT3 5.00/50.0 ug/L, 5.0	2 Oct 2018	12:43
WCAL4	1.00	1.00	1.00	INITIAL CALIB. PT4 10.0/100.0 ug/L, 5.0	2 Oct 2018	13:14
WCAL5	1.00	1.00	1.00	INITIAL CALIB. PT5 20.0/200.0 ug/L, 5.0	2 Oct 2018	13:44
WCAL6	1.00	1.00	1.00	INITIAL CALIB. PT6 30.0/300.0 ug/L, 5.0	2 Oct 2018	14:14
WCAL7	1.00	1.00	1.00	INITIAL CALIB. PT7 40.0/400.0 ug/L, 5.0	2 Oct 2018	14:45
WCAL8	1.00	1.00	1.00	INITIAL CALIB. PT8 80.0/800.0 ug/L, 5.0	2 Oct 2018	15:14
ICV1	1.00	1.00	1.00	INITIAL CALIB. VERIF 10.0/100 ug/L, 5.0 m	2 Oct 2018	16:15
ICV2	1.00	1.00	1.00	INITIAL CALIB. VERIF 30.0/300 ug/L, 5.0 m	2 Oct 2018	16:45
WCAL1R	1.00	1.00	1.00	INITIAL CALIB. PT1 0.50/5.00 ug/L, 5.0	2 Oct 2018	18:15
ICB1	1.00	1.00	1.00	INITIAL CALB. BLANK pH<2, 5.0 mL DI H20	2 Oct 2018	19:16

BFB

Data File : C:\INSTARCH\Data\OCT0218B\BFB1.D Vial: 1
Acq On : 2 Oct 2018 20:49 Operator: AGK-RLD
Sample : 153915,BFB, Inst : VMS3
Misc : 50 ng Inj. Multiplr: 1.00
Integration File: VOC.P

Method : C:\INSTARCH\METHODS\W100218.M
Title : 8260C Waters Method

Spectrum Information: Average of 4.632 to 4.644 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	24.9	8868	PASS
75	95	30	60	54.9	19555	PASS
95	95	100	100	100.0	35634	PASS
96	95	5	9	8.9	3158	PASS
173	174	0.00	2	2.0	681	PASS
174	95	50	100	97.5	34730	PASS
175	174	5	9	6.8	2374	PASS
176	174	95	101	96.5	33531	PASS
177	176	5	9	8.0	2688	PASS

W100218.M Wed Oct 03 10:38:59 2018

Injection Log Summary Report

Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Start (Tune) File ID : C:\INSTARCH\DATA\OCT0218B\BFB1.D
Injection Date : 2 Oct 2018 Log Time Period (hrs) : ALL
Injection Time : 20:49 Total files within period : 11
Sample Directory : C:\INSTARCH\DATA\OCT0218B\

Injection Log Summary Table

File ID	Multiplier I	S	T	Sample Name Misc Info	Date	Time
CCV1	1.00	1.00	1.00	153915,CCV, 10.0/100.0 ug/L, 5.0 mL P	2 Oct 2018	21:06
TLCS1	1.00	1.00	1.00	153915,LCSW,100 pH5, 10.0/100.0 ug/L, 5.0	2 Oct 2018	21:36
TMB1	1.00	1.00	1.00	153915,MBW,100 pH5, 5.0 mL Purged + IS/S	2 Oct 2018	23:08
175864	1.00	1.00	1.00	153915,175864,100 pH5, 5.0 mL Purged + IS/S	2 Oct 2018	23:38
175866	1.00	1.00	1.00	153915,175866,100 pH5, 5.0 mL Purged + IS/S	3 Oct 2018	00:08
175864MS	1.00	1.00	1.00	153915,MSW175864,100 pH5, 10.0/100 ug/L, 5.0 m	3 Oct 2018	01:08
175864SD	1.00	1.00	1.00	153915,MSDW175864,100 pH5, 10.0/100 ug/L, 5.0 m	3 Oct 2018	01:39
CCVF1	1.00	1.00	1.00	153915,CCVF, 10.0/100.0 ug/L, 5.0 mL P	3 Oct 2018	02:10

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name : CT Laboratories, LLC Contract :
Project : Site : Location : Group :
Lab File ID (Standard): WCAL4.D Date Analyzed : 2 Oct 2018
Instrument ID : VMS3 Time Analyzed : 13:14
GC Column : DB-624UI ID : VMS3(mm) Heated Purge (Y:N) : N

	IS1		IS2		IS3	
	Area #	RT #	Area #	RT #	Area #	RT #
12 HOUR STD	1273934	7.69	1012161	11.60	540818	14.90
UPPER LIMIT	2547868	8.19	2024322	12.10	1081636	15.40
LOWER LIMIT	636967	7.19	506081	11.10	270409	14.40
File ID Sample						
175864 153915,17	1208170	7.69	937383	11.60	481549	14.90
175864MS 153915,MS	1249125	7.69	972071	11.60	551781	14.90
175864SD 153915,MS	1255696	7.69	1006354	11.60	561331	14.90
175866 153915,17	1193423	7.69	931122	11.60	488857	14.90
CCV1 153915,CC	1269018	7.69	998141	11.60	562680	14.90
CCVF1 153915,CC	1294097	7.69	1034801	11.60	566712	14.90
TLCS1 153915,LC	1281783	7.69	996803	11.60	562086	14.90
TMB1 153915,MB	1189366	7.69	939296	11.60	500563	14.91

IS1 = FLUOROBENZENE**ISTD**
IS2 = d5-CHLOROBENZENE**ISTD**
IS3 = d4-1,4-DICHLOROBENZENE**IS

AREA UPPER LIMIT = 200% of internal standard area
AREA LOWER LIMIT = 50% of internal standard area
RT UPPER LIMIT = 0.5 minutes of internal standard RT
RT LOWER LIMIT = -0.5 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk
* Values outside of contract required QC limits

VOLATILE ORGANIC ANALYSIS
SAMPLE DATA
DOCUMENTS

Quantitation Report

Data File : C:\INSTARCH\Data\OCT0218B\175864.D Vial: 7
Acq On : 2 Oct 2018 23:38 Operator: AGK-RLD
Sample : 153915,175864,100 Inst : VMS3
Misc : pH5, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 23:58:36 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 21:31:17 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M
IS QA File : 50 level for IS QA unknown. No recoveries calculated.

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min) Rcv(Ar)
1) FLUOROBENZENE**ISTD**	7.69	96	1208170	20.00 ug/L	0.00 NA%
68) d5-CHLOROBENZENE**ISTD**	11.60	117	937383	20.00 ug/L	0.00 NA%
82) d4-1,4-DICHLOROBENZENE**IS	14.90	152	481549	20.00 ug/L	0.00 NA%

System Monitoring Compounds

41) SURRDibrflma	6.84	113	309468	19.974 ug/L	0.00
Spiked Amount 20.000	Range 90 - 110		Recovery = 100 %		
45) SURR12DCAd4	7.26	102	82141	20.578 ug/L	0.00
Spiked Amount 20.000	Range 89 - 111		Recovery = 103 %		
61) SURRd8Tolule	9.69	98	1171311	19.220 ug/L	0.00
Spiked Amount 20.000	Range 93 - 107		Recovery = 96 %		
83) SURR4BrFBenz	13.24	95	384031	21.902 ug/L	0.00
Spiked Amount 20.000	Range 83 - 111		Recovery = 110 %		

Target Compounds					Qvalue
2) Dichlorodi	1.97	85	1132	N.D.	
3) Chloromethan	2.14	50	2077	N.D.	
4) VinylChlorid	2.27	62	8553	0.2883 ug/L	87
5) Bromomethane	2.75	94	2076	N.D.	
6) Chloroethane	2.89	64	1833	N.D.	
7) Dichloroflmethane	3.20	67	2516	N.D.	
8) Trichlorofma	0.00	101	0	N.D.	
9) Ethylether	3.71	59	1257	N.D.	
10) dichlorotfluoroethan	3.63	67	1412	N.D.	
11) propyleneoxide	4.10	58	3164	N.D.	
12) Acrolein	0.00	56	0	N.D.	
13) 11dichlorthe	3.99	96	1023	N.D.	
14) Trichlorotfluoroeth	4.01	101	1196	N.D.	
15) Acetone	4.08	43	11105	N.D.	
16) Iodomethane	4.17	142	2162	2.4477 ug/L #	71
17) Carbon Dislf	4.27	76	4056	N.D.	
18) allylchloride	4.41	41	1617	N.D.	
19) methylacetate	4.58	74	1330	N.D.	
20) Methylchlorid	4.63	84	24130	Below Cal	92
21) tbutylalcohol	4.87	59	4256	13.2953 ug/L #	39
22) Acrylonitrile	4.93	53	1205	N.D.	
23) t12dichlorte	4.97	96	1349	N.D.	
24) MtBE	5.06	73	1101	N.D.	
25) Hexane	5.39	57	2237	N.D.	
26) 11dichlorota	5.59	63	1034	N.D.	
27) Vinylacetate	5.67	43	3024	Below Cal #	69
28) chloroprene	5.65	53	3261	N.D.	
29) Diisopether	5.69	45	2966	N.D.	
30) ETBE	0.00	59	0	N.D.	
31) 22dichloropr	6.26	77	1431	N.D.	
32) c12dichlorte	6.26	96	1041	N.D.	
33) 2Butanone	6.35	72	1247	N.D.	
34) propionitrile	6.36	54	1068	N.D.	
35) Ethylacetate	0.00	88	0	N.D.	
36) methacrylonitrile	6.55	67	1063	N.D.	
37) Bromochlorma	0.00	128	0	N.D.	
38) Tetrahydofur	6.71	42	5512	N.D.	

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\INSTARCH\Data\OCT0218B\175864.D Vial: 7
Acq On : 2 Oct 2018 23:38 Operator: AGK-RLD
Sample : 153915,175864,100 Inst : VMS3
Misc : pH5, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 23:58:36 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 21:31:17 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
39)	Chloroform	6.65	83	6229	0.2137 ug/L	90
40)	111trichlota	6.89	97	1434	N.D.	
42)	Cyclohexane	0.00	56	0	N.D.	
43)	Carbtetraclo	7.18	119	1161	N.D.	
44)	11dicloprope	0.00	110	0	N.D.	
46)	Benzene	7.34	78	3349	N.D.	
47)	12dichlorota	7.35	62	1764	N.D.	
48)	TAME	7.53	73	1265	N.D.	
49)	trichloroete	8.15	95	1669	N.D.	
50)	methylcyclohexane	8.48	83	1866	N.D.	
51)	12dicloropra	8.43	63	1608	N.D.	
52)	23Dicl1propene	0.00	75	0	N.D.	
53)	Dibromometha	8.54	93	1180	N.D.	
54)	methylmethacrylate	0.00	69	0	N.D.	
55)	14dioxane	8.58	88	1143	88.7745 ug/L #	1
56)	Bromodiclrma	8.86	83	1004	N.D.	
57)	2Nitropropane	9.01	43	2261	N.D.	
58)	2CLEVE	9.12	63	1265	3.8798 ug/L #	1
59)	c13dicloproe	0.00	75	0	N.D.	
60)	4Meth2Pentan	9.56	43	5028	N.D.	
62)	Toluene	9.81	92	1061	N.D.	
63)	t13Dicloprop	10.11	75	1501	N.D.	
64)	ethylmethacrylate	10.13	69	1027	N.D.	
65)	112Triclotha	10.30	83	1044	N.D.	
66)	Tetrachlorte	10.50	166	1271	N.D.	
67)	13Diclorpropa	10.49	76	1177	N.D.	
69)	2Hexanone	10.61	43	1121	N.D.	
70)	Clorodibrmta	10.87	129	1348	N.D.	
71)	12Dibrometha	10.89	107	1111	N.D.	
72)	Chlorobenzen	11.66	112	1681	N.D.	
73)	1Clhexane	11.60	91	2120	N.D.	
74)	1112Tetclota	0.00	131	0	N.D.	
75)	Ethylbenzene	11.77	91	3072	N.D.	
76)	m p-Xylene	11.97	106	2387	N.D.	
77)	o-Xylene	12.46	106	1167	N.D.	
78)	Styrene	12.58	104	1109	N.D.	
79)	Bromoform	0.00	173	0	N.D.	
80)	Isopropylben	13.03	105	2030	N.D.	
81)	cyclohexanone	13.11	55	1887	35.7200 ug/L #	44
84)	Bromobenzene	13.45	156	1342	N.D.	
85)	1122Tetrclta	13.50	83	1418	N.D.	
86)	123Triclproa	13.46	75	2062	N.D.	
87)	14dichloro2butene	13.49	53	1079	N.D.	
88)	n-Propylbenz	13.63	91	2470	Below Cal #	50
89)	2chlorotolue	13.74	91	2034	N.D.	
90)	4chlorotolue	13.77	91	1276	N.D.	
91)	135Trimebenz	13.89	105	1589	N.D.	
92)	tbutylbenzen	14.36	119	1941	N.D.	
93)	124Trimetben	14.39	105	1811	N.D.	
94)	sbutylbenzen	14.69	105	4095	N.D.	
95)	13Diclorbenz	14.91	146	1308	N.D.	
96)	pIsopropylto	14.87	119	1890	N.D.	
97)	14dichlorobe	14.91	146	1308	N.D.	
98)	12dichlorobe	15.48	146	1817	N.D.	
99)	nButylbenzen	15.47	91	4331	N.D.	
100)	12dibromo3cl	0.00	157	0	N.D.	
101)	135Trichlorobenzene	0.00	180	0	N.D.	

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\INSTARCH\Data\OCT0218B\175864.D Vial: 7
Acq On : 2 Oct 2018 23:38 Operator: AGK-RLD
Sample : 153915,175864,100 Inst : VMS3
Misc : pH5, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 23:58:36 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 21:31:17 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
102) 124Trichlobe	17.65	180	1060	N.D.	
103) Hexachlorobu	0.00	225	0	N.D.	
104) Naphthalene	18.02	128	3403	N.D.	
105) 123Trichlben	18.33	180	2183	N.D.	

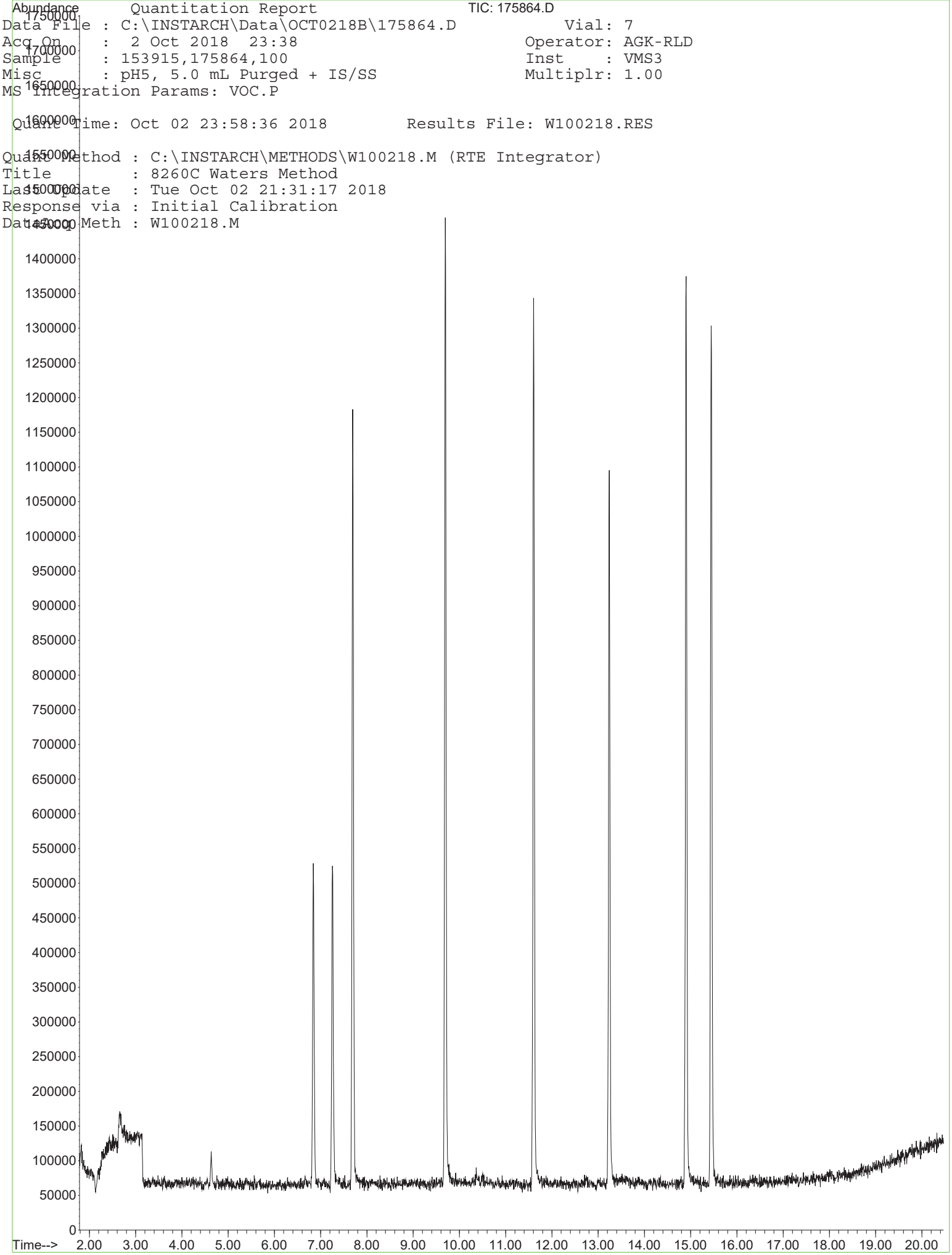
(#) = qualifier out of range (m) = manual integration

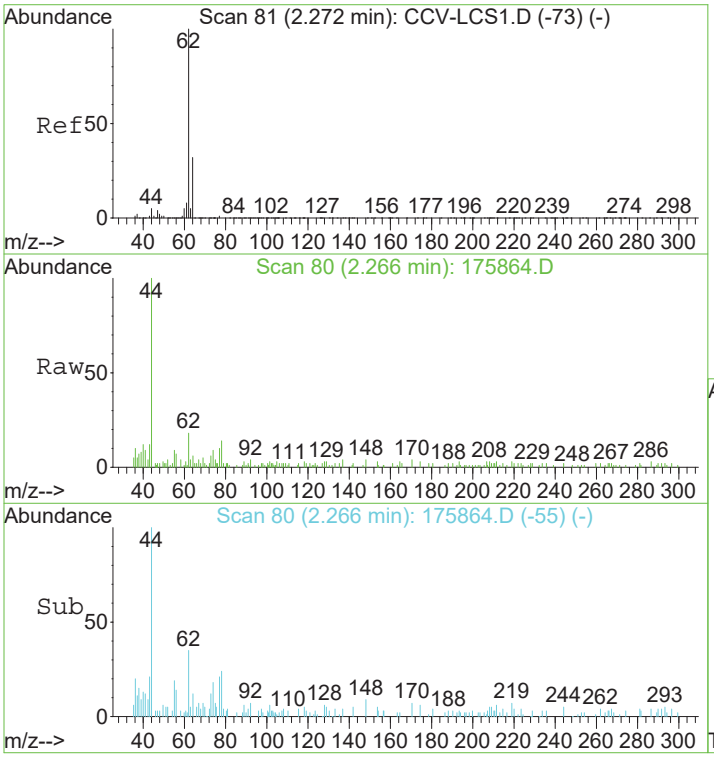
Quantitation Report

Data File : C:\INSTARCH\Data\OCT0218B\175864.D Vial: 7
Acq On : 2 Oct 2018 23:38 Operator: AGK-RLD
Sample : 153915,175864,100 Inst : VMS3
Misc : pH5, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 23:58:36 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 21:31:17 2018
Response via : Initial Calibration
Data Path Meth : W100218.M

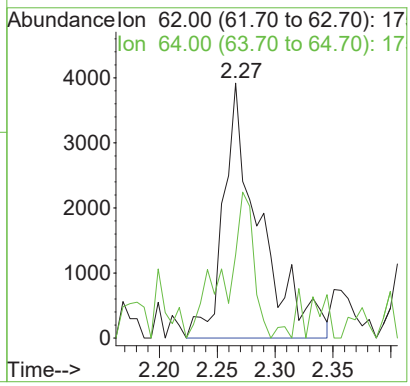


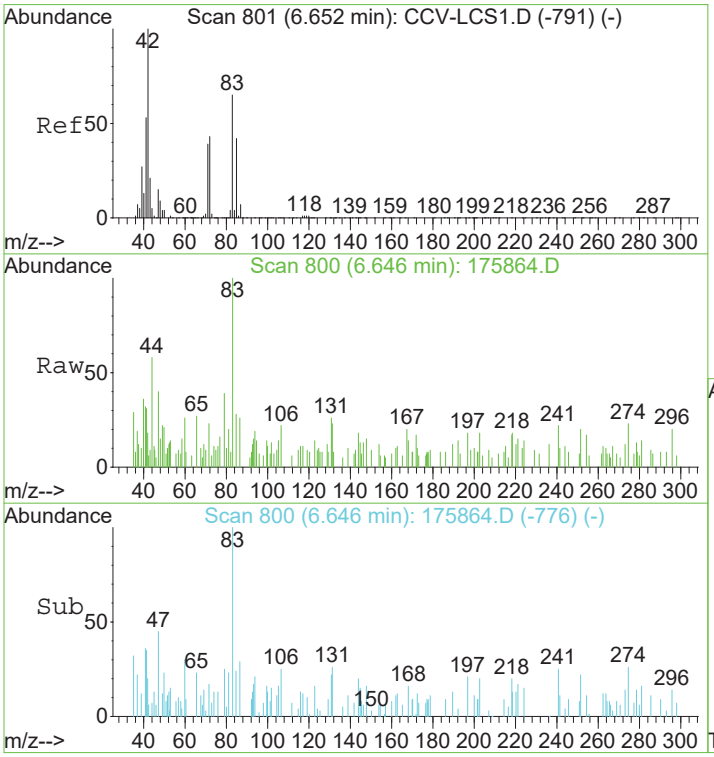


#4
VinylChlorid
Concen: 0.29 ug/L
RT: 2.27 min Scan# 80
Delta R.T. 0.00 min
Lab File: 175864.D
Acq: 2 Oct 2018 23:38

Tgt Ion: 62 Resp: 8553

Ion	Ratio	Lower	Upper
62	100		
64	27.7	15.2	55.2

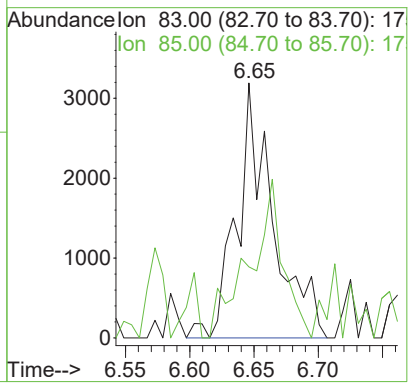




#39
Chloroform
Concen: 0.21 ug/L
RT: 6.65 min Scan# 800
Delta R.T. -0.01 min
Lab File: 175864.D
Acq: 2 Oct 2018 23:38

Tgt Ion: 83 Resp: 6229

Ion	Ratio	Lower	Upper
83	100		
85	58.1	45.9	85.9



Quantitation Report

Data File : C:\INSTARCH\Data\OCT0218B\175866.D Vial: 8
Acq On : 3 Oct 2018 00:08 Operator: AGK-RLD
Sample : 153915,175866,100 Inst : VMS3
Misc : pH5, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 03 00:28:48 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 21:31:17 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M
IS QA File : 50 level for IS QA unknown. No recoveries calculated.

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min) Rcv(Ar)
1) FLUOROBENZENE**ISTD**	7.69	96	1193423	20.00 ug/L	0.00 NA%
68) d5-CHLOROBENZENE**ISTD**	11.60	117	931122	20.00 ug/L	0.00 NA%
82) d4-1,4-DICHLOROBENZENE**IS	14.90	152	488857	20.00 ug/L	0.00 NA%

System Monitoring Compounds

41) SURRDibrflma	6.84	113	309577	20.228 ug/L	0.00
Spiked Amount 20.000	Range 90 - 110		Recovery = 101 %		
45) SURR12DCAd4	7.25	102	84506	21.432 ug/L	0.00
Spiked Amount 20.000	Range 89 - 111		Recovery = 107 %		
61) SURRd8Tolule	9.69	98	1176176	19.538 ug/L	0.00
Spiked Amount 20.000	Range 93 - 107		Recovery = 98 %		
83) SURR4BrFBenz	13.24	95	359875	20.217 ug/L	0.00
Spiked Amount 20.000	Range 83 - 111		Recovery = 101 %		

Target Compounds					Qvalue
2) Dichlorodi	1.81	85	1256	N.D.	
3) Chloromethan	2.07	50	1070	N.D.	
4) VinylChlorid	2.26	62	6159	N.D.	
5) Bromomethane	2.76	94	1177	N.D.	
6) Chloroethane	2.89	64	1249	N.D.	
7) Dichloroflmethane	3.19	67	1174	N.D.	
8) Trichlorofma	0.00	101	0	N.D.	
9) Ethylether	3.75	59	1249	N.D.	
10) dichlorotfluoroethan	3.71	67	1169	N.D.	
11) propyleneoxide	4.09	58	4124	N.D.	
12) Acrolein	3.87	56	1034	Below Cal #	1
13) 11dichlorthe	3.94	96	1226	N.D.	
14) Trichlorotfluoroeth	0.00	101	0	N.D.	
15) Acetone	4.08	43	10129	N.D.	
16) Iodomethane	4.18	142	1963	2.4298 ug/L #	72
17) Carbon Dislf	4.25	76	2943	N.D.	
18) allylchloride	4.48	41	1026	N.D.	
19) methylacetate	0.00	74	0	N.D.	
20) Methylchlorid	4.63	84	19845	Below Cal	91
21) tbutylalcohol	4.89	59	6432	14.5161 ug/L	84
22) Acrylonitrile	0.00	53	0	N.D.	
23) t12dichlorte	5.02	96	1300	N.D.	
24) MtBE	5.05	73	1751	N.D.	
25) Hexane	5.39	57	2458	N.D.	
26) 11dichlorota	5.53	63	1149	N.D.	
27) Vinylacetate	5.63	43	1098	Below Cal #	69
28) chloroprene	5.65	53	3358	N.D.	
29) Diisopether	5.70	45	1568	N.D.	
30) ETBE	6.12	59	1303	N.D.	
31) 22dichloropr	6.18	77	1017	N.D.	
32) c12dichlorte	6.26	96	1761	N.D.	
33) 2Butanone	6.29	72	1889	N.D.	
34) propionitrile	6.40	54	1061	N.D.	
35) Ethylacetate	6.43	88	1354	1.6159 ug/L #	6
36) methacrylonitrile	0.00	67	0	N.D.	
37) Bromochlorma	6.54	128	1807	0.2260 ug/L #	32
38) Tetrahydofur	6.68	42	3888	N.D.	

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\INSTARCH\Data\OCT0218B\175866.D Vial: 8
Acq On : 3 Oct 2018 00:08 Operator: AGK-RLD
Sample : 153915,175866,100 Inst : VMS3
Misc : pH5, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 03 00:28:48 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 21:31:17 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
39)	Chloroform	6.65	83	6940	0.2410 ug/L	78
40)	111trichlota	6.96	97	1113	N.D.	
42)	Cyclohexane	7.04	56	1561	N.D.	
43)	Carbtetraclo	0.00	119	0	N.D.	
44)	11dicloprope	7.10	110	1045	N.D.	
46)	Benzene	7.35	78	5449	N.D.	
47)	12dichlorota	7.35	62	1158	N.D.	
48)	TAME	7.53	73	2775	N.D.	
49)	trichloroete	8.20	95	1683	N.D.	
50)	methylcyclohexane	8.42	83	2351	N.D.	
51)	12dicloropra	8.47	63	1008	N.D.	
52)	23Dicl1propene	8.50	75	1140	N.D.	
53)	Dibromometha	8.53	93	1472	N.D.	
54)	methylmethacrylate	8.66	69	1699	0.7364 ug/L #	42
55)	14dioxane	0.00	88	0	N.D.	
56)	Bromodiclrma	0.00	83	0	N.D.	
57)	2Nitropropane	8.98	43	1301	N.D.	
58)	2CLEVE	0.00	63	0	N.D.	
59)	c13dicloproe	9.39	75	1664	N.D.	
60)	4Meth2Pentan	9.60	43	1211	N.D.	
62)	Toluene	9.77	92	2791	N.D.	
63)	t13Dicloprop	10.14	75	1253	N.D.	
64)	ethylmethacrylate	0.00	69	0	N.D.	
65)	112Triclotha	0.00	83	0	N.D.	
66)	Tetrachlorte	0.00	166	0	N.D.	
67)	13Diclorpropa	0.00	76	0	N.D.	
69)	2Hexanone	10.61	43	2595	N.D.	
70)	Clorodibrmta	10.80	129	1045	N.D.	
71)	12Dibrometha	10.95	107	1092	N.D.	
72)	Chlorobenzen	11.63	112	1703	N.D.	
73)	1Clhexane	11.61	91	3505	N.D.	
74)	1112Tetclota	0.00	131	0	N.D.	
75)	Ethylbenzene	11.80	91	1921	N.D.	
76)	m p-Xylene	11.96	106	1250	N.D.	
77)	o-Xylene	0.00	106	0	N.D.	
78)	Styrene	12.53	104	1926	N.D.	
79)	Bromoform	12.78	173	1771	N.D.	
80)	Isopropylben	13.05	105	1583	N.D.	
81)	cyclohexanone	13.14	55	1042	33.3965 ug/L #	1
84)	Bromobenzene	0.00	156	0	N.D.	
85)	1122Tetrclta	13.47	83	1222	N.D.	
86)	123Triclproa	13.48	75	1924	N.D.	
87)	14dichloro2butene	13.61	53	2014	0.3504 ug/L #	65
88)	n-Propylbenz	13.63	91	3377	Below Cal #	50
89)	2chlorotolue	13.72	91	2175	N.D.	
90)	4chlorotolue	13.89	91	1429	N.D.	
91)	135Trimebenz	13.86	105	1747	N.D.	
92)	tbutylbenzen	14.35	119	2578	N.D.	
93)	124Trimetben	14.42	105	1733	N.D.	
94)	sbutylbenzen	14.66	105	2162	N.D.	
95)	13Diclorbenz	14.82	146	2145	N.D.	
96)	pIsopropylto	0.00	119	0	N.D.	
97)	14dichlorobe	14.82	146	2145	N.D.	
98)	12dichlorobe	15.43	146	1229	N.D.	
99)	nButylbenzen	15.47	91	2045	N.D.	
100)	12dibromo3cl	0.00	157	0	N.D.	
101)	135Trichlorobenzene	16.89	180	1226	N.D.	

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\INSTARCH\Data\OCT0218B\175866.D Vial: 8
Acq On : 3 Oct 2018 00:08 Operator: AGK-RLD
Sample : 153915,175866,100 Inst : VMS3
Misc : pH5, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 03 00:28:48 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 21:31:17 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
102) 124Trichlobe	17.72	180	1419	N.D.	
103) Hexachlorobu	0.00	225	0	N.D.	
104) Naphthalene	18.02	128	1947	N.D.	
105) 123Trichlben	18.30	180	1138	N.D.	

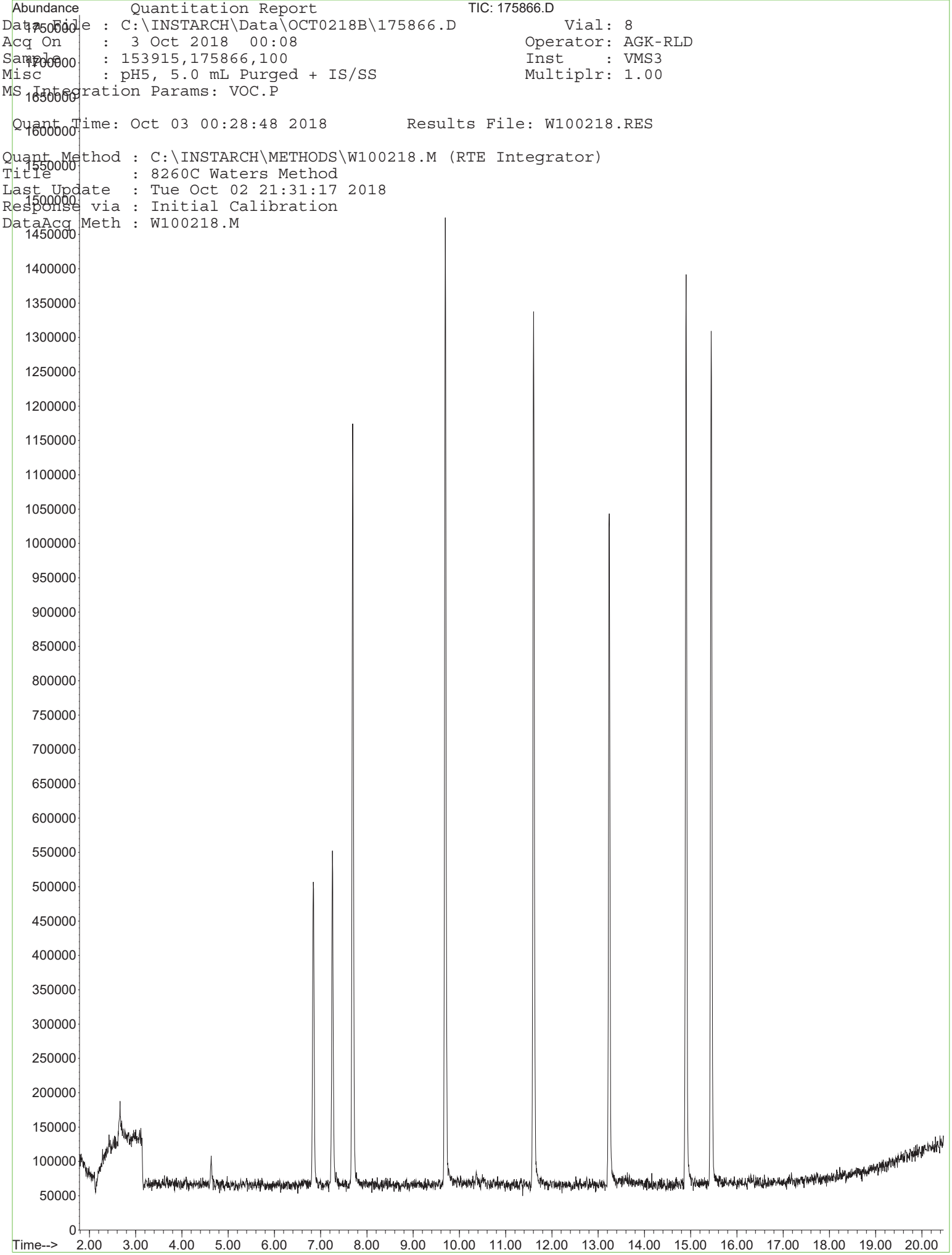
(#) = qualifier out of range (m) = manual integration

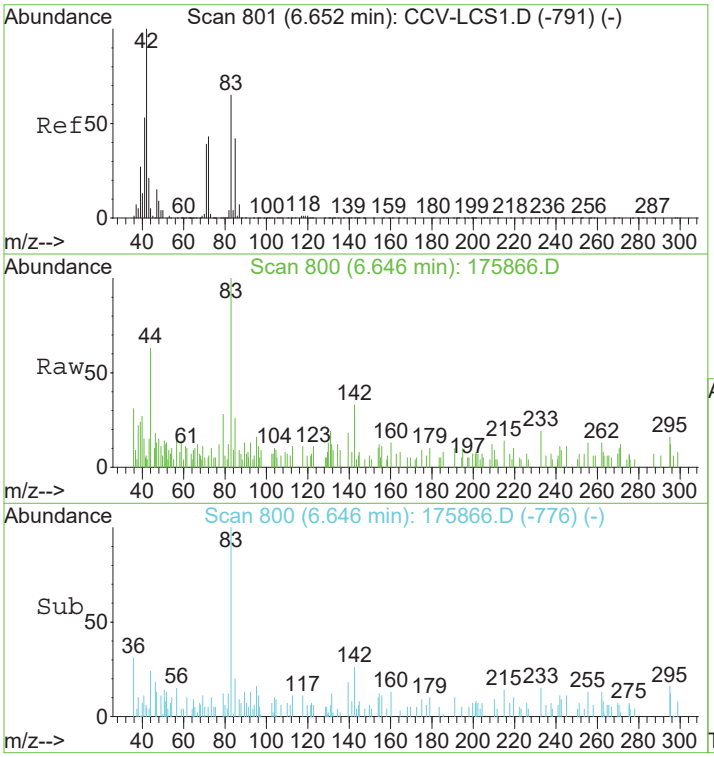
Quantitation Report

Data File : C:\INSTARCH\Data\OCT0218B\175866.D Vial: 8
Acq On : 3 Oct 2018 00:08 Operator: AGK-RLD
Sample : 153915,175866,100 Inst : VMS3
Misc : pH5, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 03 00:28:48 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 21:31:17 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M

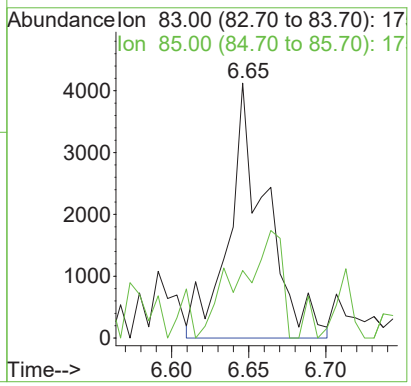




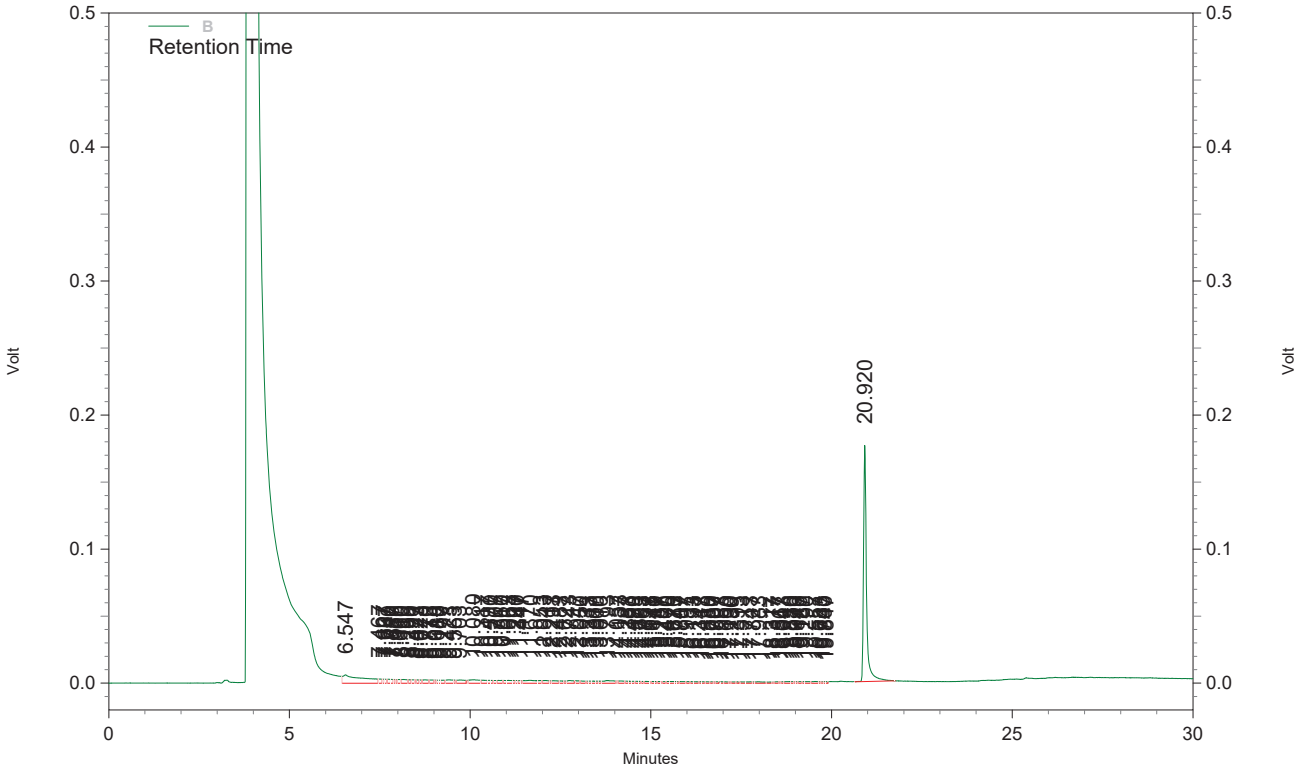
#39
Chloroform
Concen: 0.24 ug/L
RT: 6.65 min Scan# 800
Delta R.T. -0.01 min
Lab File: 175866.D
Acq: 3 Oct 2018 00:08

Tgt Ion: 83 Resp: 6940

Ion	Ratio	Lower	Upper
83	100		
85	48.6	45.9	85.9



Inst : **PVOC1**
File : C:\Instarch\PVOC1\Data\092118-8015WS\019.DAT
Method : C:\Instarch\PVOC1\Methods\8015p1s091218.met
Acquired : Sep 21, 2018 22:49:56
Sample ID : 153498,175865,1,
File Desc. : GRO 8015 QSM 1.0mL Ext/50

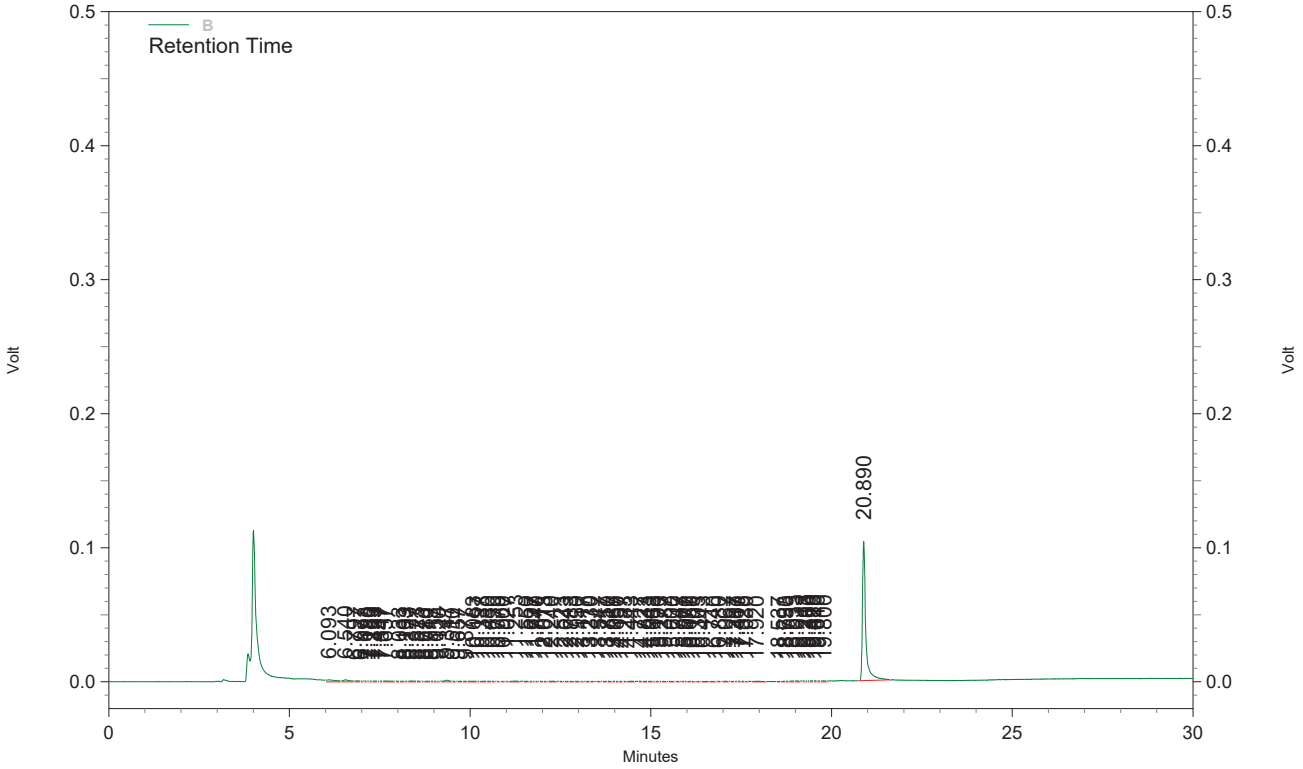


B Results

Compound Name	Retention Time	*Area*	*Conc. (ug/L)*
S:1,2-DCBd4	20.920	1017022	182.338 HC
GRO		1493416	24.665

Inst : **PVOC1**
File : C:\Instarch\PVOC1\Data\092518-8015W\008.DAT
Method : C:\Instarch\PVOC1\Methods\8015p1w091018.met
Acquired : Sep 25, 2018 19:21:51
Sample ID : 153496,175867,1, pH<2
File Desc. : GRO 8015 QSM

5.0 mL Purged + ISTD/SSTD



B Results

Compound Name	Retention Time	*Area*	*Conc. (ug/L)*
S:1,2-DCBd4	20.890	655368	121.890 HC
GRO		372596	10.610

VOLATILE ORGANIC ANALYSIS
INITIAL CALIBRATION
DOCUMENTS

Response Factor Report VMS3

Method Path : C:\INSTARCH\METHODS\
Method File : W100218.M
Title : 8260C Waters Method
Last Update : Tue Oct 02 21:31:17 2018
Response Via : Initial Calibration

RJ 10/03/2018

Calibration Files ug/L
1 0.500/5.0 =WCAL1R.D 2 2.00/20.00 =WCAL2.D 3 5.00/50.00 =WCAL3.D
4 10.00/100 =WCAL4.D 5 20.00/200 =WCAL5.D 6 30.00/300 =WCAL6.D
7 40.00/400 =WCAL7.D 8 80.00/800 =WCAL8.D

		Compound	1	2	3	4	5	6	7	Avg	%RSD
			8								
1)	I	FLUOROBENZENE**ISTD**	----------ISTD----------								
2)	PT	Dichlorodi	0.227	0.289	0.296	0.273	0.257	0.258	0.241	0.260	9.48
			0.238								
3)	PT	Chloromethan	0.178	0.188	0.200	0.198	0.179	0.195	0.170	0.189	6.65
			0.206								
4)	PT	VinylChlorid	0.548	0.595	0.527	0.463	0.498	0.478	0.454	0.491	14.06
			0.366								
5)	PT	Bromomethane	0.193	0.217	0.260	0.247	0.233	0.242	0.251	0.235	9.02
			0.235								
6)	PT	Chloroethane	0.406	0.552	0.536	0.457	0.448	0.433	0.416	0.453	13.59
			0.376								
7)	T	Dichloroflmetha	0.433	0.410	0.401	0.485	0.360	0.335	0.370	0.389	13.94
			0.321								
8)	PT	Trichlorofma	0.446	0.440	0.420	0.377	0.364	0.378	0.343	0.388	11.01
			0.334								
9)	T	Ethylether	0.274	0.252	0.227	0.220	0.201	0.218	0.197	0.223	12.50
			0.195								
10)	T	dichlorotfluoro	0.284	0.276	0.268	0.242	0.240	0.247	0.234	0.252	8.26
			0.228								
11)	T	propyleneoxide	0.029	0.035	0.037	0.032	0.028	0.030	0.028	0.030	13.58
			0.024								
12)	T	Acrolein	0.064	0.065	0.058	0.049	0.047	0.050	0.047	-----	
			0.042								
								Q	A= -0.001	R=0.999	
									B= 0.052		
									C= 0.002		
13)	PT	11dichlorthe	0.313	0.262	0.233	0.221	0.220	0.226	0.212	0.238	14.42
			0.214								
14)	PT	Trichlorotfluor	0.250	0.236	0.234	0.227	0.207	0.220	0.197	0.221	9.02
			0.195								
15)	PT	Acetone	0.099	0.107	0.107	0.092	0.086	0.093	0.085	0.092#	13.45
			0.069								
16)	T	Iodomethane	0.095	0.090	0.119	0.132	0.159	0.180	0.185	-----	
			0.215								
								Q	A= 0.007	R=1.000	
									B= 0.160		
									C= -0.018		
17)	PT	Carbon Dislf	0.617	0.675	0.672	0.627	0.581	0.578	0.512	0.590	12.71
			0.459								
18)	T	allylchloride	0.298	0.309	0.300	0.290	0.291	0.299	0.268	0.289	6.05
			0.257								
19)	PT	methylacetate	0.069	0.119	0.094	0.096	0.093	0.095	0.091	0.093#	14.91
			0.087								
20)	PT	Methylchlorid	2.027	0.307	0.291	0.245	0.248	0.244	0.223	-----	
			0.233								
								Q	A= 0.004	R=0.998	
									B= 0.210		
									C= 0.026		
21)	T	tbutylalcohol	0.033	0.025	0.033	0.027	0.025	0.027	0.024	-----	#
			0.018								
								Q	A= -0.000	R=0.998	
									B= 0.031		

```
                                                    C= -0.017
22) T   Acrylonitrile   0.087 0.103 0.121 0.105 0.103 0.112 0.100 0.102  11.20
                        0.088
23) PT  t12dichlorte    0.264 0.264 0.274 0.240 0.254 0.255 0.236 0.252   6.05
                        0.231
24) PT  MtBE            0.688 0.761 0.782 0.694 0.700 0.696 0.654 0.699   7.62
                        0.616
25) T   Hexane          0.416 0.345 0.370 0.354 0.352 0.365 0.328 0.355   8.78
                        0.311
26) PT  11dichlorota    0.569 0.500 0.490 0.471 0.455 0.454 0.417 0.470  11.01
                        0.405
27) T   Vinylacetate    0.449 0.529 0.541 0.490 0.432 0.398 0.330 -----
                        0.232
                                                  Q  A= -0.006 R=0.996
                                                     B=  0.458
                                                     C=  0.167
28) T   chloroprene     0.379 0.360 0.365 0.353 0.346 0.351 0.334 0.353   4.09
                        0.339
29) T   Diisopether     0.712 0.854 0.796 0.760 0.757 0.734 0.735 0.757   6.40
                        0.707
30) T   ETBE            0.609 0.739 0.750 0.688 0.691 0.704 0.661 0.683   7.41
                        0.621
31) T   22dichloropr    0.476 0.443 0.408 0.385 0.384 0.389 0.353 0.399  10.59
                        0.355
32) PT  c12dichlorte    0.333 0.298 0.305 0.288 0.292 0.281 0.270 0.291   7.39
                        0.265
33) PT  2Butanone       0.035 0.038 0.045 0.041 0.039 0.041 0.038 0.039#  9.06
                        0.034
34) T   propionitrile   0.025 0.035 0.045 0.039 0.037 0.040 0.037 -----
                        0.032
                                                  Q  A= -0.000 R=0.999
                                                     B=  0.043
                                                     C= -0.006
35) T   Ethylacetate    0.013 0.012 0.018 0.014 0.014 0.014 0.014 0.014# 12.93
                        0.013
36) T   methacrylonitri 0.123 0.108 0.137 0.127 0.128 0.140 0.133 0.128   7.72
                        0.128
37) T   Bromochlorma    0.135 0.161 0.145 0.127 0.134 0.129 0.117 0.134  10.12
                        0.125
38) T   Tetrahydofur    0.087 0.095 0.106 0.098 0.093 0.098 0.090 0.093  10.01
                        0.075
39) PT  Chloroform      0.627 0.524 0.510 0.460 0.447 0.446 0.420 0.483  14.29
                        0.427
40) PT  111trichlota    0.441 0.421 0.430 0.396 0.392 0.385 0.380 0.401   6.63
                        0.365
41) S   SURRDibrflma    0.248 0.251 0.265 0.256 0.257 0.262 0.249 0.256   2.62
                        0.264
42) PT  Cyclohexane     0.454 0.551 0.539 0.518 0.532 0.527 0.504 0.516   5.83
                        0.501
43) PT  Carbtetraclo    0.263 0.336 0.342 0.325 0.322 0.330 0.315 0.319   7.66
                        0.317
44) T   11dicloprope    0.136 0.131 0.134 0.126 0.126 0.130 0.123 0.129   3.56
                        0.126
45) S   SURR12DCAd4     0.069 0.071 0.063 0.064 0.063 0.067 0.065 0.066   4.30
                        0.066
46) PT  Benzene         1.283 1.104 1.153 1.052 1.019 1.002 0.921 1.046  13.32
                        0.831
47) PT  12dichlorota    0.366 0.359 0.369 0.346 0.332 0.343 0.320 0.344   5.67
                        0.319
48) T   TAME            0.652 0.781 0.767 0.703 0.702 0.708 0.666 0.703   7.15
                        0.644
49) PT  trichloroete    0.316 0.285 0.270 0.263 0.252 0.256 0.252 0.267   8.64
                        0.246
50) PT  methylcyclohexa 0.559 0.495 0.517 0.498 0.488 0.488 0.460 0.497   6.19
                        0.469
51) PT  12dicloropra    0.296 0.311 0.323 0.285 0.279 0.281 0.261 0.288   7.31
                        0.268
52) T   23Dicl1propene  0.285 0.477 0.398 0.399 0.383 0.385 0.367 0.382  13.78
                        0.364
53) T   Dibromometha    0.197 0.192 0.187 0.172 0.163 0.160 0.160 0.174   8.93
```

```
                        0.161
54) T   methylmethacryl 0.114 0.172 0.203 0.200 0.206 0.216 0.220 -----
                        0.213
                                                        Q  A= -0.002 R=1.000
                                                           B=  0.225
                                                           C= -0.007
55) T   14dioxane       0.001 0.000 0.000 0.001 0.001 0.001 0.001 ----- #
                        0.001
                                                        Q  A= -0.000 R=0.997
                                                           B=  0.001
                                                           C= -0.002
56) PT  Bromodiclrma    0.365 0.346 0.387 0.351 0.322 0.329 0.320 0.343   7.12
                        0.321
57) T   2Nitropropane   0.063 0.083 0.097 0.096 0.097 0.103 0.095 0.090  14.47
                        0.082
58) T   2CLEVE          0.066 0.102 0.129 0.137 0.142 0.150 0.145 -----
                        0.136
                                                        Q  A= -0.001 R=1.000
                                                           B=  0.158
                                                           C= -0.030
59) PT  c13dicloproe    0.314 0.417 0.440 0.412 0.388 0.396 0.398 0.393   9.40
                        0.383
60) PT  4Meth2Pentan    0.278 0.301 0.346 0.314 0.288 0.275 0.241 0.292  11.32

61) S   SURRd8Tolule    0.992 1.005 1.026 0.997 1.004 1.014 0.980 1.009   2.26
                        1.053
62) PT  Toluene         0.724 0.701 0.704 0.681 0.649 0.661 0.621 0.672   5.34
                        0.637
63) PT  t13Dicloprop    0.297 0.367 0.380 0.358 0.349 0.375 0.357 0.354   7.21
                        0.351
64) T   ethylmethacryla 0.270 0.342 0.376 0.358 0.349 0.373 0.356 0.347   9.58
                        0.349
65) PT  112Triclotha    0.208 0.232 0.208 0.199 0.201 0.210 0.200 0.208   4.99
                        0.208
66) PT  Tetrachlorte    0.336 0.328 0.339 0.305 0.301 0.312 0.301 0.316   4.99
                        0.308
67) T   13Diclorpropa   0.487 0.448 0.488 0.434 0.416 0.431 0.409 0.439   7.51
                        0.402

68) I   d5-CHLOROBENZENE**IST ----------------ISTD---------------------
69) PT  2Hexanone       0.204 0.233 0.297 0.282 0.280 0.268 0.247 0.259  12.57

70) PT  Clorodibrmta    0.351 0.335 0.326 0.316 0.324 0.335 0.325 0.329   3.19
                        0.324
71) PT  12Dibrometha    0.309 0.315 0.326 0.318 0.320 0.325 0.318 0.316   2.60
                        0.301
72) PT  Chlorobenzen    1.043 0.990 0.905 0.916 0.915 0.871 0.860 0.912   8.32
                        0.799
73) T   1Clhexane       0.540 0.478 0.458 0.462 0.462 0.466 0.459 0.473   5.92
                        0.458
74) T   1112Tetclota    0.362 0.328 0.348 0.322 0.319 0.323 0.326 0.329   5.25
                        0.307
75) PT  Ethylbenzene    1.632 1.606 1.613 1.491 1.513 1.452 1.395 1.485  10.00
                        1.182
76) PT  m p-Xylene      0.568 0.577 0.628 0.601 0.609 0.578 0.588 0.586   4.80
                        0.536
77) PT  o-Xylene        0.585 0.554 0.573 0.576 0.603 0.605 0.611 0.588   3.29
                        0.595
78) PT  Styrene         0.850 0.801 0.951 0.915 0.954 0.954 0.977 0.916   6.59
                        0.926
79) PT  Bromoform       0.321 0.255 0.248 0.249 0.263 0.282 0.281 0.274   9.35
                        0.296
80) PT  Isopropylben    1.343 1.460 1.470 1.434 1.492 1.477 1.400 1.414   6.12
                        1.237
81) T   cyclohexanone   0.010 0.001 0.005 0.005 0.006 0.007 0.007 ----- #
                        0.006
                                                        Q  A= -0.000 R=0.997
                                                           B=  0.008
                                                           C= -0.012
```

```
 82) I   d4-1,4-DICHLOROBENZEN ----------------ISTD---------------------
 83) S   SURR4BrFBenz    0.749 0.745 0.748 0.741 0.727 0.726 0.678 0.728   3.27
                         0.712
 84) T   Bromobenzene    0.836 0.755 0.774 0.735 0.688 0.696 0.614 0.714  10.83
                         0.613
 85) PT  1122Tetrclta    0.868 1.015 0.943 0.895 0.825 0.811 0.743 0.844  13.55
                         0.650
 86) T   123Triclproa    1.044 1.016 1.068 1.017 1.011 1.025 0.928 0.996   6.91
                         0.858
 87) T   14dichloro2bute 0.265 0.253 0.245 0.227 0.227 0.240 0.215 0.235   8.11
                         0.209
 88) T   n-Propylbenz    3.081 3.178 3.167 3.177 2.937 2.749 2.431 -----
                         1.951
                                                   Q  A= -0.285 R=0.999
                                                      B=  3.071
                                                      C=  0.054
 89) T   2chlorotolue    1.991 1.766 1.693 1.722 1.646 1.589 1.456 1.646  12.47
                         1.308
 90) T   4chlorotolue    1.752 2.108 1.957 2.007 1.914 1.820 1.738 1.848  10.39
                         1.492
 91) T   135Trimebenz    1.983 2.319 2.157 2.111 1.999 1.963 1.862 1.995  11.21
                         1.563
 92) T   tbutylbenzen    2.113 1.938 1.833 1.883 1.787 1.748 1.579 1.787  12.03
                         1.414
 93) T   124Trimetben    2.016 2.051 2.051 2.087 2.004 1.910 1.773 1.929   9.66
                         1.541
 94) T   sbutylbenzen    2.482 2.796 2.730 2.775 2.663 2.511 2.257 2.509  12.71
                         1.860
 95) PT  13Diclorbenz    1.358 1.381 1.379 1.348 1.269 1.240 1.118 1.269   9.76
                         1.057
 96) T   pIsopropylto    2.199 2.242 2.319 2.272 2.206 2.149 1.938 2.127   9.86
                         1.692
 97) PT  14dichlorobe    1.493 1.415 1.440 1.382 1.303 1.273 1.190 1.324  10.24
                         1.092
 98) PT  12dichlorobe    1.421 1.419 1.352 1.280 1.248 1.176 1.082 1.251  11.74
                         1.030
 99) T   nButylbenzen    2.382 2.108 2.122 2.112 2.011 1.964 1.788 2.003  12.55
                         1.540
100) PT  12dibromo3cl    0.219 0.225 0.187 0.193 0.198 0.193 0.174 0.193  11.61
                         0.155
101) T   135Trichloroben 1.004 0.900 0.884 0.894 0.903 0.860 0.755 0.864  10.63
                         0.711
102) PT  124Trichlobe    0.831 0.728 0.750 0.759 0.780 0.730 0.664 0.734   8.75
                         0.627
103) T   Hexachlorobu    0.524 0.377 0.416 0.412 0.402 0.377 0.339 0.399  14.67
                         0.342
104) T   Naphthalene     1.320 1.550 1.627 1.743 1.973 1.914 1.681 1.647  14.18
                         1.368
105) T   123Trichlben    0.838 0.602 0.660 0.728 0.726 0.687 0.624 0.683  11.86
                         0.596
 ---------------------------------------------------------------------------
                                                Total Average %RSD   9.10
 ---------------------------------------------------------------------------
 L = Linear LO = Linear+Origin Q = Quad QO = Quad+Origin R = Corr. Coef
 (#) = Out of Range

          W100218.M         Wed Oct 03 09:36:31 2018
```

BFB

Data File : C:\INSTARCH\Data\OCT0218\BFB1.D Vial: 1
Acq On : 2 Oct 2018 10:24 Operator: AGK-RLD
Sample : BFB Injection Inst : VMS3
Misc : 50 ng Inj. Multiplr: 1.00
Integration File: VOC.P

Method : C:\INSTARCH\METHODS\W100218.M
Title : 8260C Waters Method

Spectrum Information: Average of 4.657 to 4.669 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	22.1	22115	PASS
75	95	30	60	53.9	53910	PASS
95	95	100	100	100.0	100000	PASS
96	95	5	9	8.3	8323	PASS
173	174	0.00	2	1.0	911	PASS
174	95	50	100	95.3	95283	PASS
175	174	5	9	7.4	7034	PASS
176	174	95	101	97.5	92924	PASS
177	176	5	9	8.1	7493	PASS

W100218.M Wed Oct 03 09:05:53 2018

Quantitation Report

Data File : C:\INSTARCH\Data\OCT0218\WCAL1.D Vial: 4
Acq On : 2 Oct 2018 11:42 Operator: AGK-RLD
Sample : INITIAL CALIB. PT1 Inst : VMS3
Misc : 0.50/5.00 ug/L, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 16:17:52 2018 Results File: W100218.RES

NOT USED

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 16:17:45 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M
IS QA File : 50 level for IS QA unknown. No recoveries calculated.

Purge/Prep Error!

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min) Rcv(Ar)
1) FLUOROBENZENE**ISTD**	7.69	96	1180170	20.00 ug/L	0.00 NA%
68) d5-CHLOROBENZENE**ISTD**	11.60	117	939853	20.00 ug/L	0.00 NA%
82) d4-1,4-DICHLOROBENZENE**IS	14.90	152	493093	20.00 ug/L	0.00 NA%

System Monitoring Compounds

41) SURRDibrflma	6.84	113	295773	19.520 ug/L	0.00
Spiked Amount 20.000	Range 90 - 110		Recovery = 98 %		
45) SURR12DCAd4	7.25	102	83362	21.308 ug/L	0.00
Spiked Amount 20.000	Range 89 - 111		Recovery = 107 %		
61) SURRd8Tolule	9.69	98	1174603	19.723 ug/L	0.00
Spiked Amount 20.000	Range 93 - 107		Recovery = 99 %		
83) SURR4BrFBenz	13.23	95	369989	20.602 ug/L	0.00
Spiked Amount 20.000	Range 83 - 111		Recovery = 103 %		

Target Compounds					Qvalue
2) Dichlorodi	1.88	85	10974	0.6688 ug/L	95
3) Chloromethan	2.12	50	9741	0.7924 ug/L	88
4) VinylChlorid	2.27	62	24942	0.8000 ug/L	96
5) Bromomethane	2.73	94	9442	0.6192 ug/L #	74
6) Chloroethane	2.89	64	21806	0.7472 ug/L #	61
7) Dichloroflmethane	3.18	67	22157	0.8751 ug/L	85
8) Trichlorofma	3.28	101	14822	0.6363 ug/L	91
9) Ethylether	3.73	59	10361	0.7550 ug/L	89
10) dichlorotfluoroethan	3.73	67	11451	0.7310 ug/L	91
11) propyleneoxide	4.09	58	14116	7.2933 ug/L	95
12) Acrolein	3.86	56	12756	3.8847 ug/L	94
13) 11dichlorthe	3.99	96	7335	0.5415 ug/L #	75
14) Trichlorotfluoroeth	4.03	101	18124	1.3473 ug/L	89
15) Acetone	4.10	43	39943	6.9997 ug/L	98
16) Iodomethane	4.18	142	7284	0.8202 ug/L	93
17) Carbon Dislf	4.26	76	47895	1.3205 ug/L	95
18) allylchloride	4.47	41	19790	1.1415 ug/L	89
19) methylacetate	4.55	74	3853	0.6479 ug/L #	37
20) Methylchlorid	4.63	84	15638	0.8969 ug/L	98
21) tbutylalcohol	4.88	59	55156	34.8347 ug/L	100
22) Acrylonitrile	4.95	53	15799	2.5522 ug/L #	76
23) t12dichlorte	5.02	96	7922	0.5308 ug/L #	75
24) MtBE	5.06	73	23848	0.5661 ug/L #	69
25) Hexane	5.40	57	23853	1.1436 ug/L #	87
26) 11dichlorota	5.53	63	18070	0.6439 ug/L	78
27) Vinylacetate	5.63	43	156681	6.0974 ug/L	97
28) chloroprene	5.66	53	24915	1.1767 ug/L	91
29) Diisopether	5.69	45	28078	0.6047 ug/L	96
30) ETBE	6.15	59	23323	0.5602 ug/L	88
31) 22dichloropr	6.26	77	13565	0.5788 ug/L #	65
32) c12dichlorte	6.26	96	10193	0.5897 ug/L	95
33) 2Butanone	6.31	72	11268	4.8663 ug/L #	32
34) propionitrile	6.35	54	7238	3.3749 ug/L	69
35) Ethylacetate	6.41	88	2699	3.1220 ug/L #	20
36) methacrylonitrile	6.53	67	7818	1.0253 ug/L #	84
37) Bromochlorma	6.55	128	4740	0.5855 ug/L #	75
38) Tetrahydofur	6.68	42	30574	5.4645 ug/L	93

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\INSTARCH\Data\OCT0218\WCAL1.D Vial: 4
Acq On : 2 Oct 2018 11:42 Operator: AGK-RLD
Sample : INITIAL CALIB. PT1 Inst : VMS3
Misc : 0.50/5.00 ug/L, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 16:17:52 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 16:17:45 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
39)	Chloroform	6.66	83	22376	0.7598 ug/L	98
40)	111trichlota	6.90	97	17607	0.7090 ug/L	87
42)	Cyclohexane	6.98	56	20389	0.6336 ug/L	89
43)	Carbtetraclo	7.12	119	13465	0.6654 ug/L	95
44)	11dicloprope	7.11	110	3451	0.4625 ug/L #	65
46)	Benzene	7.35	78	40075	0.6438 ug/L	75
47)	12dichlorota	7.35	62	13951	0.6612 ug/L	90
48)	TAME	7.53	73	26013	0.6023 ug/L	97
49)	trichloroete	8.16	95	11418	0.7000 ug/L #	85
50)	methylcyclohexane	8.42	83	18280	0.6144 ug/L	97
51)	12dicloropra	8.42	63	10554	0.6046 ug/L #	98
52)	23Dicl1propene	8.47	75	14011	0.5850 ug/L #	53
53)	Dibromometha	8.57	93	7289	0.6858 ug/L	92
54)	methylmethacrylate	8.60	69	6236	0.5150 ug/L	76
55)	14dioxane	8.64	88	1143	32.2040 ug/L #	13
56)	Bromodiclrma	8.76	83	11090	0.5464 ug/L	85
57)	2Nitropropane	9.03	43	28612	5.1700 ug/L	98
58)	2CLEVE	9.15	63	17673	2.2626 ug/L	89
59)	c13dicloproe	9.35	75	14526	0.5921 ug/L	87
60)	4Meth2Pentan	9.55	43	88463	5.3685 ug/L	96
62)	Toluene	9.78	92	25590	0.6283 ug/L	94
63)	t13Dicloprop	10.04	75	11099	0.5166 ug/L	75
64)	ethylmethacrylate	10.21	69	18994	0.9117 ug/L	83
65)	112Triclotha	10.28	83	9407	0.7176 ug/L #	78
66)	Tetrachlorte	10.52	166	11754	0.6146 ug/L	86
67)	13Diclorpropa	10.50	76	15652	0.5963 ug/L	81
69)	2Hexanone	10.65	43	42108	3.6645 ug/L	94
70)	Clorodibrmta	10.80	129	8053	0.5218 ug/L #	63
71)	12Dibrometha	10.97	107	8529	0.5616 ug/L #	59
72)	Chlorobenzen	11.65	112	28695	0.6533 ug/L	89
73)	1Clhexane	11.62	91	15899	0.6907 ug/L #	60
74)	1112Tetclota	11.76	131	10880	0.6768 ug/L	97
75)	Ethylbenzene	11.82	91	41177	0.5839 ug/L	99
76)	m p-Xylene	11.98	106	32669	1.1559 ug/L	90
77)	o-Xylene	12.52	106	14513	0.5218 ug/L	89
78)	Styrene	12.54	104	20811	0.4811 ug/L	82
79)	Bromoform	12.75	173	6096	0.4865 ug/L	86
80)	Isopropylben	13.04	105	39598	0.5784 ug/L	92
81)	cyclohexanone	13.17	55	1929	7.9443 ug/L #	57
84)	Bromobenzene	13.46	156	11270	0.6316 ug/L	97
85)	1122Tetrclta	13.42	83	17767	0.7873 ug/L	85
86)	123Triclproa	13.47	75	14698	0.5877 ug/L	89
87)	14dichloro2butene	13.53	53	3838	0.6460 ug/L #	84
88)	n-Propylbenz	13.62	91	44461	0.6219 ug/L	91
89)	2chlorotolue	13.74	91	25369	0.6218 ug/L	88
90)	4chlorotolue	13.90	91	29362	0.6180 ug/L	98
91)	135Trimebenz	13.88	105	28286	0.5641 ug/L	97
92)	tbutylbenzen	14.34	119	29354	0.6540 ug/L	97
93)	124Trimetben	14.42	105	25384	0.5322 ug/L	84
94)	sbutylbenzen	14.67	105	37632	0.5915 ug/L	97
95)	13Diclorbenz	14.82	146	21000	0.6492 ug/L	97
96)	pIsopropylto	14.88	119	29237	0.5519 ug/L	82
97)	14dichlorobe	14.95	146	22842	0.6770 ug/L #	66
98)	12dichlorobe	15.47	146	20123	0.6389 ug/L #	70
99)	nButylbenzen	15.49	91	27806	0.5675 ug/L	98
100)	12dibromo3cl	16.57	157	4103	0.8031 ug/L	91
101)	135Trichlorobenzene	16.90	180	12469	0.5848 ug/L #	72

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\INSTARCH\Data\OCT0218\WCAL1.D Vial: 4
Acq On : 2 Oct 2018 11:42 Operator: AGK-RLD
Sample : INITIAL CALIB. PT1 Inst : VMS3
Misc : 0.50/5.00 ug/L, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 16:17:52 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 16:17:45 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
102) 124Trichlobe	17.73	180	8313	0.4723 ug/L #	76
103) Hexachlorobu	17.96	225	6579	0.6675 ug/L #	71
104) Naphthalene	18.03	128	5697	0.1562 ug/L #	58
105) 123Trichlben	18.31	180	6810	0.4269 ug/L	90

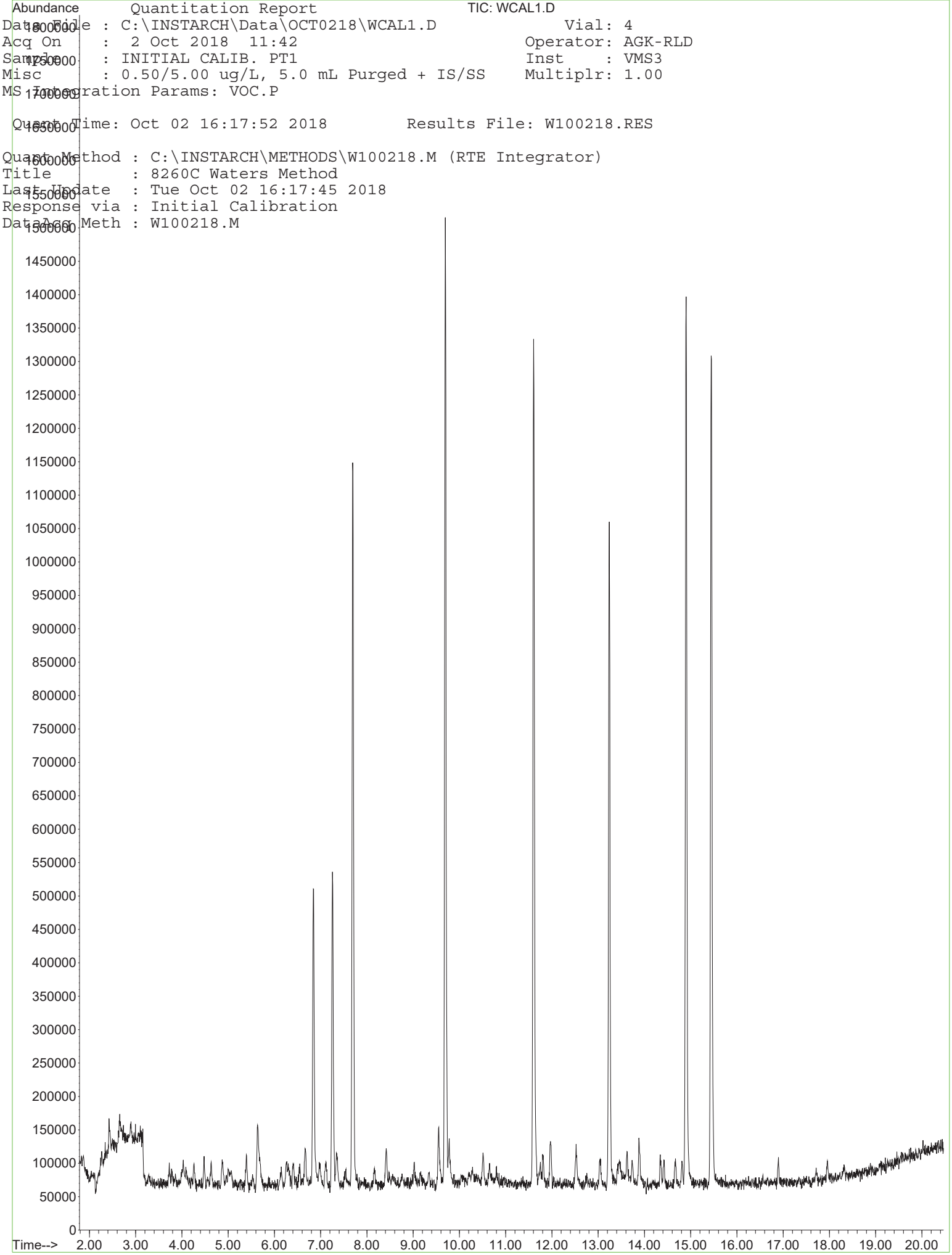
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\INSTARCH\Data\OCT0218\WCAL1.D Vial: 4
Acq On : 2 Oct 2018 11:42 Operator: AGK-RLD
Sample : INITIAL CALIB. PT1 Inst : VMS3
Misc : 0.50/5.00 ug/L, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 16:17:52 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 16:17:45 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M



Quantitation Report

Data File : C:\INSTARCH\Data\OCT0218\WCAL2.D Vial: 5
Acq On : 2 Oct 2018 12:12 Operator: AGK-RLD
Sample : INITIAL CALIB. PT2 Inst : VMS3
Misc : 2.00/20.0 ug/L, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 20:37:15 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 16:17:28 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M
IS QA File : 50 level for IS QA unknown. No recoveries calculated.

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min) Rcv(Ar)
1) FLUOROBENZENE**ISTD**	7.69	96	1186117	20.00 ug/L	0.00 NA%
68) d5-CHLOROBENZENE**ISTD**	11.60	117	950034	20.00 ug/L	0.00 NA%
82) d4-1,4-DICHLOROBENZENE**IS	14.90	152	501073	20.00 ug/L	0.00 NA%

System Monitoring Compounds

41) SURRDibrflma	6.85	113	297742	19.551 ug/L	0.00
Spiked Amount 20.000	Range 90 - 110		Recovery = 98 %		
45) SURR12DCAd4	7.25	102	84260	21.429 ug/L	0.00
Spiked Amount 20.000	Range 89 - 111		Recovery = 107 %		
61) SURRd8Tolule	9.69	98	1191461	19.906 ug/L	0.00
Spiked Amount 20.000	Range 93 - 107		Recovery = 100 %		
83) SURR4BrFBenz	13.23	95	373123	20.445 ug/L	0.00
Spiked Amount 20.000	Range 83 - 111		Recovery = 102 %		

Target Compounds					Qvalue
2) Dichlorodi	1.87	85	34322	2.0812 ug/L	98
3) Chloromethan	2.11	50	22358	1.8096 ug/L	96
4) VinylChlorid	2.27	62	70620	2.2538 ug/L	99
5) Bromomethane	2.74	94	25692m	1.6765 ug/L #	96
6) Chloroethane	2.89	64	65443	2.2312 ug/L	93
7) Dichloroflmethane	3.20	67	48651	1.9118 ug/L	97
8) Trichlorofma	3.27	101	52159	2.2278 ug/L	93
9) Ethylether	3.72	59	29866	2.1654 ug/L	92
10) dichlorotfluoroethan	3.72	67	32775	2.0819 ug/L	93
11) propyleneoxide	4.09	58	41530	21.3495 ug/L	94
12) Acrolein	3.86	56	38643m	11.7093 ug/L	92
13) 11dichlorthe	3.99	96	31084	2.2833 ug/L	95
14) Trichlorotfluoroeth	4.03	101	55958	4.1391 ug/L	97
15) Acetone	4.08	43	126540	22.0639 ug/L	98
16) Iodomethane	4.17	142	21274	2.3835 ug/L	87
17) Carbon Dislf	4.26	76	160105	4.3921 ug/L	97
18) allylchloride	4.47	41	73211	4.2018 ug/L	90
19) methylacetate	4.55	74	14161	2.3693 ug/L	99
20) Methylchlorid	4.64	84	36449m	2.0800 ug/L	93
21) tbutylalcohol	4.88	59	146377	91.9834 ug/L	97
22) Acrylonitrile	4.95	53	61155	9.8296 ug/L	97
23) t12dichlorte	5.00	96	31349	2.0901 ug/L	90
24) MtBE	5.06	73	90225	2.1311 ug/L	91
25) Hexane	5.39	57	81727	3.8986 ug/L	99
26) 11dichlorota	5.53	63	59340	2.1039 ug/L	97
27) Vinylacetate	5.63	43	627705	24.3052 ug/L	95
28) chloroprene	5.66	53	85355	4.0108 ug/L	94
29) Diisopether	5.69	45	101313	2.1708 ug/L	91
30) ETBE	6.14	59	87693	2.0958 ug/L	98
31) 22dichloropr	6.26	77	52552	2.2313 ug/L	92
32) c12dichlorte	6.26	96	35319	2.0330 ug/L	87
33) 2Butanone	6.29	72	45292	19.4620 ug/L	98
34) propionitrile	6.34	54	42093	19.5287 ug/L	90
35) Ethylacetate	6.40	88	6947	7.9955 ug/L #	54
36) methacrylonitrile	6.53	67	25596	3.3398 ug/L #	77
37) Bromochlorma	6.55	128	19049	2.3412 ug/L	88
38) Tetrahydofur	6.66	42	112996	20.0946 ug/L	98

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\INSTARCH\Data\OCT0218\WCAL2.D Vial: 5
Acq On : 2 Oct 2018 12:12 Operator: AGK-RLD
Sample : INITIAL CALIB. PT2 Inst : VMS3
Misc : 2.00/20.0 ug/L, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 20:37:15 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 16:17:28 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M

	Compound	R.T.	QIon	Response	Conc Unit		Qvalue
39)	Chloroform	6.65	83	62157	2.1000 ug/L		95
40)	111trichlota	6.90	97	49964	2.0020 ug/L		97
42)	Cyclohexane	6.98	56	65328	2.0201 ug/L		92
43)	Carbtetraclo	7.11	119	39875	1.9605 ug/L	#	64
44)	11dicloprope	7.11	110	15506	2.0677 ug/L	#	89
46)	Benzene	7.35	78	130919	2.0926 ug/L		92
47)	12dichlorota	7.35	62	42566	2.0073 ug/L		96
48)	TAME	7.53	73	92682	2.1353 ug/L		91
49)	trichloroete	8.16	95	33808	2.0624 ug/L		96
50)	methylcyclohexane	8.41	83	58658	1.9618 ug/L		97
51)	12dicloropra	8.41	63	36916	2.1042 ug/L		88
52)	23Dicl1propene	8.48	75	56563	2.3500 ug/L		95
53)	Dibromometha	8.55	93	22751	2.1297 ug/L		93
54)	methylmethacrylate	8.60	69	20405	1.6768 ug/L		90
55)	14dioxane	8.67	88	1241	34.7898 ug/L	#	1
56)	Bromodiclrma	8.75	83	41043	2.0120 ug/L		97
57)	2Nitropropane	9.02	43	98251	17.6644 ug/L		87
58)	2CLEVE	9.15	63	60339	7.6861 ug/L		95
59)	c13dicloproe	9.33	75	49414	2.0041 ug/L		99
60)	4Meth2Pentan	9.55	43	357092	21.5622 ug/L		94
62)	Toluene	9.79	92	83157	2.0315 ug/L		99
63)	t13Dicloprop	10.05	75	43476	2.0134 ug/L		93
64)	ethylmethacrylate	10.20	69	81226	3.8790 ug/L		98
65)	112Triclotha	10.28	83	27484	2.0861 ug/L		93
66)	Tetrachlorte	10.51	166	38861	2.0219 ug/L		98
67)	13Diclorpropa	10.51	76	53109	2.0131 ug/L		93
69)	2Hexanone	10.64	43	221545	19.0737 ug/L		93
70)	Clorodibrmta	10.81	129	31797	2.0381 ug/L		91
71)	12Dibrometha	10.95	107	29955	1.9513 ug/L		84
72)	Chlorobenzen	11.65	112	94060	2.1184 ug/L		97
73)	1Clhexane	11.62	91	45444	1.9531 ug/L		88
74)	1112Tetclota	11.75	131	31133	1.9160 ug/L		97
75)	Ethylbenzene	11.80	91	152575	2.1405 ug/L		99
76)	m p-Xylene	11.96	106	109622	3.8370 ug/L		93
77)	o-Xylene	12.52	106	52662	1.8732 ug/L		100
78)	Styrene	12.53	104	76093	1.7401 ug/L		86
79)	Bromoform	12.77	173	24254	1.9150 ug/L		90
80)	Isopropylben	13.04	105	138751	2.0049 ug/L		98
81)	cyclohexanone	13.12	55	1165	4.7464 ug/L	#	44
84)	Bromobenzene	13.45	156	37841	2.0871 ug/L		99
85)	1122Tetrclta	13.42	83	50855	2.2176 ug/L		98
86)	123Triclproa	13.48	75	50919	2.0035 ug/L		98
87)	14dichloro2butene	13.51	53	12693	2.1024 ug/L		82
88)	n-Propylbenz	13.62	91	159251	2.1921 ug/L		100
89)	2chlorotolue	13.73	91	88511	2.1349 ug/L		96
90)	4chlorotolue	13.89	91	105649	2.1882 ug/L		97
91)	135Trimebenz	13.88	105	116214	2.2809 ug/L		93
92)	tbutylbenzen	14.35	119	97130	2.1295 ug/L		99
93)	124Trimetben	14.42	105	102789	2.1206 ug/L		97
94)	sbutylbenzen	14.67	105	140118	2.1673 ug/L		96
95)	13Diclorbenz	14.81	146	69202	2.1054 ug/L		99
96)	pIsopropylto	14.88	119	112335	2.0868 ug/L		100
97)	14dichlorobe	14.93	146	70921	2.0684 ug/L		90
98)	12dichlorobe	15.48	146	71125	2.2221 ug/L		94
99)	nButylbenzen	15.47	91	105607	2.1210 ug/L		99
100)	12dibromo3cl	16.57	157	11265	2.1699 ug/L		95
101)	135Trichlorobenzene	16.90	180	45107	2.0820 ug/L		96

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\INSTARCH\Data\OCT0218\WCAL2.D Vial: 5
Acq On : 2 Oct 2018 12:12 Operator: AGK-RLD
Sample : INITIAL CALIB. PT2 Inst : VMS3
Misc : 2.00/20.0 ug/L, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 20:37:15 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 16:17:28 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
102) 124Trichlobe	17.71	180	36480	2.0395 ug/L	95
103) Hexachlorobu	17.96	225	18903	1.8873 ug/L	86
104) Naphthalene	18.02	128	77677	1.7933 ug/L	95
105) 123Trichlben	18.32	180	30181	1.8618 ug/L	98

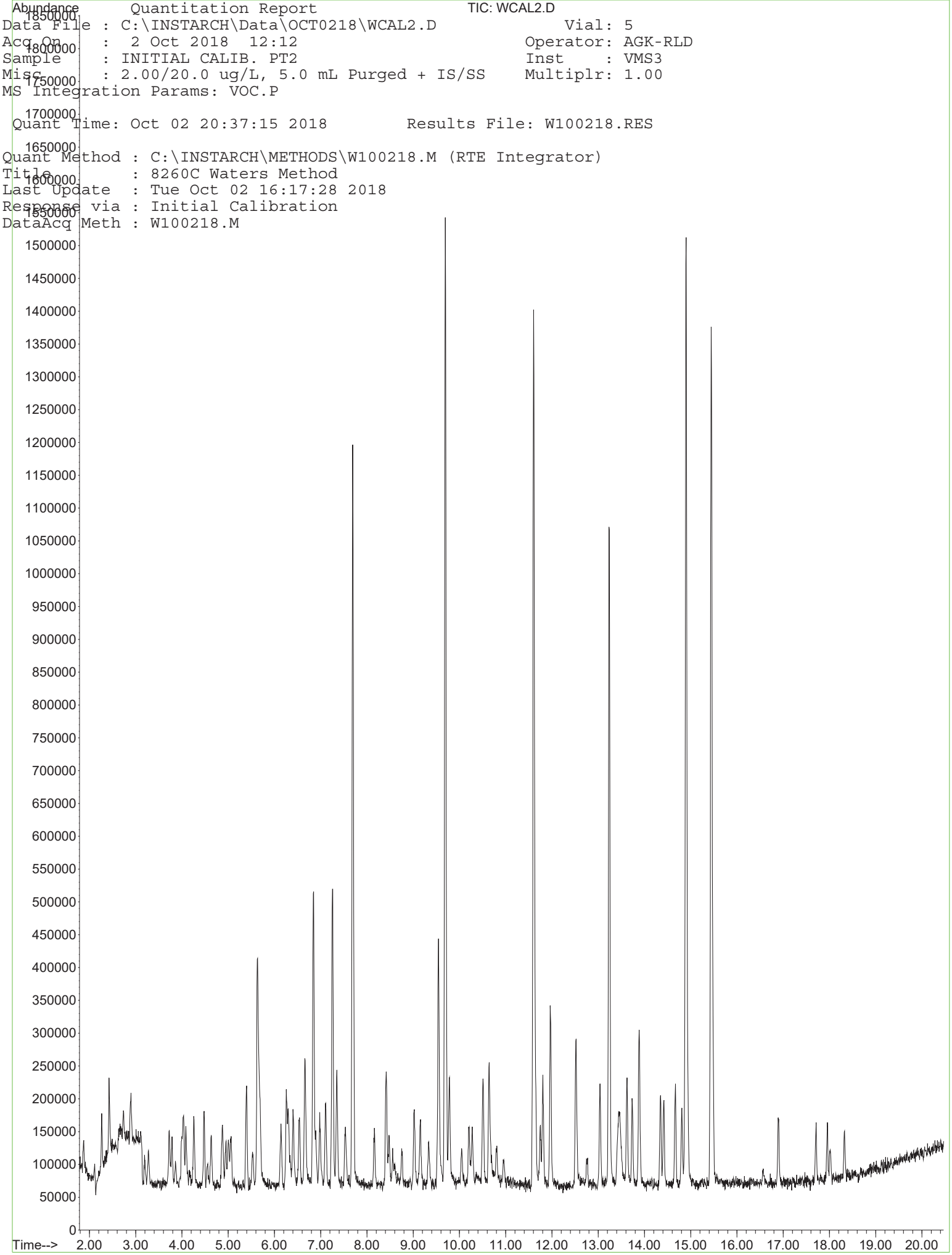
(#) = qualifier out of range (m) = manual integration

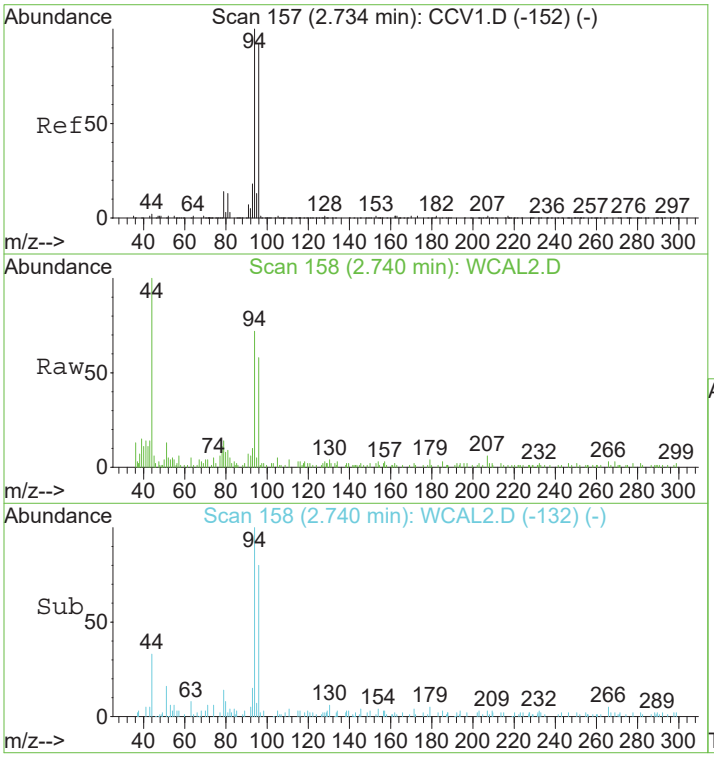
Quantitation Report

Data File : C:\INSTARCH\Data\OCT0218\WCAL2.D Vial: 5
Acq On : 2 Oct 2018 12:12 Operator: AGK-RLD
Sample : INITIAL CALIB. PT2 Inst : VMS3
Misc : 2.00/20.0 ug/L, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 20:37:15 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 16:17:28 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M





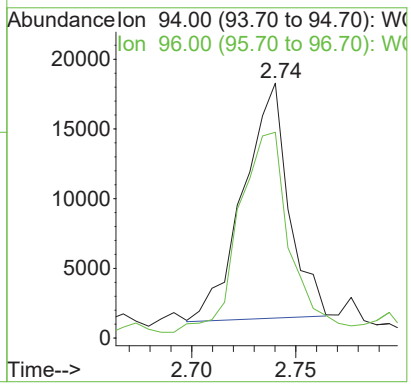
#5
Bromomethane
Concen: 1.68 ug/L m
RT: 2.74 min Scan# 158
Delta R.T. 0.01 min
Lab File: WCAL2.D
Acq: 2 Oct 2018 12:12

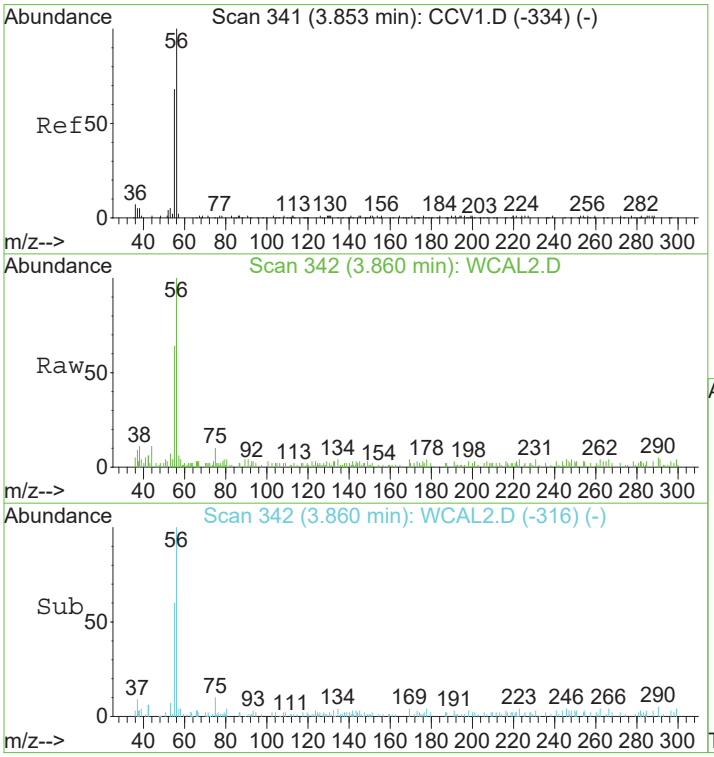
Tgt Ion: 94 Resp: 25692

Ion	Ratio	Lower	Upper
94	100		
96	110.6	69.0	109.0#

After Manual Integration

RJ 10/03/2018

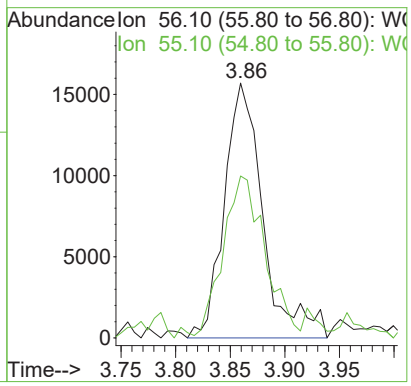




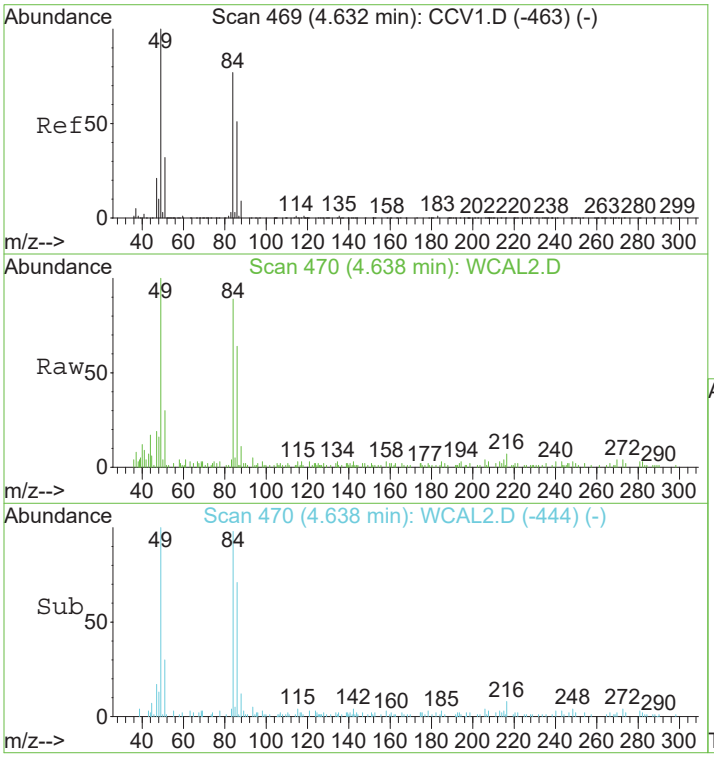
#12
Acrolein
Concen: 11.71 ug/L m
RT: 3.86 min Scan# 342
Delta R.T. 0.01 min
Lab File: WCAL2.D
Acq: 2 Oct 2018 12:12

Tgt Ion: 56 Resp: 38643

Ion	Ratio	Lower	Upper
56	100		
55	66.9	53.2	93.2



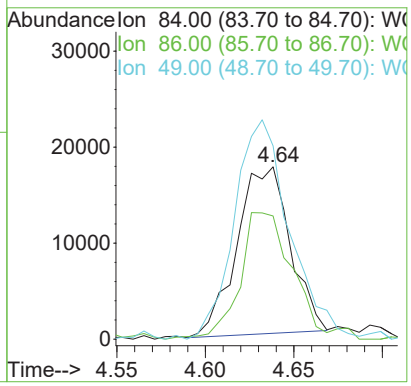
Agh 10/04/18



#20
Methylchlorid
Concen: 2.08 ug/L m
RT: 4.64 min Scan# 470
Delta R.T. 0.01 min
Lab File: WCAL2.D
Acq: 2 Oct 2018 12:12

Tgt Ion: 84 Resp: 36449

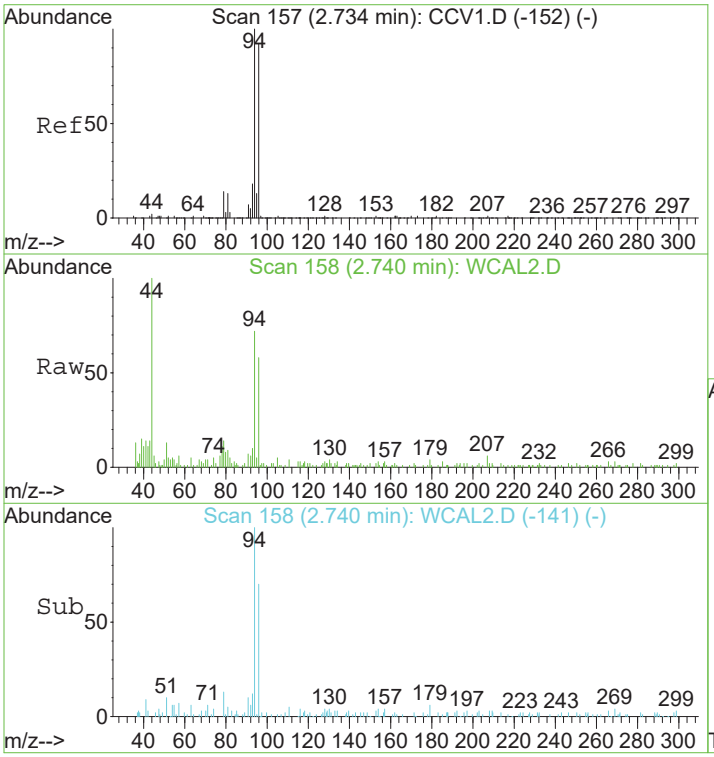
Ion	Ratio	Lower	Upper
84	100		
86	75.7	48.6	88.6
49	138.3	111.9	151.9



After Manual Integration

RJ 10/03/2018

AgW 10/04/18



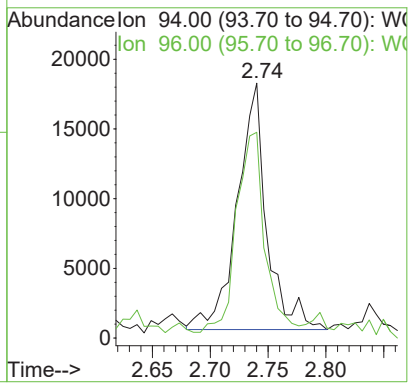
#5
Bromomethane
Concen: 2.26 ug/L
RT: 2.74 min Scan# 158
Delta R.T. 0.01 min
Lab File: WCAL2.D
Acq: 2 Oct 2018 12:12

Tgt Ion: 94 Resp: 31493

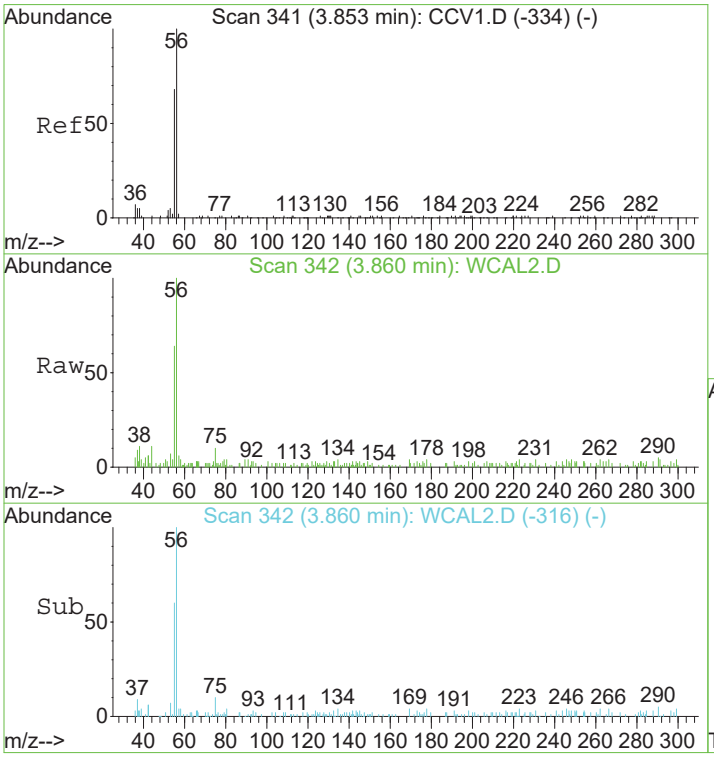
Ion	Ratio	Lower	Upper
94	100		
96	77.2	69.0	109.0

Before Manual Integration

RJ 10/03/2018



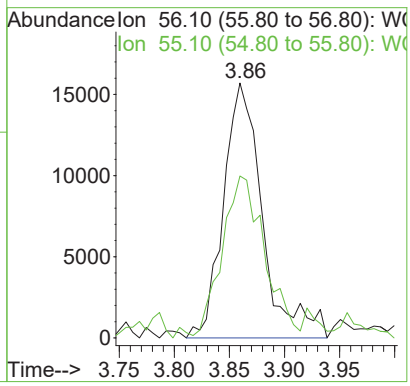
REASON # 2



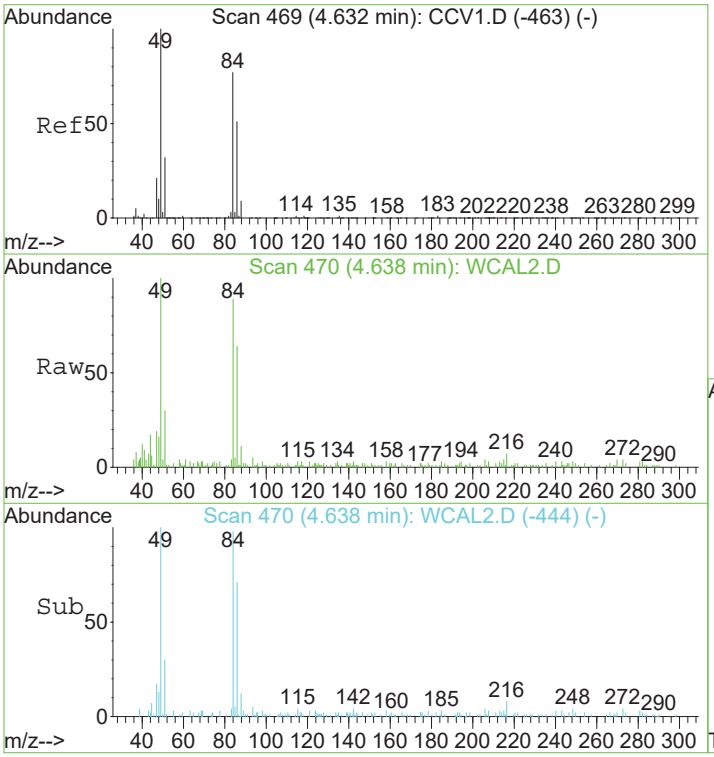
#12
Acrolein
Concen: 11.62 ug/L
RT: 3.86 min Scan# 342
Delta R.T. 0.01 min
Lab File: WCAL2.D
Acq: 2 Oct 2018 12:12

Tgt Ion: 56 Resp: 38643

Ion	Ratio	Lower	Upper
56	100		
55	66.9	53.2	93.2



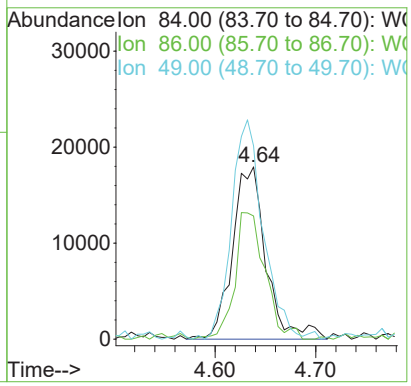
REASON # 2



#20
Methylchlorid
Concen: 0.88 ug/L
RT: 4.64 min Scan# 470
Delta R.T. 0.01 min
Lab File: WCAL2.D
Acq: 2 Oct 2018 12:12

Tgt Ion: 84 Resp: 41509

Ion	Ratio	Lower	Upper
84	100		
86	66.5	48.6	88.6
49	121.4	111.9	151.9



Before Manual Integration

RJ 10/03/2018

REASON # 2

Quantitation Report

Data File : C:\INSTARCH\DATA\OCT0218\WCAL3.D Vial: 6
Acq On : 2 Oct 2018 12:43 Operator: AGK-RLD
Sample : INITIAL CALIB. PT3 Inst : VMS3
Misc : 5.00/50.0 ug/L, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 16:14:27 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 16:14:20 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M
IS QA File : 50 level for IS QA unknown. No recoveries calculated.

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min) Rcv(Ar)
1) FLUOROBENZENE**ISTD**	7.69	96	1177550	20.00 ug/L	0.00 NA%
68) d5-CHLOROBENZENE**ISTD**	11.60	117	952732	20.00 ug/L	0.00 NA%
82) d4-1,4-DICHLOROBENZENE**IS	14.90	152	519146	20.00 ug/L	0.00 NA%

System Monitoring Compounds

41) SURRDibrflma	6.85	113	312632	21.033 ug/L	0.00
Spiked Amount 20.000	Range 90 - 110		Recovery = 105 %		
45) SURR12DCAd4	7.25	102	74488	18.455 ug/L	0.00
Spiked Amount 20.000	Range 89 - 111		Recovery = 92 %		
61) SURRd8Tolule	9.69	98	1208592	20.552 ug/L	0.00
Spiked Amount 20.000	Range 93 - 107		Recovery = 103 %		
83) SURR4BrFBenz	13.23	95	388213	20.070 ug/L	0.00
Spiked Amount 20.000	Range 83 - 111		Recovery = 100 %		

Target Compounds					Qvalue
2) Dichlorodi	1.87	85	87167	4.7533 ug/L	94
3) Chloromethan	2.11	50	58967	4.1924 ug/L	95
4) VinylChlorid	2.27	62	155237	4.1543 ug/L	92
5) Bromomethane	2.73	94	76422	4.6177 ug/L	97
6) Chloroethane	2.90	64	157703	4.5972 ug/L	89
7) Dichloroflmethane	3.20	67	118141	3.6564 ug/L	96
8) Trichlorofma	3.28	101	123603	4.7761 ug/L	96
9) Ethylether	3.73	59	66761	4.1335 ug/L	92
10) dichlorotfluoroethan	3.73	67	78912	4.4356 ug/L	92
11) propyleneoxide	4.09	58	109976	48.9779 ug/L	96
12) Acrolein	3.86	56	85187	21.5891 ug/L	88
13) 11dichlorthe	3.99	96	68668	4.7817 ug/L	99
14) Trichlorotfluoroeth	4.03	101	138025	9.1273 ug/L	98
15) Acetone	4.08	43	313766	47.4445 ug/L	99
16) Iodomethane	4.17	142	69990	10.3339 ug/L	95
17) Carbon Dislf	4.26	76	395871	9.5414 ug/L	100
18) allylchloride	4.48	41	176625	9.6312 ug/L	94
19) methylacetate	4.55	74	27728	4.0817 ug/L	70
20) Methylchlorid	4.63	84	85701	3.8804 ug/L	96
21) tbutylalcohol	4.87	59	479950	275.5909 ug/L	99
22) Acrylonitrile	4.95	53	178602	28.9116 ug/L	96
23) t12dichlorte	5.00	96	80785	5.3292 ug/L	93
24) MtBE	5.06	73	230346	5.1873 ug/L	94
25) Hexane	5.39	57	217638	10.0598 ug/L	98
26) 11dichlorota	5.53	63	144235	4.6403 ug/L	95
27) Vinylacetate	5.63	43	1592588	52.3415 ug/L	99
28) chloroprene	5.66	53	215108	9.6575 ug/L	99
29) Diisopether	5.69	45	234362	4.6541 ug/L	100
30) ETBE	6.14	59	220759	5.0710 ug/L	97
31) 22dichloropr	6.26	77	120219	4.7581 ug/L	96
32) c12dichlorte	6.27	96	89687	4.9063 ug/L	96
33) 2Butanone	6.30	72	131395	57.0367 ug/L	98
34) propionitrile	6.33	54	132397	68.2691 ug/L	96
35) Ethylacetate	6.40	88	26631	30.7537 ug/L #	76
36) methacrylonitrile	6.52	67	80448	11.1455 ug/L	97
37) Bromochlorma	6.55	128	42763	4.8590 ug/L	94
38) Tetrahydofur	6.66	42	312214	53.4419 ug/L	98

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\INSTARCH\DATA\OCT0218\WCAL3.D Vial: 6
Acq On : 2 Oct 2018 12:43 Operator: AGK-RLD
Sample : INITIAL CALIB. PT3 Inst : VMS3
Misc : 5.00/50.0 ug/L, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 16:14:27 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 16:14:20 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
39)	Chloroform	6.65	83	150081	4.3891 ug/L	100
40)	111trichlota	6.90	97	126658	4.5629 ug/L	95
42)	Cyclohexane	6.98	56	158640	4.5931 ug/L	98
43)	Carbtetraclo	7.11	119	100603	4.5851 ug/L	100
44)	11dicloprope	7.10	110	39339	5.3587 ug/L	99
46)	Benzene	7.35	78	339471	4.9206 ug/L	96
47)	12dichlorota	7.35	62	108511	4.6948 ug/L	95
48)	TAME	7.54	73	225867	4.8633 ug/L	98
49)	trichloroete	8.15	95	79559	4.3343 ug/L	96
50)	methylcyclohexane	8.42	83	152170	4.8106 ug/L	97
51)	12dicloropra	8.42	63	95188	5.0832 ug/L	84
52)	23Dicl1propene	8.48	75	117102	4.4180 ug/L	92
53)	Dibromometha	8.56	93	54943	4.5850 ug/L	94
54)	methylmethacrylate	8.60	69	59745	5.2215 ug/L	97
55)	14dioxane	8.65	88	7258	248.0041 ug/L #	42
56)	Bromodiclrma	8.75	83	114016	5.4164 ug/L	96
57)	2Nitropropane	9.02	43	286668	52.8769 ug/L	97
58)	2CLEVE	9.15	63	189237	26.8970 ug/L	98
59)	c13dicloproe	9.33	75	129617	5.0012 ug/L	97
60)	4Meth2Pentan	9.54	43	1018203	56.6945 ug/L	98
62)	Toluene	9.78	92	207109	4.6921 ug/L	96
63)	t13Dicloprop	10.05	75	111830	5.1770 ug/L	96
64)	ethylmethacrylate	10.20	69	221200	11.0242 ug/L	98
65)	112Triclotha	10.28	83	61092	4.1514 ug/L	95
66)	Tetrachlorte	10.52	166	99910	4.9364 ug/L	96
67)	13Diclorpropa	10.50	76	143564	5.1785 ug/L	98
69)	2Hexanone	10.64	43	707172	64.1537 ug/L	97
70)	Clorodibrmta	10.80	129	77684	4.9265 ug/L	98
71)	12Dibrometha	10.96	107	77581	4.9062 ug/L	98
72)	Chlorobenzen	11.64	112	215461	4.3388 ug/L	90
73)	1Clhexane	11.62	91	108971	4.2447 ug/L	92
74)	1112Tetclota	11.75	131	82985	4.6958 ug/L	96
75)	Ethylbenzene	11.80	91	384260	4.9901 ug/L	99
76)	m p-Xylene	11.96	106	299198	10.0594 ug/L	99
77)	o-Xylene	12.52	106	136433	4.9162 ug/L	99
78)	Styrene	12.53	104	226599	5.4848 ug/L	96
79)	Bromoform	12.75	173	59139	4.8795 ug/L	96
80)	Isopropylben	13.04	105	350084	4.8140 ug/L	98
81)	cyclohexanone	13.15	55	24832	153.4980 ug/L	97
84)	Bromobenzene	13.45	156	100487	4.8298 ug/L	92
85)	1122Tetrclta	13.42	83	122392	4.2213 ug/L	99
86)	123Triclproa	13.48	75	138642	4.9682 ug/L	100
87)	14dichloro2butene	13.51	53	31847	4.6471 ug/L	93
88)	n-Propylbenz	13.62	91	410989	4.7679 ug/L	100
89)	2chlorotolue	13.74	91	219739	4.5790 ug/L	98
90)	4chlorotolue	13.89	91	253928	4.5172 ug/L	98
91)	135Trimebenz	13.89	105	279939	4.8107 ug/L	95
92)	tbutylbenzen	14.34	119	237914	4.4334 ug/L	99
93)	124Trimetben	14.41	105	266252	4.9654 ug/L	100
94)	sbutylbenzen	14.66	105	354330	4.7485 ug/L	100
95)	13Diclorbenz	14.81	146	178929	4.6652 ug/L	95
96)	pIsopropylto	14.88	119	300970	5.0520 ug/L	97
97)	14dichlorobe	14.94	146	186918	4.6450 ug/L	96
98)	12dichlorobe	15.47	146	175428	4.6802 ug/L	91
99)	nButylbenzen	15.48	91	275392	4.9157 ug/L	99
100)	12dibromo3cl	16.57	157	24270	3.7364 ug/L	95
101)	135Trichlorobenzene	16.89	180	114694	4.7249 ug/L	96

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\INSTARCH\DATA\OCT0218\WCAL3.D Vial: 6
Acq On : 2 Oct 2018 12:43 Operator: AGK-RLD
Sample : INITIAL CALIB. PT3 Inst : VMS3
Misc : 5.00/50.0 ug/L, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 16:14:27 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 16:14:20 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
102) 124Trichlobe	17.71	180	97304	5.2029 ug/L	99
103) Hexachlorobu	17.96	225	53986	4.7152 ug/L	96
104) Naphthalene	18.01	128	211186	7.4602 ug/L	98
105) 123Trichlben	18.32	180	85674	5.2597 ug/L	90

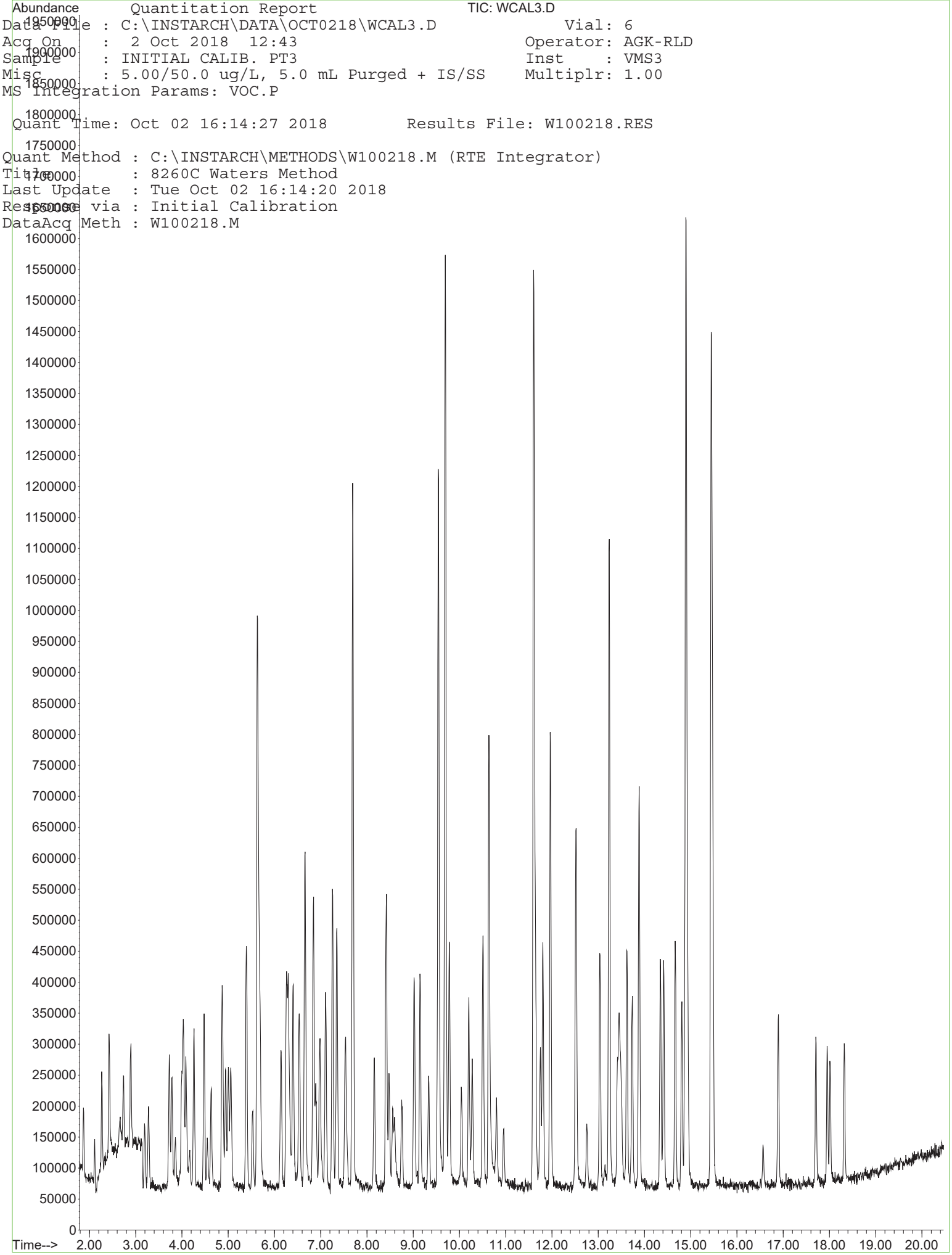
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\INSTARCH\DATA\OCT0218\WCAL3.D Vial: 6
Acq On : 2 Oct 2018 12:43 Operator: AGK-RLD
Sample : INITIAL CALIB. PT3 Inst : VMS3
Misc : 5.00/50.0 ug/L, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 16:14:27 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 16:14:20 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M



Quantitation Report

Data File : C:\INSTARCH\DATA\OCT0218\WCAL4.D Vial: 7
Acq On : 2 Oct 2018 13:14 Operator: AGK-RLD
Sample : INITIAL CALIB. PT4 Inst : VMS3
Misc : 10.0/100.0 ug/L, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 16:14:42 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 16:14:35 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M
IS QA File : 50 level for IS QA unknown. No recoveries calculated.

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min) Rcv(Ar)
1) FLUOROBENZENE**ISTD**	7.69	96	1273934	20.00 ug/L	0.00 NA%
68) d5-CHLOROBENZENE**ISTD**	11.60	117	1012161	20.00 ug/L	0.00 NA%
82) d4-1,4-DICHLOROBENZENE**IS	14.90	152	540818	20.00 ug/L	0.00 NA%

System Monitoring Compounds

41) SURRDibrflma	6.84	113	325791	20.001 ug/L	0.00
Spiked Amount 20.000	Range 90 - 110		Recovery = 100 %		
45) SURR12DCAd4	7.25	102	81509	19.034 ug/L	0.00
Spiked Amount 20.000	Range 89 - 111		Recovery = 95 %		
61) SURRd8Tolule	9.69	98	1269639	19.820 ug/L	0.00
Spiked Amount 20.000	Range 93 - 107		Recovery = 99 %		
83) SURR4BrFBenz	13.24	95	400478	19.857 ug/L	0.00
Spiked Amount 20.000	Range 83 - 111		Recovery = 99 %		

Target Compounds					Qvalue
2) Dichlorodi	1.87	85	173937	8.8769 ug/L	100
3) Chloromethan	2.11	50	126128	8.6377 ug/L	100
4) VinylChlorid	2.27	62	295080	7.6214 ug/L	100
5) Bromomethane	2.73	94	157591	8.9733 ug/L	99
6) Chloroethane	2.90	64	291160	8.0066 ug/L	100
7) Dichloroflmethane	3.19	67	309039	9.4777 ug/L	100
8) Trichlorofma	3.28	101	239845	8.6635 ug/L	100
9) Ethylether	3.73	59	140129	8.3828 ug/L	100
10) dichlorotfluoroethan	3.73	67	154180	8.2433 ug/L	100
11) propyleneoxide	4.09	58	200989	83.1634 ug/L	100
12) Acrolein	3.85	56	157412	38.1771 ug/L	96
13) 11dichlorthe	4.00	96	140799	9.1627 ug/L	100
14) Trichlorotfluoroeth	4.03	101	289811	18.1098 ug/L	100
15) Acetone	4.08	43	588179	83.2735 ug/L	100
16) Iodomethane	4.17	142	168133	22.7564 ug/L	100
17) Carbon Dislf	4.26	76	799352	18.0151 ug/L	100
18) allylchloride	4.48	41	369996	18.8226 ug/L	100
19) methylacetate	4.55	74	61247	8.7349 ug/L	100
20) Methylchlorid	4.63	84	156275	6.9284 ug/L	100
21) tbutylalcohol	4.88	59	849282	439.5204 ug/L	100
22) Acrylonitrile	4.94	53	332977	47.9477 ug/L	100
23) t12dichlorte	5.01	96	152618	9.1554 ug/L	100
24) MtBE	5.06	73	441844	9.1120 ug/L	100
25) Hexane	5.39	57	450456	19.2173 ug/L	100
26) 11dichlorota	5.53	63	300041	9.0859 ug/L	100
27) Vinylacetate	5.63	43	3121721	93.7377 ug/L	100
28) chloroprene	5.65	53	449539	18.8167 ug/L	100
29) Diisopether	5.69	45	484084	9.0423 ug/L	100
30) ETBE	6.14	59	438455	9.2767 ug/L	100
31) 22dichloropr	6.26	77	244960	9.0714 ug/L	100
32) c12dichlorte	6.26	96	183562	9.3256 ug/L	100
33) 2Butanone	6.30	72	261185	101.2369 ug/L	100
34) propionitrile	6.33	54	246240	107.5412 ug/L	100
35) Ethylacetate	6.40	88	44948	45.3688 ug/L	100
36) methacrylonitrile	6.53	67	162290	20.2044 ug/L	100
37) Bromochlorma	6.55	128	81004	8.5682 ug/L	100
38) Tetrahydofur	6.66	42	626421	97.4357 ug/L	100

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\INSTARCH\DATA\OCT0218\WCAL4.D Vial: 7
Acq On : 2 Oct 2018 13:14 Operator: AGK-RLD
Sample : INITIAL CALIB. PT4 Inst : VMS3
Misc : 10.0/100.0 ug/L, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 16:14:42 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 16:14:35 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
39)	Chloroform	6.65	83	292919	8.1677	ug/L	100
40)	111trichlota	6.90	97	252482	8.5954	ug/L	100
42)	Cyclohexane	6.98	56	329963	9.0141	ug/L	100
43)	Carbtetraclo	7.11	119	207289	8.9176	ug/L	100
44)	11dicloprope	7.10	110	80486	9.9557	ug/L	100
46)	Benzene	7.35	78	670106	9.0140	ug/L	100
47)	12dichlorota	7.35	62	220368	8.9496	ug/L	100
48)	TAME	7.53	73	448010	8.9780	ug/L	100
49)	trichloroete	8.16	95	167685	8.7349	ug/L	100
50)	methylcyclohexane	8.42	83	316981	9.3513	ug/L	100
51)	12dicloropra	8.41	63	181666	8.9301	ug/L	100
52)	23Dicl1propene	8.48	75	254017	9.1239	ug/L	100
53)	Dibromometha	8.56	93	109384	8.6162	ug/L	100
54)	methylmethacrylate	8.60	69	127150	10.1592	ug/L	100
55)	14dioxane	8.64	88	16151	511.1418	ug/L	100
56)	Bromodiclrma	8.76	83	223367	9.6083	ug/L	100
57)	2Nitropropane	9.02	43	614222	103.2385	ug/L	100
58)	2CLEVE	9.15	63	435780	56.1870	ug/L	100
59)	c13dicloproe	9.33	75	262200	9.3508	ug/L	100
60)	4Meth2Pentan	9.54	43	2001359	99.6702	ug/L	100
62)	Toluene	9.78	92	433556	9.2211	ug/L	100
63)	t13Dicloprop	10.04	75	227997	9.6706	ug/L	100
64)	ethylmethacrylate	10.20	69	456174	20.4902	ug/L	100
65)	112Triclotha	10.27	83	126929	8.3260	ug/L	100
66)	Tetrachlorte	10.52	166	194429	8.9080	ug/L	100
67)	13Diclorpropa	10.50	76	276655	9.1426	ug/L	100
69)	2Hexanone	10.64	43	1426090	113.7284	ug/L	100
70)	Clorodibrmta	10.80	129	159738	9.5704	ug/L	100
71)	12Dibrometha	10.95	107	160699	9.6110	ug/L	100
72)	Chlorobenzen	11.64	112	463578	9.0876	ug/L	100
73)	1Clhexane	11.62	91	233683	8.9044	ug/L	100
74)	1112Tetclota	11.74	131	163055	8.8190	ug/L	100
75)	Ethylbenzene	11.80	91	754593	9.2285	ug/L	100
76)	m p-Xylene	11.96	106	607944	19.2111	ug/L	100
77)	o-Xylene	12.51	106	291366	9.9241	ug/L	100
78)	Styrene	12.53	104	463144	10.3024	ug/L	100
79)	Bromoform	12.76	173	125778	9.8277	ug/L	100
80)	Isopropylben	13.03	105	725749	9.4819	ug/L	100
81)	cyclohexanone	13.14	55	55365	284.1398	ug/L	100
84)	Bromobenzene	13.45	156	198798	9.2508	ug/L	100
85)	1122Tetrclta	13.41	83	241962	8.3353	ug/L	100
86)	123Triclproa	13.48	75	274925	9.4721	ug/L	100
87)	14dichloro2butene	13.51	53	61489	8.7675	ug/L	100
88)	n-Propylbenz	13.62	91	859213	9.6807	ug/L	100
89)	2chlorotolue	13.74	91	465598	9.5138	ug/L	100
90)	4chlorotolue	13.89	91	542587	9.4946	ug/L	100
91)	135Trimebenz	13.88	105	570953	9.5086	ug/L	100
92)	tbutylbenzen	14.35	119	509052	9.3713	ug/L	100
93)	124Trimetben	14.41	105	564263	10.1189	ug/L	100
94)	sbutylbenzen	14.66	105	750369	9.7760	ug/L	100
95)	13Diclorbenz	14.80	146	364558	9.2795	ug/L	100
96)	pIsopropylto	14.88	119	614296	9.8725	ug/L	100
97)	14dichlorobe	14.93	146	373823	9.0786	ug/L	100
98)	12dichlorobe	15.47	146	346182	9.0097	ug/L	100
99)	nButylbenzen	15.48	91	570982	9.8249	ug/L	100
100)	12dibromo3cl	16.56	157	52209	8.2358	ug/L	100
101)	135Trichlorobenzene	16.89	180	241689	9.6909	ug/L	100

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\INSTARCH\DATA\OCT0218\WCAL4.D Vial: 7
Acq On : 2 Oct 2018 13:14 Operator: AGK-RLD
Sample : INITIAL CALIB. PT4 Inst : VMS3
Misc : 10.0/100.0 ug/L, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 16:14:42 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 16:14:35 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
102) 124Trichlobe	17.71	180	205263	10.4298	ug/L	100
103) Hexachlorobu	17.95	225	111495	9.4829	ug/L	100
104) Naphthalene	18.01	128	471350	14.2326	ug/L	100
105) 123Trichlben	18.32	180	196809	11.4496	ug/L	100

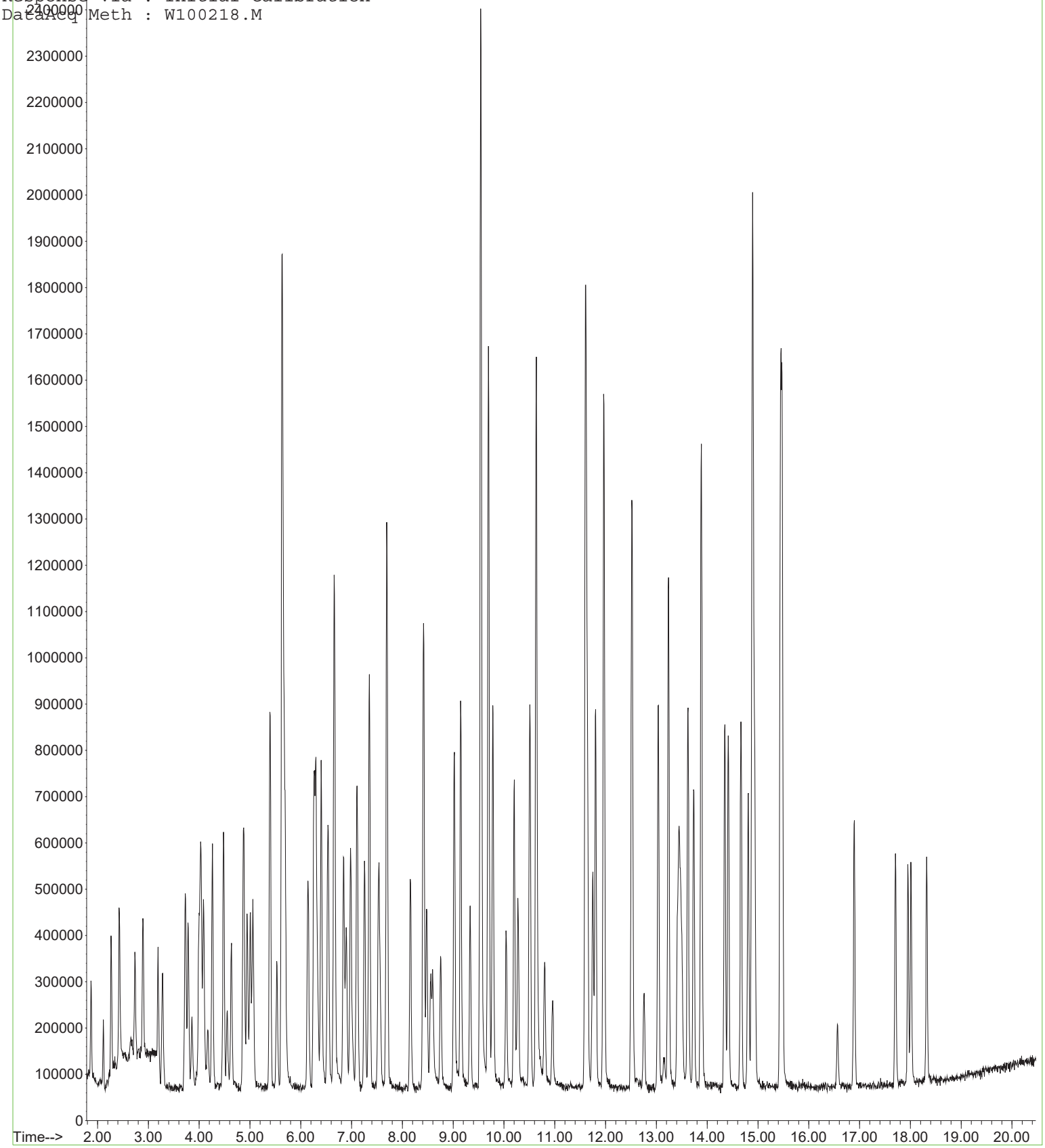
(#) = qualifier out of range (m) = manual integration

Abundance Quantitation Report TIC: WCAL4.D

Data File : C:\INSTARCH\DATA\OCT0218\WCAL4.D Vial: 7
Acq On : 2 Oct 2018 13:14 Operator: AGK-RLD
Sample : INITIAL CALIB. PT4 Inst : VMS3
Misc : 10.0/100.0 ug/L, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 16:14:42 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 16:14:35 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M



Quantitation Report

Data File : C:\INSTARCH\DATA\OCT0218\WCAL5.D Vial: 8
Acq On : 2 Oct 2018 13:44 Operator: AGK-RLD
Sample : INITIAL CALIB. PT5 Inst : VMS3
Misc : 20.0/200.0 ug/L, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 16:14:58 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 16:14:49 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M
IS QA File : 50 level for IS QA unknown. No recoveries calculated.

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min) Rcv(Ar)
1) FLUOROBENZENE**ISTD**	7.69	96	1314051	20.00 ug/L	0.00 NA%
68) d5-CHLOROBENZENE**ISTD**	11.60	117	1004976	20.00 ug/L	0.00 NA%
82) d4-1,4-DICHLOROBENZENE**IS	14.90	152	602074	20.00 ug/L	0.00 NA%

System Monitoring Compounds

41) SURRDibrflma	6.85	113	338167	20.127 ug/L	0.00
Spiked Amount 20.000	Range 90 - 110		Recovery = 101 %		
45) SURR12DCAd4	7.25	102	82880	18.764 ug/L	0.00
Spiked Amount 20.000	Range 89 - 111		Recovery = 94 %		
61) SURRd8Tolule	9.69	98	1319148	19.964 ug/L	0.00
Spiked Amount 20.000	Range 93 - 107		Recovery = 100 %		
83) SURR4BrFBenz	13.23	95	437868	19.502 ug/L	0.00
Spiked Amount 20.000	Range 83 - 111		Recovery = 98 %		

Target Compounds

					Qvalue
2) Dichlorodi	1.87	85	337405	16.6938 ug/L	95
3) Chloromethan	2.11	50	234817	15.5902 ug/L	98
4) VinylChlorid	2.27	62	653799	16.3711 ug/L	94
5) Bromomethane	2.73	94	306218	16.8441 ug/L	95
6) Chloroethane	2.89	64	588485	15.6888 ug/L	97
7) Dichloroflmethane	3.20	67	472507	14.0486 ug/L	99
8) Trichlorofma	3.28	101	478905	16.7705 ug/L	95
9) Ethylether	3.73	59	263700	15.2935 ug/L	94
10) dichlorotfluoroethan	3.73	67	315256	16.3407 ug/L	95
11) propyleneoxide	4.08	58	368381	147.7719 ug/L	94
12) Acrolein	3.85	56	310522	73.0117 ug/L	96
13) 11dichlorthe	3.99	96	289103	18.2395 ug/L	95
14) Trichlorotfluoroeth	4.03	101	543418	32.9206 ug/L	97
15) Acetone	4.08	43	1125499	155.3804 ug/L	97
16) Iodomethane	4.17	142	418712	54.9416 ug/L	98
17) Carbon Dislf	4.26	76	1527969	33.3847 ug/L	98
18) allylchloride	4.48	41	765001	37.7293 ug/L	98
19) methylacetate	4.55	74	121938	16.8595 ug/L	84
20) Methylchlorid	4.63	84	326298	14.0247 ug/L	96
21) tbutylalcohol	4.88	59	1650267	827.9727 ug/L	99
22) Acrylonitrile	4.94	53	676396	94.4255 ug/L	99
23) t12dichlorte	5.01	96	333451	19.3927 ug/L	92
24) MtBE	5.06	73	920079	18.3951 ug/L	97
25) Hexane	5.40	57	926294	38.3110 ug/L	98
26) 11dichlorota	5.53	63	598191	17.5616 ug/L	97
27) Vinylacetate	5.63	43	5678077	165.2937 ug/L	98
28) chloroprene	5.66	53	910015	36.9284 ug/L	99
29) Diisopether	5.69	45	994901	18.0166 ug/L	100
30) ETBE	6.14	59	907749	18.6196 ug/L	99
31) 22dichloropr	6.26	77	504769	18.1219 ug/L	98
32) c12dichlorte	6.26	96	383163	18.8718 ug/L	96
33) 2Butanone	6.29	72	506098	190.1778 ug/L	99
34) propionitrile	6.33	54	491776	208.4171 ug/L	97
35) Ethylacetate	6.40	88	91001	89.0488 ug/L	99
36) methacrylonitrile	6.53	67	336376	40.5988 ug/L	97
37) Bromochlorma	6.54	128	175567	18.0038 ug/L	97
38) Tetrahydofur	6.66	42	1216709	183.6733 ug/L	98

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\INSTARCH\DATA\OCT0218\WCAL5.D Vial: 8
Acq On : 2 Oct 2018 13:44 Operator: AGK-RLD
Sample : INITIAL CALIB. PT5 Inst : VMS3
Misc : 20.0/200.0 ug/L, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 16:14:58 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 16:14:49 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
39)	Chloroform	6.65	83	587140	15.8719 ug/L	99
40)	111trichlota	6.90	97	515454	17.0122 ug/L	98
42)	Cyclohexane	6.98	56	699285	18.5201 ug/L	94
43)	Carbtetraclo	7.11	119	422652	17.6275 ug/L	100
44)	11dicloprope	7.10	110	164978	19.7838 ug/L	96
46)	Benzene	7.35	78	1338581	17.4608 ug/L	97
47)	12dichlorota	7.35	62	436508	17.1863 ug/L	99
48)	TAME	7.53	73	922941	17.9309 ug/L	100
49)	trichloroete	8.16	95	331647	16.7484 ug/L	95
50)	methylcyclohexane	8.42	83	641346	18.3428 ug/L	100
51)	12dicloropra	8.42	63	366025	17.4434 ug/L	100
52)	23Dicl1propene	8.47	75	503057	17.5175 ug/L	94
53)	Dibromometha	8.56	93	213829	16.3292 ug/L	97
54)	methylmethacrylate	8.59	69	270475	20.9511 ug/L	99
55)	14dioxane	8.64	88	42644	1308.3821 ug/L #	65
56)	Bromodiclrma	8.75	83	423567	17.6638 ug/L	99
57)	2Nitropropane	9.02	43	1268289	206.6662 ug/L	99
58)	2CLEVE	9.15	63	935945	117.0193 ug/L	99
59)	c13dicloproe	9.33	75	510156	17.6382 ug/L	97
60)	4Meth2Pentan	9.54	43	3783413	182.6665 ug/L	98
62)	Toluene	9.78	92	853265	17.5937 ug/L	98
63)	t13Dicloprop	10.04	75	458783	18.8654 ug/L	97
64)	ethylmethacrylate	10.20	69	916550	39.9122 ug/L	96
65)	112Triclotha	10.28	83	264295	16.8073 ug/L	94
66)	Tetrachlorte	10.51	166	395655	17.5740 ug/L	99
67)	13Diclorpropa	10.50	76	546371	17.5046 ug/L	99
69)	2Hexanone	10.63	43	2811651	225.8278 ug/L	98
70)	Clorodibrmta	10.80	129	325941	19.6678 ug/L	99
71)	12Dibrometha	10.95	107	321095	19.3412 ug/L	99
72)	Chlorobenzen	11.64	112	919769	18.1593 ug/L	98
73)	1Clhexane	11.62	91	463827	17.8003 ug/L	98
74)	1112Tetclota	11.75	131	320360	17.4509 ug/L	97
75)	Ethylbenzene	11.80	91	1520860	18.7327 ug/L	98
76)	m p-Xylene	11.96	106	1223857	38.9562 ug/L	98
77)	o-Xylene	12.52	106	606028	20.7893 ug/L	94
78)	Styrene	12.53	104	959149	21.4883 ug/L	100
79)	Bromoform	12.76	173	264175	20.7889 ug/L	98
80)	Isopropylben	13.04	105	1499381	19.7295 ug/L	98
81)	cyclohexanone	13.14	55	127838	660.7705 ug/L	95
84)	Bromobenzene	13.45	156	414218	17.3141 ug/L	96
85)	1122Tetrclta	13.42	83	496539	15.3649 ug/L	99
86)	123Triclproa	13.48	75	608453	18.8305 ug/L	92
87)	14dichloro2butene	13.51	53	136516	17.4850 ug/L	92
88)	n-Propylbenz	13.62	91	1768577	17.8991 ug/L	100
89)	2chlorotolue	13.73	91	991186	18.1928 ug/L	98
90)	4chlorotolue	13.89	91	1152423	18.1143 ug/L	100
91)	135Trimebenz	13.88	105	1203548	18.0045 ug/L	99
92)	tbutylbenzen	14.35	119	1076078	17.7943 ug/L	99
93)	124Trimetben	14.41	105	1206479	19.4345 ug/L	99
94)	sbutylbenzen	14.66	105	1603105	18.7607 ug/L	98
95)	13Diclorbenz	14.80	146	763927	17.4666 ug/L	99
96)	pIsopropylto	14.88	119	1328358	19.1763 ug/L	100
97)	14dichlorobe	14.94	146	784216	17.1076 ug/L	97
98)	12dichlorobe	15.47	146	751458	17.5676 ug/L	96
99)	nButylbenzen	15.48	91	1210599	18.7115 ug/L	98
100)	12dibromo3cl	16.57	157	119134	16.8810 ug/L	99
101)	135Trichlorobenzene	16.90	180	543464	19.5739 ug/L	97

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\INSTARCH\DATA\OCT0218\WCAL5.D Vial: 8
Acq On : 2 Oct 2018 13:44 Operator: AGK-RLD
Sample : INITIAL CALIB. PT5 Inst : VMS3
Misc : 20.0/200.0 ug/L, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 16:14:58 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 16:14:49 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
102) 124Trichlobe	17.71	180	469345	21.4220	ug/L	99
103) Hexachlorobu	17.96	225	242076	18.4942	ug/L	95
104) Naphthalene	18.02	128	1187939	32.2208	ug/L	99
105) 123Trichlben	18.33	180	437393	22.8569	ug/L	98

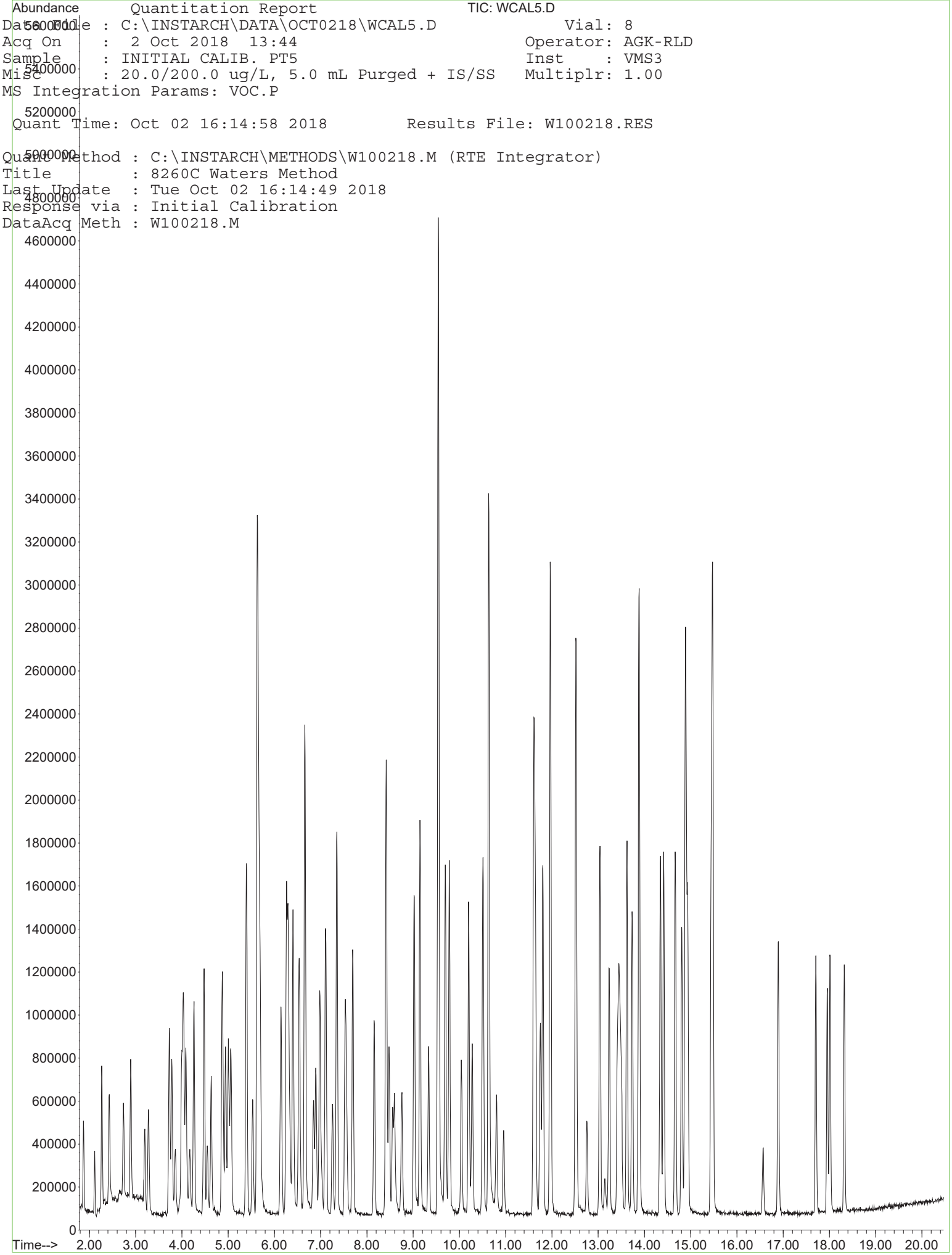
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\INSTARCH\DATA\OCT0218\WCAL5.D Vial: 8
Acq On : 2 Oct 2018 13:44 Operator: AGK-RLD
Sample : INITIAL CALIB. PT5 Inst : VMS3
Misc : 20.0/200.0 ug/L, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 16:14:58 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 16:14:49 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M



Quantitation Report

Data File : C:\INSTARCH\DATA\OCT0218\WCAL6.D Vial: 9
Acq On : 2 Oct 2018 14:14 Operator: AGK-RLD
Sample : INITIAL CALIB. PT6 Inst : VMS3
Misc : 30.0/300.0 ug/L, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 16:15:14 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 16:15:05 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M
IS QA File : 50 level for IS QA unknown. No recoveries calculated.

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min) Rcv(Ar)
1) FLUOROBENZENE**ISTD**	7.69	96	1328037	20.00 ug/L	0.00 NA%
68) d5-CHLOROBENZENE**ISTD**	11.60	117	1073028	20.00 ug/L	0.00 NA%
82) d4-1,4-DICHLOROBENZENE**IS	14.90	152	660177	20.00 ug/L	0.00 NA%

System Monitoring Compounds

41) SURRDibrflma	6.84	113	347478	20.438 ug/L	0.00
Spiked Amount 20.000	Range 90 - 110		Recovery = 102 %		
45) SURR12DCAd4	7.25	102	89492	20.298 ug/L	0.00
Spiked Amount 20.000	Range 89 - 111		Recovery = 101 %		
61) SURRd8Tolule	9.69	98	1346601	20.172 ug/L	0.00
Spiked Amount 20.000	Range 93 - 107		Recovery = 101 %		
83) SURR4BrFBenz	13.24	95	479503	19.575 ug/L	0.00
Spiked Amount 20.000	Range 83 - 111		Recovery = 98 %		

Target Compounds					Qvalue
2) Dichlorodi	1.87	85	514920	26.0704 ug/L	97
3) Chloromethan	2.11	50	388126	26.6737 ug/L	98
4) VinylChlorid	2.27	62	951941	24.4736 ug/L	98
5) Bromomethane	2.73	94	481258	27.0473 ug/L	94
6) Chloroethane	2.89	64	863177	23.7955 ug/L	97
7) Dichloroflmethane	3.20	67	666622	20.8524 ug/L	96
8) Trichlorofma	3.28	101	753979	26.9970 ug/L	98
9) Ethylether	3.73	59	435234	26.2094 ug/L	98
10) dichlorotfluoroethan	3.73	67	492812	26.2351 ug/L	93
11) propyleneoxide	4.08	58	597796	250.3490 ug/L	93
12) Acrolein	3.85	56	497722	122.4016 ug/L	96
13) 11dichlorthe	3.99	96	449632	28.5716 ug/L	95
14) Trichlorotfluoroeth	4.03	101	877291	54.5168 ug/L	98
15) Acetone	4.08	43	1842893	263.4977 ug/L	97
16) Iodomethane	4.17	142	718520	86.8033 ug/L	97
17) Carbon Dislf	4.26	76	2301365	51.4551 ug/L	99
18) allylchloride	4.47	41	1193143	58.8939 ug/L	98
19) methylacetate	4.55	74	188728	26.6564 ug/L	89
20) Methylchlorid	4.63	84	486135	21.9885 ug/L	98
21) tbutylalcohol	4.87	59	2660940	1368.0568 ug/L	99
22) Acrylonitrile	4.94	53	1114924	155.7417 ug/L	99
23) t12dichlorte	5.00	96	508035	29.4135 ug/L	94
24) MtBE	5.05	73	1385617	27.8579 ug/L	98
25) Hexane	5.39	57	1452506	59.9484 ug/L	98
26) 11dichlorota	5.53	63	904388	26.9279 ug/L	96
27) Vinylacetate	5.63	43	7927473	236.5552 ug/L	93
28) chloroprene	5.66	53	1398421	57.0260 ug/L	100
29) Diisopether	5.69	45	1462540	26.7364 ug/L	96
30) ETBE	6.14	59	1401591	28.8446 ug/L	100
31) 22dichloropr	6.26	77	774975	28.0566 ug/L	98
32) c12dichlorte	6.26	96	559258	27.5659 ug/L	98
33) 2Butanone	6.30	72	824858	309.7371 ug/L	100
34) propionitrile	6.33	54	795410	330.7645 ug/L	98
35) Ethylacetate	6.40	88	140629	139.2119 ug/L	91
36) methacrylonitrile	6.52	67	558655	66.5175 ug/L	99
37) Bromochlorma	6.54	128	256200	26.5252 ug/L	95
38) Tetrahydofur	6.66	42	1951375	296.3133 ug/L	96

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\INSTARCH\DATA\OCT0218\WCAL6.D Vial: 9
Acq On : 2 Oct 2018 14:14 Operator: AGK-RLD
Sample : INITIAL CALIB. PT6 Inst : VMS3
Misc : 30.0/300.0 ug/L, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 16:15:14 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 16:15:05 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
39)	Chloroform	6.65	83	889035	24.8038 ug/L	100
40)	111trichlota	6.90	97	766887	25.8153 ug/L	98
42)	Cyclohexane	6.98	56	1049554	27.9172 ug/L	96
43)	Carbtetraclo	7.11	119	656801	27.7633 ug/L	98
44)	11dicloprope	7.10	110	258473	30.7356 ug/L	99
46)	Benzene	7.35	78	1995901	26.4321 ug/L	96
47)	12dichlorota	7.35	62	684203	27.4266 ug/L	99
48)	TAME	7.53	73	1410937	27.6960 ug/L	99
49)	trichloroete	8.15	95	509362	26.3077 ug/L	98
50)	methylcyclohexane	8.42	83	972178	27.9755 ug/L	99
51)	12dicloropra	8.42	63	560329	27.1152 ug/L	99
52)	23Dicl1propene	8.48	75	766940	27.0979 ug/L	98
53)	Dibromometha	8.56	93	318179	24.9583 ug/L	95
54)	methylmethacrylate	8.59	69	431261	32.7424 ug/L	100
55)	14dioxane	8.62	88	69091	1975.6410 ug/L #	64
56)	Bromodiclrma	8.76	83	654748	27.6633 ug/L	97
57)	2Nitropropane	9.02	43	2056376	329.3596 ug/L	97
58)	2CLEVE	9.15	63	1489525	178.2051 ug/L	97
59)	c13dicloproe	9.33	75	789498	27.6620 ug/L	99
60)	4Meth2Pentan	9.54	43	5473493	266.0943 ug/L	92
62)	Toluene	9.78	92	1317449	27.5415 ug/L	95
63)	t13Dicloprop	10.04	75	747946	30.7812 ug/L	98
64)	ethylmethacrylate	10.20	69	1486426	64.0746 ug/L	96
65)	112Triclotha	10.27	83	419169	27.2454 ug/L	95
66)	Tetrachlorte	10.51	166	621570	27.9971 ug/L	97
67)	13Diclorpropa	10.50	76	858070	27.8975 ug/L	98
69)	2Hexanone	10.63	43	4318714	316.6946 ug/L	94
70)	Clorodibrmta	10.80	129	538664	30.5440 ug/L	98
71)	12Dibrometha	10.95	107	523805	29.7464 ug/L	99
72)	Chlorobenzen	11.64	112	1402363	26.4176 ug/L	98
73)	1Clhexane	11.62	91	750204	27.5712 ug/L	96
74)	1112Tetclota	11.75	131	519866	27.2163 ug/L	97
75)	Ethylbenzene	11.80	91	2336454	27.2993 ug/L	97
76)	m p-Xylene	11.96	106	1861914	55.7985 ug/L	96
77)	o-Xylene	12.52	106	973540	31.0336 ug/L	90
78)	Styrene	12.52	104	1534702	31.7299 ug/L	96
79)	Bromoform	12.76	173	453585	33.1688 ug/L	95
80)	Isopropylben	13.04	105	2377495	29.3796 ug/L	97
81)	cyclohexanone	13.14	55	211374	905.2331 ug/L	85
84)	Bromobenzene	13.45	156	688841	26.9838 ug/L	96
85)	1122Tetrclta	13.42	83	802905	23.7597 ug/L	97
86)	123Triclproa	13.48	75	1015258	28.9941 ug/L	92
87)	14dichloro2butene	13.51	53	237475	28.4545 ug/L	97
88)	n-Propylbenz	13.62	91	2721987	25.6628 ug/L	98
89)	2chlorotolue	13.73	91	1573066	26.8164 ug/L	100
90)	4chlorotolue	13.89	91	1802170	26.3308 ug/L	100
91)	135Trimebenz	13.88	105	1943688	27.0575 ug/L	100
92)	tbutylbenzen	14.34	119	1731033	26.6943 ug/L	97
93)	124Trimetben	14.41	105	1891742	27.9491 ug/L	98
94)	sbutylbenzen	14.67	105	2486402	26.8697 ug/L	95
95)	13Diclorbenz	14.80	146	1228390	26.2801 ug/L	98
96)	pIsopropylto	14.88	119	2128022	28.2493 ug/L	99
97)	14dichlorobe	14.93	146	1260659	25.8278 ug/L	98
98)	12dichlorobe	15.47	146	1164828	25.4538 ug/L	99
99)	nButylbenzen	15.47	91	1944478	27.7673 ug/L	97
100)	12dibromo3cl	16.57	157	191027	25.4805 ug/L	97
101)	135Trichlorobenzene	16.89	180	851756	28.0974 ug/L	98

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\INSTARCH\DATA\OCT0218\WCAL6.D Vial: 9
Acq On : 2 Oct 2018 14:14 Operator: AGK-RLD
Sample : INITIAL CALIB. PT6 Inst : VMS3
Misc : 30.0/300.0 ug/L, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 16:15:14 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 16:15:05 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
102) 124Trichlobe	17.71	180	722945	29.6709	ug/L	95
103) Hexachlorobu	17.96	225	372841	26.3747	ug/L	96
104) Naphthalene	18.02	128	1895333	41.7776	ug/L	100
105) 123Trichlben	18.32	180	680450	31.5281	ug/L	97

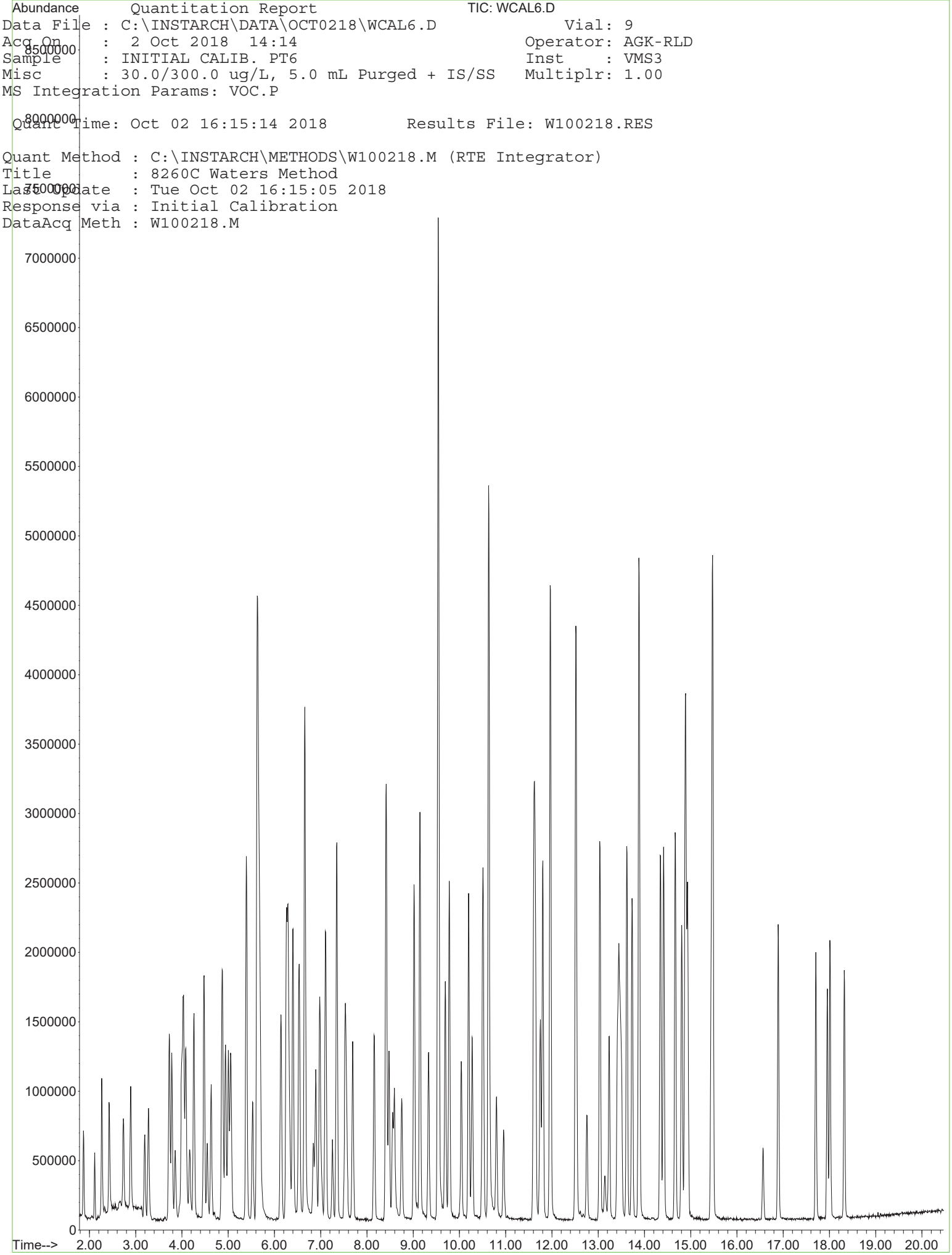
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\INSTARCH\DATA\OCT0218\WCAL6.D Vial: 9
Acq On : 2 Oct 2018 14:14 Operator: AGK-RLD
Sample : INITIAL CALIB. PT6 Inst : VMS3
Misc : 30.0/300.0 ug/L, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 16:15:14 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 16:15:05 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M



Quantitation Report

Data File : C:\INSTARCH\DATA\OCT0218\WCAL7.D Vial: 10
Acq On : 2 Oct 2018 14:45 Operator: AGK-RLD
Sample : INITIAL CALIB. PT7 Inst : VMS3
Misc : 40.0/400.0 ug/L, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 20:33:09 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 20:33:04 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M
IS QA File : 50 level for IS QA unknown. No recoveries calculated.

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min) Rcv(Ar)
1) FLUOROBENZENE**ISTD**	7.69	96	1474964	20.00 ug/L	0.00 NA%
68) d5-CHLOROBENZENE**ISTD**	11.60	117	1176727	20.00 ug/L	0.00 NA%
82) d4-1,4-DICHLOROBENZENE**IS	14.90	152	762033	20.00 ug/L	0.00 NA%

System Monitoring Compounds

41) SURRDibrflma	6.84	113	367024	19.404 ug/L	0.00
Spiked Amount 20.000	Range 90 - 110		Recovery = 97 %		
45) SURR12DCAd4	7.26	102	95852	19.669 ug/L	0.00
Spiked Amount 20.000	Range 89 - 111		Recovery = 98 %		
61) SURRd8Tolule	9.69	98	1445313	19.426 ug/L	0.00
Spiked Amount 20.000	Range 93 - 107		Recovery = 97 %		
83) SURR4BrFBenz	13.23	95	516874	18.628 ug/L	0.00
Spiked Amount 20.000	Range 83 - 111		Recovery = 93 %		

Target Compounds

					Qvalue
2) Dichlorodi	1.87	85	709824	37.0174 ug/L	97
3) Chloromethan	2.11	50	502247	35.9792 ug/L	99
4) VinylChlorid	2.27	62	1338478	36.9536 ug/L	99
5) Bromomethane	2.73	94	739663	42.7417 ug/L	91
6) Chloroethane	2.89	64	1226501	36.7178 ug/L	94
7) Dichloroflmethane	3.20	67	1091610	38.0193 ug/L	97
8) Trichlorofma	3.28	101	1011404	35.3727 ug/L	98
9) Ethylether	3.73	59	579974	35.2824 ug/L	94
10) dichlorotfluoroethan	3.73	67	690989	37.1186 ug/L	93
11) propyleneoxide	4.08	58	834389	371.3433 ug/L	96
12) Acrolein	3.86	56	697101	200.5490 ug/L	99
13) 11dichlorthe	3.99	96	623984	35.6170 ug/L	95
14) Trichlorotfluoroeth	4.03	101	1162185	71.3473 ug/L	98
15) Acetone	4.08	43	2513761	370.0755 ug/L	98
16) Iodomethane	4.17	142	1093814	80.3899 ug/L	96
17) Carbon Dislf	4.26	76	3022978	69.4366 ug/L	99
18) allylchloride	4.48	41	1580708	74.1289 ug/L	98
19) methylacetate	4.55	74	269390	39.2660 ug/L	88
20) Methylchlorid	4.63	84	656401	38.5699 ug/L	99
21) tbutylalcohol	4.88	59	3535983	1999.1002 ug/L	99
22) Acrylonitrile	4.94	53	1480764	196.1849 ug/L	98
23) t12dichlorte	5.00	96	697045	37.4576 ug/L	91
24) MtBE	5.06	73	1930604	37.4623 ug/L	98
25) Hexane	5.39	57	1933414	73.8634 ug/L	99
26) 11dichlorota	5.53	63	1229865	35.4657 ug/L	93
27) Vinylacetate	5.63	43	9747496	365.9859 ug/L	88
28) chloroprene	5.66	53	1973071	75.7019 ug/L	99
29) Diisopether	5.69	45	2168737	38.8449 ug/L	100
30) ETBE	6.14	59	1948448	38.6910 ug/L	99
31) 22dichloropr	6.26	77	1041525	35.3808 ug/L	99
32) c12dichlorte	6.26	96	795246	37.0034 ug/L	95
33) 2Butanone	6.29	72	1121032	391.6987 ug/L	100
34) propionitrile	6.33	54	1102303	399.4483 ug/L	97
35) Ethylacetate	6.40	88	204544	197.5137 ug/L	98
36) methacrylonitrile	6.53	67	787107	83.3631 ug/L	99
37) Bromochlorma	6.55	128	345028	34.9209 ug/L	100
38) Tetrahydofur	6.66	42	2646824	387.1131 ug/L	95

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\INSTARCH\DATA\OCT0218\WCAL7.D Vial: 10
Acq On : 2 Oct 2018 14:45 Operator: AGK-RLD
Sample : INITIAL CALIB. PT7 Inst : VMS3
Misc : 40.0/400.0 ug/L, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 20:33:09 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 20:33:04 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
39)	Chloroform	6.65	83	1239447	34.8235	ug/L	98
40)	111trichlota	6.90	97	1121301	37.8871	ug/L	98
42)	Cyclohexane	6.98	56	1486496	39.0872	ug/L	97
43)	Carbtetraclo	7.11	119	929885	39.5589	ug/L	97
44)	11dicloprope	7.11	110	361707	38.0577	ug/L	97
46)	Benzene	7.35	78	2716263	35.2281	ug/L	95
47)	12dichlorota	7.35	62	943831	37.1846	ug/L	99
48)	TAME	7.53	73	1965406	37.9010	ug/L	99
49)	trichloroete	8.15	95	742877	37.6571	ug/L	99
50)	methylcyclohexane	8.42	83	1356281	37.0306	ug/L	99
51)	12dicloropra	8.42	63	769688	36.2308	ug/L	92
52)	23Dicl1propene	8.48	75	1082798	38.4180	ug/L	94
53)	Dibromometha	8.56	93	472422	36.8502	ug/L	98
54)	methylmethacrylate	8.59	69	650427	40.7869	ug/L	99
55)	14dioxane	8.62	88	92243	2084.2640	ug/L	83
56)	Bromodiclrma	8.75	83	944073	37.3640	ug/L	95
57)	2Nitropropane	9.02	43	2806642	424.9136	ug/L	98
58)	2CLEVE	9.15	63	2131520	230.0258	ug/L	96
59)	c13dicloproe	9.33	75	1173051	40.4293	ug/L	99
60)	4Meth2Pentan	9.54	43	7118154	349.0449	ug/L	87
62)	Toluene	9.78	92	1832665	36.9622	ug/L	93
63)	t13Dicloprop	10.04	75	1051892	40.2650	ug/L	98
64)	ethylmethacrylate	10.20	69	2100117	82.1734	ug/L	96
65)	112Triclotha	10.28	83	590068	38.4198	ug/L	96
66)	Tetrachlorte	10.52	166	887078	38.0260	ug/L	100
67)	13Diclorpropa	10.50	76	1207908	37.2716	ug/L	97
69)	2Hexanone	10.63	43	5818020	399.4101	ug/L	91
70)	Clorodibrmta	10.80	129	764863	39.4628	ug/L	99
71)	12Dibrometha	10.96	107	747684	40.1666	ug/L	98
72)	Chlorobenzen	11.65	112	2024037	37.7036	ug/L	98
73)	1Clhexane	11.62	91	1079326	38.8060	ug/L	95
74)	1112Tetclota	11.75	131	767208	39.5883	ug/L	95
75)	Ethylbenzene	11.80	91	3281985	37.5514	ug/L	94
76)	m p-Xylene	11.97	106	2766374	80.3030	ug/L	92
77)	o-Xylene	12.52	106	1438402	41.5957	ug/L	89
78)	Styrene	12.52	104	2299847	42.6666	ug/L	96
79)	Bromoform	12.75	173	660473	40.9166	ug/L	98
80)	Isopropylben	13.03	105	3293845	39.5887	ug/L	94
81)	cyclohexanone	13.14	55	331790	957.6497	ug/L	91
84)	Bromobenzene	13.45	156	935104	34.3792	ug/L	99
85)	1122Tetrclta	13.42	83	1132975	35.2450	ug/L	96
86)	123Triclproa	13.48	75	1414636	37.2803	ug/L	94
87)	14dichloro2butene	13.51	53	327097	36.5102	ug/L	93
88)	n-Propylbenz	13.62	91	3704757	34.3106	ug/L	94
89)	2chlorotolue	13.73	91	2219000	35.3727	ug/L	100
90)	4chlorotolue	13.89	91	2648916	37.6119	ug/L	98
91)	135Trimebenz	13.88	105	2837722	37.3377	ug/L	99
92)	tbutylbenzen	14.35	119	2406799	35.3493	ug/L	95
93)	124Trimetben	14.41	105	2702460	36.7637	ug/L	99
94)	sbutylbenzen	14.66	105	3439120	35.9740	ug/L	94
95)	13Diclorbenz	14.80	146	1703842	35.2468	ug/L	98
96)	pIsopropylto	14.88	119	2953868	36.4472	ug/L	95
97)	14dichlorobe	14.94	146	1813619	35.9619	ug/L	97
98)	12dichlorobe	15.47	146	1649773	34.6094	ug/L	97
99)	nButylbenzen	15.48	91	2725052	35.7038	ug/L	93
100)	12dibromo3cl	16.57	157	265339	36.0967	ug/L	98
101)	135Trichlorobenzene	16.89	180	1151002	34.9700	ug/L	98

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\INSTARCH\DATA\OCT0218\WCAL7.D Vial: 10
Acq On : 2 Oct 2018 14:45 Operator: AGK-RLD
Sample : INITIAL CALIB. PT7 Inst : VMS3
Misc : 40.0/400.0 ug/L, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 20:33:09 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 20:33:04 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
102) 124Trichlobe	17.71	180	1011582	36.1931	ug/L	99
103) Hexachlorobu	17.96	225	516455	34.0104	ug/L	98
104) Naphthalene	18.01	128	2561940	42.2509	ug/L	99
105) 123Trichlben	18.33	180	951590	36.5843	ug/L	100

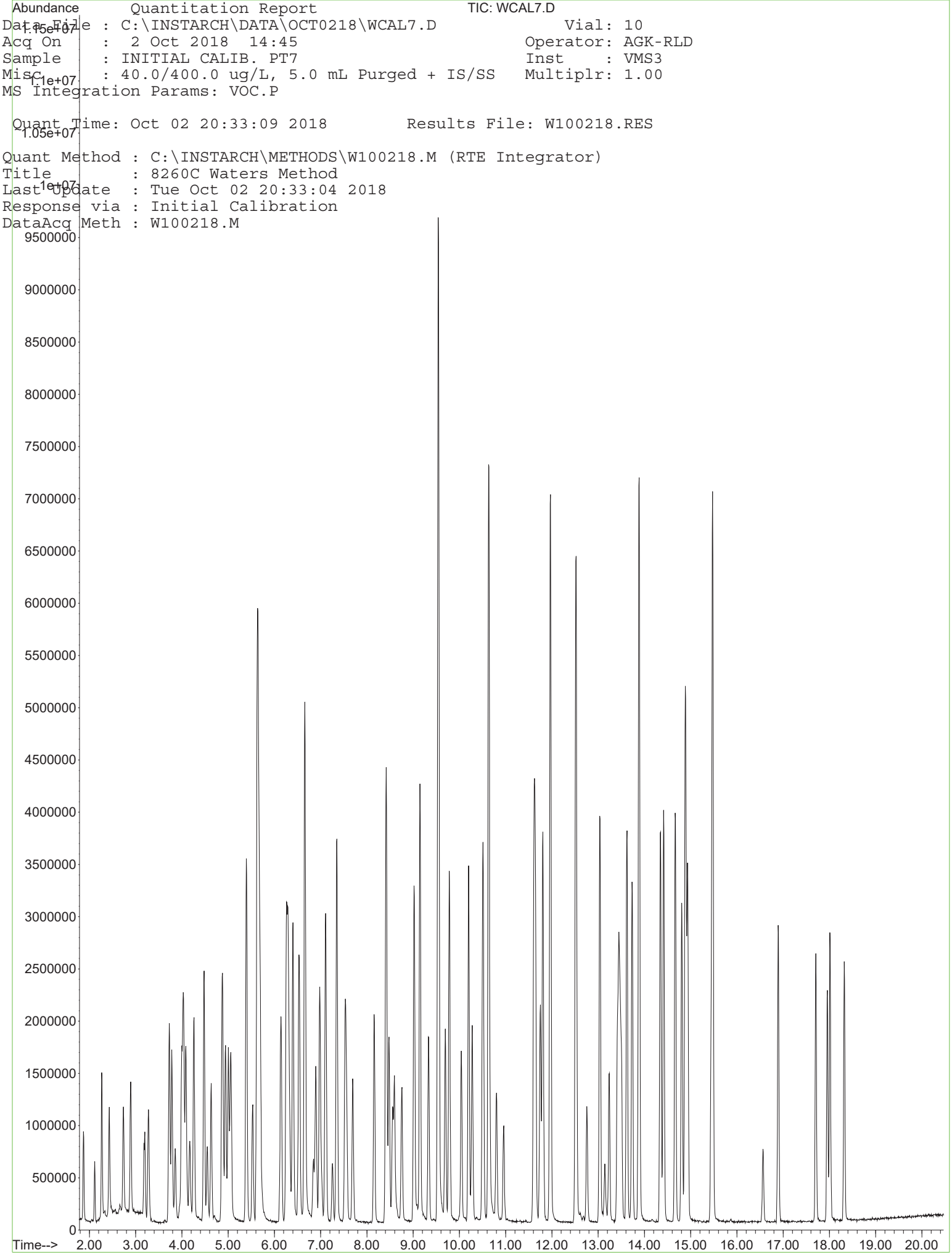
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\INSTARCH\DATA\OCT0218\WCAL7.D Vial: 10
Acq On : 2 Oct 2018 14:45 Operator: AGK-RLD
Sample : INITIAL CALIB. PT7 Inst : VMS3
Misc : 40.0/400.0 ug/L, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 20:33:09 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 20:33:04 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M



Quantitation Report

Data File : C:\INSTARCH\DATA\OCT0218\WCAL8.D Vial: 11
Acq On : 2 Oct 2018 15:14 Operator: AGK-RLD
Sample : INITIAL CALIB. PT8 Inst : VMS3
Misc : 80.0/800.0 ug/L, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 16:17:18 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 16:15:39 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M
IS QA File : 50 level for IS QA unknown. No recoveries calculated.

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min) Rcv(Ar)
1) FLUOROBENZENE**ISTD**	7.69	96	1554189	20.00 ug/L	0.00 NA%
68) d5-CHLOROBENZENE**ISTD**	11.60	117	1312635	20.00 ug/L	0.00 NA%
82) d4-1,4-DICHLOROBENZENE**IS	14.90	152	905632	20.00 ug/L	0.00 NA%

System Monitoring Compounds

41) SURRDibrflma	6.84	113	409654	20.607 ug/L	0.00
Spiked Amount 20.000	Range 90 - 110		Recovery = 103 %		
45) SURR12DCAd4	7.26	102	102649	19.913 ug/L	0.00
Spiked Amount 20.000	Range 89 - 111		Recovery = 100 %		
61) SURRd8Tolule	9.69	98	1637203	21.007 ug/L	0.00
Spiked Amount 20.000	Range 93 - 107		Recovery = 105 %		
83) SURR4BrFBenz	13.23	95	645079	19.495 ug/L	0.00
Spiked Amount 20.000	Range 83 - 111		Recovery = 97 %		

Target Compounds					Qvalue
2) Dichlorodi	1.87	85	1480903	67.1574 ug/L	100
3) Chloromethan	2.11	50	1279818	78.9211 ug/L	94
4) VinylChlorid	2.27	62	2277041	53.1317 ug/L	99
5) Bromomethane	2.73	94	1461325	71.8476 ug/L	94
6) Chloroethane	2.89	64	2337784	58.8138 ug/L	92
7) Dichloroflmethane	3.20	67	1994335	57.7294 ug/L	95
8) Trichlorofma	3.28	101	2076242	66.2198 ug/L	99
9) Ethylether	3.73	59	1212099	65.5565 ug/L	94
10) dichlorotfluoroethan	3.73	67	1414751	67.2120 ug/L	94
11) propyleneoxide	4.08	58	1510930	571.6293 ug/L	95
12) Acrolein	3.85	56	1297940	289.8139 ug/L	98
13) 11dichlorthe	3.99	96	1331214	73.9199 ug/L	93
14) Trichlorotfluoroeth	4.03	101	2421846	133.9291 ug/L	97
15) Acetone	4.08	43	4306500	550.7450 ug/L	99
16) Iodomethane	4.17	142	2672460	243.4014 ug/L	95
17) Carbon Dislf	4.26	76	5712088	115.4241 ug/L	95
18) allylchloride	4.48	41	3201185	137.7802 ug/L	98
19) methylacetate	4.55	74	541302	67.7994 ug/L	88
20) Methylchlorid	4.63	84	1445518	61.0944 ug/L	96
21) tbutylalcohol	4.88	59	5443649	2487.2459 ug/L	99
22) Acrylonitrile	4.94	53	2731200	327.4290 ug/L	99
23) t12dichlorte	5.00	96	1438358	72.3064 ug/L	93
24) MtBE	5.06	73	3827848	67.6719 ug/L	97
25) Hexane	5.40	57	3868085	138.4474 ug/L	96
26) 11dichlorota	5.53	63	2516580	66.6764 ug/L	92
27) Vinylacetate	5.63	43	14418961	399.4215 ug/L	71
28) chloroprene	5.66	53	4211750	149.8414 ug/L	96
29) Diisopether	5.69	45	4396152	70.8614 ug/L	91
30) ETBE	6.14	59	3861973	69.2585 ug/L	95
31) 22dichloropr	6.26	77	2207571	70.4664 ug/L	98
32) c12dichlorte	6.26	96	1650307	71.5392 ug/L	95
33) 2Butanone	6.29	72	2112954	679.9121 ug/L	97
34) propionitrile	6.33	54	2013194	701.8806 ug/L	96
35) Ethylacetate	6.40	88	408820	353.9196 ug/L	96
36) methacrylonitrile	6.53	67	1588577	157.9373 ug/L	98
37) Bromochlorma	6.55	128	775290	71.7852 ug/L	95
38) Tetrahydofur	6.66	42	4660653	614.1726 ug/L	89

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\INSTARCH\DATA\OCT0218\WCAL8.D Vial: 11
Acq On : 2 Oct 2018 15:14 Operator: AGK-RLD
Sample : INITIAL CALIB. PT8 Inst : VMS3
Misc : 80.0/800.0 ug/L, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 16:17:18 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 16:15:39 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
39)	Chloroform	6.65	83	2656150	67.1075 ug/L	98
40)	111trichlota	6.90	97	2266559	68.0118 ug/L	98
42)	Cyclohexane	6.98	56	3112778	72.6102 ug/L	96
43)	Carbtetraclo	7.11	119	1972976	73.2490 ug/L	99
44)	11dicloprope	7.10	110	783395	79.6833 ug/L	96
46)	Benzene	7.35	78	5164439	61.1424 ug/L	90
47)	12dichlorota	7.35	62	1980717	70.1926 ug/L	98
48)	TAME	7.53	73	4006030	69.2555 ug/L	96
49)	trichloroete	8.15	95	1528358	70.0468 ug/L	98
50)	methylcyclohexane	8.42	83	2914951	73.6639 ug/L	98
51)	12dicloropra	8.42	63	1668397	71.6257 ug/L	93
52)	23Dicl1propene	8.48	75	2260313	70.6180 ug/L	92
53)	Dibromometha	8.56	93	1002085	70.5311 ug/L	99
54)	methylmethacrylate	8.59	69	1322475	83.3777 ug/L	98
55)	14dioxane	8.63	88	176172	3738.3030 ug/L #	68
56)	Bromodiclrma	8.75	83	1994325	73.9006 ug/L	96
57)	2Nitropropane	9.02	43	5084559	685.1287 ug/L	98
58)	2CLEVE	9.15	63	4212743	410.9391 ug/L	89
59)	c13dicloproe	9.33	75	2380473	72.8594 ug/L	95
60)	4Meth2Pentan	9.55	43	10508576	458.4149 ug/L	69
62)	Toluene	9.78	92	3961593	73.0583 ug/L #	85
63)	t13Dicloprop	10.04	75	2182588	76.7475 ug/L	96
64)	ethylmethacrylate	10.20	69	4336479	157.7736 ug/L	93
65)	112Triclotha	10.28	83	1295075	74.3563 ug/L	95
66)	Tetrachlorte	10.52	166	1915694	75.5378 ug/L	99
67)	13Diclorpropa	10.50	76	2501868	71.4028 ug/L	93
69)	2Hexanone	10.64	43	8913564	532.1759 ug/L	78
70)	Clorodibrmta	10.81	129	1702918	78.8577 ug/L	98
71)	12Dibrometha	10.95	107	1581269	73.8341 ug/L	97
72)	Chlorobenzen	11.65	112	4196527	67.0189 ug/L	95
73)	1Clhexane	11.62	91	2404927	74.1220 ug/L	95
74)	1112Tetclota	11.74	131	1614490	70.8879 ug/L	96
75)	Ethylbenzene	11.80	91	6206576	61.1668 ug/L	85
76)	m p-Xylene	11.97	106	5624728	140.3008 ug/L #	75
77)	o-Xylene	12.52	106	3124546	80.5032 ug/L #	79
78)	Styrene	12.53	104	4863508	80.5678 ug/L	90
79)	Bromoform	12.75	173	1554901	90.2828 ug/L	95
80)	Isopropylben	13.03	105	6494103	66.4824 ug/L	84
81)	cyclohexanone	13.14	55	625930	1887.1086 ug/L	88
84)	Bromobenzene	13.45	156	2222280	66.3713 ug/L	94
85)	1122Tetrclta	13.42	83	2354312	54.5412 ug/L	94
86)	123Triclproa	13.48	75	3107268	66.1865 ug/L	94
87)	14dichloro2butene	13.51	53	758021	68.1839 ug/L	92
88)	n-Propylbenz	13.62	91	7068572	51.4315 ug/L	83
89)	2chlorotolue	13.73	91	4739061	61.4081 ug/L	94
90)	4chlorotolue	13.89	91	5403151	59.9813 ug/L	90
91)	135Trimebenz	13.88	105	5663088	59.5300 ug/L	90
92)	tbutylbenzen	14.35	119	5123989	60.2371 ug/L	90
93)	124Trimetben	14.41	105	5583291	61.9334 ug/L	89
94)	sbutylbenzen	14.66	105	6736181	55.4368 ug/L	81
95)	13Diclorbenz	14.81	146	3828191	62.6988 ug/L	95
96)	pIsopropylto	14.88	119	6127864	61.1249 ug/L	88
97)	14dichlorobe	14.94	146	3956379	62.0512 ug/L	93
98)	12dichlorobe	15.47	146	3730496	62.7479 ug/L	97
99)	nButylbenzen	15.47	91	5579086	60.0641 ug/L	85
100)	12dibromo3cl	16.56	157	561967	57.8152 ug/L	96
101)	135Trichlorobenzene	16.89	180	2575034	64.1303 ug/L	97

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\INSTARCH\DATA\OCT0218\WCAL8.D Vial: 11
Acq On : 2 Oct 2018 15:14 Operator: AGK-RLD
Sample : INITIAL CALIB. PT8 Inst : VMS3
Misc : 80.0/800.0 ug/L, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 16:17:18 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 16:15:39 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
102) 124Trichlobe	17.71	180	2271269	69.0547	ug/L	96
103) Hexachlorobu	17.96	225	1237542	66.9695	ug/L	97
104) Naphthalene	18.01	128	4956303	73.2006	ug/L	94
105) 123Trichlben	18.33	180	2157512	72.8113	ug/L	97

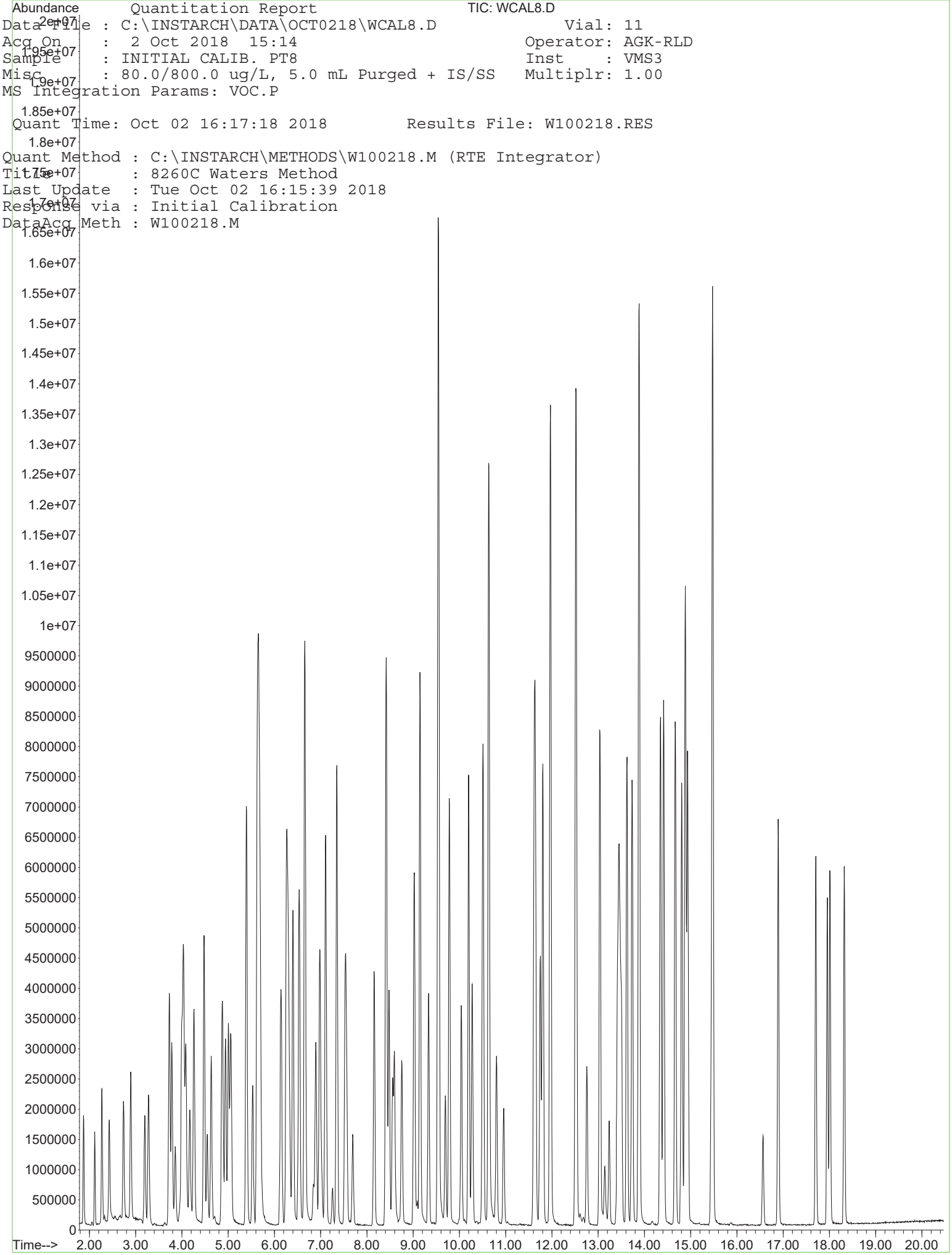
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\INSTARCH\DATA\OCT0218\WCAL8.D Vial: 11
Acq On : 2 Oct 2018 15:14 Operator: AGK-RLD
Sample : INITIAL CALIB. PT8 Inst : VMS3
Misc : 80.0/800.0 ug/L, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 16:17:18 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 16:15:39 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M



Evaluate Continuing Calibration Report

Data File : C:\INSTARCH\Data\OCT0218\ICV1.D Vial: 13
Acq On : 2 Oct 2018 16:15 Operator: AGK-RLD
Sample : INITIAL CALIB. VERIF. Inst : VMS3
Misc : 10.0/100 ug/L, 5.0 mL Purged + IS/SS Multiplr: 1.00
Integrator: RTE

Quant Time: Oct 02 20:42:25 2018

Quant Method : C:\INSTARCH\METHODS\W100218.M
Quant Title : 8260C Waters Method
Response via : Initial Calibration
DataAcq Meth:W100218.M

Min. RRF : 0.030 Min. Rel. Area : 50% Max. R.T. Dev 0.15min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	FLUOROBENZENE**ISTD**	1.0000	1.0000	0.00	108	0.00
2	PT	Dichlorodi	0.2600	0.3015	-15.96	119	0.00
3	PT	Chloromethan	0.1893	0.2239	-18.28	122	0.00
4	PT	VinylChlorid	0.4911	0.5345	-8.84	124	0.00
5	PT	Bromomethane	0.2347	0.2524	-7.54	110	0.00
6	PT	Chloroethane	0.4529	0.4721	-4.24	111	0.00
7	T	Dichloroflmethane	0.3893	0.4040	-3.78	90	0.00
8	PT	Trichlorofma	0.3877	0.4097	-5.67	117	0.00
9	T	Ethylether	0.2229	0.2257	-1.26	111	0.00
10	T	dichlorotfluoroethan	0.2524	0.2898	-14.82	129	0.00
11	T	propyleneoxide	0.0305	0.0332	-8.85	113	0.00
12	T	Acrolein	0.0528	0.0496	6.06	108	0.00
13	PT	11dichlorthe	0.2376	0.2398	-0.93	117	0.00
14	PT	Trichlorotfluoroeth	0.2209	0.2330	-5.48	110	0.00
15	PT	Acetone	0.0921	0.1025	-11.29	120	0.00
16	T	Iodomethane	0.1470	0.1312	10.75	107	0.00
17	PT	Carbon Dislf	0.5903	0.6539	-10.77	112	0.00
18	T	allylchloride	0.2891	0.2996	-3.63	111	0.00
19	PT	methylacetate	0.0930	0.1043	-12.15	117	0.00
20	PT	Methylchlorid	0.4773	0.2815	41.02#	124	0.00
21	T	tbutylalcohol	0.0263	0.0264#	-0.38	107	0.00
22	T	Acrylonitrile	0.1023	0.1155	-12.90	119	0.00
23	PT	t12dichlorte	0.2523	0.2772	-9.87	125	0.00
24	PT	MtBE	0.6988	0.7586	-8.56	118	0.00
25	T	Hexane	0.3549	0.3927	-10.65	120	0.00
26	PT	11dichlorota	0.4702	0.4745	-0.91	109	0.00
27	T	Vinylacetate	0.4252	0.4730	-11.24	104	0.00
28	T	chloroprene	0.3534	0.3640	-3.00	111	0.00
29	T	Diisopether	0.7570	0.8258	-9.09	117	0.00
30	T	ETBE	0.6829	0.7508	-9.94	118	0.00
31	T	22dichloropr	0.3992	0.3985	0.18	112	0.00
32	PT	c12dichlorte	0.2914	0.2955	-1.41	111	0.00
33	PT	2Butanone	0.0388	0.0429#	-10.57	113	0.00
34	T	propionitrile	0.0364	0.0378	-3.85	105	0.00
35	T	Ethylacetate	0.0140	0.0140#	0.00	107	0.00
36	T	methacrylonitrile	0.1280	0.1368	-6.88	116	0.00
37	T	Bromochlorma	0.1340	0.1381	-3.06	117	0.00
38	T	Tetrahydofur	0.0927	0.0986	-6.36	108	0.00
39	PT	Chloroform	0.4826	0.4830	-0.08	113	0.00
40	PT	111trichlota	0.4013	0.4191	-4.44	114	0.00
41	S	SURRDibrflma	0.2565	0.2503	2.42	106	0.00
42	PT	Cyclohexane	0.5157	0.5574	-8.09	116	0.00
43	PT	Carbtetraclo	0.3187	0.3430	-7.62	114	0.00
44	T	11dicloprope	0.1289	0.1361	-5.59	116	0.00
45	S	SURR12DCAd4	0.0661	0.0685	-3.63	115	0.00
46	PT	Benzene	1.0455	1.1228	-7.39	115	0.00
47	PT	12dichlorota	0.3442	0.3559	-3.40	111	0.00
48	T	TAME	0.7032	0.7671	-9.09	118	0.00

49	PT	trichloroete	0.2675	0.2791	-4.34	114	-0.01
50	PT	methylcyclohexane	0.4966	0.5710	-14.98	124	0.00
51	PT	12dicloropra	0.2881	0.2768	3.92	105	0.00
52	T	23Dicl1propene	0.3822	0.4018	-5.13	109	0.00
53	T	Dibromometha	0.1738	0.1766	-1.61	111	0.00
54	T	methylmethacrylate	0.1930	0.2199	-13.94	119	0.00
55	T	14dioxane	0.0006	0.0006#	0.00	122	0.01
56	PT	Bromodiclrma	0.3426	0.3451	-0.73	106	0.00
57	T	2Nitropropane	0.0896	0.0982	-9.60	110	0.00
58	T	2CLEVE	0.1256	0.1415	-12.66	111	0.00
59	PT	c13dicloproe	0.3934	0.4357	-10.75	114	0.00
60	PT	4Meth2Pentan	0.2919	0.3132	-7.30	107	0.00
61	S	SURRd8Tolule	1.0089	0.9999	0.89	108	0.00
62	PT	Toluene	0.6723	0.6960	-3.53	110	0.00
63	PT	t13Dicloprop	0.3542	0.3743	-5.67	113	0.00
64	T	ethylmethacrylate	0.3465	0.3571	-3.06	108	0.00
65	PT	112Triclotha	0.2083	0.2007	3.65	109	0.00
66	PT	Tetrachlorte	0.3163	0.3222	-1.87	114	0.00
67	T	13Diclorpropa	0.4394	0.4228	3.78	105	0.00
68	I	d5-CHLOROBENZENE**ISTD**	1.0000	1.0000	0.00	107	0.00
69	PT	2Hexanone	0.2587	0.2796	-8.08	106	0.00
70	PT	Clorodibrmta	0.3294	0.3144	4.55	107	0.00
71	PT	12Dibrometha	0.3164	0.3292	-4.05	111	0.00
72	PT	Chlorobenzen	0.9124	0.9278	-1.69	109	0.00
73	T	1Clhexane	0.4727	0.5005	-5.88	116	0.00
74	T	1112Tetclota	0.3294	0.3242	1.58	108	0.00
75	PT	Ethylbenzene	1.4855	1.5841	-6.64	114	0.00
76	PT	m p-Xylene	0.5855	0.6221	-6.25	111	0.00
77	PT	o-Xylene	0.5877	0.6098	-3.76	114	0.00
78	PT	Styrene	0.9161	0.9910	-8.18	116	0.00
79	PT	Bromoform	0.2744	0.2660	3.06	115	0.00
80	PT	Isopropylben	1.4141	1.5690	-10.95	117	0.00
81	T	cyclohexanone	0.0059	0.0058#	1.69	113	0.02
82	I	d4-1,4-DICHLOROBENZENE**IS	1.0000	1.0000	0.00	112	0.00
83	S	SURR4BrFBenz	0.7282	0.7535	-3.47	114	0.00
84	T	Bromobenzene	0.7139	0.7494	-4.97	115	0.00
85	PT	1122Tetrclta	0.8437	0.9055	-7.32	114	0.00
86	T	123Triclproa	0.9959	1.0202	-2.44	113	0.00
87	T	14dichloro2butene	0.2351	0.2437	-3.66	120	0.00
88	T	n-Propylbenz	2.8339	3.2080	-13.20	114	0.00
89	T	2chlorotolue	1.6464	1.8039	-9.57	118	0.00
90	T	4chlorotolue	1.8484	1.9913	-7.73	112	0.00
91	T	135Trimebenz	1.9947	2.1924	-9.91	117	0.00
92	T	tbutylbenzen	1.7870	1.9892	-11.32	119	0.00
93	T	124Trimetben	1.9293	2.1696	-12.46	117	0.00
94	T	sbutylbenzen	2.5091	2.8645	-14.16	116	0.00
95	PT	13Diclorbenz	1.2687	1.3689	-7.90	114	0.00
96	T	pIsopropylto	2.1271	2.3599	-10.94	117	0.00
97	PT	14dichlorobe	1.3236	1.4127	-6.73	115	0.00
98	PT	12dichlorobe	1.2511	1.2580	-0.55	110	0.00
99	T	nButylbenzen	2.0032	2.1718	-8.42	116	0.00
100	PT	12dibromo3cl	0.1929	0.1950	-1.09	114	0.01
101	T	135Trichlorobenzene	0.8638	0.9945	-15.13	125	0.00
102	PT	124Trichlobe	0.7336	0.7933	-8.14	117	0.00
103	T	Hexachlorobu	0.3985	0.4323	-8.48	118	0.00
104	T	Naphthalene	1.6471	1.8192	-10.45	117	0.00
105	T	123Trichlben	0.6827	0.7413	-8.58	114	0.00

(#) = Out of Range SPCC's out = 1 CCC's out = 0

W100218.M Wed Oct 03 09:07:52 2018

Evaluate Continuing Calibration Report

Data File : C:\INSTARCH\Data\OCT0218\ICV1.D Vial: 13
Acq On : 2 Oct 2018 16:15 Operator: AGK-RLD
Sample : INITIAL CALIB. VERIF. Inst : VMS3
Misc : 10.0/100 ug/L, 5.0 mL Purged + IS/SS Multiplr: 1.00
Integrator: RTE

Quant Time: Oct 02 20:42:25 2018

Quant Method : C:\INSTARCH\METHODS\W100218.M
Quant Title : 8260C Waters Method
Response via : Initial Calibration
DataAcq Meth:W100218.M

Min. RRF : 0.030 Min. Rel. Area : 50% Max. R.T. Dev 0.15min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	FLUOROBENZENE**ISTD**	20.0000	20.0000	0.00	108	0.00
2	PT	Dichlorodi	10.0000	11.5957	-15.96	119	0.00
3	PT	Chloromethan	10.0000	11.8291	-18.29	122	0.00
4	PT	VinylChlorid	10.0000	10.8826	-8.83	124	0.00
5	PT	Bromomethane	10.0000	10.7567	-7.57	110	0.00
6	PT	Chloroethane	10.0000	10.4228	-4.23	111	0.00
7	T	Dichloroflmethane	10.0000	10.3776	-3.78	90	0.00
8	PT	Trichlorofma	10.0000	10.5664	-5.66	117	0.00
9	T	Ethylether	10.0000	10.1277	-1.28	111	0.00
10	T	dichlorotfluoroethan	10.0000	11.4820	-14.82	129	0.00
11	T	propyleneoxide	100.0000	108.9564	-8.96	113	0.00
12	T	Acrolein	50.0000	47.7304	4.54	108	0.00
13	PT	11dichlorthe	10.0000	10.0965	-0.97	117	0.00
14	PT	Trichlorotfluoroeth	20.0000	21.0982	-5.49	110	0.00
15	PT	Acetone	100.0000	111.2838	-11.28	120	0.00
16	T	Iodomethane	20.0000	17.9017	10.49	107	0.00
17	PT	Carbon Dislf	20.0000	22.1532	-10.77	112	0.00
18	T	allylchloride	20.0000	20.7252	-3.63	111	0.00
19	PT	methylacetate	10.0000	11.2111	-12.11	117	0.00
20	PT	Methylchlorid	10.0000	10.8565	-8.57	124	0.00
21	T	tbutylalcohol	500.0000	464.9107	7.02	107	0.00
22	T	Acrylonitrile	50.0000	56.4472	-12.89	119	0.00
23	PT	t12dichlorte	10.0000	10.9869	-9.87	125	0.00
24	PT	MtBE	10.0000	10.8553	-8.55	118	0.00
25	T	Hexane	20.0000	22.1269	-10.63	120	0.00
26	PT	11dichlorota	10.0000	10.0901	-0.90	109	0.00
27	T	Vinylacetate	100.0000	102.6675	-2.67	104	0.00
28	T	chloroprene	20.0000	20.5992	-3.00	111	0.00
29	T	Diisopether	10.0000	10.9086	-9.09	117	0.00
30	T	ETBE	10.0000	10.9944	-9.94	118	0.00
31	T	22dichloropr	10.0000	9.9839	0.16	112	0.00
32	PT	c12dichlorte	10.0000	10.1419	-1.42	111	0.00
33	PT	2Butanone	100.0000	110.4977	-10.50	113	0.00
34	T	propionitrile	100.0000	93.6808	6.32	105	0.00
35	T	Ethylacetate	50.0000	49.8713	0.26	107	0.00
36	T	methacrylonitrile	20.0000	21.3743	-6.87	116	0.00
37	T	Bromochlorma	10.0000	10.3058	-3.06	117	0.00
38	T	Tetrahydofur	100.0000	106.3078	-6.31	108	0.00
39	PT	Chloroform	10.0000	10.0075	-0.08	113	0.00
40	PT	111trichlota	10.0000	10.4437	-4.44	114	0.00
41	S	SURRDibrflma	20.0000	19.5205	2.40	106	0.00
42	PT	Cyclohexane	10.0000	10.8095	-8.09	116	0.00
43	PT	Carbtetraclo	10.0000	10.7603	-7.60	114	0.00
44	T	11dicloprope	10.0000	10.5582	-5.58	116	0.00
45	S	SURR12DCAd4	20.0000	20.7370	-3.68	115	0.00
46	PT	Benzene	10.0000	10.7392	-7.39	115	0.00
47	PT	12dichlorota	10.0000	10.3392	-3.39	111	0.00
48	T	TAME	10.0000	10.9099	-9.10	118	0.00

49	PT	trichloroete	10.0000	10.4344	-4.34	114	-0.01
50	PT	methylcyclohexane	10.0000	11.4964	-14.96	124	0.00
51	PT	12dicloropra	10.0000	9.6083	3.92	105	0.00
52	T	23Dicl1propene	10.0000	10.5147	-5.15	109	0.00
53	T	Dibromometha	10.0000	10.1603	-1.60	111	0.00
54	T	methylmethacrylate	10.0000	10.4590	-4.59	119	0.00
55	T	14dioxane	500.0000	460.9685	7.81	122	0.01
56	PT	Bromodiclrma	10.0000	10.0739	-0.74	106	0.00
57	T	2Nitropropane	100.0000	109.6513	-9.65	110	0.00
58	T	2CLEVE	50.0000	49.3598	1.28	111	0.00
59	PT	c13dicloproe	10.0000	11.0740	-10.74	114	0.00
60	PT	4Meth2Pentan	100.0000	107.2979	-7.30	107	0.00
61	S	SURRd8Tolule	20.0000	19.8227	0.89	108	0.00
62	PT	Toluene	10.0000	10.3516	-3.52	110	0.00
63	PT	t13Dicloprop	10.0000	10.5671	-5.67	113	0.00
64	T	ethylmethacrylate	20.0000	20.6104	-3.05	108	0.00
65	PT	112Triclotha	10.0000	9.6383	3.62	109	0.00
66	PT	Tetrachlorte	10.0000	10.1868	-1.87	114	0.00
67	T	13Diclorpropa	10.0000	9.6210	3.79	105	0.00
68	I	d5-CHLOROBENZENE**ISTD**	20.0000	20.0000	0.00	107	0.00
69	PT	2Hexanone	100.0000	108.0825	-8.08	106	0.00
70	PT	Clorodibrmta	10.0000	9.5438	4.56	107	0.00
71	PT	12Dibrometha	10.0000	10.4067	-4.07	111	0.00
72	PT	Chlorobenzen	10.0000	10.1685	-1.68	109	0.00
73	T	1Clhexane	10.0000	10.5877	-5.88	116	0.00
74	T	1112Tetclota	10.0000	9.8418	1.58	108	0.00
75	PT	Ethylbenzene	10.0000	10.6641	-6.64	114	0.00
76	PT	m p-Xylene	20.0000	21.2488	-6.24	111	0.00
77	PT	o-Xylene	10.0000	10.3746	-3.75	114	0.00
78	PT	Styrene	10.0000	10.8171	-8.17	116	0.00
79	PT	Bromoform	10.0000	9.6959	3.04	115	0.00
80	PT	Isopropylben	10.0000	11.0955	-10.95	117	0.00
81	T	cyclohexanone	200.0000	182.9080	8.55	113	0.02
82	I	d4-1,4-DICHLOROBENZENE**IS	20.0000	20.0000	0.00	112	0.00
83	S	SURR4BrFBenz	20.0000	20.6926	-3.46	114	0.00
84	T	Bromobenzene	10.0000	10.4983	-4.98	115	0.00
85	PT	1122Tetrclta	10.0000	10.7329	-7.33	114	0.00
86	T	123Triclproa	10.0000	10.2442	-2.44	113	0.00
87	T	14dichloro2butene	10.0000	10.3624	-3.62	120	0.00
88	T	n-Propylbenz	10.0000	10.6199	-6.20	114	0.00
89	T	2chlorotolue	10.0000	10.9567	-9.57	118	0.00
90	T	4chlorotolue	10.0000	10.7732	-7.73	112	0.00
91	T	135Trimebenz	10.0000	10.9909	-9.91	117	0.00
92	T	tbutylbenzen	10.0000	11.1319	-11.32	119	0.00
93	T	124Trimetben	10.0000	11.2458	-12.46	117	0.00
94	T	sbutylbenzen	10.0000	11.4165	-14.16	116	0.00
95	PT	13Diclorbenz	10.0000	10.7895	-7.90	114	0.00
96	T	pIsopropylto	10.0000	11.0947	-10.95	117	0.00
97	PT	14dichlorobe	10.0000	10.6730	-6.73	115	0.00
98	PT	12dichlorobe	10.0000	10.0550	-0.55	110	0.00
99	T	nButylbenzen	10.0000	10.8417	-8.42	116	0.00
100	PT	12dibromo3cl	10.0000	10.1054	-1.05	114	0.01
101	T	135Trichlorobenzene	10.0000	11.5124	-15.12	125	0.00
102	PT	124Trichlobe	10.0000	10.8140	-8.14	117	0.00
103	T	Hexachlorobu	10.0000	10.8479	-8.48	118	0.00
104	T	Naphthalene	10.0000	11.0443	-10.44	117	0.00
105	T	123Trichlben	10.0000	10.8581	-8.58	114	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

W100218.M Wed Oct 03 09:08:18 2018

Quantitation Report

Data File : C:\INSTARCH\Data\OCT0218\ICV1.D Vial: 13
Acq On : 2 Oct 2018 16:15 Operator: AGK-RLD
Sample : INITIAL CALIB. VERIF. Inst : VMS3
Misc : 10.0/100 ug/L, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 20:42:25 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 20:42:19 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M
IS QA File : 50 level for IS QA unknown. No recoveries calculated.

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min) Rcv(Ar)
1) FLUOROBENZENE**ISTD**	7.69	96	1373397	20.00 ug/L	0.00 NA%
68) d5-CHLOROBENZENE**ISTD**	11.60	117	1085945	20.00 ug/L	0.00 NA%
82) d4-1,4-DICHLOROBENZENE**IS	14.90	152	608013	20.00 ug/L	0.00 NA%

System Monitoring Compounds

41) SURRDibrflma	6.85	113	343802	19.520 ug/L	0.00
Spiked Amount 20.000	Range 90 - 110		Recovery = 98 %		
45) SURR12DCAd4	7.26	102	94096	20.737 ug/L	0.00
Spiked Amount 20.000	Range 89 - 111		Recovery = 104 %		
61) SURRd8Tolule	9.69	98	1373281	19.823 ug/L	0.00
Spiked Amount 20.000	Range 93 - 107		Recovery = 99 %		
83) SURR4BrFBenz	13.23	95	458110	20.693 ug/L	0.00
Spiked Amount 20.000	Range 83 - 111		Recovery = 103 %		

Target Compounds					Qvalue
2) Dichlorodi	1.87	85	207041	11.5957 ug/L	94
3) Chloromethan	2.11	50	153756	11.8291 ug/L	98
4) VinylChlorid	2.27	62	367030	10.8826 ug/L	96
5) Bromomethane	2.73	94	173331	10.7567 ug/L	90
6) Chloroethane	2.89	64	324182	10.4228 ug/L	97
7) Dichloroflmethane	3.20	67	277444	10.3776 ug/L	99
8) Trichlorofma	3.28	101	281317	10.5664 ug/L	99
9) Ethylether	3.73	59	155015	10.1277 ug/L	92
10) dichlorotfluoroethan	3.72	67	199027	11.4820 ug/L	92
11) propyleneoxide	4.08	58	227961	108.9564 ug/L	92
12) Acrolein	3.86	56	170160	47.7304 ug/L	96
13) 11dichlorthe	4.00	96	164704	10.0965 ug/L	96
14) Trichlorotfluoroeth	4.03	101	320005	21.0982 ug/L	97
15) Acetone	4.08	43	703850	111.2838 ug/L	97
16) Iodomethane	4.16	142	180199	17.9017 ug/L	95
17) Carbon Dislf	4.26	76	898045	22.1532 ug/L	98
18) allylchloride	4.47	41	411507	20.7252 ug/L	96
19) methylacetate	4.55	74	71619	11.2111 ug/L	98
20) Methylchlorid	4.63	84	193274	10.8565 ug/L	96
21) tbutylalcohol	4.88	59	907760	464.9107 ug/L	98
22) Acrylonitrile	4.95	53	396714	56.4472 ug/L	99
23) t12dichlorte	5.00	96	190376	10.9869 ug/L	88
24) MtBE	5.06	73	520900	10.8553 ug/L	94
25) Hexane	5.39	57	539300	22.1269 ug/L	94
26) 11dichlorota	5.53	63	325806	10.0901 ug/L	94
27) Vinylacetate	5.63	43	3248246	102.6675 ug/L	100
28) chloroprene	5.66	53	499921	20.5992 ug/L	98
29) Diisopether	5.69	45	567097	10.9086 ug/L	99
30) ETBE	6.13	59	515544	10.9944 ug/L	99
31) 22dichloropr	6.26	77	273663	9.9839 ug/L	98
32) c12dichlorte	6.26	96	202953	10.1419 ug/L	97
33) 2Butanone	6.29	72	294465	110.4977 ug/L	99
34) propionitrile	6.32	54	259750	93.6808 ug/L	96
35) Ethylacetate	6.41	88	48090	49.8713 ug/L	95
36) methacrylonitrile	6.54	67	187917	21.3743 ug/L	98
37) Bromochlorma	6.55	128	94812	10.3058 ug/L	97
38) Tetrahydofur	6.66	42	676810	106.3078 ug/L	99

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\INSTARCH\Data\OCT0218\ICV1.D Vial: 13
Acq On : 2 Oct 2018 16:15 Operator: AGK-RLD
Sample : INITIAL CALIB. VERIF. Inst : VMS3
Misc : 10.0/100 ug/L, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 20:42:25 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 20:42:19 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
39)	Chloroform	6.65	83	331662	10.0075 ug/L	96
40)	111trichlota	6.90	97	287807	10.4437 ug/L	96
42)	Cyclohexane	6.98	56	382780	10.8095 ug/L	97
43)	Carbtetraclo	7.11	119	235518	10.7603 ug/L	96
44)	11dicloprope	7.10	110	93437	10.5582 ug/L	99
46)	Benzene	7.35	78	771025	10.7392 ug/L	98
47)	12dichlorota	7.35	62	244362	10.3392 ug/L	98
48)	TAME	7.53	73	526790	10.9099 ug/L	98
49)	trichloroete	8.15	95	191670	10.4344 ug/L	96
50)	methylcyclohexane	8.42	83	392072	11.4964 ug/L	97
51)	12dicloropra	8.41	63	190064	9.6083 ug/L	96
52)	23Dicl1propene	8.48	75	275945	10.5147 ug/L	95
53)	Dibromometha	8.55	93	121286	10.1603 ug/L	98
54)	methylmethacrylate	8.60	69	150973	10.4590 ug/L	99
55)	14dioxane	8.65	88	19740	460.9685 ug/L	78
56)	Bromodiclrma	8.75	83	237009	10.0739 ug/L	98
57)	2Nitropropane	9.02	43	674396	109.6513 ug/L	97
58)	2CLEVE	9.15	63	485769	49.3598 ug/L	98
59)	c13dicloproe	9.33	75	299185	11.0740 ug/L	99
60)	4Meth2Pentan	9.54	43	2150615	107.2979 ug/L	100
62)	Toluene	9.78	92	477913	10.3516 ug/L	99
63)	t13Dicloprop	10.04	75	257048	10.5671 ug/L	96
64)	ethylmethacrylate	10.20	69	490472	20.6104 ug/L	98
65)	112Triclotha	10.28	83	137836	9.6383 ug/L	95
66)	Tetrachlorte	10.52	166	221275	10.1868 ug/L	99
67)	13Diclorpropa	10.50	76	290329	9.6210 ug/L	99
69)	2Hexanone	10.64	43	1518162	108.0825 ug/L	100
70)	Clorodibrmta	10.80	129	170706	9.5438 ug/L	99
71)	12Dibrometha	10.95	107	178772	10.4067 ug/L	95
72)	Chlorobenzen	11.64	112	503759	10.1685 ug/L	100
73)	1Clhexane	11.62	91	271760	10.5877 ug/L	95
74)	1112Tetclota	11.75	131	176016	9.8418 ug/L	94
75)	Ethylbenzene	11.80	91	860132	10.6641 ug/L	98
76)	m p-Xylene	11.97	106	675531	21.2488 ug/L	99
77)	o-Xylene	12.52	106	331082	10.3746 ug/L	95
78)	Styrene	12.53	104	538088	10.8171 ug/L	98
79)	Bromoform	12.76	173	144436	9.6959 ug/L	96
80)	Isopropylben	13.03	105	851943	11.0955 ug/L	99
81)	cyclohexanone	13.16	55	62471	182.9080 ug/L	86
84)	Bromobenzene	13.45	156	227836	10.4983 ug/L	93
85)	1122Tetrclta	13.42	83	275283	10.7329 ug/L	99
86)	123Triclproa	13.48	75	310156	10.2442 ug/L	94
87)	14dichloro2butene	13.51	53	74073	10.3624 ug/L	93
88)	n-Propylbenz	13.62	91	975256	10.6199 ug/L	98
89)	2chlorotolue	13.74	91	548412	10.9567 ug/L	97
90)	4chlorotolue	13.89	91	605381	10.7732 ug/L	99
91)	135Trimebenz	13.88	105	666489	10.9909 ug/L	97
92)	tbutylbenzen	14.35	119	604741	11.1319 ug/L	99
93)	124Trimetben	14.41	105	659585	11.2458 ug/L	98
94)	sbutylbenzen	14.66	105	870825	11.4165 ug/L	98
95)	13Diclorbenz	14.80	146	416152	10.7895 ug/L	96
96)	pIsopropylto	14.88	119	717432	11.0947 ug/L	100
97)	14dichlorobe	14.93	146	429464	10.6730 ug/L	98
98)	12dichlorobe	15.47	146	382429	10.0550 ug/L	94
99)	nButylbenzen	15.47	91	660229	10.8417 ug/L	99
100)	12dibromo3cl	16.57	157	59269	10.1054 ug/L	100
101)	135Trichlorobenzene	16.90	180	302333	11.5124 ug/L	94

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\INSTARCH\Data\OCT0218\ICV1.D Vial: 13
Acq On : 2 Oct 2018 16:15 Operator: AGK-RLD
Sample : INITIAL CALIB. VERIF. Inst : VMS3
Misc : 10.0/100 ug/L, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 20:42:25 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 20:42:19 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
102) 124Trichlobe	17.71	180	241157	10.8140	ug/L	99
103) Hexachlorobu	17.96	225	131433	10.8479	ug/L	97
104) Naphthalene	18.02	128	553034	11.0443	ug/L	99
105) 123Trichlben	18.33	180	225346	10.8581	ug/L	99

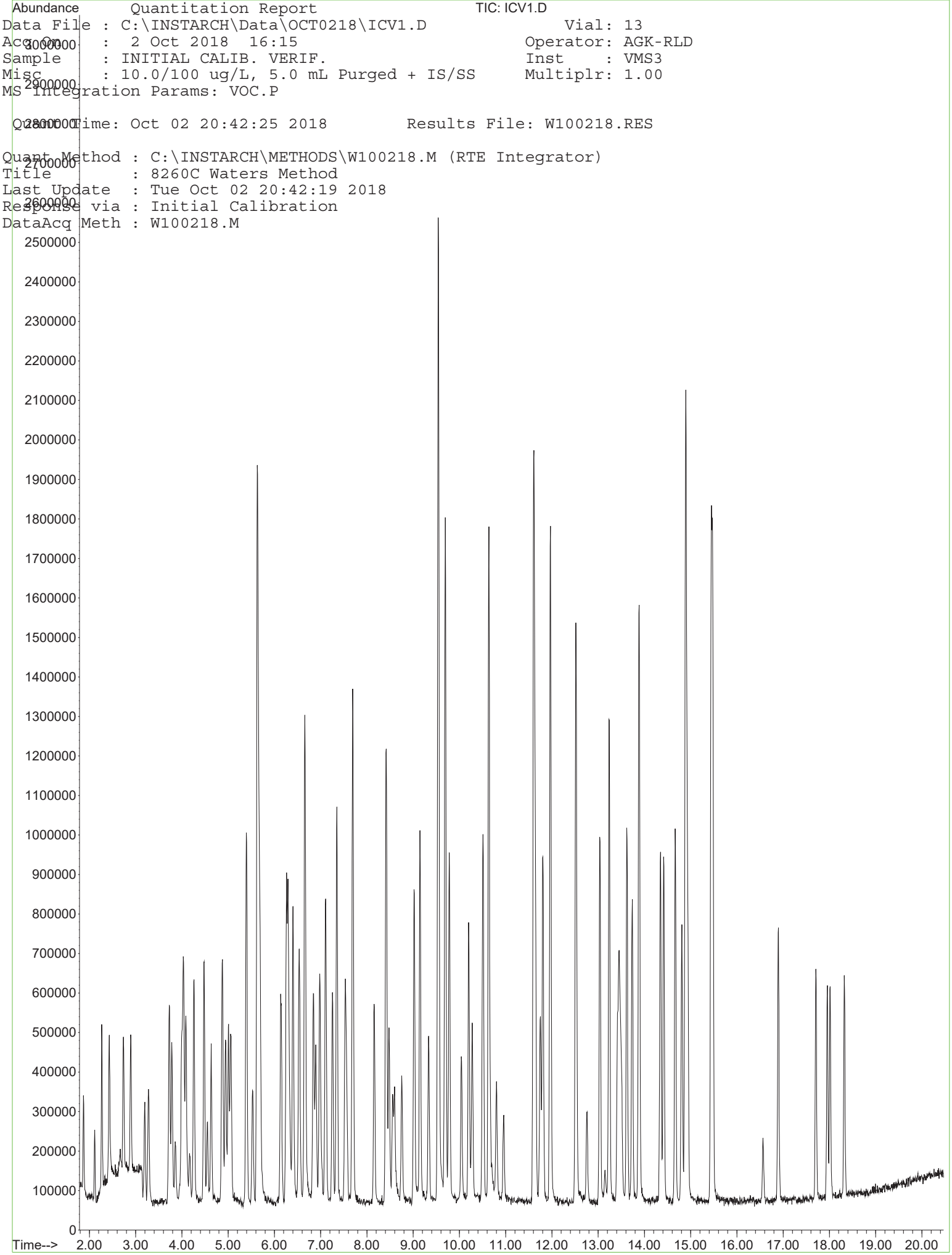
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\INSTARCH\Data\OCT0218\ICV1.D Vial: 13
Acq On : 2 Oct 2018 16:15 Operator: AGK-RLD
Sample : INITIAL CALIB. VERIF. Inst : VMS3
Misc : 10.0/100 ug/L, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 20:42:25 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 20:42:19 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M



Evaluate Continuing Calibration Report

Data File : C:\INSTARCH\Data\OCT0218\ICV2.D Vial: 14
Acq On : 2 Oct 2018 16:45 Operator: AGK-RLD
Sample : INITIAL CALIB. VERIF. Inst : VMS3
Misc : 30.0/300 ug/L, 5.0 mL Purged + IS/SS Multiplr: 1.00
Integrator: RTE

Quant Time: Oct 02 20:43:41 2018

Quant Method : C:\INSTARCH\METHODS\W100218.M
Quant Title : 8260C Waters Method
Response via : Initial Calibration
DataAcq Meth:W100218.M

Min. RRF : 0.030 Min. Rel. Area : 50% Max. R.T. Dev 0.15min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	FLUOROBENZENE**ISTD**	20.0000	20.0000	0.00	109	0.00
2	PT	Dichlorodi	30.0000	31.6680	-5.56	115	0.00
3	PT	Chloromethan	30.0000	30.9315	-3.10	109	0.00
4	PT	VinylChlorid	30.0000	30.3633	-1.21	113	0.00
5	PT	Bromomethane	30.0000	38.6996	-29.00#	136	0.00
6	PT	Chloroethane	30.0000	28.0459	6.51	106	0.00
7	T	Dichloroflmethane	30.0000	29.7428	0.86	125	0.00
8	PT	Trichlorofma	30.0000	29.7474	0.84	110	0.00
9	T	Ethylether	30.0000	27.6922	7.69	102	0.00
10	T	dichlorotfluoroethan	30.0000	30.8037	-2.68	114	0.00
11	T	propyleneoxide	300.0000	240.1638	19.95	88	0.00
12	T	Acrolein	150.0000	139.3231	7.12	99	0.00
13	PT	11dichlorthe	30.0000	29.4729	1.76	112	0.00
14	PT	Trichlorotfluoroeth	60.0000	60.3199	-0.53	109	0.00
15	PT	Acetone	300.0000	244.3630	18.55	88	0.00
16	T	Iodomethane	60.0000	58.7152	2.14	103	0.00
17	PT	Carbon Dislf	60.0000	59.6429	0.60	110	0.00
18	T	allylchloride	60.0000	60.7275	-1.21	106	0.00
19	PT	methylacetate	30.0000	28.3331	5.56	101	0.00
20	PT	Methylchlorid	30.0000	31.9234	-6.41	110	0.00
21	T	tbutylalcohol	1500.0000	1030.3947	31.31#	75	0.00
22	T	Acrylonitrile	150.0000	142.3048	5.13	94	0.00
23	PT	t12dichlorte	30.0000	30.8038	-2.68	110	0.00
24	PT	MtBE	30.0000	29.5719	1.43	108	0.00
25	T	Hexane	60.0000	60.0697	-0.12	106	0.00
26	PT	11dichlorota	30.0000	28.5741	4.75	107	0.00
27	T	Vinylacetate	300.0000	281.8294	6.06	100	0.00
28	T	chloroprene	60.0000	58.8333	1.94	107	0.00
29	T	Diisopether	30.0000	29.4767	1.74	110	0.00
30	T	ETBE	30.0000	31.1590	-3.86	109	0.00
31	T	22dichloropr	30.0000	27.7950	7.35	103	0.00
32	PT	c12dichlorte	30.0000	29.1233	2.92	109	0.00
33	PT	2Butanone	300.0000	269.0755	10.31	91	0.00
34	T	propionitrile	300.0000	239.7942	20.07#	85	0.00
35	T	Ethylacetate	150.0000	132.2308	11.85	95	0.00
36	T	methacrylonitrile	60.0000	57.6327	3.95	95	0.00
37	T	Bromochlorma	30.0000	27.7670	7.44	105	0.00
38	T	Tetrahydofur	300.0000	260.3339	13.22	89	0.00
39	PT	Chloroform	30.0000	27.6171	7.94	108	0.00
40	PT	111trichlota	30.0000	30.2229	-0.74	114	0.00
41	S	SURRDibrflma	20.0000	20.1160	-0.58	107	0.00
42	PT	Cyclohexane	30.0000	31.0835	-3.61	110	0.00
43	PT	Carbtetraclo	30.0000	31.9567	-6.52	112	0.00
44	T	11dicloprope	30.0000	30.9228	-3.08	111	0.00
45	S	SURR12DCAd4	20.0000	19.8300	0.85	106	0.00
46	PT	Benzene	30.0000	28.6269	4.58	108	0.00
47	PT	12dichlorota	30.0000	28.5484	4.84	104	0.00
48	T	TAME	30.0000	30.5017	-1.67	110	0.00

49	PT	trichloroete	30.0000	28.8000	4.00	109	0.00
50	PT	methylcyclohexane	30.0000	31.2245	-4.08	115	0.00
51	PT	12dicloropra	30.0000	28.5827	4.72	106	0.00
52	T	23Dicl1propene	30.0000	30.5317	-1.77	110	0.00
53	T	Dibromometha	30.0000	28.2880	5.71	111	0.00
54	T	methylmethacrylate	30.0000	28.6439	4.52	104	0.00
55	T	14dioxane	1500.0000	929.9184	38.01#	64	0.00
56	PT	Bromodiclrma	30.0000	29.2003	2.67	110	0.00
57	T	2Nitropropane	300.0000	294.2748	1.91	92	0.00
58	T	2CLEVE	150.0000	143.6967	4.20	102	0.00
59	PT	c13dicloproe	30.0000	30.8041	-2.68	111	0.00
60	PT	4Meth2Pentan	300.0000	247.9220	17.36	95	0.00
61	S	SURRd8Tolule	20.0000	19.7676	1.16	107	0.00
62	PT	Toluene	30.0000	29.0471	3.18	107	0.00
63	PT	t13Dicloprop	30.0000	30.1324	-0.44	103	0.00
64	T	ethylmethacrylate	60.0000	61.4700	-2.45	103	0.00
65	PT	112Triclotha	30.0000	28.4434	5.19	102	0.00
66	PT	Tetrachlorte	30.0000	29.7558	0.81	109	0.00
67	T	13Diclorpropa	30.0000	27.9657	6.78	103	0.00
68	I	d5-CHLOROBENZENE**ISTD**	20.0000	20.0000	0.00	107	0.00
69	PT	2Hexanone	300.0000	265.8718	11.38	91	0.00
70	PT	Clorodibrmta	30.0000	28.8370	3.88	101	0.00
71	PT	12Dibrometha	30.0000	29.1709	2.76	101	0.00
72	PT	Chlorobenzen	30.0000	28.6849	4.38	107	0.00
73	T	1Clhexane	30.0000	31.3534	-4.51	113	0.00
74	T	1112Tetclota	30.0000	28.9311	3.56	105	0.00
75	PT	Ethylbenzene	30.0000	29.1636	2.79	107	0.00
76	PT	m p-Xylene	60.0000	60.5726	-0.95	109	0.00
77	PT	o-Xylene	30.0000	30.0591	-0.20	104	0.00
78	PT	Styrene	30.0000	31.0108	-3.37	106	0.00
79	PT	Bromoform	30.0000	28.7255	4.25	100	0.00
80	PT	Isopropylben	30.0000	30.7843	-2.61	105	0.00
81	T	cyclohexanone	600.0000	360.6082	39.90#	66	0.00
82	I	d4-1,4-DICHLOROBENZENE**IS	20.0000	20.0000	0.00	105	0.00
83	S	SURR4BrFBenz	20.0000	19.7193	1.40	104	0.00
84	T	Bromobenzene	30.0000	28.1442	6.19	101	0.00
85	PT	1122Tetrclta	30.0000	26.3335	12.22	96	0.00
86	T	123Triclproa	30.0000	27.7599	7.47	95	0.00
87	T	14dichloro2butene	30.0000	26.4795	11.73	91	0.00
88	T	n-Propylbenz	30.0000	31.6413	-5.47	107	0.00
89	T	2chlorotolue	30.0000	29.2229	2.59	106	0.00
90	T	4chlorotolue	30.0000	28.8760	3.75	103	0.00
91	T	135Trimebenz	30.0000	28.5989	4.67	102	0.00
92	T	tbutylbenzen	30.0000	29.3965	2.01	105	0.00
93	T	124Trimetben	30.0000	29.9891	0.04	106	0.00
94	T	sbutylbenzen	30.0000	30.4227	-1.41	107	0.00
95	PT	13Diclorbenz	30.0000	28.7165	4.28	103	0.00
96	T	pIsopropylto	30.0000	30.0623	-0.21	104	0.00
97	PT	14dichlorobe	30.0000	28.1045	6.32	102	0.00
98	PT	12dichlorobe	30.0000	27.6118	7.96	103	0.00
99	T	nButylbenzen	30.0000	29.5836	1.39	106	0.00
100	PT	12dibromo3cl	30.0000	26.0904	13.03	91	0.00
101	T	135Trichlorobenzene	30.0000	30.5841	-1.95	108	0.00
102	PT	124Trichlobe	30.0000	31.0333	-3.44	109	0.00
103	T	Hexachlorobu	30.0000	30.4669	-1.56	113	0.00
104	T	Naphthalene	30.0000	31.9019	-6.34	96	0.00
105	T	123Trichlben	30.0000	30.6849	-2.28	107	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

W100218.M Wed Oct 03 09:09:34 2018

Quantitation Report

Data File : C:\INSTARCH\Data\OCT0218\ICV2.D Vial: 14
Acq On : 2 Oct 2018 16:45 Operator: AGK-RLD
Sample : INITIAL CALIB. VERIF. Inst : VMS3
Misc : 30.0/300 ug/L, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 20:43:41 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 20:43:19 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M
IS QA File : 50 level for IS QA unknown. No recoveries calculated.

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min) Rcv(Ar)
1) FLUOROBENZENE**ISTD**	7.69	96	1441849	20.00 ug/L	0.00 NA%
68) d5-CHLOROBENZENE**ISTD**	11.60	117	1148766	20.00 ug/L	0.00 NA%
82) d4-1,4-DICHLOROBENZENE**IS	14.90	152	694132	20.00 ug/L	0.00 NA%

System Monitoring Compounds

41) SURRDibrflma	6.84	113	371948	20.116 ug/L	0.00
Spiked Amount 20.000	Range 90 - 110		Recovery = 101 %		
45) SURR12DCAd4	7.25	102	94465	19.830 ug/L	0.00
Spiked Amount 20.000	Range 89 - 111		Recovery = 99 %		
61) SURRd8Tolule	9.69	98	1437718	19.768 ug/L	0.00
Spiked Amount 20.000	Range 93 - 107		Recovery = 99 %		
83) SURR4BrFBenz	13.23	95	498397	19.719 ug/L	0.00
Spiked Amount 20.000	Range 83 - 111		Recovery = 99 %		

Target Compounds					Qvalue
2) Dichlorodi	1.87	85	593613	31.6680 ug/L	97
3) Chloromethan	2.11	50	422091	30.9315 ug/L	99
4) VinylChlorid	2.27	62	1075082	30.3633 ug/L	96
5) Bromomethane	2.73	94	654677	38.6996 ug/L	95
6) Chloroethane	2.89	64	915796	28.0459 ug/L	95
7) Dichloroflmethane	3.20	67	834801	29.7428 ug/L	95
8) Trichlorofma	3.28	101	831464	29.7474 ug/L	97
9) Ethylether	3.73	59	444986	27.6922 ug/L	96
10) dichlorotfluoroethan	3.73	67	560558	30.8037 ug/L	93
11) propyleneoxide	4.08	58	527520	240.1638 ug/L	93
12) Acrolein	3.85	56	490563	139.3231 ug/L	92
13) 11dichlorthe	3.99	96	504751	29.4729 ug/L	94
14) Trichlorotfluoroeth	4.03	101	960498	60.3199 ug/L	98
15) Acetone	4.08	43	1622585	244.3630 ug/L	97
16) Iodomethane	4.17	142	741186	58.7152 ug/L	98
17) Carbon Dislf	4.26	76	2538305	59.6429 ug/L	100
18) allylchloride	4.48	41	1265867	60.7275 ug/L	99
19) methylacetate	4.55	74	190019	28.3331 ug/L	87
20) Methylchlorid	4.63	84	534403	31.9234 ug/L	97
21) tbutylalcohol	4.88	59	2004648	1030.3947 ug/L	98
22) Acrylonitrile	4.94	53	1049973	142.3048 ug/L	99
23) t12dichlorte	5.00	96	560356	30.8038 ug/L	92
24) MtBE	5.06	73	1489758	29.5719 ug/L	97
25) Hexane	5.40	57	1537055	60.0697 ug/L	98
26) 11dichlorota	5.53	63	968633	28.5741 ug/L	96
27) Vinylacetate	5.63	43	7887855	281.8294 ug/L	93
28) chloroprene	5.66	53	1498985	58.8333 ug/L	99
29) Diisopether	5.69	45	1608756	29.4767 ug/L	98
30) ETBE	6.14	59	1533912	31.1590 ug/L	99
31) 22dichloropr	6.26	77	799849	27.7950 ug/L	100
32) c12dichlorte	6.26	96	611841	29.1233 ug/L	96
33) 2Butanone	6.30	72	752798	269.0755 ug/L	100
34) propionitrile	6.33	54	678963	239.7942 ug/L	96
35) Ethylacetate	6.40	88	133863	132.2308 ug/L	93
36) methacrylonitrile	6.52	67	531946	57.6327 ug/L	99
37) Bromochlorma	6.55	128	268186	27.7670 ug/L	97
38) Tetrahydofur	6.66	42	1740028	260.3339 ug/L	95

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\INSTARCH\Data\OCT0218\ICV2.D Vial: 14
Acq On : 2 Oct 2018 16:45 Operator: AGK-RLD
Sample : INITIAL CALIB. VERIF. Inst : VMS3
Misc : 30.0/300 ug/L, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 20:43:41 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 20:43:19 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
39)	Chloroform	6.65	83	960885	27.6171 ug/L	98
40)	111trichlota	6.90	97	874391	30.2229 ug/L	98
42)	Cyclohexane	6.99	56	1155574	31.0835 ug/L	98
43)	Carbtetraclo	7.11	119	734320	31.9567 ug/L	96
44)	11dicloprope	7.11	110	287297	30.9228 ug/L	97
46)	Benzene	7.35	78	2157726	28.6269 ug/L	97
47)	12dichlorota	7.35	62	708355	28.5484 ug/L	99
48)	TAME	7.53	73	1546193	30.5017 ug/L	99
49)	trichloroete	8.16	95	555395	28.8000 ug/L	96
50)	methylcyclohexane	8.42	83	1117953	31.2245 ug/L	100
51)	12dicloropra	8.42	63	593579	28.5827 ug/L	93
52)	23Dicl1propene	8.48	75	841205	30.5317 ug/L	96
53)	Dibromometha	8.55	93	354512	28.2880 ug/L	98
54)	methylmethacrylate	8.59	69	446648	28.6439 ug/L	98
55)	14dioxane	8.64	88	43940	929.9184 ug/L #	74
56)	Bromodiclrma	8.76	83	721237	29.2003 ug/L	99
57)	2Nitropropane	9.02	43	1900106	294.2748 ug/L	98
58)	2CLEVE	9.15	63	1515382	143.6967 ug/L	97
59)	c13dicloproe	9.33	75	873711	30.8041 ug/L	99
60)	4Meth2Pentan	9.54	43	5216872	247.9220 ug/L	93
62)	Toluene	9.78	92	1407880	29.0471 ug/L	95
63)	t13Dicloprop	10.04	75	769512	30.1324 ug/L	98
64)	ethylmethacrylate	10.20	69	1535725	61.4700 ug/L	99
65)	112Triclotha	10.27	83	427039	28.4434 ug/L	96
66)	Tetrachlorte	10.52	166	678564	29.7558 ug/L	99
67)	13Diclorpropa	10.50	76	885972	27.9657 ug/L	97
69)	2Hexanone	10.63	43	3950561	265.8718 ug/L	95
70)	Clorodibrmta	10.80	129	545634	28.8370 ug/L	99
71)	12Dibrometha	10.96	107	530101	29.1709 ug/L	100
72)	Chlorobenzen	11.65	112	1503297	28.6849 ug/L	99
73)	1Clhexane	11.62	91	851322	31.3534 ug/L	95
74)	1112Tetclota	11.75	131	547353	28.9311 ug/L	95
75)	Ethylbenzene	11.80	91	2488328	29.1636 ug/L	97
76)	m p-Xylene	11.97	106	2037094	60.5726 ug/L	95
77)	o-Xylene	12.52	106	1014761	30.0591 ug/L	93
78)	Styrene	12.53	104	1631845	31.0108 ug/L	95
79)	Bromoform	12.75	173	452667	28.7255 ug/L	98
80)	Isopropylben	13.04	105	2500446	30.7843 ug/L	97
81)	cyclohexanone	13.15	55	139705	360.6082 ug/L	85
84)	Bromobenzene	13.45	156	697302	28.1442 ug/L	96
85)	1122Tetrclta	13.42	83	771079	26.3335 ug/L	98
86)	123Triclproa	13.48	75	959514	27.7599 ug/L	95
87)	14dichloro2butene	13.50	53	216093	26.4795 ug/L	94
88)	n-Propylbenz	13.62	91	2914541	31.6413 ug/L	99
89)	2chlorotolue	13.73	91	1669863	29.2229 ug/L	100
90)	4chlorotolue	13.89	91	1852457	28.8760 ug/L	99
91)	135Trimebenz	13.88	105	1979883	28.5989 ug/L	98
92)	tbutylbenzen	14.35	119	1823154	29.3965 ug/L	96
93)	124Trimetben	14.41	105	2008039	29.9891 ug/L	100
94)	sbutylbenzen	14.66	105	2649266	30.4227 ug/L	96
95)	13Diclorbenz	14.81	146	1264472	28.7165 ug/L	98
96)	pIsopropylto	14.88	119	2219306	30.0623 ug/L	98
97)	14dichlorobe	14.94	146	1291061	28.1045 ug/L	97
98)	12dichlorobe	15.47	146	1198931	27.6118 ug/L	97
99)	nButylbenzen	15.48	91	2056741	29.5836 ug/L	96
100)	12dibromo3cl	16.57	157	174696	26.0904 ug/L	96
101)	135Trichlorobenzene	16.90	180	916947	30.5841 ug/L	98

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\INSTARCH\Data\OCT0218\ICV2.D Vial: 14
Acq On : 2 Oct 2018 16:45 Operator: AGK-RLD
Sample : INITIAL CALIB. VERIF. Inst : VMS3
Misc : 30.0/300 ug/L, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 20:43:41 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 20:43:19 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
102) 124Trichlobe	17.71	180	790081	31.0333	ug/L	97
103) Hexachlorobu	17.96	225	421422	30.4669	ug/L	99
104) Naphthalene	18.01	128	1823730	31.9019	ug/L	99
105) 123Trichlben	18.32	180	727023	30.6849	ug/L	98

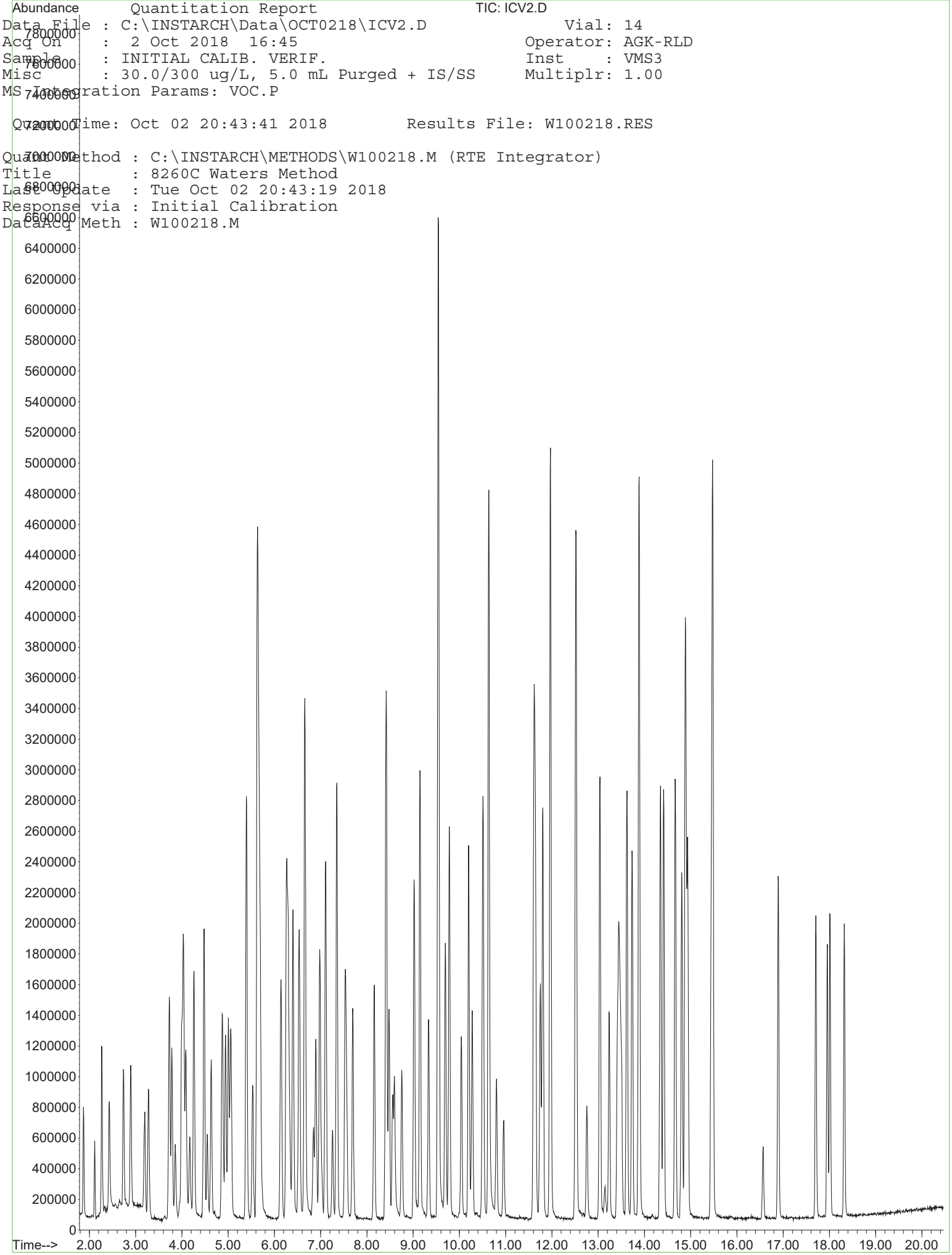
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\INSTARCH\Data\OCT0218\ICV2.D Vial: 14
Acq On : 2 Oct 2018 16:45 Operator: AGK-RLD
Sample : INITIAL CALIB. VERIF. Inst : VMS3
Misc : 30.0/300 ug/L, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 20:43:41 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 20:43:19 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M



Quantitation Report

Data File : C:\INSTARCH\Data\OCT0218\WCAL1R.D Vial: 17
Acq On : 2 Oct 2018 18:15 Operator: AGK-RLD
Sample : INITIAL CALIB. PT1 Inst : VMS3
Misc : 0.50/5.00 ug/L, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 20:27:28 2018 Results File: W100218.RES

Report

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 16:18:02 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M
IS QA File : 50 level for IS QA unknown. No recoveries calculated.

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min) Rcv(Ar)
1) FLUOROBENZENE**ISTD**	7.69	96	1272417	20.00 ug/L	0.00 NA%
68) d5-CHLOROBENZENE**ISTD**	11.60	117	989409	20.00 ug/L	0.00 NA%
82) d4-1,4-DICHLOROBENZENE**IS	14.90	152	534904	20.00 ug/L	0.00 NA%

System Monitoring Compounds

41) SURRDibrflma	6.84	113	315772	19.329 ug/L	0.00
Spiked Amount 20.000	Range 90 - 110		Recovery = 97 %		
45) SURR12DCAd4	7.25	102	87615	20.771 ug/L	0.00
Spiked Amount 20.000	Range 89 - 111		Recovery = 104 %		
61) SURRd8Tolule	9.69	98	1262511	19.663 ug/L	0.00
Spiked Amount 20.000	Range 93 - 107		Recovery = 98 %		
83) SURR4BrFBenz	13.24	95	400527	20.559 ug/L	0.00
Spiked Amount 20.000	Range 83 - 111		Recovery = 103 %		

Target Compounds

					Qvalue
2) Dichlorodi	1.88	85	7236	0.4090 ug/L #	40
3) Chloromethan	2.11	50	5656	0.4267 ug/L	90
4) VinylChlorid	2.27	62	17423	0.5183 ug/L	84
5) Bromomethane	2.74	94	6146m	0.3739 ug/L #	80
6) Chloroethane	2.89	64	12915	0.4105 ug/L	76
7) Dichloroflmethane	3.19	67	13770	0.5044 ug/L #	74
8) Trichlorofma	3.26	101	14179	0.5645 ug/L	78
9) Ethylether	3.73	59	8711	0.5888 ug/L #	79
10) dichlorotfluoroethan	3.73	67	9029	0.5346 ug/L	82
11) propyleneoxide	4.08	58	9284	4.4490 ug/L #	7
12) Acrolein	3.87	56	10110m	2.8557 ug/L	86
13) 11dichlorthe	3.99	96	9947	0.6811 ug/L #	83
14) Trichlorotfluoroeth	4.04	101	15934	1.0987 ug/L	99
15) Acetone	4.09	43	31359m	5.0970 ug/L	77
16) Iodomethane	4.16	142	6069	0.6339 ug/L	73
17) Carbon Dislf	4.26	76	39259	1.0039 ug/L	100
18) allylchloride	4.47	41	18969	1.0148 ug/L	87
19) methylacetate	4.58	74	2181	0.3402 ug/L #	34
20) Methylchlorid	4.63	84	64478m	3.4299 ug/L #	97
21) tbutylalcohol	4.88	59	52845	30.9556 ug/L	91
22) Acrylonitrile	4.95	53	13776	2.0641 ug/L #	79
23) t12dichlorte	5.00	96	8394	0.5217 ug/L	93
24) MtBE	5.04	73	21872	0.4816 ug/L	83
25) Hexane	5.39	57	26457	1.1765 ug/L #	93
26) 11dichlorota	5.52	63	18116	0.5987 ug/L	87
27) Vinylacetate	5.64	43	142807	5.1546 ug/L	96
28) chloroprene	5.65	53	24103	1.0558 ug/L	91
29) Diisopether	5.69	45	22664	0.4527 ug/L	95
30) ETBE	6.15	59	19377	0.4317 ug/L	84
31) 22dichloropr	6.26	77	15141	0.5993 ug/L	83
32) c12dichlorte	6.26	96	10603	0.5689 ug/L	89
33) 2Butanone	6.31	72	11046	4.4245 ug/L	84
34) propionitrile	6.37	54	7926m	3.4278 ug/L #	1
35) Ethylacetate	6.40	88	2136	2.2916 ug/L #	72
36) methacrylonitrile	6.54	67	7820	0.9512 ug/L #	86
37) Bromochlorma	6.56	128	4290m	0.4915 ug/L #	1
38) Tetrahydofur	6.66	42	27607	4.5765 ug/L	91

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\INSTARCH\Data\OCT0218\WCAL1R.D Vial: 17
Acq On : 2 Oct 2018 18:15 Operator: AGK-RLD
Sample : INITIAL CALIB. PT1 Inst : VMS3
Misc : 0.50/5.00 ug/L, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 20:27:28 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 16:18:02 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
39)	Chloroform	6.66	83	19936m	0.6279 ug/L	90
40)	111trichlota	6.90	97	14018	0.5236 ug/L	84
42)	Cyclohexane	6.98	56	14445	0.4164 ug/L	82
43)	Carbtetraclo	7.11	119	8354	0.3829 ug/L	100
44)	11dicloprope	7.10	110	4337m	0.5391 ug/L #	73
46)	Benzene	7.35	78	40816	0.6082 ug/L	69
47)	12dichlorota	7.34	62	11635	0.5115 ug/L #	56
48)	TAME	7.53	73	20739	0.4454 ug/L	97
49)	trichloroete	8.15	95	10042	0.5710 ug/L #	76
50)	methylcyclohexane	8.42	83	17790	0.5546 ug/L	95
51)	12dicloropra	8.43	63	9403	0.4996 ug/L #	75
52)	23Dicl1propene	8.48	75	9081	0.3517 ug/L	84
53)	Dibromometha	8.55	93	6258	0.5461 ug/L	87
54)	methylmethacrylate	8.59	69	3631	0.2781 ug/L #	60
55)	14dioxane	8.66	88	1425	37.2386 ug/L #	1
56)	Bromodiclrma	8.75	83	11612	0.5306 ug/L	95
57)	2Nitropropane	9.02	43	20103m	3.3691 ug/L	71
58)	2CLEVE	9.16	63	10501m	1.2469 ug/L	89
59)	c13dicloproe	9.35	75	9982	0.3774 ug/L	99
60)	4Meth2Pentan	9.54	43	88448m	4.9785 ug/L	95
62)	Toluene	9.78	92	23033	0.5245 ug/L	97
63)	t13Dicloprop	10.05	75	9456	0.4082 ug/L #	74
64)	ethylmethacrylate	10.21	69	17153	0.7636 ug/L	89
65)	112Triclotha	10.28	83	6605	0.4673 ug/L	96
66)	Tetrachlorte	10.52	166	10699	0.5189 ug/L #	81
67)	13Diclorpropa	10.52	76	15503	0.5478 ug/L	76
69)	2Hexanone	10.65	43	50375m	4.1644 ug/L	1
70)	Clorodibrmta	10.81	129	8671	0.5337 ug/L	82
71)	12Dibrometha	10.97	107	7635	0.4776 ug/L	91
72)	Chlorobenzen	11.65	112	25794	0.5578 ug/L	91
73)	1Clhexane	11.63	91	13355	0.5511 ug/L #	31
74)	1112Tetclota	11.74	131	8942	0.5284 ug/L	92
75)	Ethylbenzene	11.81	91	40364	0.5437 ug/L	99
76)	m p-Xylene	11.98	106	28087	0.9440 ug/L	98
77)	o-Xylene	12.52	106	14468	0.4942 ug/L #	84
78)	Styrene	12.53	104	21032	0.4618 ug/L	79
79)	Bromoform	12.75	173	7946	0.6024 ug/L	86
80)	Isopropylben	13.05	105	33222	0.4609 ug/L	97
81)	cyclohexanone	13.17	55	4886m	19.1143 ug/L #	23
84)	Bromobenzene	13.46	156	11176	0.5774 ug/L #	87
85)	1122Tetrclta	13.42	83	11606m	0.4741 ug/L #	95
86)	123Triclproa	13.48	75	13966	0.5148 ug/L	81
87)	14dichloro2butene	13.53	53	3538	0.5489 ug/L #	80
88)	n-Propylbenz	13.63	91	41197m	0.5312 ug/L	88
89)	2chlorotolue	13.74	91	26627	0.6016 ug/L	96
90)	4chlorotolue	13.89	91	23432	0.4546 ug/L	95
91)	135Trimebenz	13.88	105	26517	0.4875 ug/L #	59
92)	tbutylbenzen	14.35	119	28251	0.5802 ug/L	90
93)	124Trimetben	14.41	105	26960	0.5210 ug/L	90
94)	sbutylbenzen	14.67	105	33187	0.4809 ug/L	87
95)	13Diclorbenz	14.81	146	18158	0.5175 ug/L	97
96)	pIsopropylto	14.88	119	29407	0.5117 ug/L	95
97)	14dichlorobe	14.94	146	19967	0.5455 ug/L #	64
98)	12dichlorobe	15.47	146	18998	0.5560 ug/L #	61
99)	nButylbenzen	15.49	91	31851	0.5992 ug/L	85
100)	12dibromo3cl	16.57	157	2922	0.5272 ug/L #	62
101)	135Trichlorobenzene	16.90	180	13429	0.5806 ug/L	97

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\INSTARCH\Data\OCT0218\WCAL1R.D Vial: 17
Acq On : 2 Oct 2018 18:15 Operator: AGK-RLD
Sample : INITIAL CALIB. PT1 Inst : VMS3
Misc : 0.50/5.00 ug/L, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 20:27:28 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 16:18:02 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
102) 124Trichlobe	17.71	180	11116	0.5822 ug/L	87
103) Hexachlorobu	17.95	225	7004	0.6550 ug/L #	71
104) Naphthalene	18.01	128	17658	0.4463 ug/L	73
105) 123Trichlben	18.31	180	11200	0.6472 ug/L	84

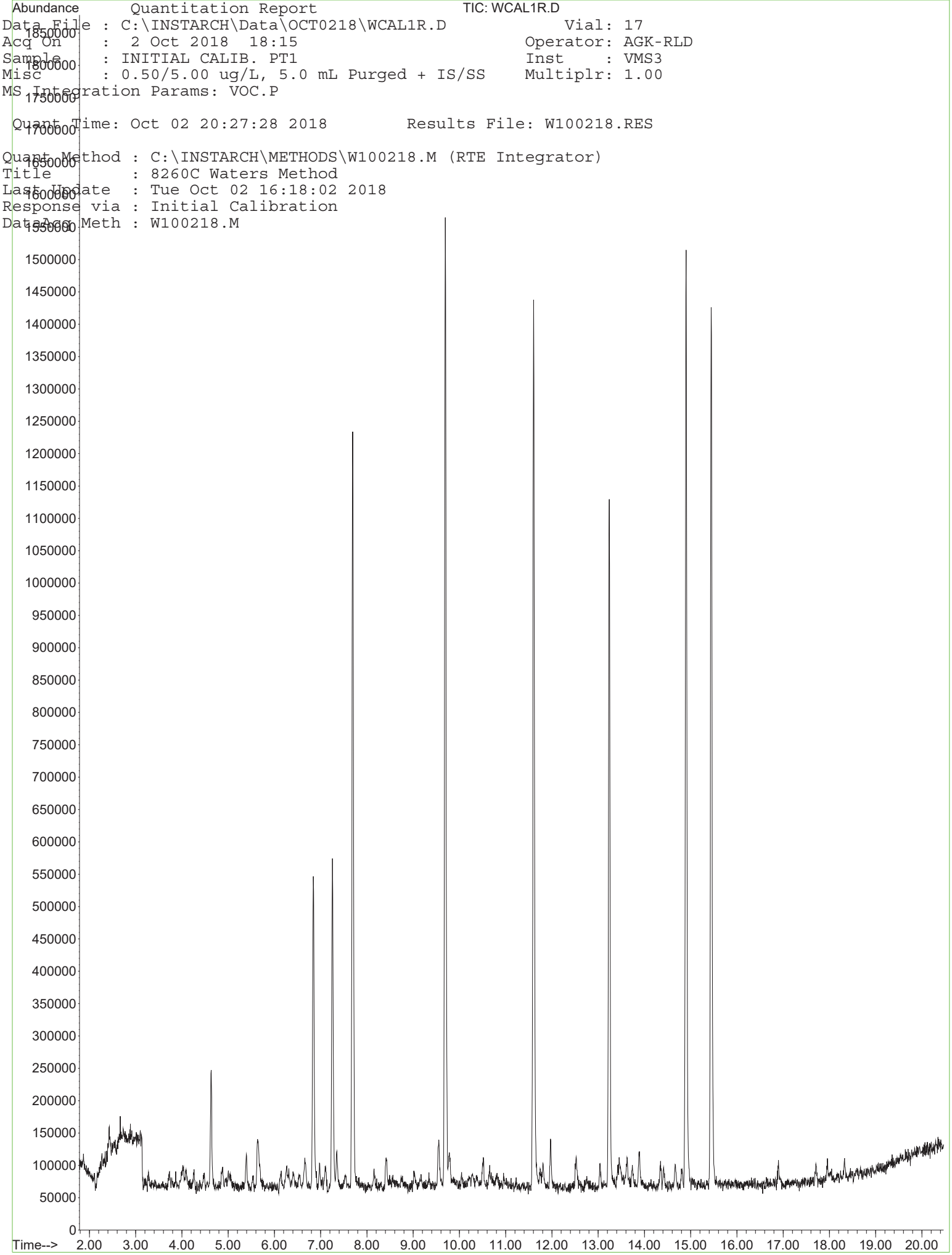
(#) = qualifier out of range (m) = manual integration
WCAL1R.D W100218.M Wed Oct 03 09:20:21 2018 Page 5

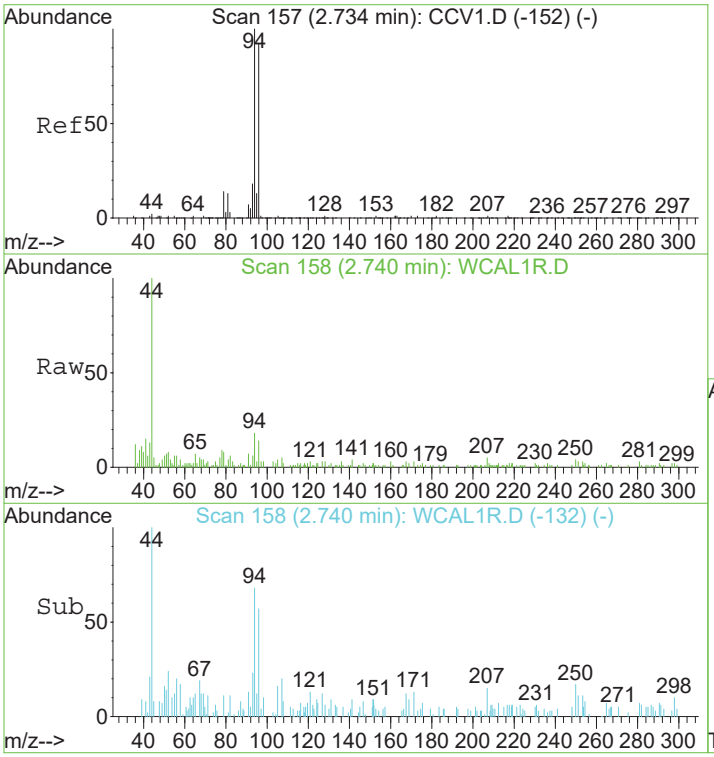
Quantitation Report

Data File : C:\INSTARCH\Data\OCT0218\WCAL1R.D Vial: 17
Acq On : 2 Oct 2018 18:15 Operator: AGK-RLD
Sample : INITIAL CALIB. PT1 Inst : VMS3
Misc : 0.50/5.00 ug/L, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 20:27:28 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 16:18:02 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M





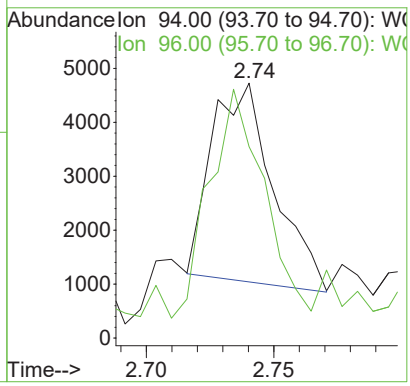
#5
Bromomethane
Concen: 0.37 ug/L m
RT: 2.74 min Scan# 158
Delta R.T. 0.01 min
Lab File: WCAL1R.D
Acq: 2 Oct 2018 18:15

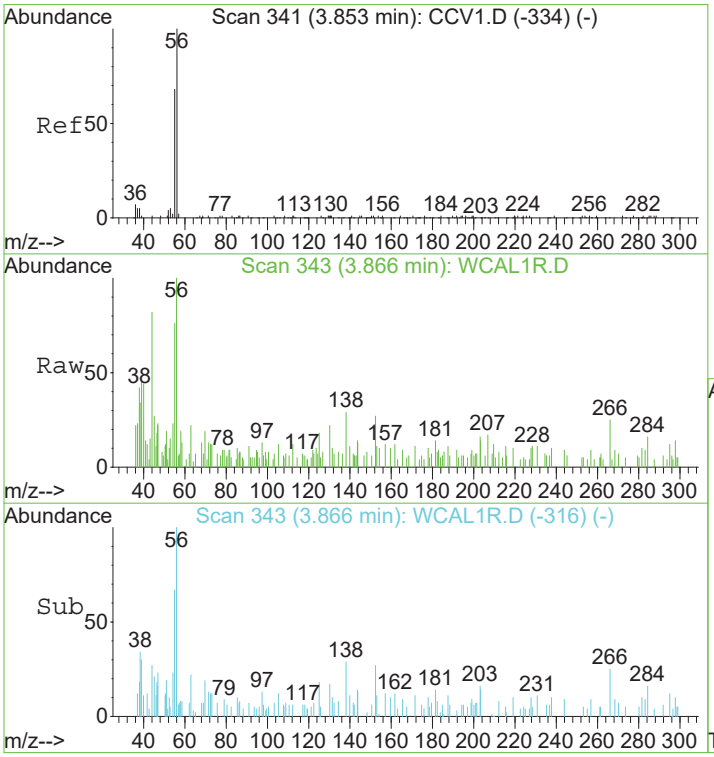
Tgt Ion: 94 Resp: 6146

Ion	Ratio	Lower	Upper
94	100		
96	161.4	69.0	109.0#

After Manual Integration

RJ 10/03/2018

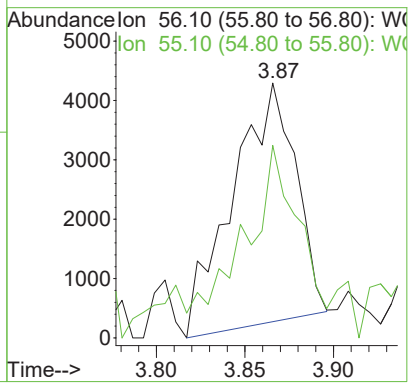




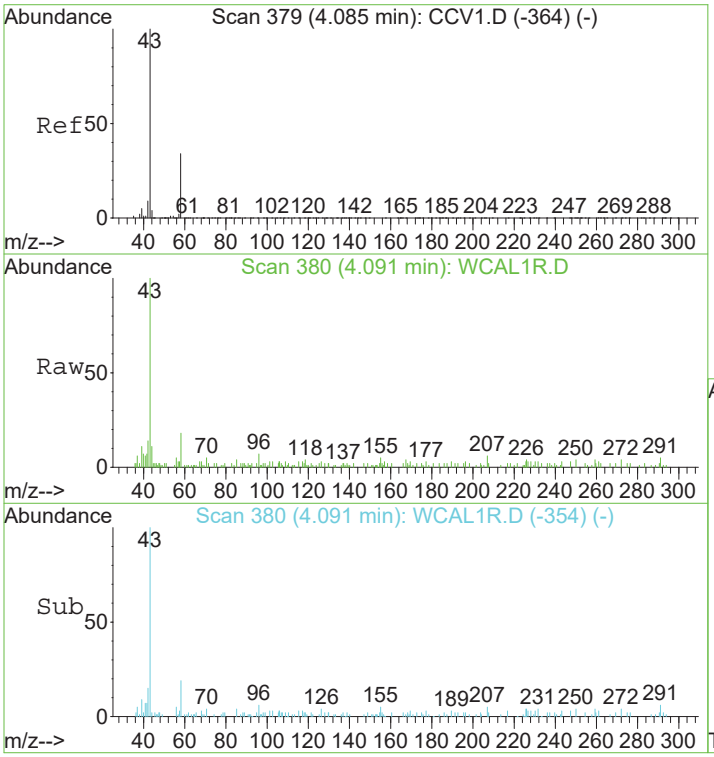
#12
Acrolein
Concen: 2.86 ug/L m
RT: 3.87 min Scan# 343
Delta R.T. 0.01 min
Lab File: WCAL1R.D
Acq: 2 Oct 2018 18:15

Tgt Ion: 56 Resp: 10110

Ion	Ratio	Lower	Upper
56	100		
55	72.9	53.2	93.2



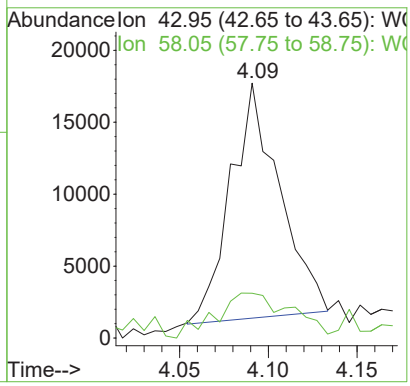
AgW 10/04/18



#15
Acetone
Concen: 5.10 ug/L m
RT: 4.09 min Scan# 380
Delta R.T. 0.01 min
Lab File: WCAL1R.D
Acq: 2 Oct 2018 18:15

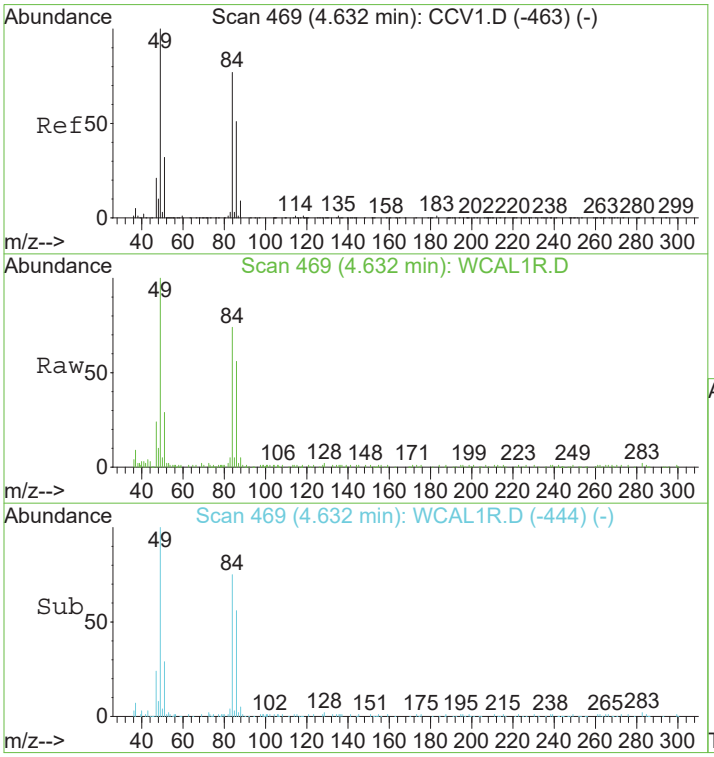
Tgt Ion: 43 Resp: 31359

Ion	Ratio	Lower	Upper
43	100		
58	29.6	14.2	54.2



After Manual Integration

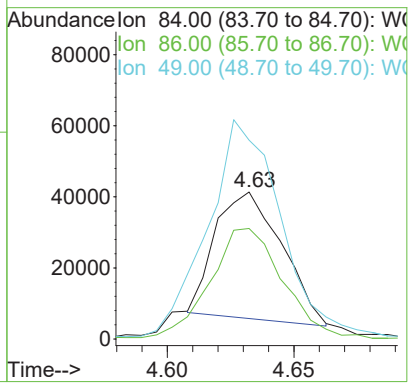
RJ 10/03/2018



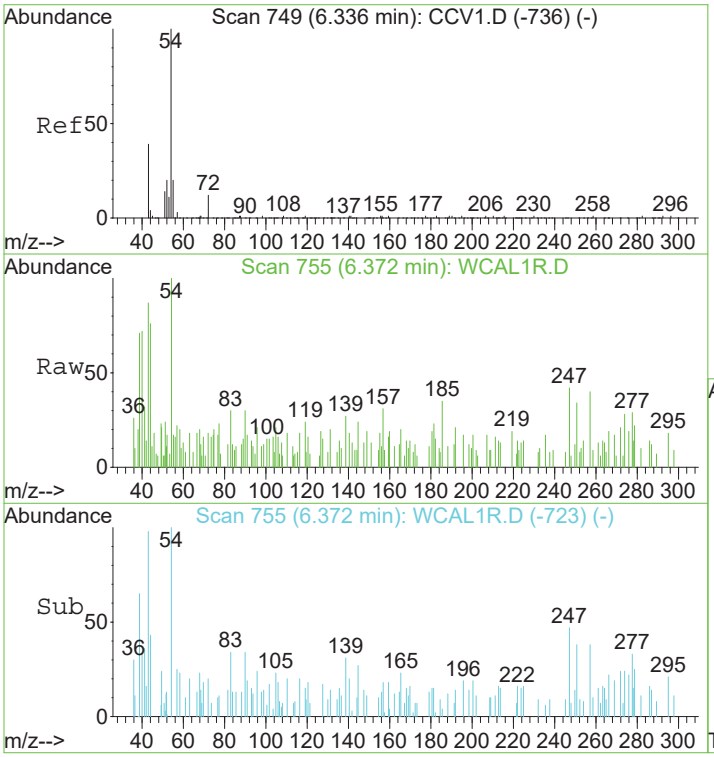
#20
Methylchlorid
Concen: 3.43 ug/L m
RT: 4.63 min Scan# 469
Delta R.T. 0.00 min
Lab File: WCAL1R.D
Acq: 2 Oct 2018 18:15

Tgt Ion: 84 Resp: 64478

Ion	Ratio	Lower	Upper
84	100		
86	98.1	48.6	88.6#
49	197.2	111.9	151.9#



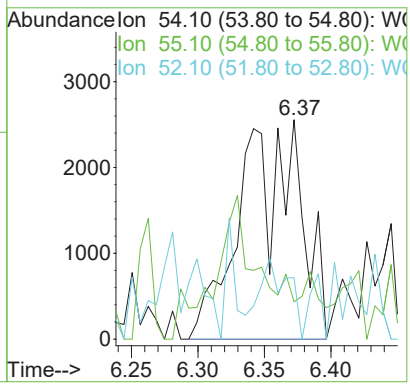
AgW 10/04/18



#34
propionitrile
Concen: 3.43 ug/L m
RT: 6.37 min Scan# 755
Delta R.T. 0.04 min
Lab File: WCAL1R.D
Acq: 2 Oct 2018 18:15

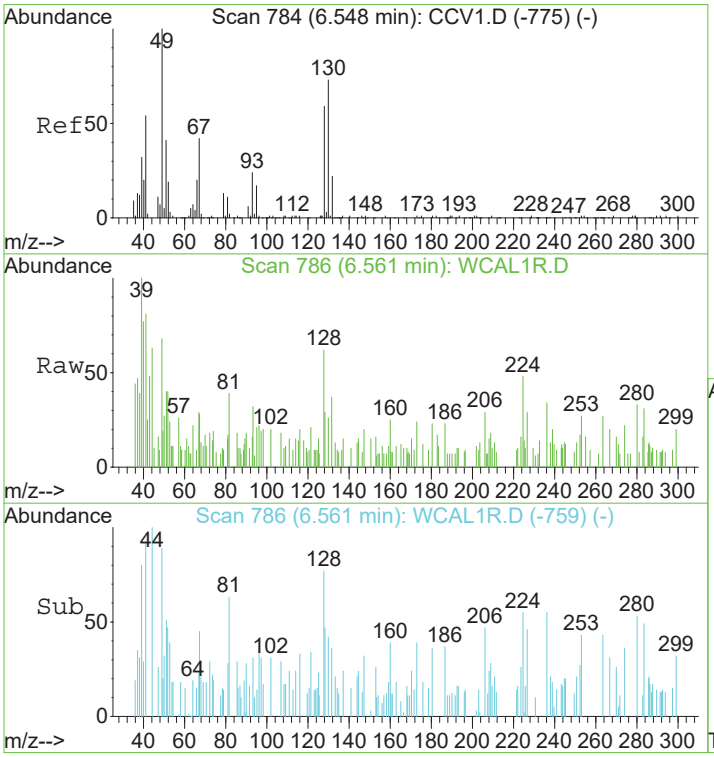
Tgt Ion: 54 Resp: 7926

Ion	Ratio	Lower	Upper
54	100		
55	62.7	2.8	42.8#
52	18.1	0.0	38.3



After Manual Integration

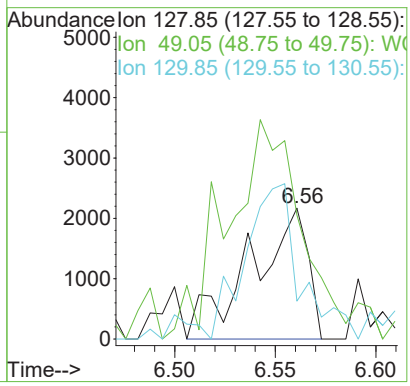
RJ 10/03/2018



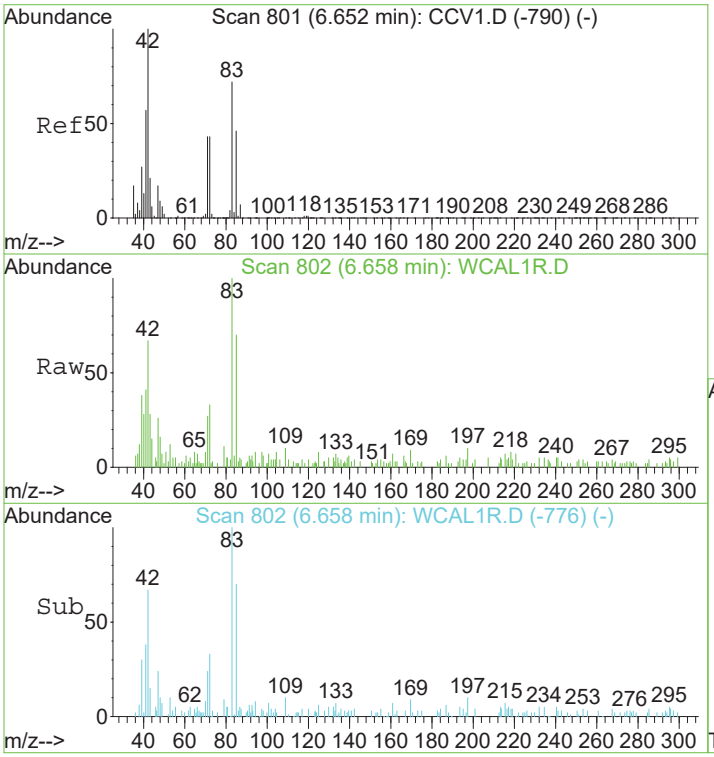
#37
Bromochlorma
Concen: 0.49 ug/L m
RT: 6.56 min Scan# 786
Delta R.T. 0.01 min
Lab File: WCAL1R.D
Acq: 2 Oct 2018 18:15

Tgt Ion:128 Resp: 4290

Ion	Ratio	Lower	Upper
128	100		
49	223.1	154.9	194.9#
130	0.0	110.7	150.7#



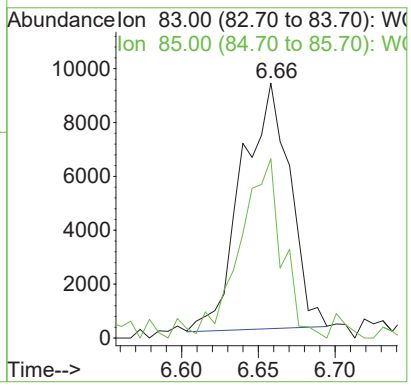
AgW 10/04/18



#39
Chloroform
Concen: 0.63 ug/L m
RT: 6.66 min Scan# 802
Delta R.T. 0.01 min
Lab File: WCAL1R.D
Acq: 2 Oct 2018 18:15

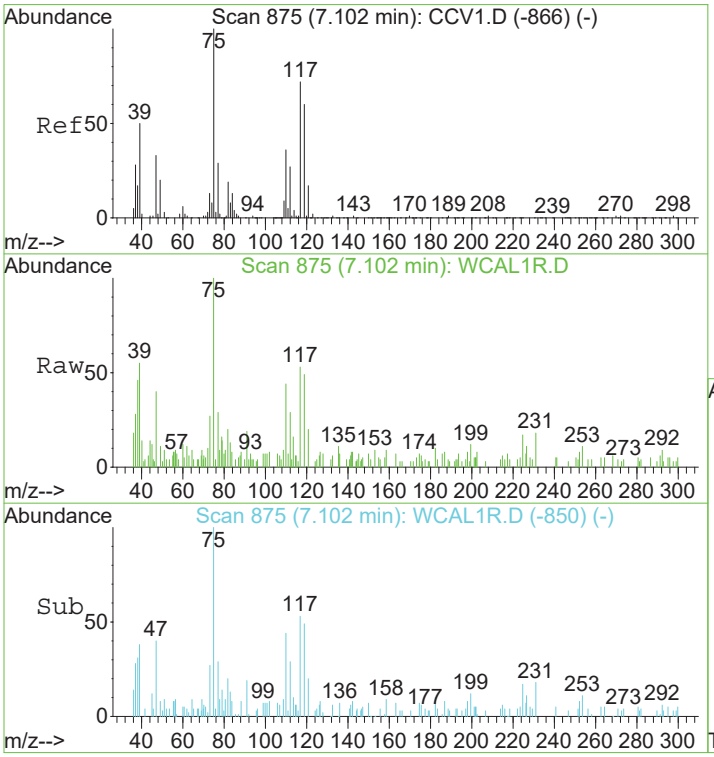
Tgt Ion: 83 Resp: 19936

Ion	Ratio	Lower	Upper
83	100		
85	65.5	45.9	85.9



After Manual Integration

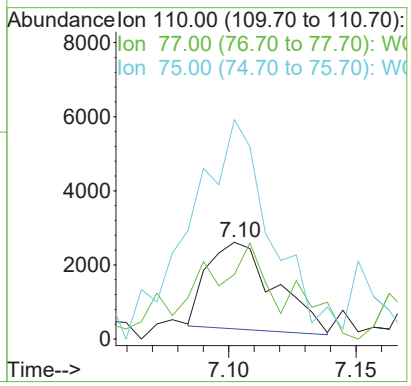
RJ 10/03/2018



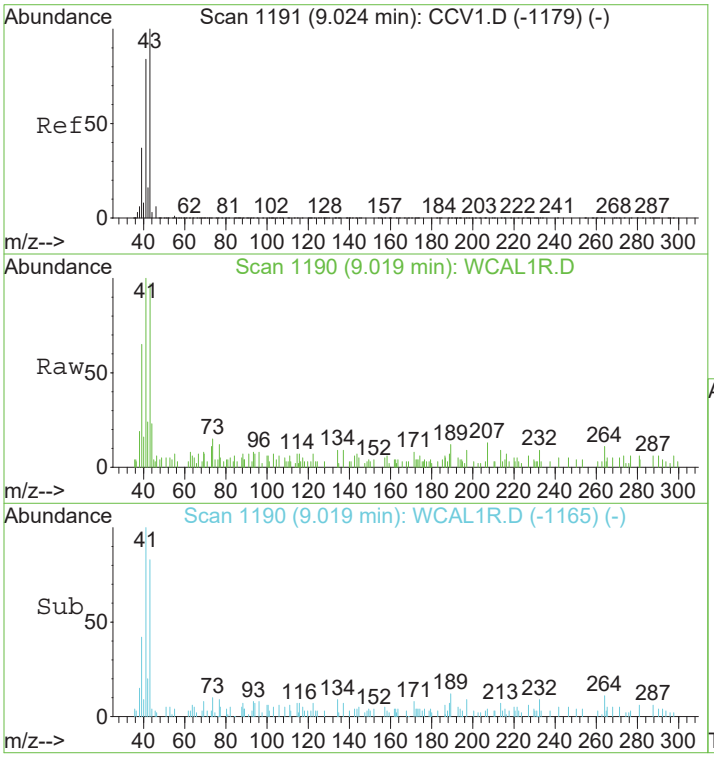
#44
11dicloprope
Concen: 0.54 ug/L m
RT: 7.10 min Scan# 875
Delta R.T. 0.00 min
Lab File: WCAL1R.D
Acq: 2 Oct 2018 18:15

Tgt Ion:110 Resp: 4337

Ion	Ratio	Lower	Upper
110	100		
77	144.2	66.7	106.7#
75	305.2	250.0	290.0#



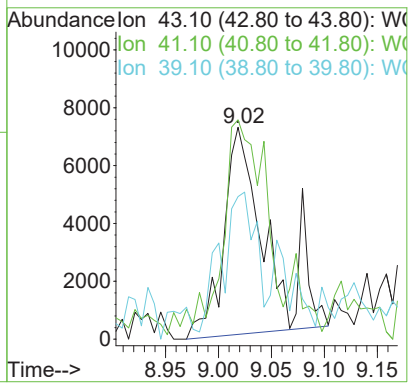
AgW 10/04/18



#57
2Nitropropane
Concen: 3.37 ug/L m
RT: 9.02 min Scan# 1190
Delta R.T. 0.00 min
Lab File: WCAL1R.D
Acq: 2 Oct 2018 18:15

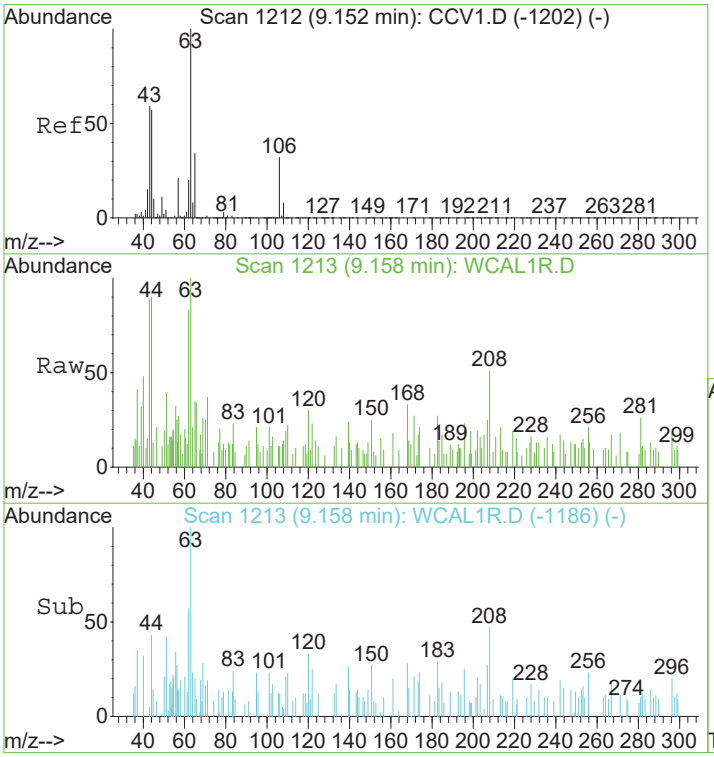
Tgt Ion: 43 Resp: 20103

Ion	Ratio	Lower	Upper
43	100		
41	103.1	70.9	110.9
39	56.1	19.4	59.4



After Manual Integration

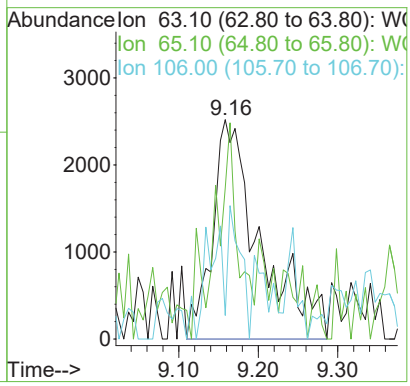
RJ 10/03/2018



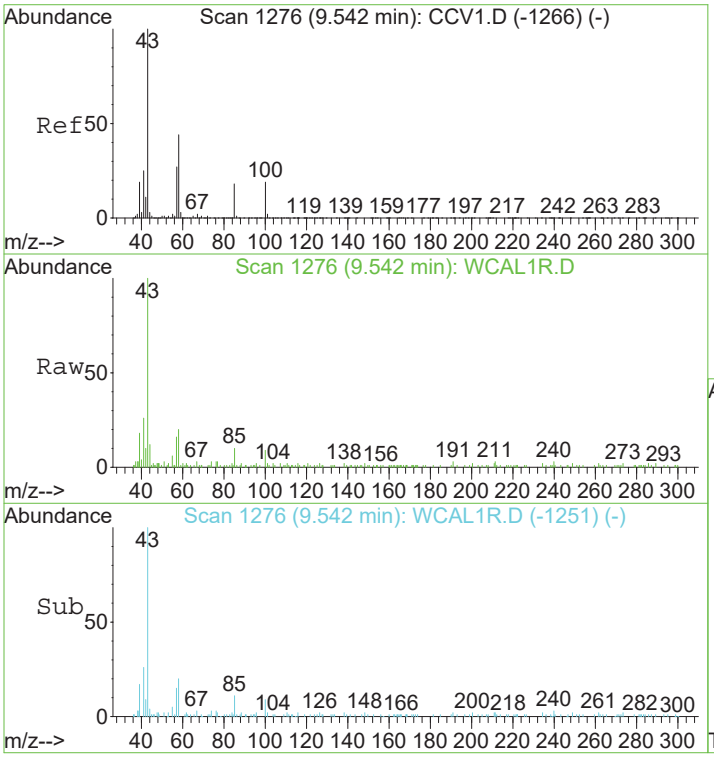
#58
2CLEVE
Concen: 1.25 ug/L m
RT: 9.16 min Scan# 1213
Delta R.T. 0.01 min
Lab File: WCAL1R.D
Acq: 2 Oct 2018 18:15

Tgt Ion: 63 Resp: 10501

Ion	Ratio	Lower	Upper
63	100		
65	29.8	12.8	52.8
106	15.9	8.6	48.6



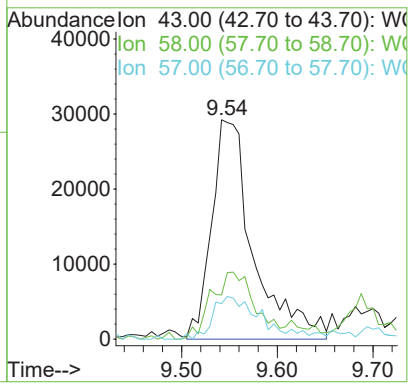
AgW 10/04/18



#60
4Meth2Pentan
Concen: 4.98 ug/L m
RT: 9.54 min Scan# 1276
Delta R.T. 0.00 min
Lab File: WCAL1R.D
Acq: 2 Oct 2018 18:15

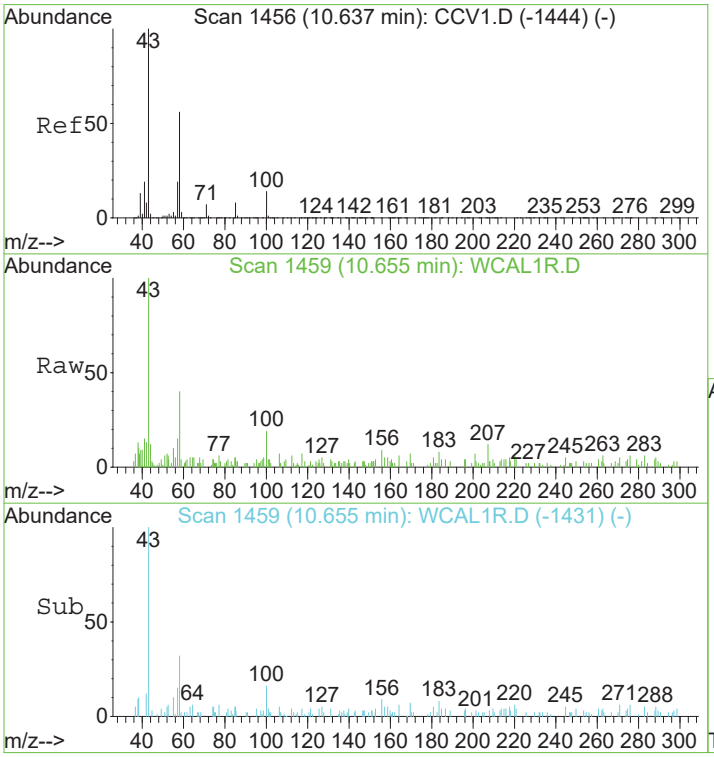
Tgt Ion: 43 Resp: 88448

Ion	Ratio	Lower	Upper
43	100		
58	36.8	20.9	60.9
57	22.9	5.8	45.8



After Manual Integration

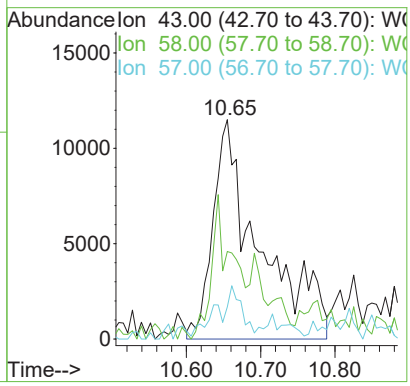
RJ 10/03/2018



#69
2Hexanone
Concen: 4.16 ug/L m
RT: 10.65 min Scan# 1459
Delta R.T. 0.02 min
Lab File: WCAL1R.D
Acq: 2 Oct 2018 18:15

Tgt Ion: 43 Resp: 50375

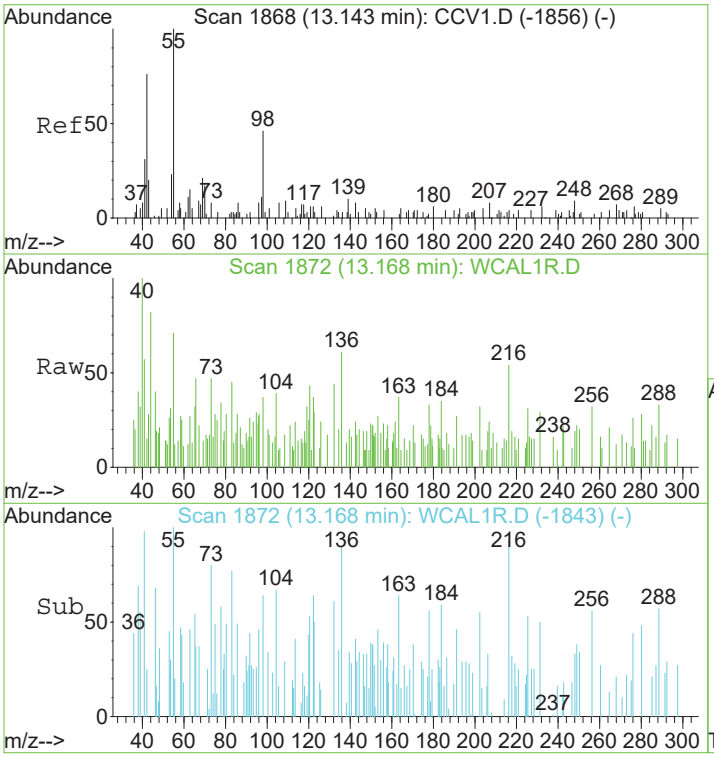
Ion	Ratio	Lower	Upper
43	100		
58	46.5	35.9	75.9
57	4.7	0.0	39.1



AgW 10/04/18

After Manual Integration

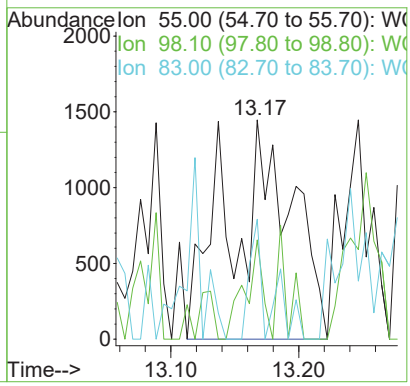
RJ 10/03/2018

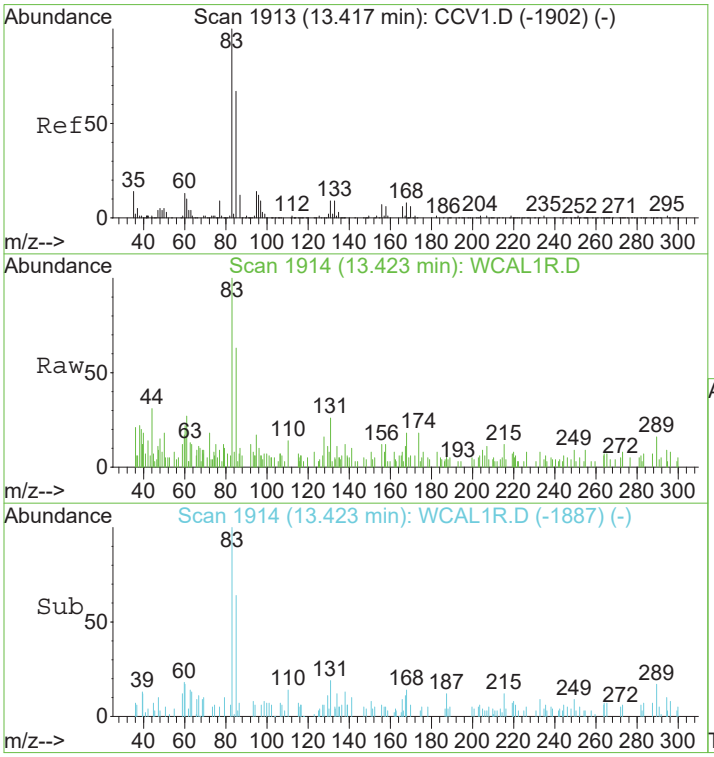


#81
cyclohexanone
Concen: 19.11 ug/L m
RT: 13.17 min Scan# 1872
Delta R.T. 0.02 min
Lab File: WCAL1R.D
Acq: 2 Oct 2018 18:15

Tgt Ion: 55 Resp: 4886

Ion	Ratio	Lower	Upper
55	100		
98	0.0	19.1	59.1#
83	21.9	0.0	32.9

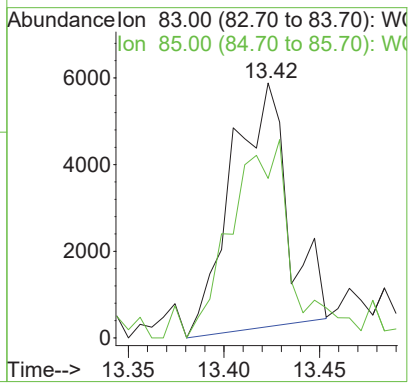




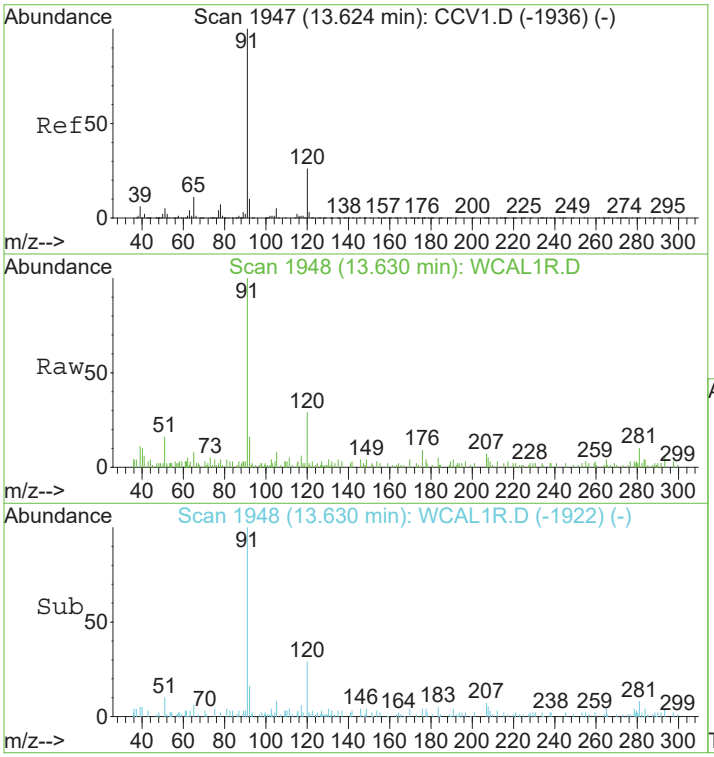
#85
1122Tetrclta
Concen: 0.47 ug/L m
RT: 13.42 min Scan# 1914
Delta R.T. 0.01 min
Lab File: WCAL1R.D
Acq: 2 Oct 2018 18:15

Tgt Ion: 83 Resp: 11606

Ion	Ratio	Lower	Upper
83	100		
85	85.5	43.3	83.3#



AgW 10/04/18



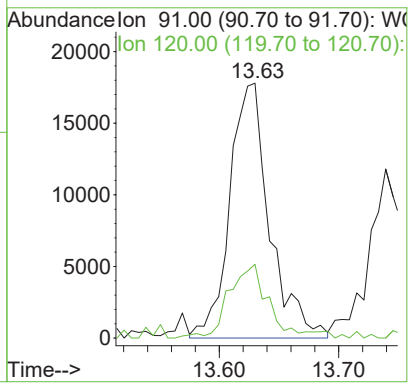
#88
n-Propylbenz
Concen: 0.53 ug/L m
RT: 13.63 min Scan# 1948
Delta R.T. 0.01 min
Lab File: WCAL1R.D
Acq: 2 Oct 2018 18:15

After Manual Integration

RJ 10/03/2018

Tgt Ion: 91 Resp: 41197

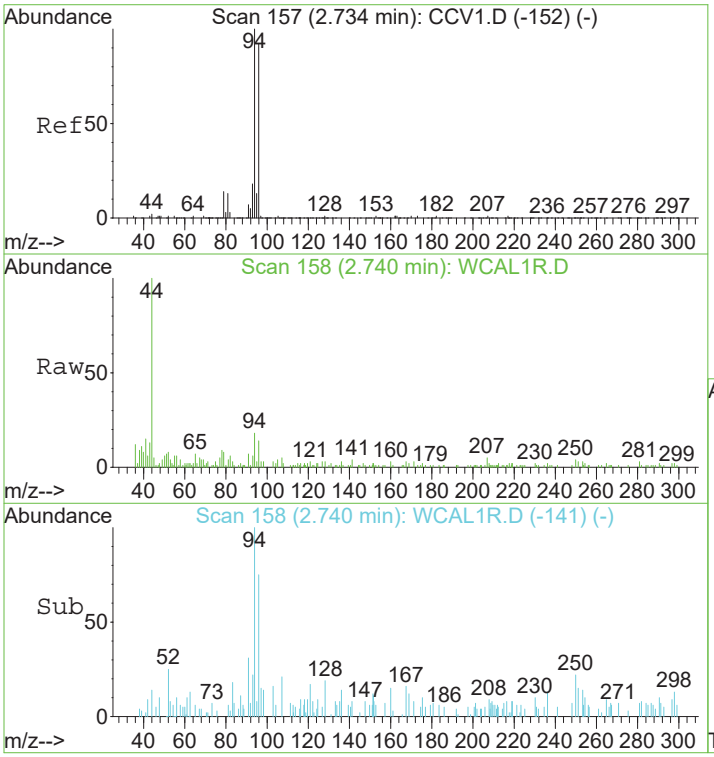
Ion	Ratio	Lower	Upper
91	100		
120	29.6	4.8	44.8



AGW 10/04/18

Before Manual Integration

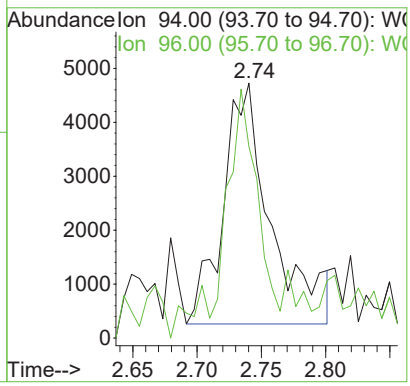
RJ 10/03/2018



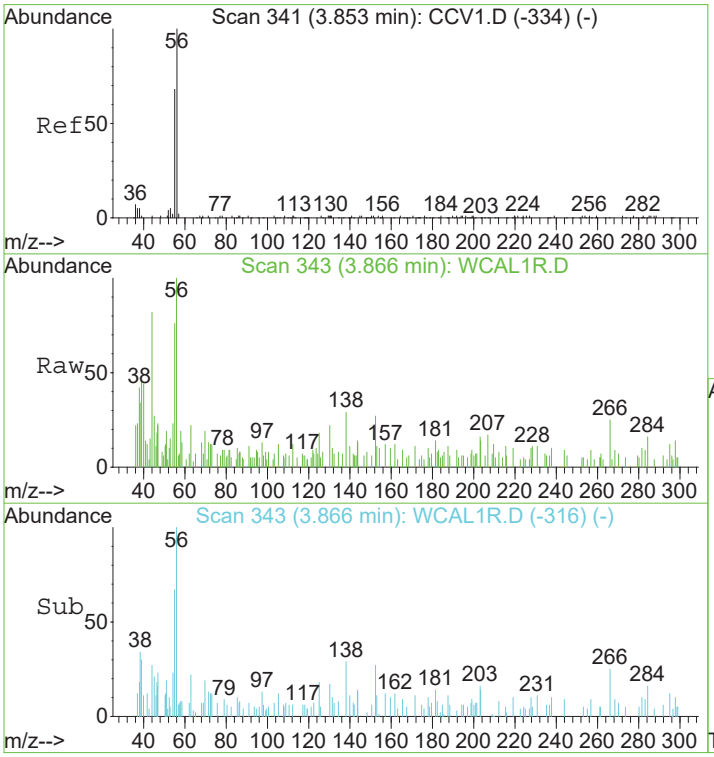
#5
Bromomethane
Concen: 0.78 ug/L
RT: 2.74 min Scan# 158
Delta R.T. 0.01 min
Lab File: WCAL1R.D
Acq: 2 Oct 2018 18:15

Tgt Ion: 94 Resp: 11584

Ion	Ratio	Lower	Upper
94	100		
96	85.6	69.0	109.0



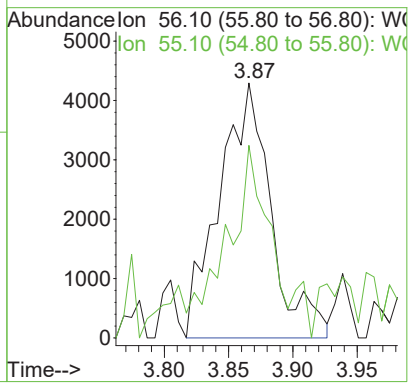
REASON # 2



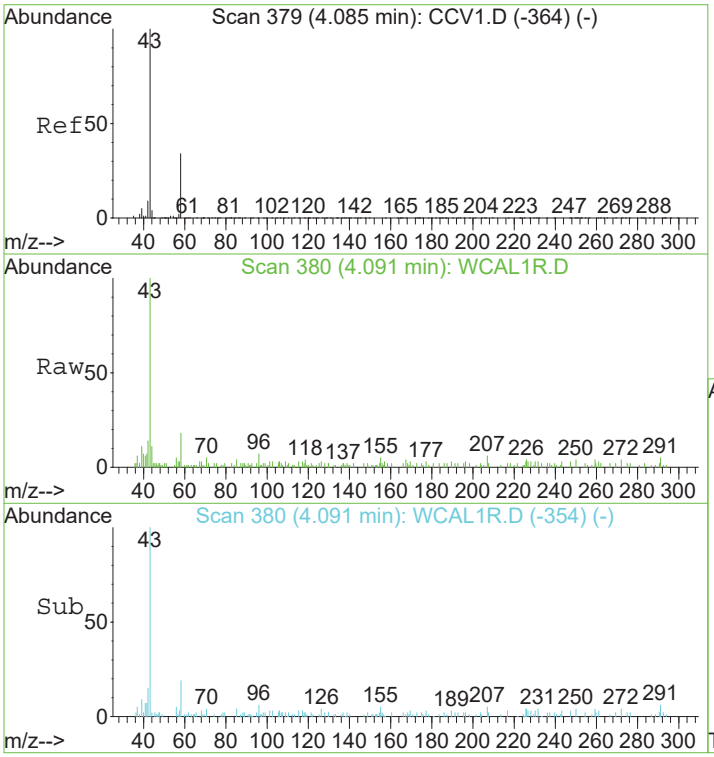
#12
Acrolein
Concen: 2.69 ug/L
RT: 3.87 min Scan# 343
Delta R.T. 0.01 min
Lab File: WCAL1R.D
Acq: 2 Oct 2018 18:15

Tgt Ion: 56 Resp: 12075

Ion	Ratio	Lower	Upper
56	100		
55	61.0	53.2	93.2



REASON # 2



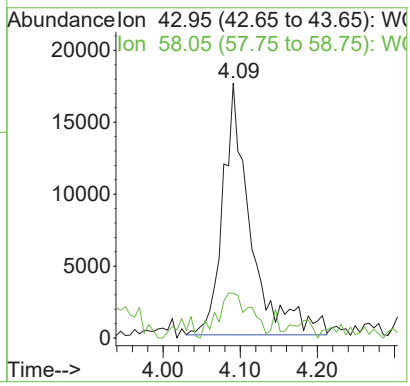
#15
Acetone
Concen: 7.49 ug/L
RT: 4.09 min Scan# 380
Delta R.T. 0.01 min
Lab File: WCAL1R.D
Acq: 2 Oct 2018 18:15

Tgt Ion: 43 Resp: 43883

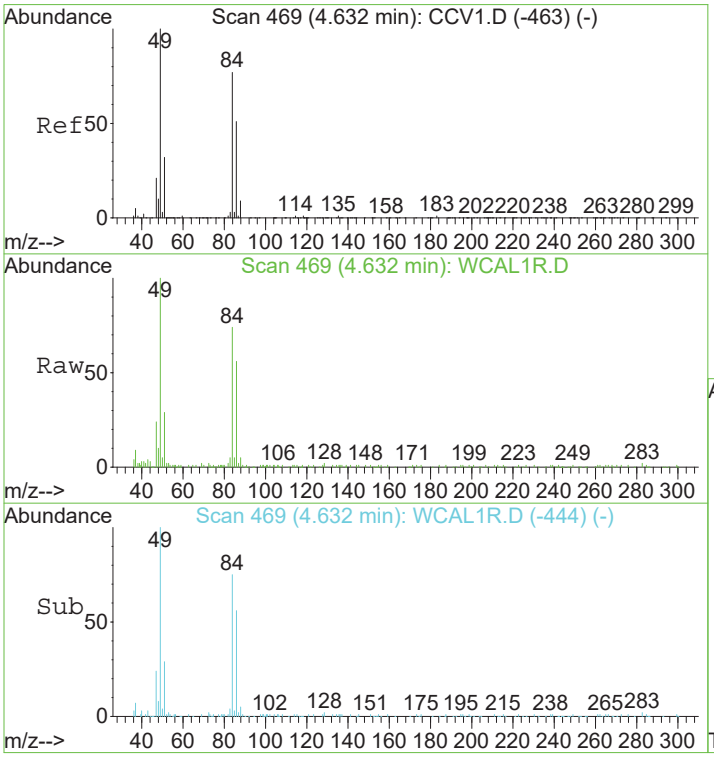
Ion	Ratio	Lower	Upper
43	100		
58	21.2	14.2	54.2

Before Manual Integration

RJ 10/03/2018



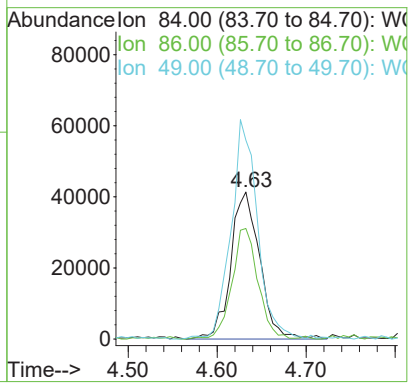
REASON # 2



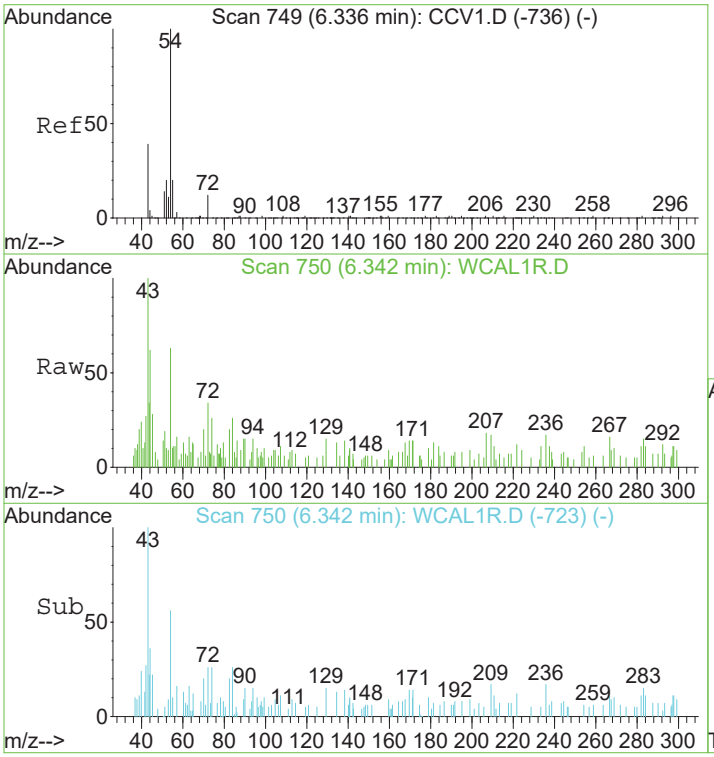
#20
Methylchlorid
Concen: 4.56 ug/L
RT: 4.63 min Scan# 469
Delta R.T. 0.00 min
Lab File: WCAL1R.D
Acq: 2 Oct 2018 18:15

Tgt Ion: 84 Resp: 93828

Ion	Ratio	Lower	Upper
84	100		
86	67.4	48.6	88.6
49	135.5	111.9	151.9



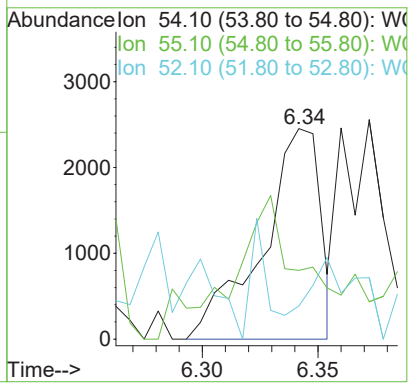
REASON # 2



#34
propionitrile
Concen: 4.38 ug/L
RT: 6.34 min Scan# 750
Delta R.T. 0.01 min
Lab File: WCAL1R.D
Acq: 2 Oct 2018 18:15

Tgt Ion: 54 Resp: 4292

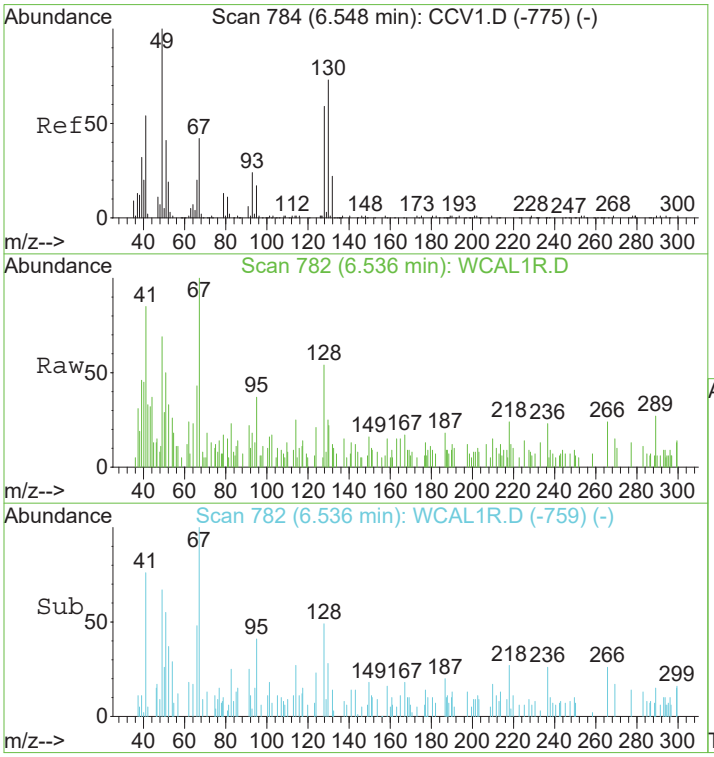
Ion	Ratio	Lower	Upper
54	100		
55	115.7	2.8	42.8#
52	33.4	0.0	38.3



Before Manual Integration

RJ 10/03/2018

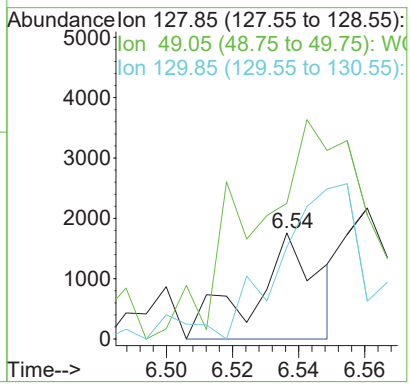
REASON # 2



#37
Bromochlorma
Concen: 0.28 ug/L
RT: 6.54 min Scan# 782
Delta R.T. -0.01 min
Lab File: WCAL1R.D
Acq: 2 Oct 2018 18:15

Tgt Ion:128 Resp: 2372

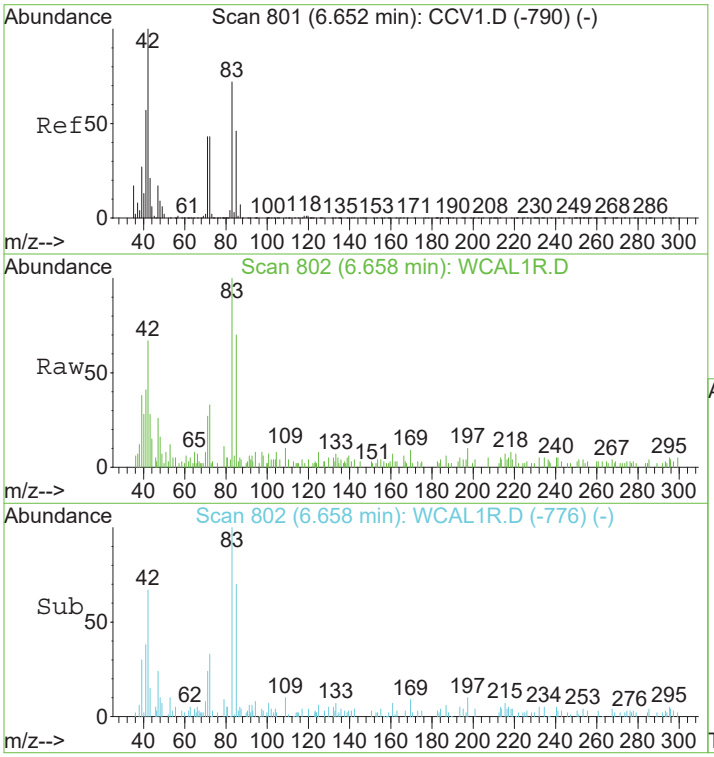
Ion	Ratio	Lower	Upper
128	100		
49	403.5	154.9	194.9#
130	0.0	110.7	150.7#



REASON # 2

Before Manual Integration

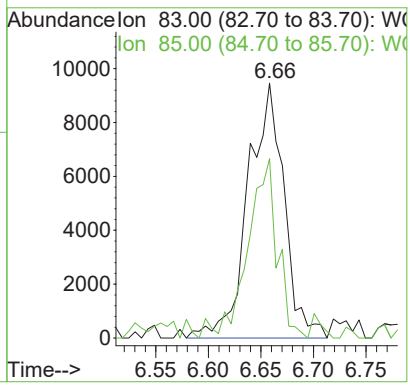
RJ 10/03/2018



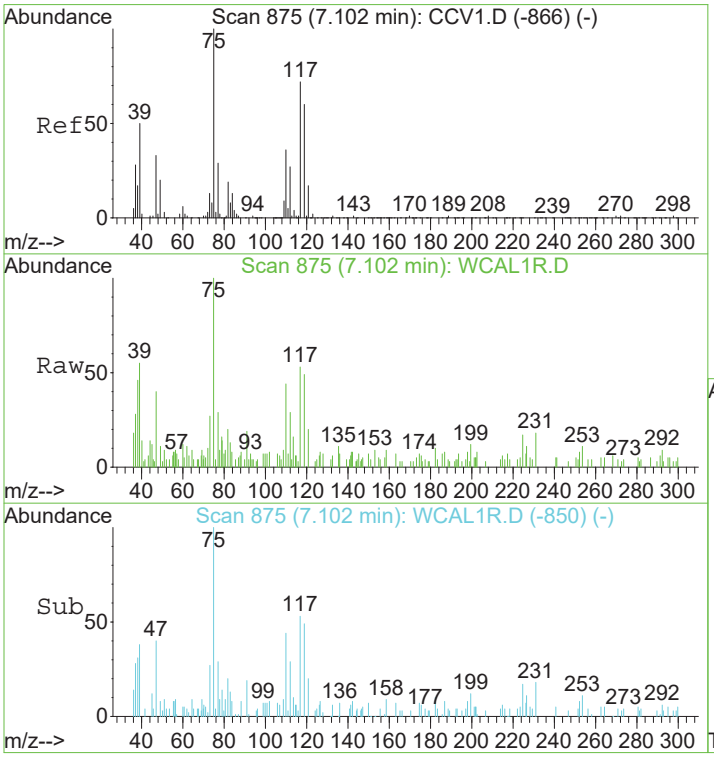
#39
Chloroform
Concen: 0.73 ug/L
RT: 6.66 min Scan# 802
Delta R.T. 0.01 min
Lab File: WCAL1R.D
Acq: 2 Oct 2018 18:15

Tgt Ion: 83 Resp: 22563

Ion	Ratio	Lower	Upper
83	100		
85	57.9	45.9	85.9



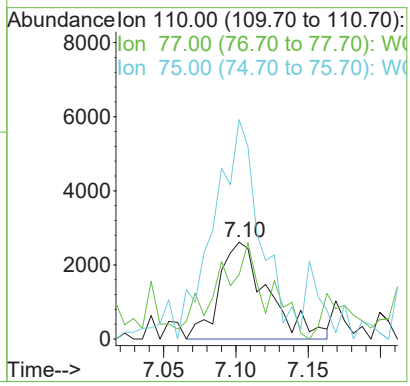
REASON # 2



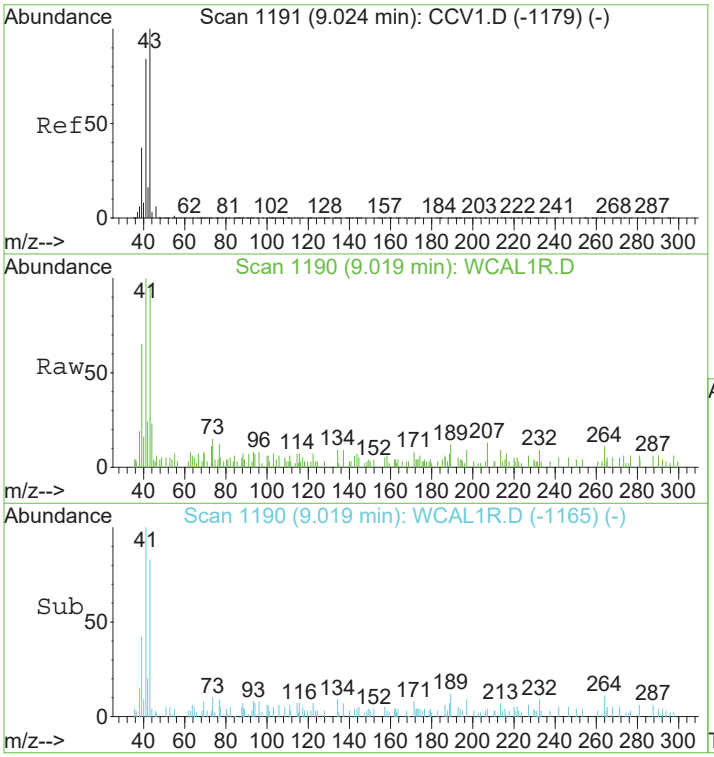
#44
11dicloprope
Concen: 0.75 ug/L
RT: 7.10 min Scan# 875
Delta R.T. 0.00 min
Lab File: WCAL1R.D
Acq: 2 Oct 2018 18:15

Tgt Ion:110 Resp: 6160

Ion	Ratio	Lower	Upper
110	100		
77	101.5	66.7	106.7
75	214.9	250.0	290.0#



REASON # 2



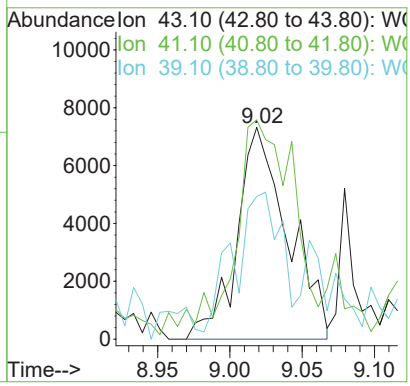
#57
2Nitropropane
Concen: 3.17 ug/L
RT: 9.02 min Scan# 1190
Delta R.T. 0.00 min
Lab File: WCAL1R.D
Acq: 2 Oct 2018 18:15

Tgt Ion: 43 Resp: 18057

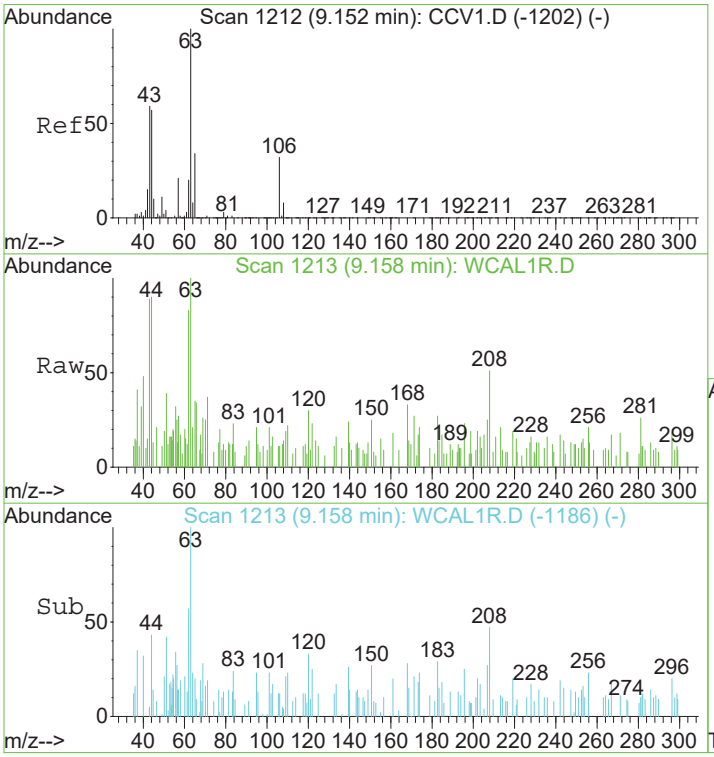
Ion	Ratio	Lower	Upper
43	100		
41	114.8	70.9	110.9#
39	62.4	19.4	59.4#

Before Manual Integration

RJ 10/03/2018



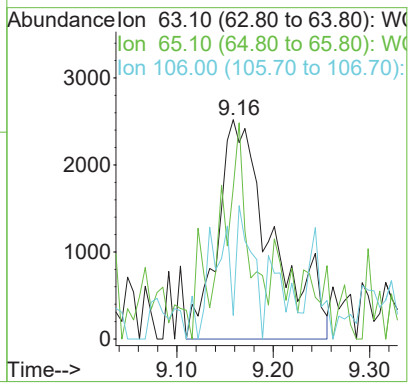
REASON # 2



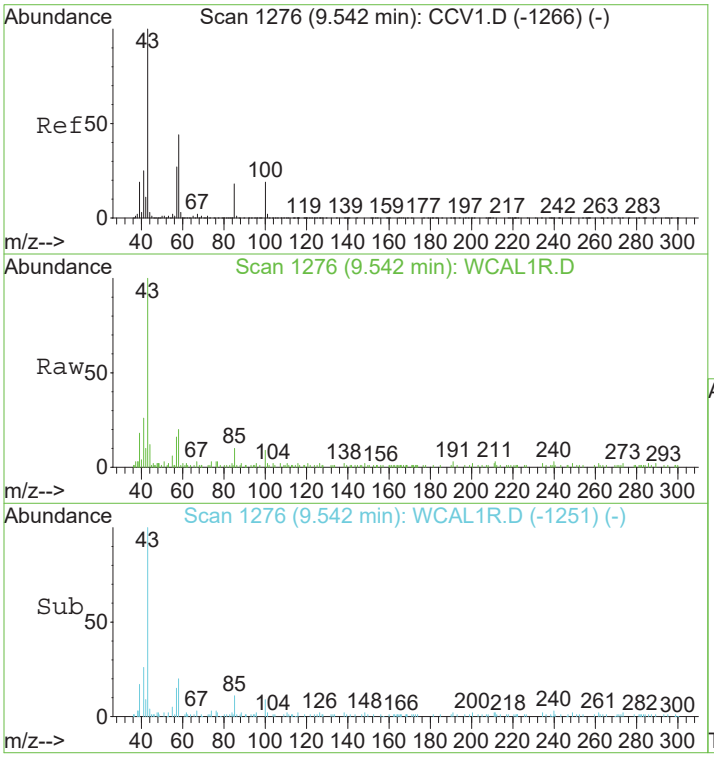
#58
2CLEVE
Concen: 4.73 ug/L
RT: 9.16 min Scan# 1213
Delta R.T. 0.01 min
Lab File: WCAL1R.D
Acq: 2 Oct 2018 18:15

Tgt Ion: 63 Resp: 9809

Ion	Ratio	Lower	Upper
63	100		
65	31.9	12.8	52.8
106	17.0	8.6	48.6



REASON # 2



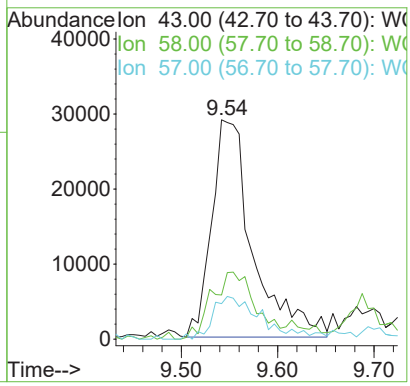
#60
4Meth2Pentan
Concen: 4.64 ug/L
RT: 9.54 min Scan# 1276
Delta R.T. 0.00 min
Lab File: WCAL1R.D
Acq: 2 Oct 2018 18:15

Tgt Ion: 43 Resp: 86091

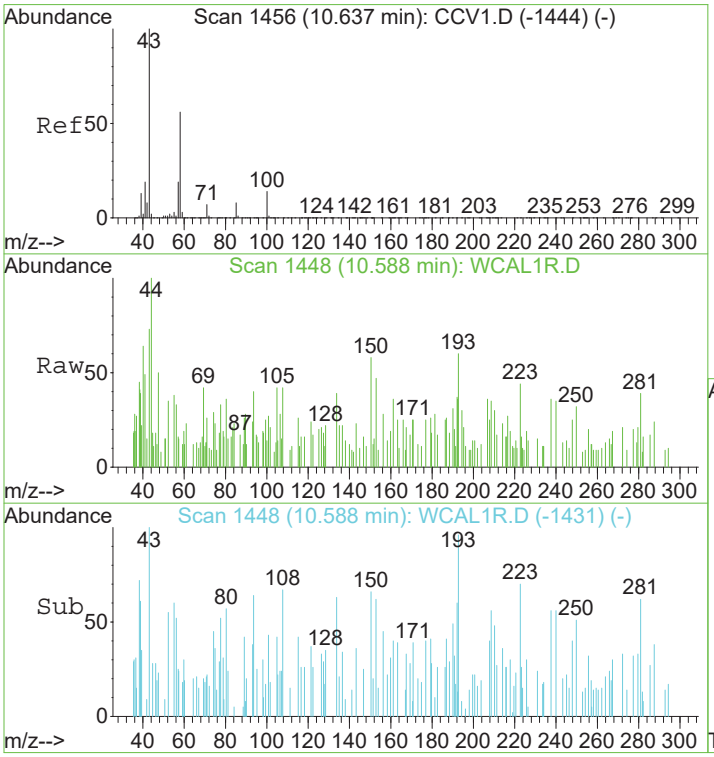
Ion	Ratio	Lower	Upper
43	100		
58	37.8	20.9	60.9
57	23.5	5.8	45.8

Before Manual Integration

RJ 10/03/2018



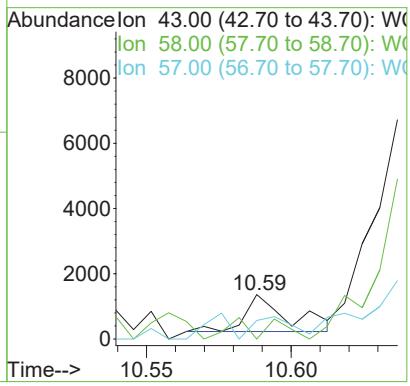
REASON # 2



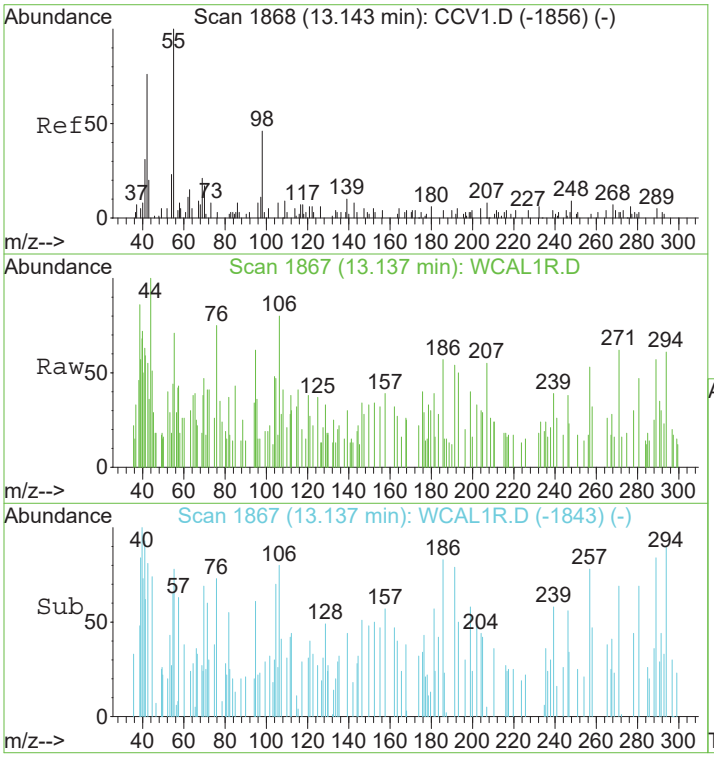
#69
2Hexanone
Concen: 0.09 ug/L
RT: 10.59 min Scan# 1448
Delta R.T. -0.05 min
Lab File: WCAL1R.D
Acq: 2 Oct 2018 18:15

Tgt Ion: 43 Resp: 1198

Ion	Ratio	Lower	Upper
43	100		
58	1956.9	35.9	75.9#
57	196.0	0.0	39.1#



REASON # 2



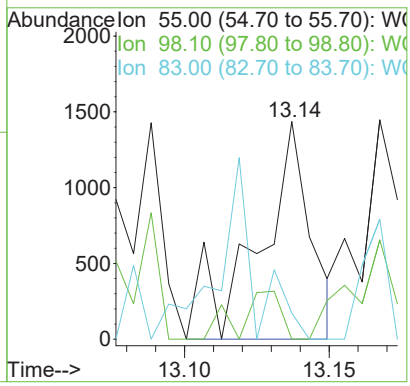
#81
cyclohexanone
Concen: 35.25 ug/L
RT: 13.14 min Scan# 1867
Delta R.T. -0.01 min
Lab File: WCAL1R.D
Acq: 2 Oct 2018 18:15

Before Manual Integration

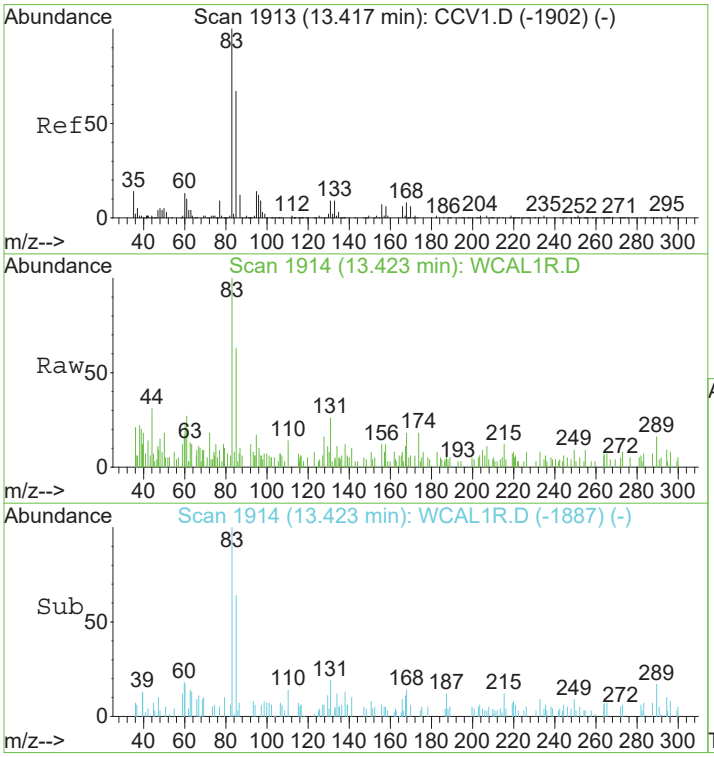
RJ 10/03/2018

Tgt Ion: 55 Resp: 1814

Ion	Ratio	Lower	Upper
55	100		
98	0.0	19.1	59.1#
83	58.9	0.0	32.9#



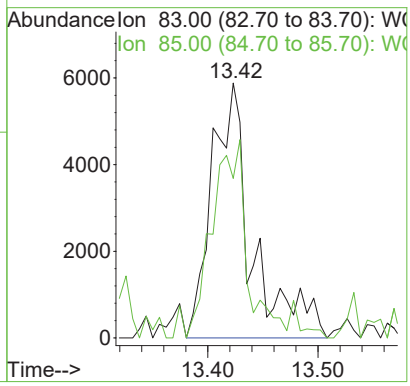
REASON # 2



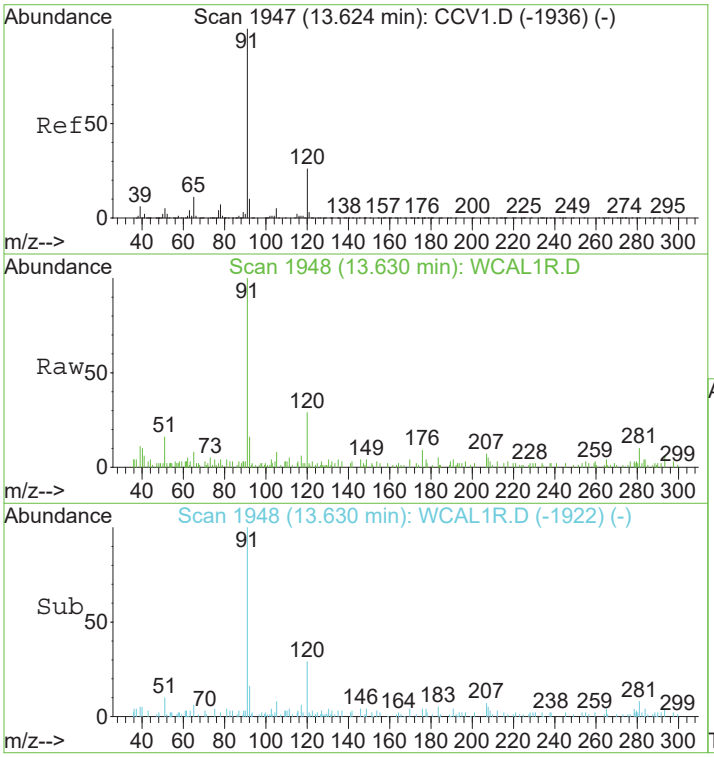
#85
1122Tetrclta
Concen: 0.66 ug/L
RT: 13.42 min Scan# 1914
Delta R.T. 0.01 min
Lab File: WCAL1R.D
Acq: 2 Oct 2018 18:15

Tgt Ion: 83 Resp: 14833

Ion	Ratio	Lower	Upper
83	100		
85	66.9	43.3	83.3



REASON # 2



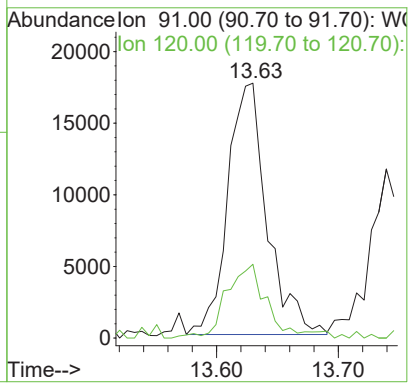
#88
n-Propylbenz
Concen: 0.13 ug/L
RT: 13.63 min Scan# 1948
Delta R.T. 0.01 min
Lab File: WCAL1R.D
Acq: 2 Oct 2018 18:15

Tgt Ion: 91 Resp: 39477

Ion	Ratio	Lower	Upper
91	100		
120	30.9	4.8	44.8

Before Manual Integration

RJ 10/03/2018



REASON # 2

Quantitation Report

Data File : C:\INSTARCH\Data\OCT0218\ICB1.D Vial: 19
Acq On : 2 Oct 2018 19:16 Operator: AGK-RLD
Sample : INITIAL CALB. BLANK Inst : VMS3
Misc : pH<2, 5.0 mL DI H20 Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 20:45:25 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 20:44:47 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M
IS QA File : 50 level for IS QA unknown. No recoveries calculated.

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min) Rcv(Ar)
1) FLUOROBENZENE**ISTD**	7.69	96	1250649	20.00 ug/L	0.00 NA%
68) d5-CHLOROBENZENE**ISTD**	11.60	117	965623	20.00 ug/L	0.00 NA%
82) d4-1,4-DICHLOROBENZENE**IS	14.90	152	501338	20.00 ug/L	0.00 NA%

System Monitoring Compounds

41) SURRDibrflma	6.84	113	327239	20.404 ug/L	0.00
Spiked Amount 20.000	Range 90 - 110		Recovery = 102 %		
45) SURR12DCAd4	7.25	102	88089	21.319 ug/L	0.00
Spiked Amount 20.000	Range 89 - 111		Recovery = 107 %		
61) SURRd8Tolule	9.69	98	1192013	18.895 ug/L	0.00
Spiked Amount 20.000	Range 93 - 107		Recovery = 94 %		
83) SURR4BrFBenz	13.23	95	387446	21.225 ug/L	0.00
Spiked Amount 20.000	Range 83 - 111		Recovery = 106 %		

Target Compounds

					Qvalue
2) Dichlorodi	0.00	85	0	N.D.	
3) Chloromethan	2.11	50	2407	N.D.	
4) VinylChlorid	2.27	62	7950	N.D.	
5) Bromomethane	2.73	94	6576	N.D.	
6) Chloroethane	2.81	64	1626	N.D.	
7) Dichloroflmethane	3.20	67	1972	N.D.	
8) Trichlorofma	0.00	101	0	N.D.	
9) Ethylether	3.74	59	1357	N.D.	
10) dichlorotfluoroethan	3.71	67	1108	N.D.	
11) propyleneoxide	4.07	58	3857	N.D.	
12) Acrolein	3.87	56	1123	Below Cal #	34
13) 11dichlorthe	3.98	96	1601	N.D.	
14) Trichlorotfluoroeth	4.15	101	1055	N.D.	
15) Acetone	4.10	43	12296	N.D.	
16) Iodomethane	4.18	142	2712	2.4944 ug/L #	81
17) Carbon Dislf	4.27	76	3820	N.D.	
18) allylchloride	4.49	41	1141	N.D.	
19) methylacetate	4.52	74	1680	N.D.	
20) Methylchlorid	4.64	84	9116	Below Cal	98
21) tbutylalcohol	4.88	59	6020	14.1394 ug/L	92
22) Acrylonitrile	4.97	53	2362	N.D.	
23) t12dichlorte	5.03	96	1519	N.D.	
24) MtBE	5.05	73	2246	N.D.	
25) Hexane	5.40	57	3492	N.D.	
26) 11dichlorota	5.51	63	1522	N.D.	
27) Vinylacetate	5.65	43	1661	Below Cal #	69
28) chloroprene	5.67	53	5586	N.D.	
29) Diisopether	5.67	45	4638	N.D.	
30) ETBE	0.00	59	0	N.D.	
31) 22dichloropr	6.22	77	1141	N.D.	
32) c12dichlorte	6.26	96	2219	N.D.	
33) 2Butanone	6.35	72	1610	N.D.	
34) propionitrile	6.28	54	1192	N.D.	
35) Ethylacetate	6.29	88	1626	1.8517 ug/L #	1
36) methacrylonitrile	6.49	67	1582	N.D.	
37) Bromochlorma	6.59	128	1587	N.D.	
38) Tetrahydofur	6.65	42	1512	N.D.	

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\INSTARCH\Data\OCT0218\ICB1.D Vial: 19
Acq On : 2 Oct 2018 19:16 Operator: AGK-RLD
Sample : INITIAL CALB. BLANK Inst : VMS3
Misc : pH<2, 5.0 mL DI H20 Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 20:45:25 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 20:44:47 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
39)	Chloroform	6.66	83	11276	0.3736 ug/L	80
40)	111trichlota	6.87	97	1040	N.D.	
42)	Cyclohexane	6.99	56	1126	N.D.	
43)	Carbtetraclo	0.00	119	0	N.D.	
44)	11dicloprope	0.00	110	0	N.D.	
46)	Benzene	7.36	78	7167	N.D.	
47)	12dichlorota	7.35	62	1607	N.D.	
48)	TAME	7.55	73	2314	N.D.	
49)	trichloroete	8.15	95	3162	N.D.	
50)	methylcyclohexane	8.41	83	3949	N.D.	
51)	12dicloropra	8.40	63	1142	N.D.	
52)	23Dicl1propene	8.51	75	1160	N.D.	
53)	Dibromometha	8.64	93	1003	N.D.	
54)	methylmethacrylate	8.58	69	1221	0.6966 ug/L #	42
55)	14dioxane	0.00	88	0	N.D.	
56)	Bromodiclrma	8.73	83	1132	N.D.	
57)	2Nitropropane	9.00	43	1843	N.D.	
58)	2CLEVE	9.15	63	1790	3.9286 ug/L #	47
59)	c13dicloproe	9.30	75	1648	N.D.	
60)	4Meth2Pentan	9.55	43	1387	N.D.	
62)	Toluene	9.76	92	3070	N.D.	
63)	t13Dicloprop	9.96	75	1126	N.D.	
64)	ethylmethacrylate	10.22	69	1922	N.D.	
65)	112Triclotha	10.32	83	1350	N.D.	
66)	Tetrachlorte	10.51	166	1501	N.D.	
67)	13Diclorpropa	10.45	76	1214	N.D.	
69)	2Hexanone	10.67	43	2205	N.D.	
70)	Clorodibrmta	0.00	129	0	N.D.	
71)	12Dibrometha	10.99	107	1075	N.D.	
72)	Chlorobenzen	11.64	112	2238	N.D.	
73)	1Clhexane	11.60	91	2909	N.D.	
74)	1112Tetclota	0.00	131	0	N.D.	
75)	Ethylbenzene	11.84	91	2127	N.D.	
76)	m p-Xylene	11.96	106	3328	N.D.	
77)	o-Xylene	0.00	106	0	N.D.	
78)	Styrene	12.53	104	1344	N.D.	
79)	Bromoform	0.00	173	0	N.D.	
80)	Isopropylben	13.03	105	2852	N.D.	
81)	cyclohexanone	13.12	55	1753	35.2062 ug/L #	56
84)	Bromobenzene	13.44	156	1056	N.D.	
85)	1122Tetrclta	13.34	83	1074	N.D.	
86)	123Triclproa	13.50	75	2651	N.D.	
87)	14dichloro2butene	0.00	53	0	N.D.	
88)	n-Propylbenz	13.60	91	3132	Below Cal	75
89)	2chlorotolue	13.75	91	2563	N.D.	
90)	4chlorotolue	13.90	91	1346	N.D.	
91)	135Trimebenz	13.89	105	2375	N.D.	
92)	tbutylbenzen	14.35	119	2047	N.D.	
93)	124Trimetben	14.40	105	1138	N.D.	
94)	sbutylbenzen	14.67	105	3362	N.D.	
95)	13Diclorbenz	14.80	146	1968	N.D.	
96)	pIsopropylto	14.88	119	2033	N.D.	
97)	14dichlorobe	14.93	146	3342	N.D.	
98)	12dichlorobe	15.47	146	1663	N.D.	
99)	nButylbenzen	15.49	91	2011	N.D.	
100)	12dibromo3cl	0.00	157	0	N.D.	
101)	135Trichlorobenzene	16.90	180	1549	N.D.	

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\INSTARCH\Data\OCT0218\ICB1.D Vial: 19
Acq On : 2 Oct 2018 19:16 Operator: AGK-RLD
Sample : INITIAL CALB. BLANK Inst : VMS3
Misc : pH<2, 5.0 mL DI H20 Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 20:45:25 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 20:44:47 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
102) 124Trichlobe	17.72	180	2202	N.D.	
103) Hexachlorobu	0.00	225	0	N.D.	
104) Naphthalene	18.03	128	3271	N.D.	
105) 123Trichlben	18.34	180	2270	N.D.	

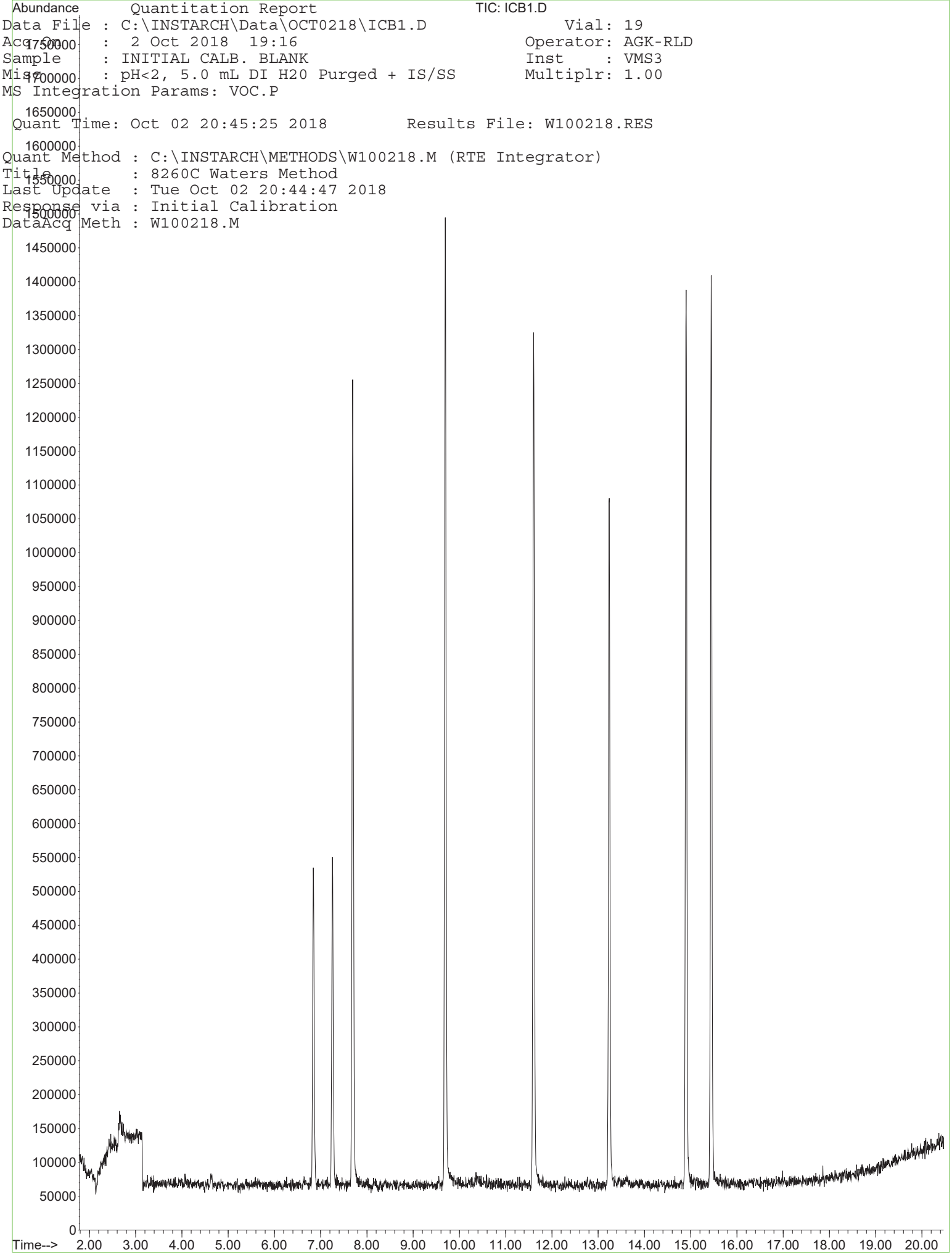
(#) = qualifier out of range (m) = manual integration

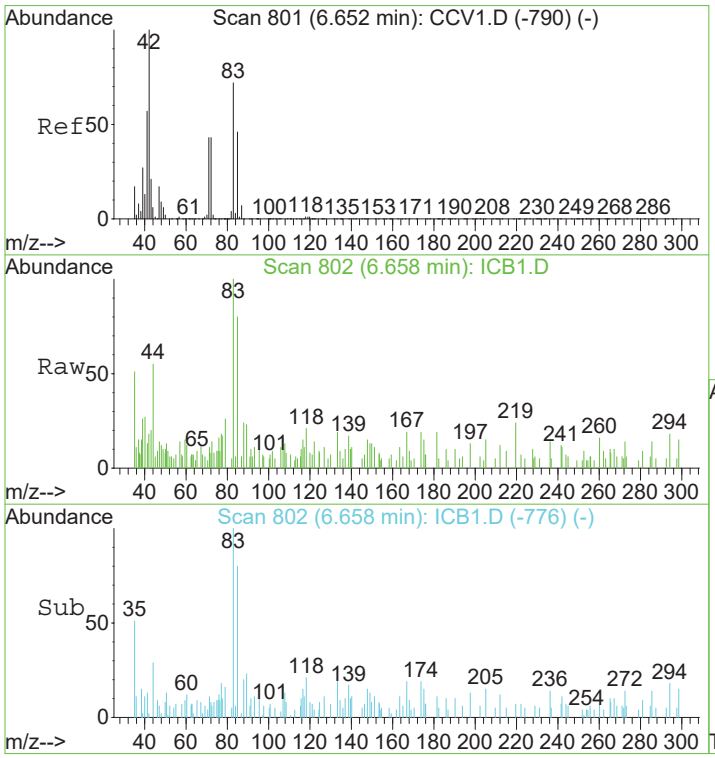
Quantitation Report

Data File : C:\INSTARCH\Data\OCT0218\ICB1.D Vial: 19
Acq. On : 2 Oct 2018 19:16 Operator: AGK-RLD
Sample : INITIAL CALB. BLANK Inst : VMS3
Misc : pH<2, 5.0 mL DI H20 Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 20:45:25 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 20:44:47 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M

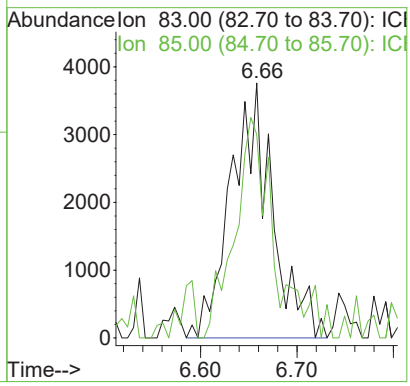


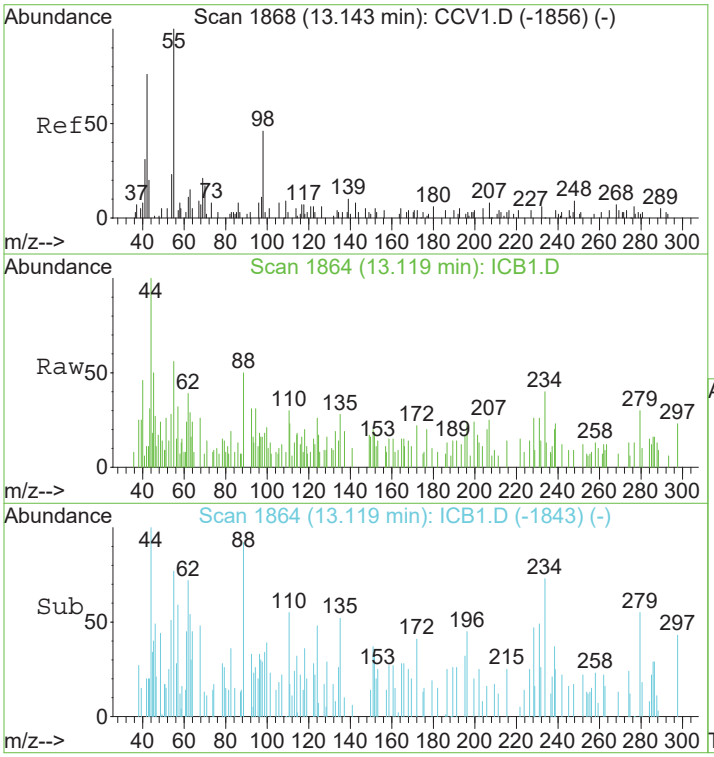


#39
Chloroform
Concen: 0.37 ug/L
RT: 6.66 min Scan# 802
Delta R.T. 0.01 min
Lab File: ICB1.D
Acq: 2 Oct 2018 19:16

Tgt Ion: 83 Resp: 11276

Ion	Ratio	Lower	Upper
83	100		
85	82.0	45.9	85.9

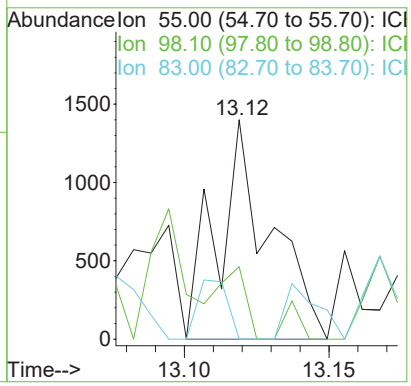




#81
cyclohexanone
Concen: 35.21 ug/L
RT: 13.12 min Scan# 1864
Delta R.T. -0.02 min
Lab File: ICB1.D
Acq: 2 Oct 2018 19:16

Tgt Ion: 55 Resp: 1753

Ion	Ratio	Lower	Upper
55	100		
98	67.9	19.1	59.1#
83	0.0	0.0	32.9

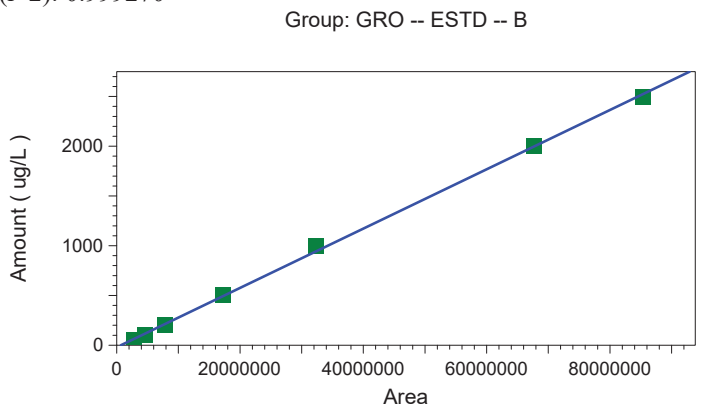


[redacted]

Calibration Report

Method: C:\INSTARCH\PVOC1\Methods\8015p1s091218.met
Print Time: Sep 18, 2018 11:14:34
User: DGS
Instrument: PVOC1

GRO (B)
Average RF: 2.63152e-005 RF StDev: 4.84963e-006 RF %RSD: 18.4290
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 2.98074e-005x - 19.8498
Goodness of fit (r^2): 0.999270



RJ 09/18/2018

	Level 8	Level 9	Level 10	Level 11	Level 12
Amount	50	100	200	500	1000
Area	2839368	4519489	7762805	17294836	32343176
RF	1.760955254 83136e-005	2.21263952628 273e-005	2.576388302939 47e-005	2.891036376407 39e-005	3.0918423101 0585e-005
Last Area					
Residual	-14.7844	-14.8645	-11.5393	4.33564	55.7837
Rep StDev					
Rep %RSD					
Rep 1 Area	2839368	4519489	7762805	17294836	32343176
Rep 1 User	DGS	DGS	DGS	DGS	DGS
Rep 1 Data File	C:\INSTARCH\PVOC1\Data\091218-8015ICS\004.dat	C:\INSTARCH\PVOC1\Data\091218-8015ICS\005.dat	C:\INSTARCH\PVOC1\Data\091218-8015ICS\006.dat	C:\INSTARCH\PVOC1\Data\091218-8015ICS\007.dat	C:\INSTARCH\PVOC1\Data\091218-8015ICS\008.dat
Rep 1 Sample ID	GRO 8015S LIN. PT 1	GRO 8015S LIN. PT 2	GRO 8015S LIN. PT 3	GRO 8015S LIN. PT 4	GRO 8015S LIN. PT 5
Rep 1 Calib. Time	Sep 13, 2018 08:36:08	Sep 13, 2018 08:36:46	Sep 13, 2018 08:37:02	Sep 13, 2018 08:37:27	Sep 13, 2018 08:37:45

	Level 13	Level 14
Amount	2000	2500

Calibration Report

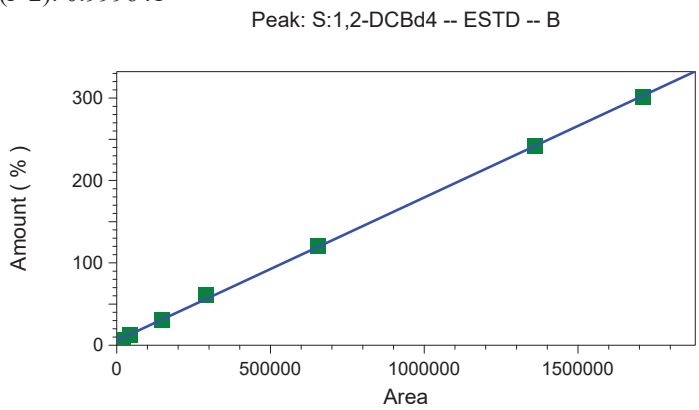
Method: C:\INSTARCH\PVOC1\Methods\8015p1s091218.met
Print Time: Sep 18, 2018 11:14:34
User: DGS
Instrument: PVOC1

Area	67638571	85297628
RF	2.95689274689142e-005	2.93091385847213e-005
Last Area		
Residual	3.71971	-22.6509
Rep StDev		
Rep %RSD		
Rep 1 Area	67638571	85297628
Rep 1 User	DGS	DGS
Rep 1 Data File	C:\INSTARCH\PVOC1\Data\091218-8015ICS\009.dat	C:\INSTARCH\PVOC1\Data\091218-8015ICS\010.dat
Rep 1 Sample ID	GRO 8015S LIN. PT 6	GRO 8015S LIN. PT 7
Rep 1 Calib. Time	Sep 13, 2018 08:37:58	Sep 13, 2018 08:38:14

Calibration Report

Method: C:\Instarch\PVOC1\Methods\8015p1s091218.met
Print Time: Sep 17, 2018 10:24:38
User: DGS
Instrument: PVOC1

S:1,2-DCBd4 (B)
Average RF: 0.000222745 RF StDev: 5.86586e-005 RF %RSD: 26.3344
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 0.000173836x + 5.54319
Goodness of fit (r^2): 0.999641



RJ 09/18/2018

	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	6.04	12.08	30.2	60.4	120.8
Area	18234	43879	146196	291836	652940
RF	0.000331249314467478	0.00027530253 6520887	0.000206571999233905	0.000206965555997204	0.0001850093 42359175
Last Area					
Residual	-2.67292	-1.09095	-0.757346	4.12515	1.7522
Rep StDev					
Rep %RSD					
Rep 1 Area	18234	43879	146196	291836	652940
Rep 1 User	DGS	DGS	DGS	DGS	DGS
Rep 1 Data File	C:\INSTARCH\PVOC1\Data\091218-8015ICS\013.dat	C:\INSTARCH\PVOC1\Data\091218-8015ICS\014.dat	C:\INSTARCH\PVOC1\Data\091218-8015ICS\015.dat	C:\INSTARCH\PVOC1\Data\091218-8015ICS\016.dat	C:\INSTARCH\PVOC1\Data\091218-8015ICS\017.dat
Rep 1 Sample ID	GRO 8015S SSTD LIN. PT 1	GRO 8015S SSTD LIN. PT 2	GRO 8015S SSTD LIN. PT 3	GRO 8015S SSTD LIN. PT 4	GRO 8015S SSTD LIN. PT 5
Rep 1 Calib. Time	Sep 13, 2018 08:40:17	Sep 13, 2018 08:40:41	Sep 13, 2018 08:41:00	Sep 13, 2018 08:41:15	Sep 13, 2018 08:41:50

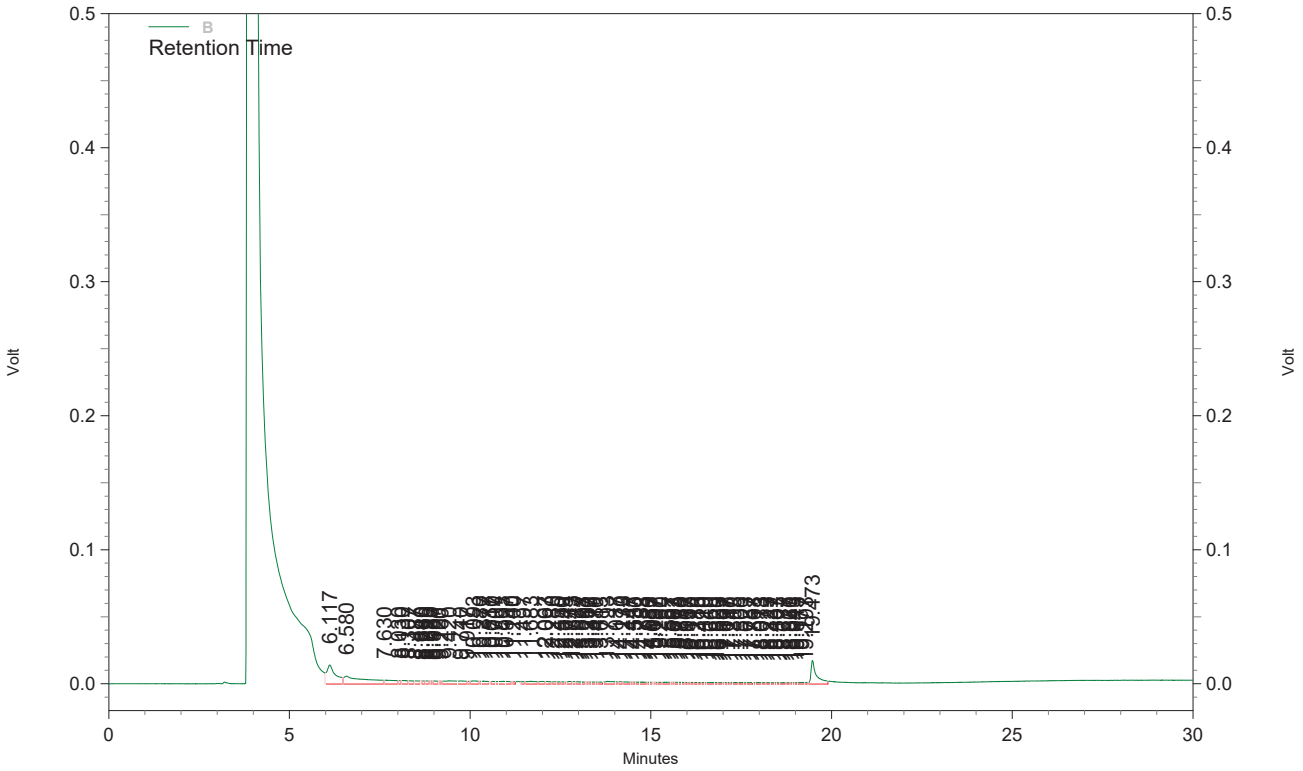
	Level 6	Level 7

Calibration Report

Method: C:\Instarch\PVOC1\Methods\8015p1s091218.met
Print Time: Sep 17, 2018 10:24:38
User: DGS
Instrument: PVOC1

Amount	241.6	302
Area	1360869	1710239
RF	0.000177533620061887	0.00017658350 6749641
Last Area		
Residual	-0.511491	-0.844646
Rep StDev		
Rep %RSD		
Rep 1 Area	1360869	1710239
Rep 1 User	DGS	DGS
Rep 1 Data File	C:\INSTARCH\PVOC1\Data\091218-8015ICS\018.dat	C:\INSTARCH\PVOC1\Data\091218-8015ICS\019.dat
Rep 1 Sample ID	GRO 8015S SSTD LIN. PT 6	GRO 8015S SSTDLIN. PT 7
Rep 1 Calib. Time	Sep 13, 2018 08:42:17	Sep 13, 2018 08:42:40

Inst : **PVOC1**
File : C:\INSTARCH\PVOC1\Data\091218-8015ICS\003.dat
Method : C:\Instarch\PVOC1\Methods\8015p1s091218.met
Acquired : Sep 12, 2018 15:27:26
Sample ID : RTW
File Desc. : RETENTION TIME WINDOW STD

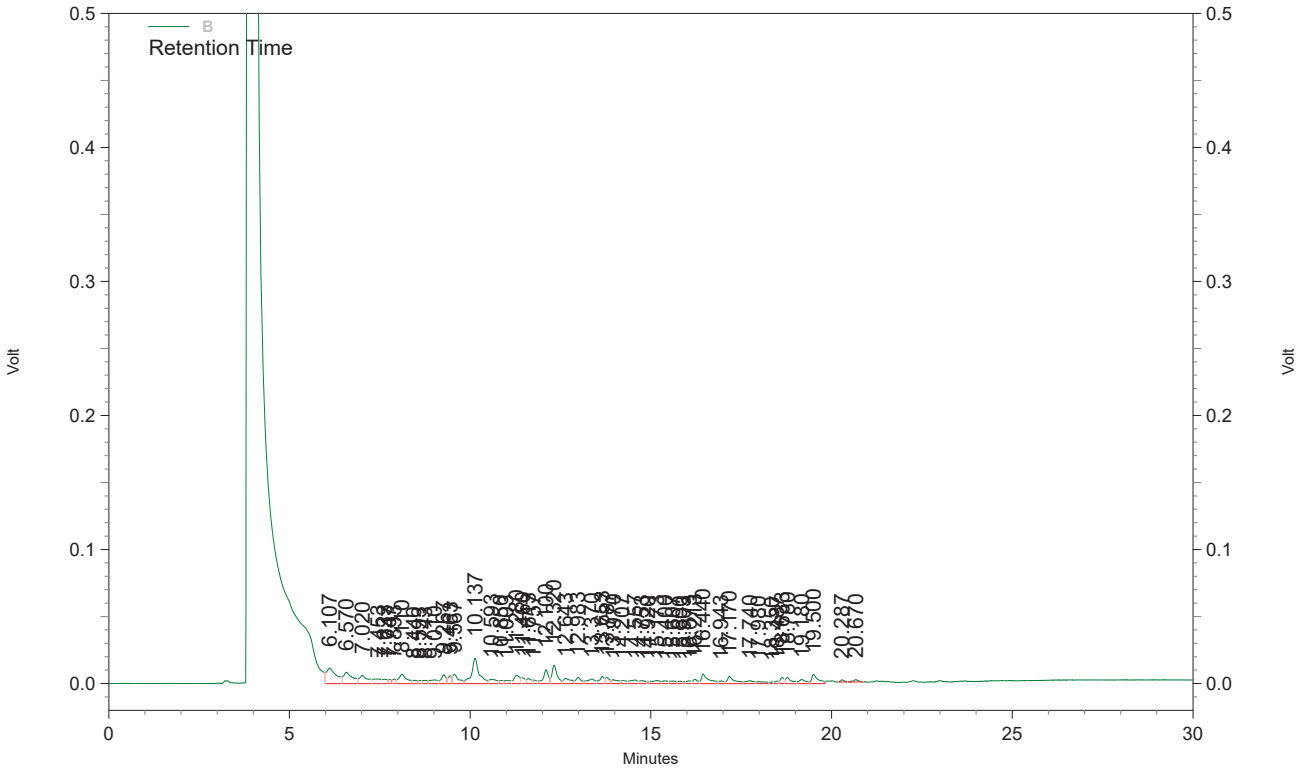


B Results

Compound Name	Retention Time	*Area*	*Conc. (ug/L)*
S:1,2-DCBd4			0.000 BDL
GRO		1766187	75.329

Inst : **PVOC1**
File : C:\INSTARCH\PVOC1\Data\091218-8015ICS\004.dat
Method : C:\Instarch\PVOC1\Methods\8015p1s091218.met
Acquired : Sep 12, 2018 16:03:37
Sample ID : GRO 8015S LIN. PT 1
File Desc. : GRO LIN. PT 1

GRO = 50 ug/L
5.0 ul of 8015 CCV/CALIB. Std.. into 100 ml of DI Water +2ml MeOH---5.0 ml Purged

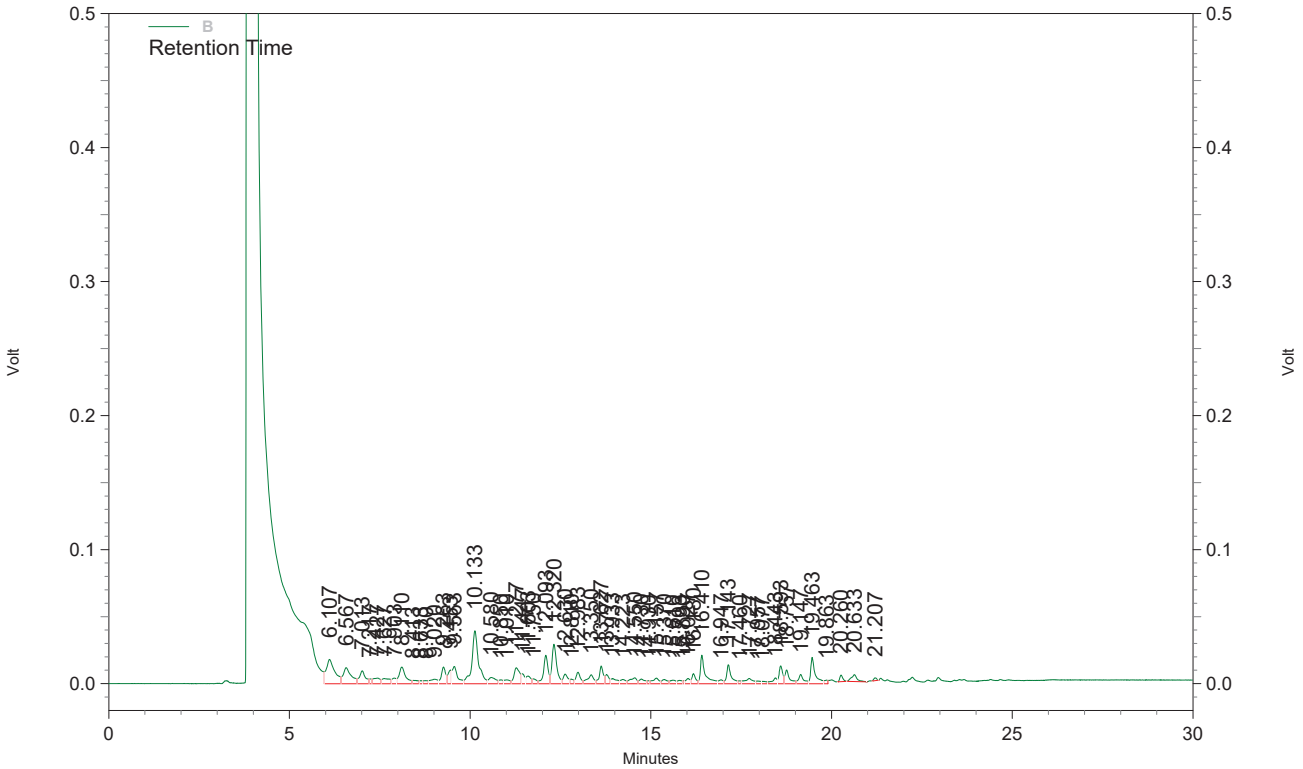


B Results

Compound Name	Retention Time	*Area*	*Conc. (ug/L)*
S:1,2-DCBd4			0.000 BDL
GRO		2839368	50.000 CAL

Inst : **PVOC1**
File : C:\INSTARCH\PVOC1\Data\091218-8015ICS\005.dat
Method : C:\Instarch\PVOC1\Methods\8015p1s091218.met
Acquired : Sep 12, 2018 16:39:28
Sample ID : GRO 8015S LIN. PT 2
File Desc. : GRO LIN. PT 2

GRO = 100 ug/L
10.0 ul of 8015 CCV/CALIB. Std.. into 100 ml of DI Water +2mL MeOH ---5.0 ml Purged

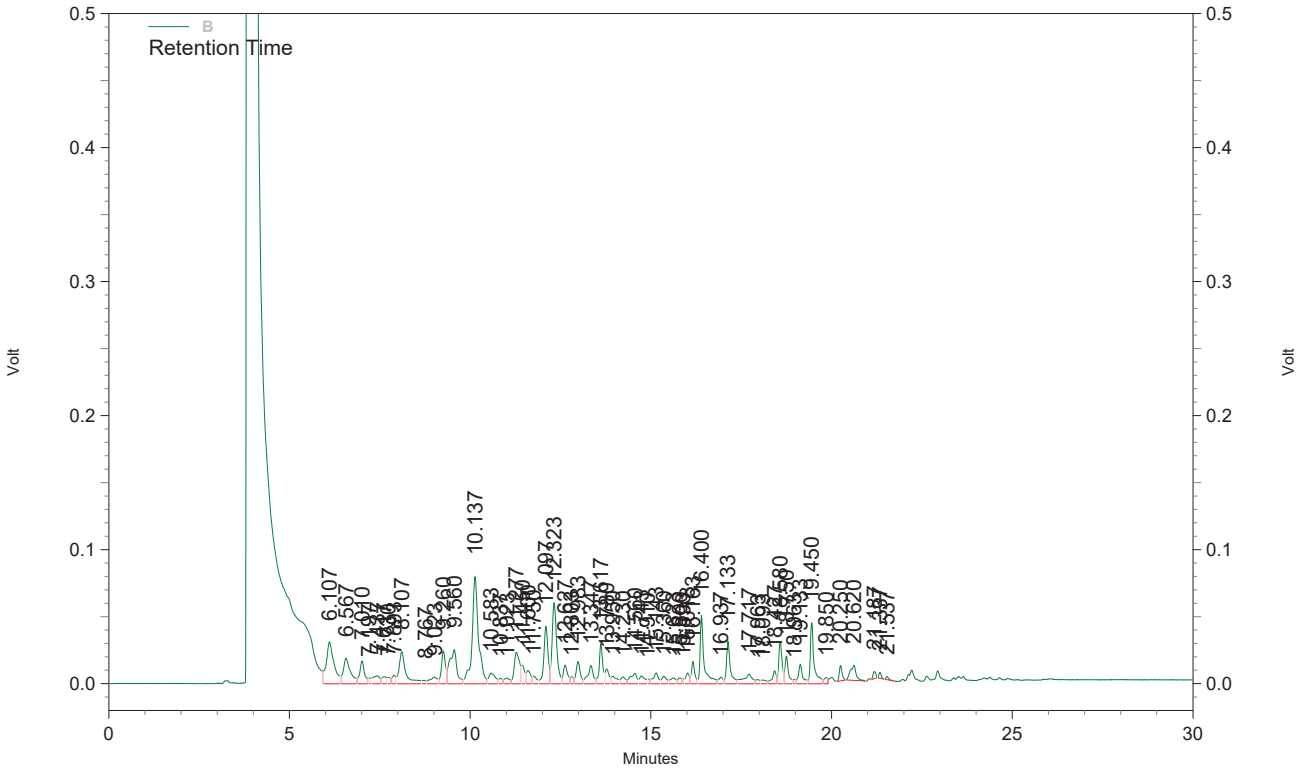


B Results

Compound Name	Retention Time	*Area*	*Conc. (ug/L)*
S:1,2-DCBd4			0.000 BDL
GRO		4519489	100.000 CAL

Inst : **PVOC1**
File : C:\INSTARCH\PVOC1\Data\091218-8015ICS\006.dat
Method : C:\Instarch\PVOC1\Methods\8015p1s091218.met
Acquired : Sep 12, 2018 17:15:37
Sample ID : GRO 8015S LIN. PT 3
File Desc. : GRO LIN. PT 3

GRO = 200 ug/L
20.0 ul of 8015 CCV/CALIB. Std.. into 100 ml of DI Water +2mL MeOH---5.0 ml Purged

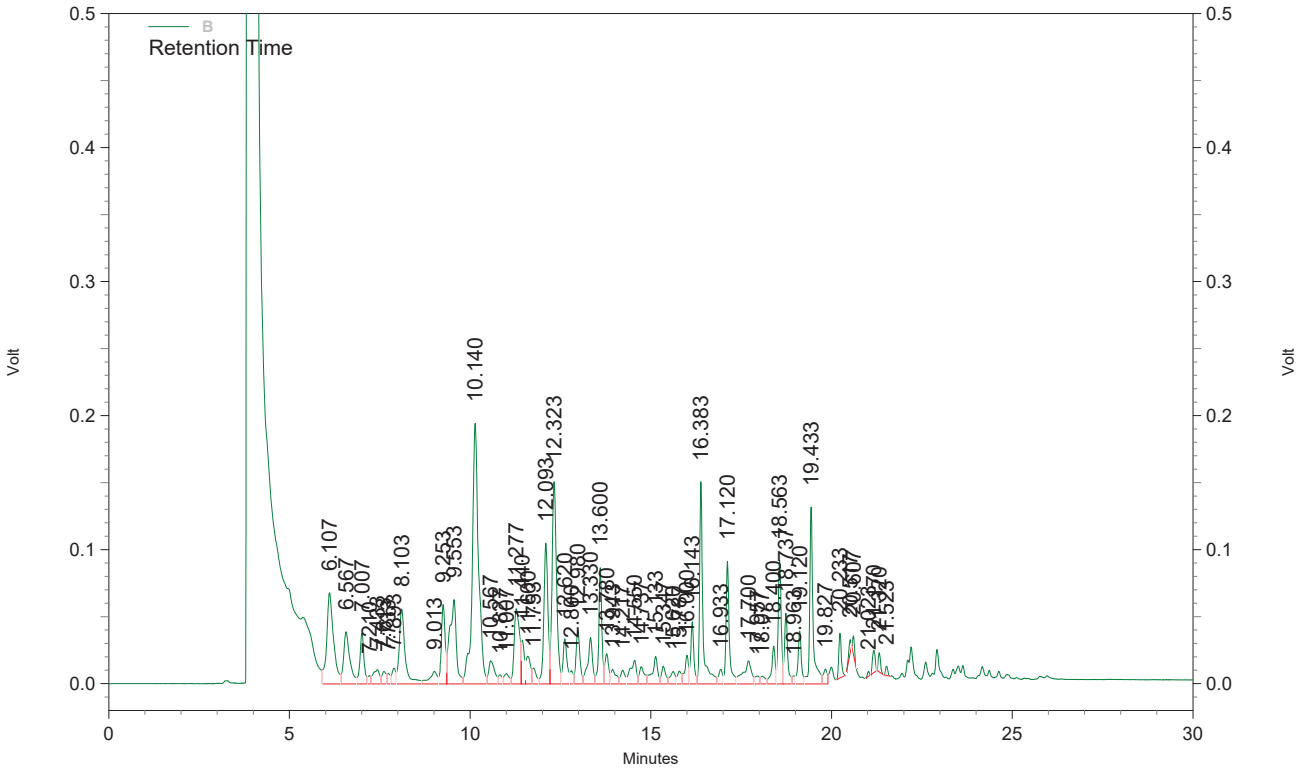


B Results

Compound Name	Retention Time	*Area*	*Conc. (ug/L)*
S:1,2-DCBd4			0.000 BDL
GRO		7762805	200.000 CAL

Inst : **PVOC1**
File : C:\INSTARCH\PVOC1\Data\091218-8015ICS\007.dat
Method : C:\Instarch\PVOC1\Methods\8015p1s091218.met
Acquired : Sep 12, 2018 17:51:43
Sample ID : GRO 8015S LIN. PT 4
File Desc. : GRO LIN. PT 4

GRO = 500 ug/L
50.0 ul of 8015 CCV/CALIB. Std.. into 100 ml of DI Water+2mL MeOH---5.0 ml Purged

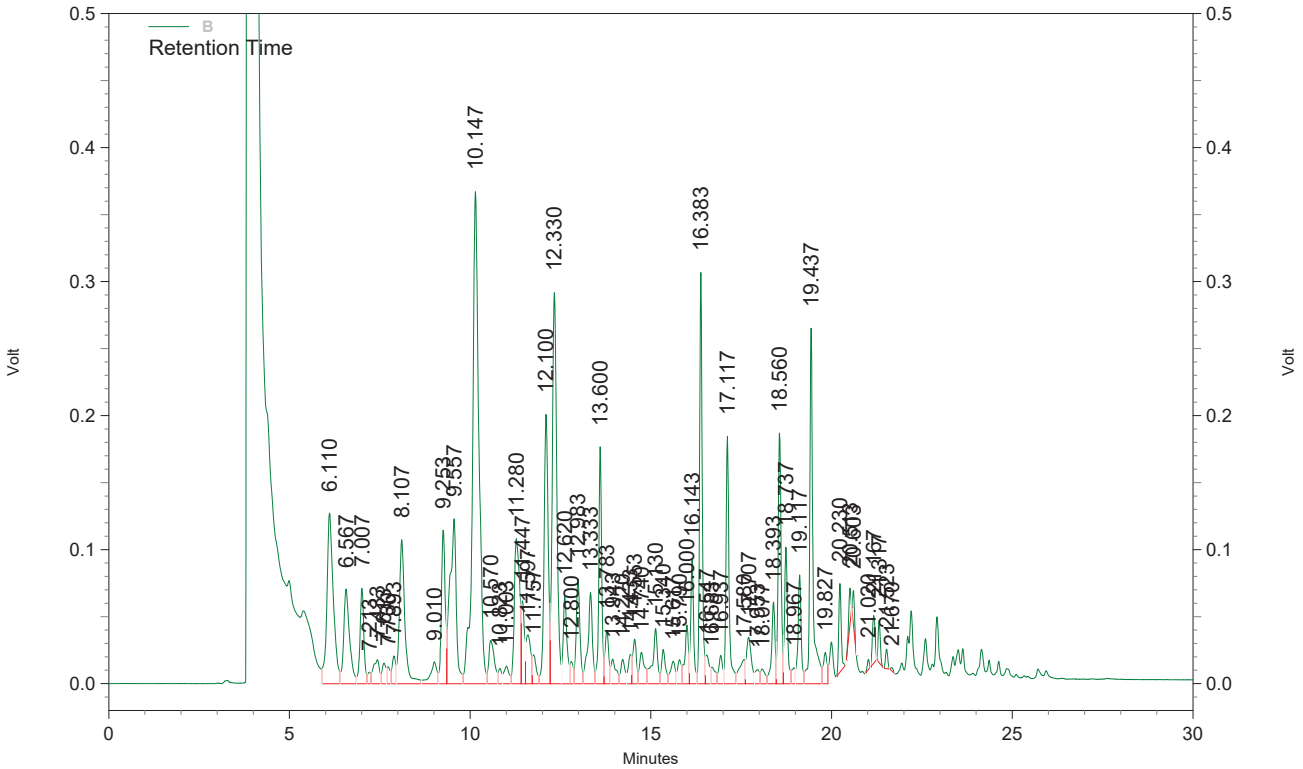


B Results

Compound Name	Retention Time	*Area*	*Conc. (ug/L)*
S:1,2-DCBd4	21.023	13893	0.000 CAL
GRO		17294836	500.000 CAL

Inst : **PVOC1**
File : C:\INSTARCH\PVOC1\Data\091218-8015ICS\008.dat
Method : C:\Instarch\PVOC1\Methods\8015p1s091218.met
Acquired : Sep 12, 2018 18:27:48
Sample ID : GRO 8015S LIN. PT 5
File Desc. : GRO LIN. PT 5

GRO = 1000 ug/L
100 ul of 8015 CCV/CALIB. Std.. into 100 ml of DI Water+2mL MeOH---5.0 ml Purged

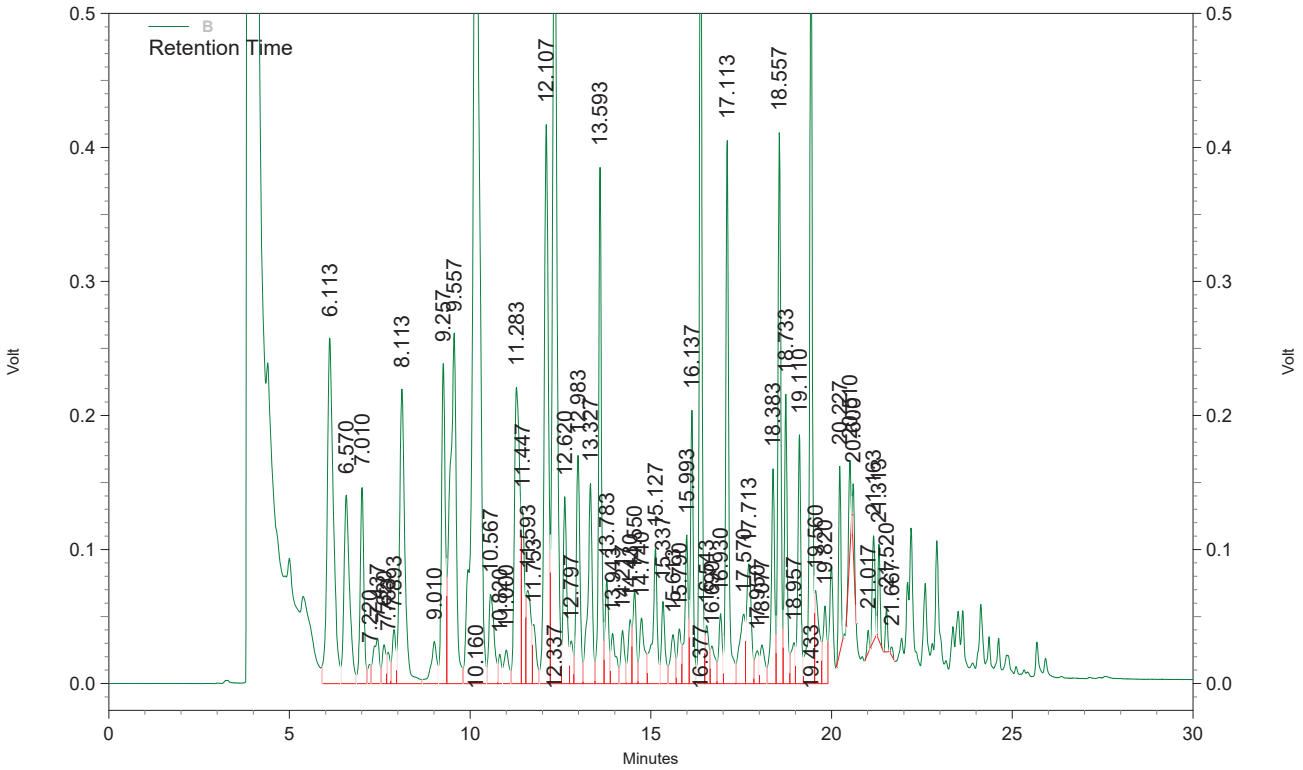


B Results

Compound Name	Retention Time	*Area*	*Conc. (ug/L)*
S:1,2-DCBd4	21.020	28821	0.000 CAL
GRO		32343168	1000.000 CAL

Inst : **PVOC1**
File : C:\INSTARCH\PVOC1\Data\091218-8015ICS\009.dat
Method : C:\Instarch\PVOC1\Methods\8015p1s091218.met
Acquired : Sep 12, 2018 19:03:41
Sample ID : GRO 8015S LIN. PT 6
File Desc. : GRO LIN. PT 6

GRO = 2000 ug/L
200 ul of 8015 CCV/CALIB. Std.. into 100 ml of DI Water-+2mL MeOH--5.0 ml Purged

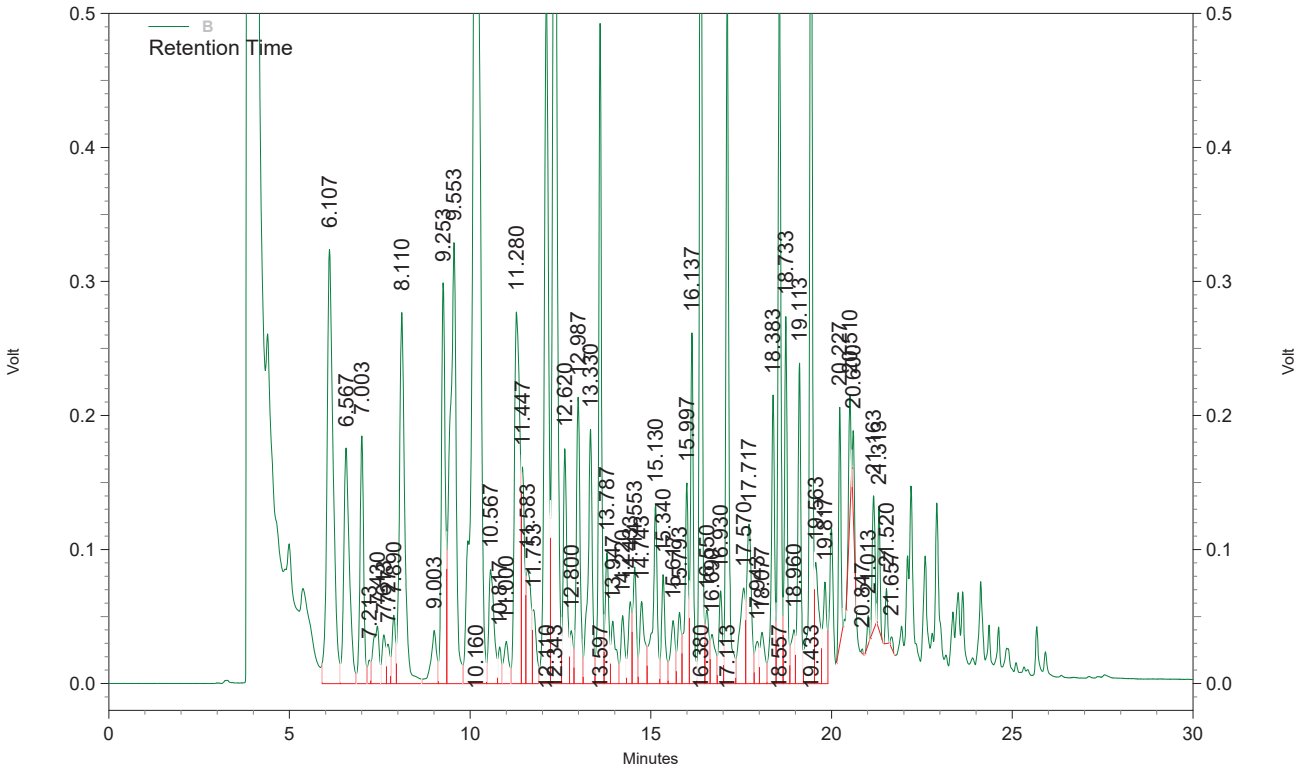


B Results

Compound Name	Retention Time	*Area*	*Conc. (ug/L)*
S:1,2-DCBd4	21.017	65059	0.000 CAL
GRO		67638568	2000.000 CAL

Inst : **PVOC1**
File : C:\INSTARCH\PVOC1\Data\091218-8015ICS\010.dat
Method : C:\Instarch\PVOC1\Methods\8015p1s091218.met
Acquired : Sep 12, 2018 19:39:45
Sample ID : GRO 8015S LIN. PT 7
File Desc. : GRO LIN. PT 7

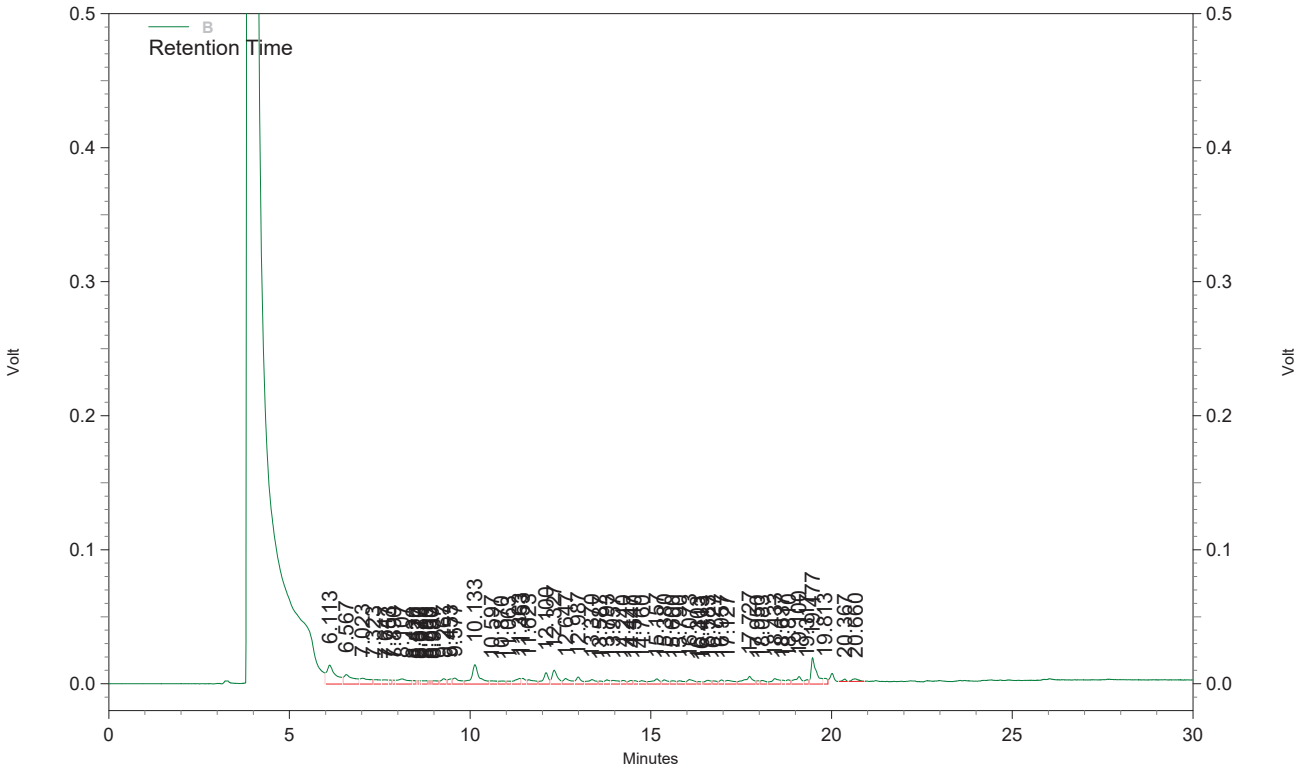
GRO = 2500 ug/L
250 ul of 8015 CCV/CALIB. Std.. into 100 ml of DI Water-+2mL MeOH--5.0 ml Purged



B Results

Compound Name	Retention Time	*Area*	*Conc. (ug/L)*
S:1,2-DCBd4	21.013	84132	0.000 CAL
GRO		85297640	2500.000 CAL

Inst : **PVOC1**
File : C:\INSTARCH\PVOC1\Data\091218-8015ICS\011.dat
Method : C:\Instarch\PVOC1\Methods\8015p1s091218.met
Acquired : Sep 12, 2018 20:15:45
Sample ID : RTW
File Desc. : RETENTION TIME WINDOW STD

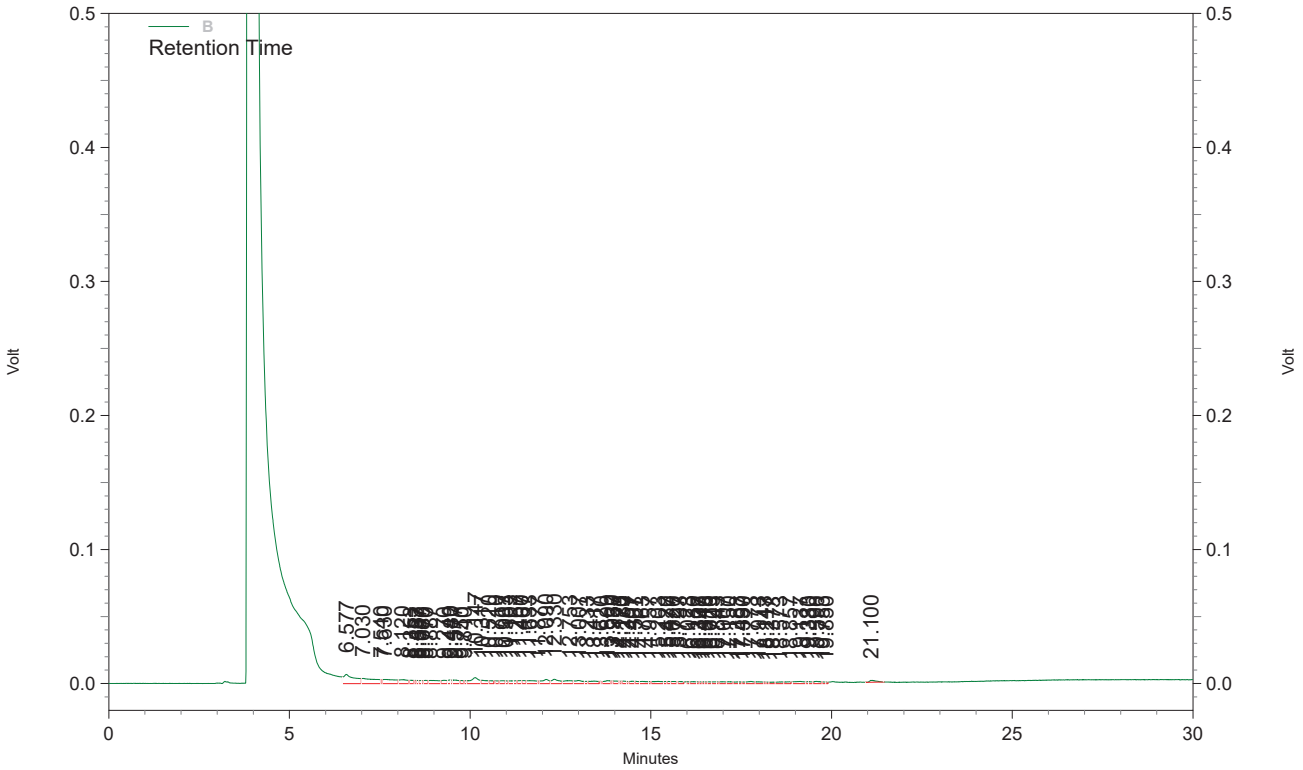


B Results

Compound Name	Retention Time	*Area*	*Conc. (ug/L)*
S:1,2-DCBd4			0.000 BDL
GRO		2785913	104.893

Inst : **PVOC1**
File : C:\INSTARCH\PVOC1\Data\091218-8015ICS\013.dat
Method : C:\Instarch\PVOC1\Methods\8015p1s091218.met
Acquired : Sep 12, 2018 21:27:21
Sample ID : GRO 8015S SSTD LIN. PT 1
File Desc. : GRO LIN. PT 1

SSTD = 1 ug/L
1.0 ul of 8015 CCV/CALIB. Std.. into 100 ml of DI Water+2mL MeOH--5.0 ml Purged

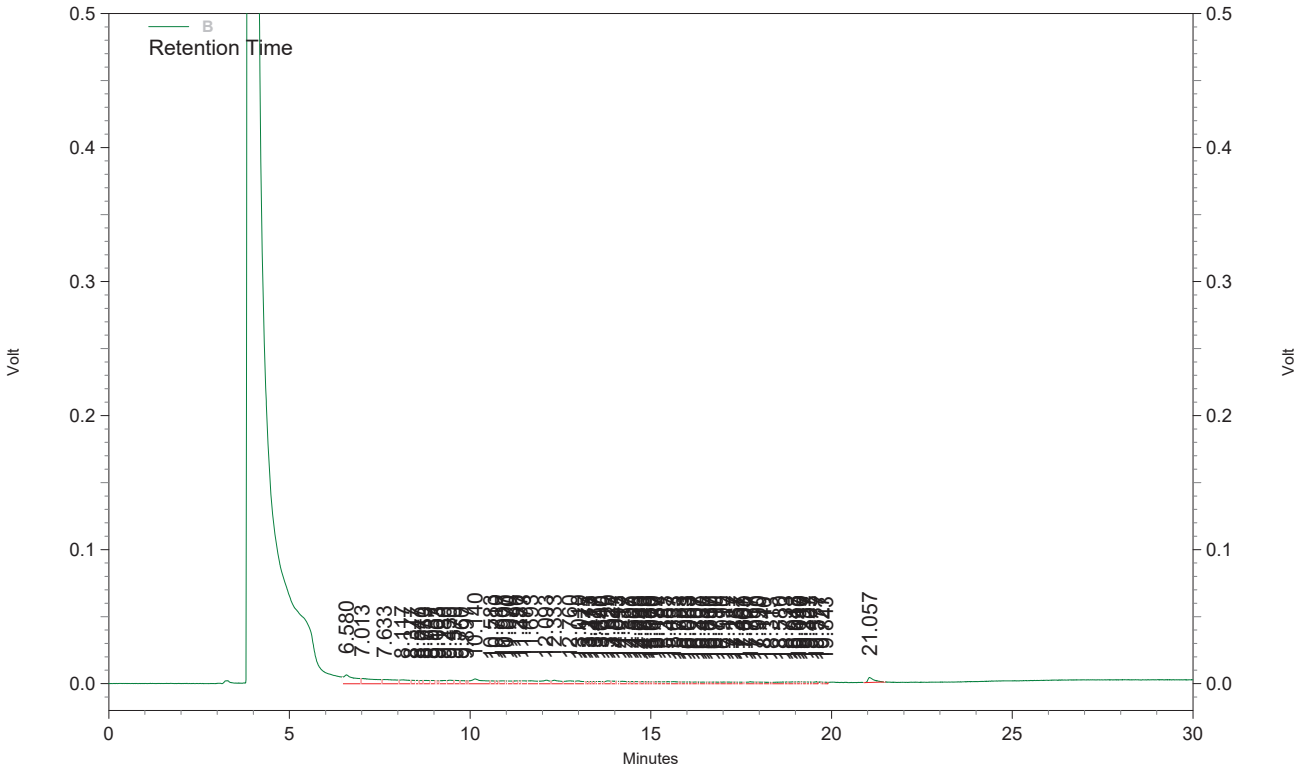


B Results

Compound Name	Retention Time	*Area*	*Conc. (ug/L)*
S:1,2-DCBd4	21.100	18234	6.040 CAL
GRO		1622467	0.000 CAL

Inst : **PVOC1**
File : C:\INSTARCH\PVOC1\Data\091218-8015ICS\014.dat
Method : C:\Instarch\PVOC1\Methods\8015p1s091218.met
Acquired : Sep 12, 2018 22:03:15
Sample ID : GRO 8015S SSTD LIN. PT 2
File Desc. : GRO LIN. PT 2

SSTD= 2.0 ug/L
2.0 ul of 8015 CCV/CALIB. Std.. into 100 ml of DI Water+2mL MeOH---5.0 ml Purged

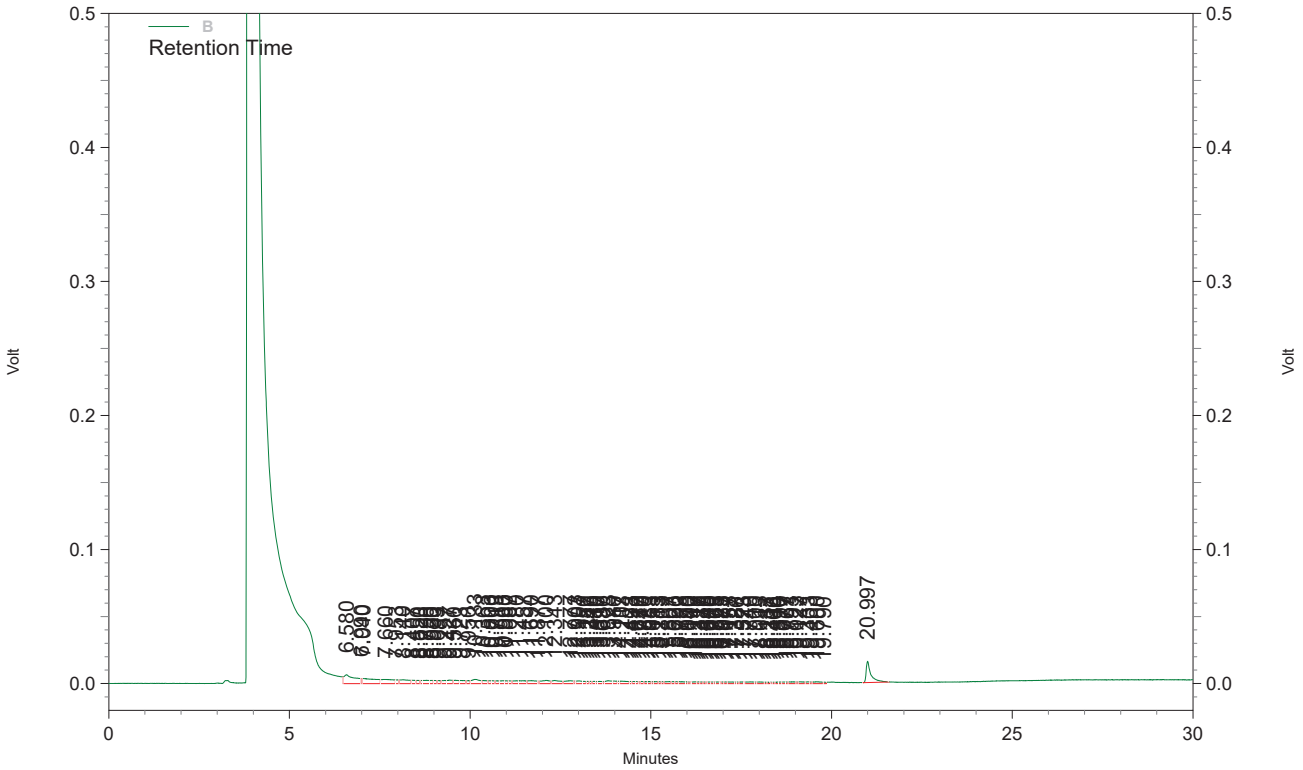


B Results

Compound Name	Retention Time	*Area*	*Conc. (ug/L)*
S:1,2-DCBd4	21.057	43879	12.624 LC
GRO		1601264	27.880

Inst : **PVOC1**
File : C:\INSTARCH\PVOC1\Data\091218-8015ICS\015.dat
Method : C:\Instarch\PVOC1\Methods\8015p1s091218.met
Acquired : Sep 12, 2018 22:38:56
Sample ID : GRO 8015S SSTD LIN. PT 3
File Desc. : GRO LIN. PT 3

SSTD = 5.0 ug/L
5.0 ul of 8015 CCV/CALIB. Std.. into 100 ml of DI Water-+2mL MeOH--5.0 ml Purged

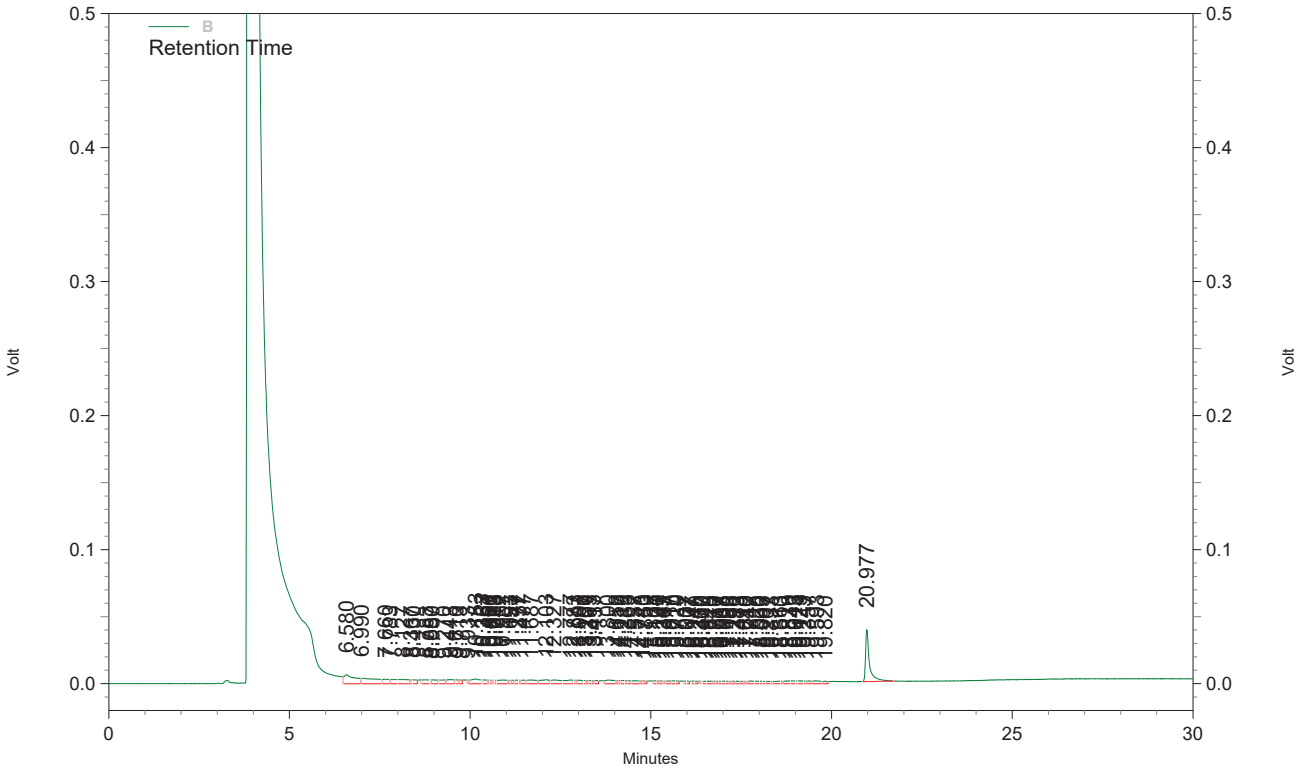


B Results

Compound Name	Retention Time	*Area*	*Conc. (ug/L)*
S:1,2-DCBd4	20.997	146196	30.200 CAL
GRO		1551072	0.000 CAL

Inst : **PVOC1**
File : C:\INSTARCH\PVOC1\Data\091218-8015ICS\016.dat
Method : C:\Instarch\PVOC1\Methods\8015p1s091218.met
Acquired : Sep 12, 2018 23:14:41
Sample ID : GRO 8015S SSTD LIN. PT 4
File Desc. : GRO LIN. PT 4

SSTD= 10.0 ug/L
10.0 ul of 8015 CCV/CALIB. Std.. into 100 ml of DI Water-+2mL MeOH--5.0 ml Purged

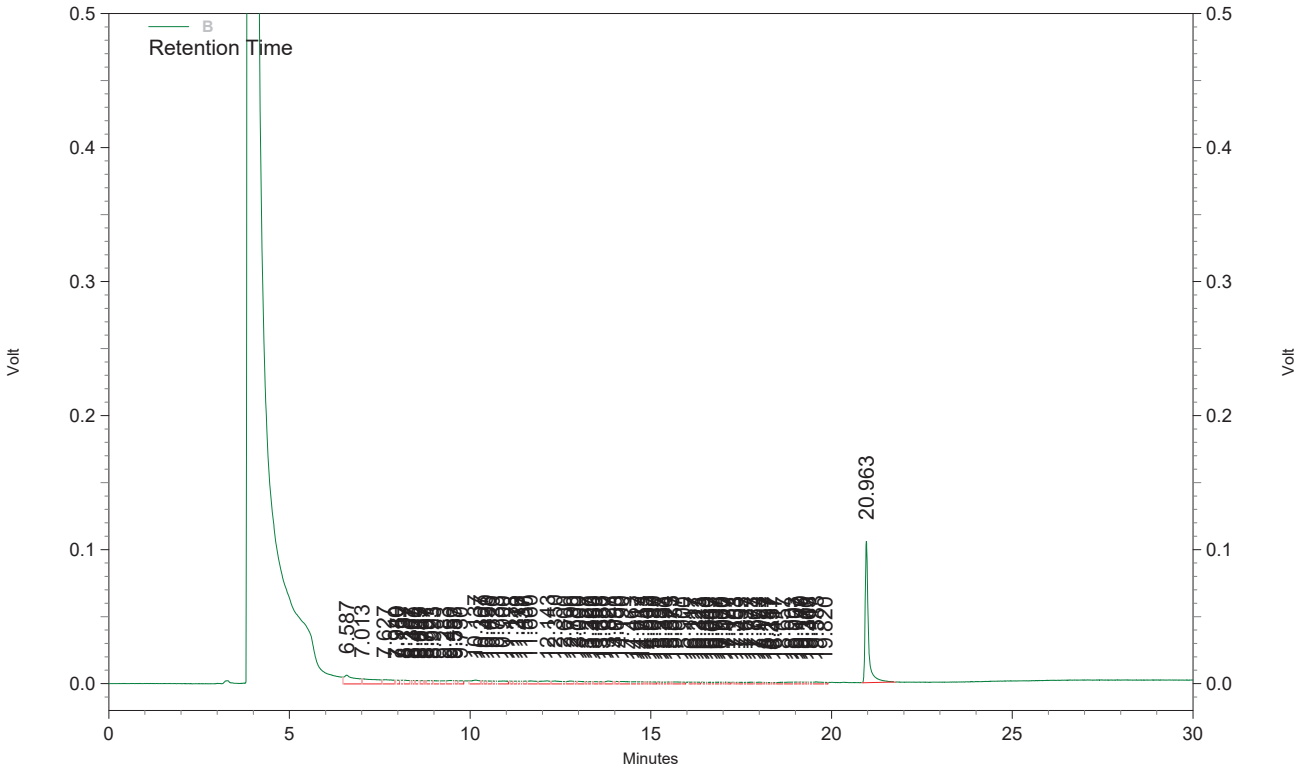


B Results

Compound Name	Retention Time	*Area*	*Conc. (ug/L)*
S:1,2-DCBd4	20.977	291836	60.400 CAL
GRO		1968895	0.000 CAL

Inst : **PVOC1**
File : C:\INSTARCH\PVOC1\Data\091218-8015ICS\017.dat
Method : C:\Instarch\PVOC1\Methods\8015p1s091218.met
Acquired : Sep 12, 2018 23:50:30
Sample ID : GRO 8015S SSTD LIN. PT 5
File Desc. : GRO LIN. PT 5

SSTD= 20.0ug/L
20.0 ul of 8015 CCV/CALIB. Std.. into 100 ml of DI Water+2mL MeOH---5.0 ml Purged

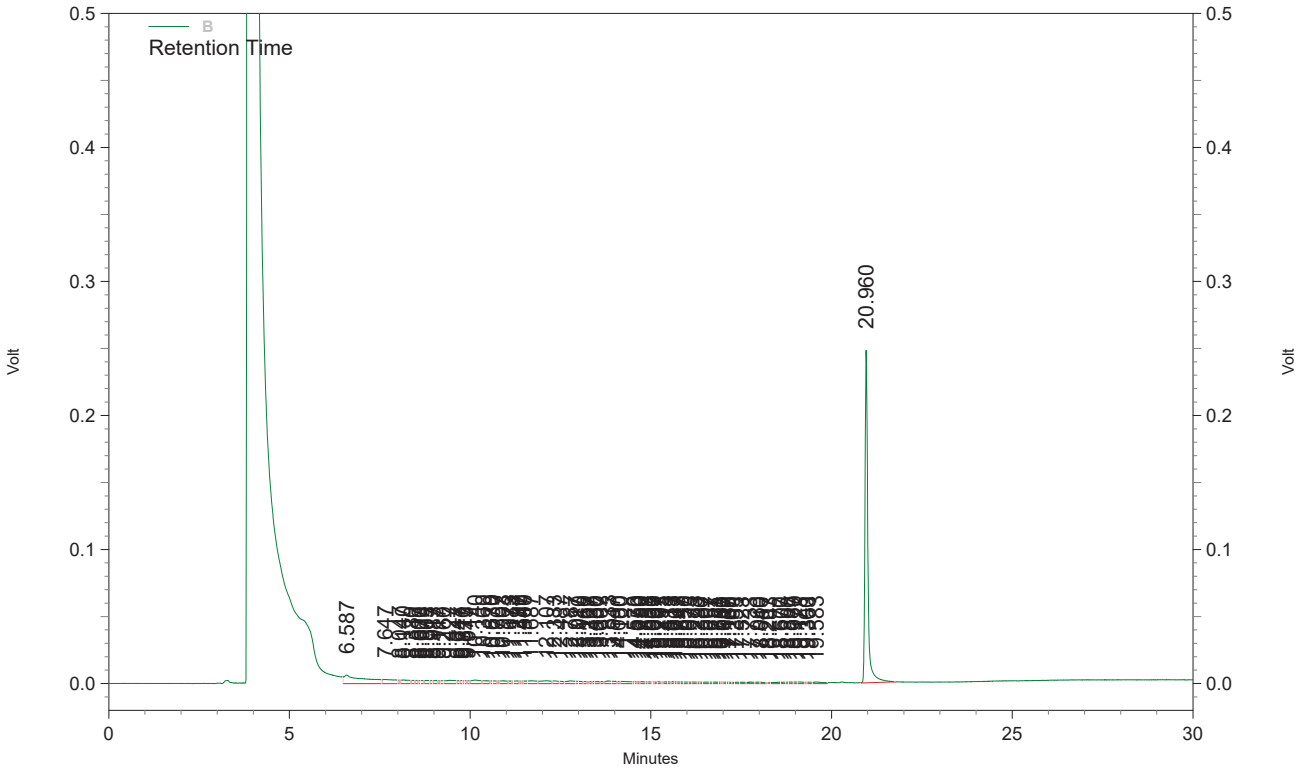


B Results

Compound Name	Retention Time	*Area*	*Conc. (ug/L)*
S:1,2-DCBd4	20.963	652940	120.800 CAL
GRO		1513553	0.000 CAL

Inst : **PVOC1**
File : C:\INSTARCH\PVOC1\Data\091218-8015ICS\018.dat
Method : C:\Instarch\PVOC1\Methods\8015p1s091218.met
Acquired : Sep 13, 2018 00:26:23
Sample ID : GRO 8015S SSTD LIN. PT 6
File Desc. : GRO LIN. PT 6

SSTD= 40.0 ug/L
40.0 ul of 8015 CCV/CALIB. Std.. into 100 ml of DI Water+2mL MeOH---5.0 ml Purged

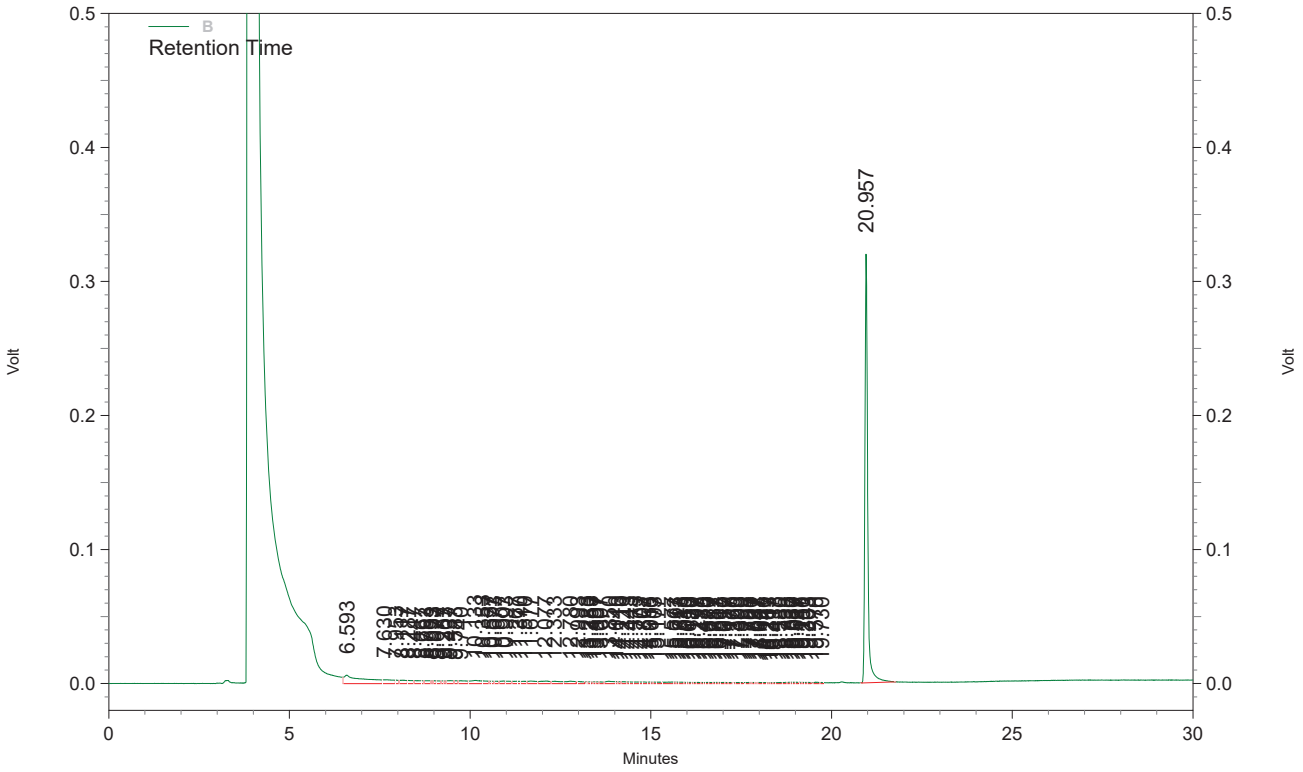


B Results

Compound Name	Retention Time	*Area*	*Conc. (ug/L)*
S:1,2-DCBd4	20.960	1360869	241.600 CAL
GRO		1514210	0.000 CAL

Inst : **PVOC1**
File : C:\INSTARCH\PVOC1\Data\091218-8015ICS\019.dat
Method : C:\Instarch\PVOC1\Methods\8015p1s091218.met
Acquired : Sep 13, 2018 01:02:21
Sample ID : GRO 8015S SSTDLIN. PT 7
File Desc. : GRO LIN. PT 7

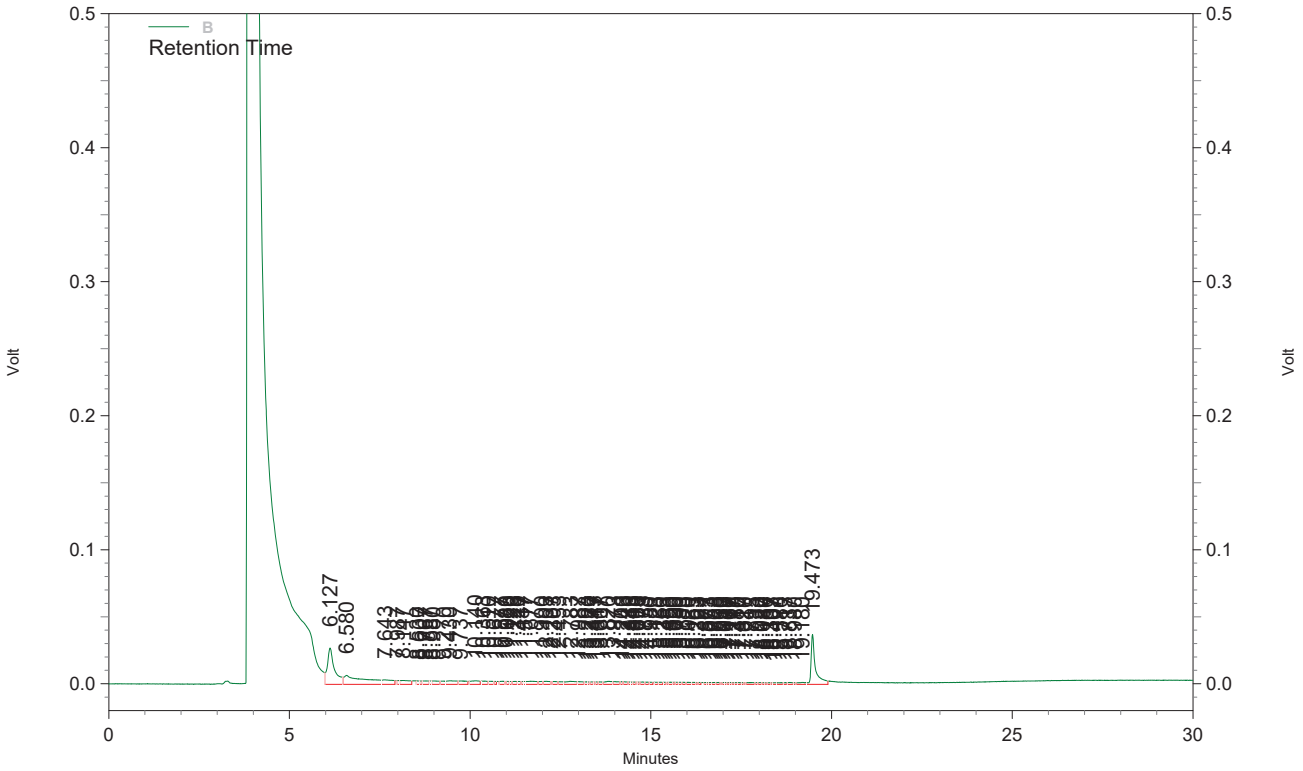
SSTD = 50.0 ug/L
50.0 ul of 8015 CCV/CALIB. Std.. into 100 ml of DI Water+2mL MeOH---5.0 ml Purged



B Results

Compound Name	Retention Time	*Area*	*Conc. (ug/L)*
S:1,2-DCBd4	20.957	1710239	302.000 CAL
GRO		1325401	0.000 CAL

Inst : **PVOC1**
File : C:\INSTARCH\PVOC1\Data\091218-8015ICS\026.dat
Method : C:\Instarch\PVOC1\Methods\8015p1s091218.met
Acquired : Sep 13, 2018 05:12:44
Sample ID : RTW
File Desc. : RETENTION TIME WINDOW STD



B Results

Compound Name	Retention Time	*Area*	*Conc. (ug/L)*
S:1,2-DCBd4			0.000 BDL
GRO		2216613	88.388

QC Check Standard Report

Sequence : C:\INSTARCH\PVOC1\Sequences\091218-8015ICS.seq
User : DGS
Printed : Sep 17, 2018 10:22:38

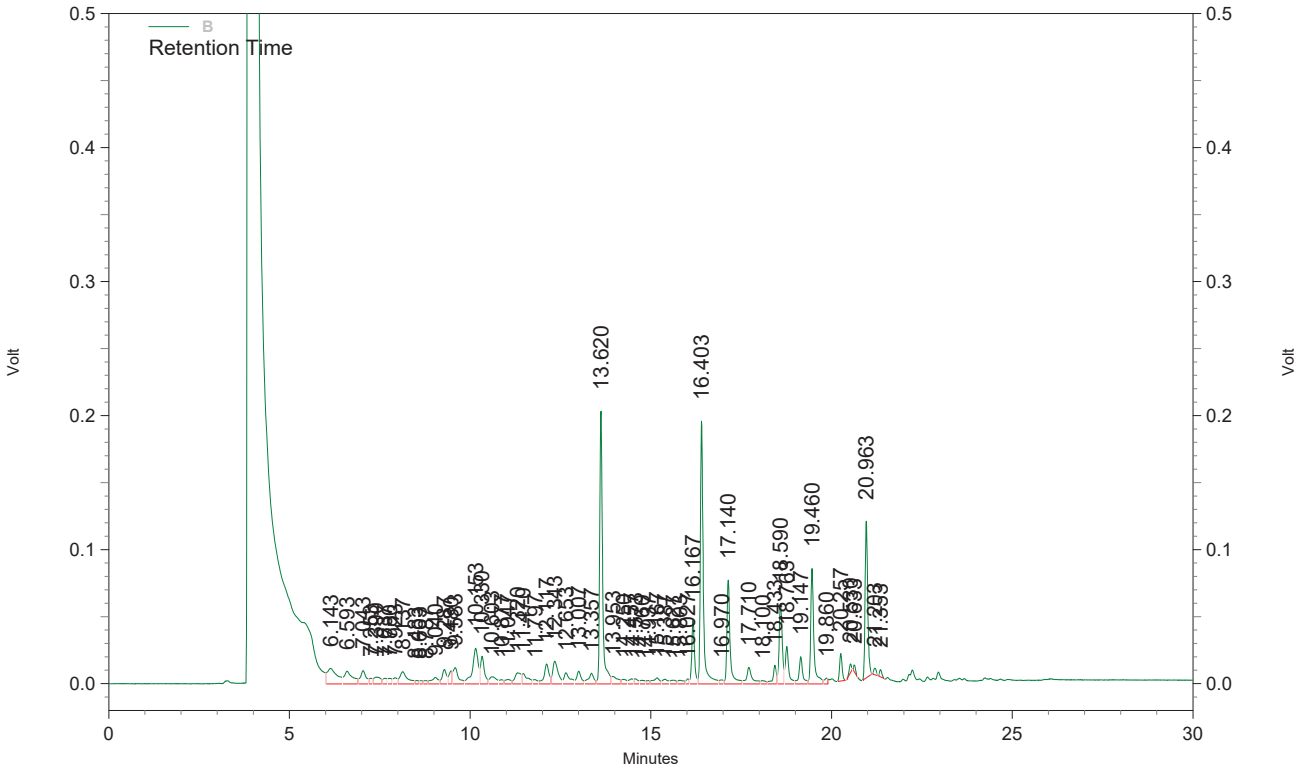
File	Sample ID	Acquired
C:\INSTARCH\PVOC1\Data\091218-8015 ICS\028.dat	GRO 8015 ICV SOIL	Sep 17, 2018 10:22:38

B

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
S:1,2-DCBd4	100.000	107.414	7.414	20.000	**Passed**
GRO	200.000	204.237	2.118	20.000	**Passed**

Inst : **PVOC1**
File : C:\INSTARCH\PVOC1\Data\091218-8015ICS\028.dat
Method : C:\Instarch\PVOC1\Methods\8015p1s091218.met
Acquired : Sep 13, 2018 11:04:01
Sample ID : GRO 8015 ICV SOIL
File Desc. : GRO 8015 ICV

GRO = 200 ug/mL
20.0 ul of 8015 ICV/SPIKING Std. into 100 mL DI Water---5.0 mL Purged + SSTD

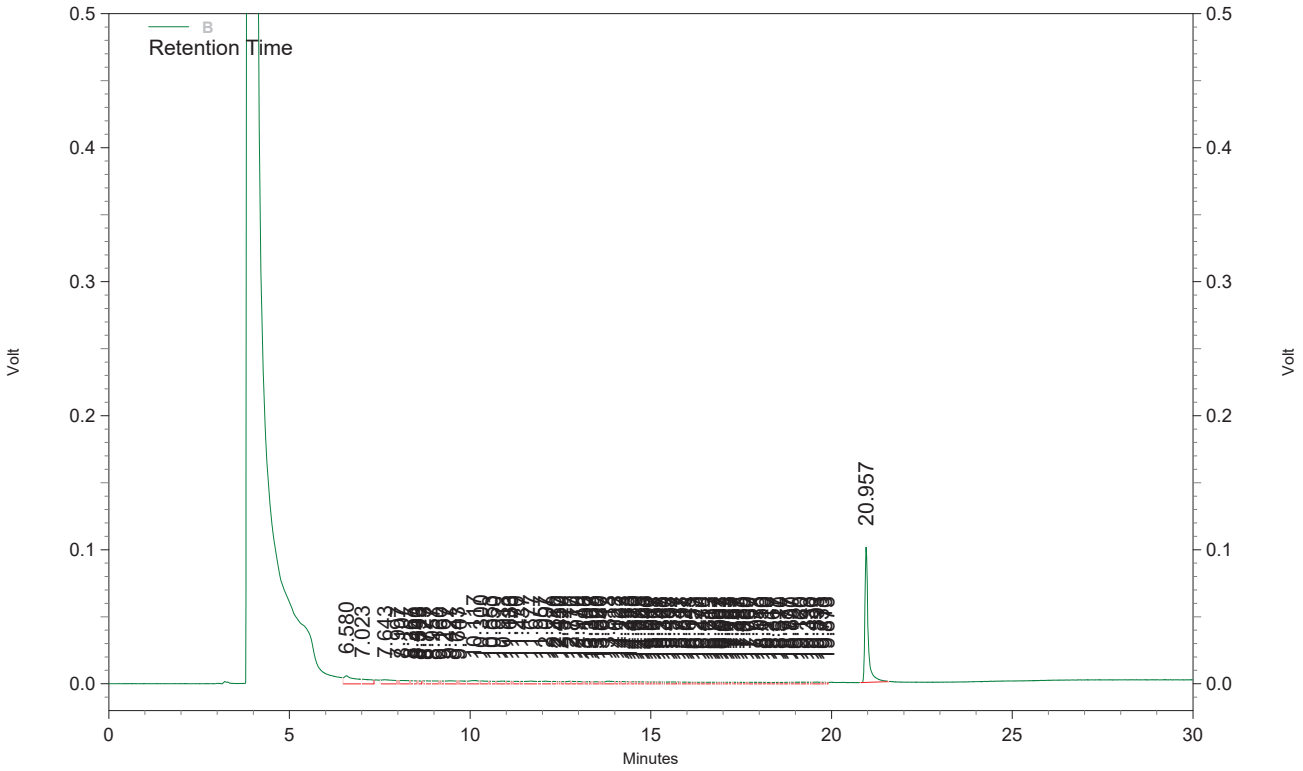


B Results

Compound Name	Retention Time	*Area*	*Conc. (ug/L)*
S:1,2-DCBd4	20.963	586016	107.414
GRO		7517821	204.237

Inst : **PVOC1**
File : C:\INSTARCH\PVOC1\Data\091218-8015ICS\030.dat
Method : C:\Instarch\PVOC1\Methods\8015p1s091218.met
Acquired : Sep 13, 2018 12:15:39
Sample ID : GRO 8015 ICB
File Desc. : INITIAL CALIB. BLANK

5.0 ml DI H2O Puged + SSTD



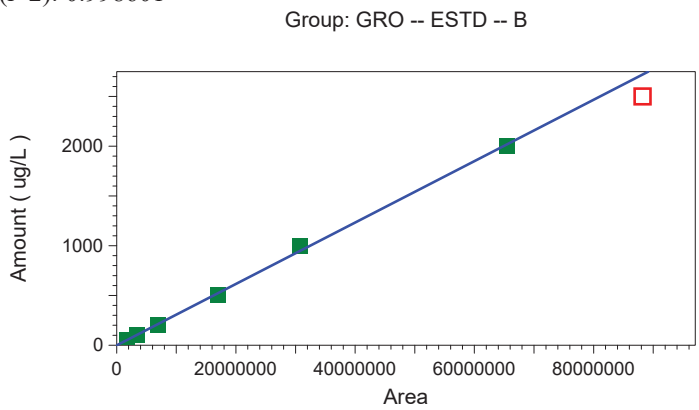
B Results

Compound Name	Retention Time	*Area*	*Conc. (ug/L)*
S:1,2-DCBd4	20.957	621082	113.510
GRO		1429073	22.747

Calibration Report

Method: C:\Instarch\PVOC1\Methods\8015p1w091018.met
Print Time: Sep 17, 2018 15:05:04
User: DGS
Instrument: PVOC1

GRO (B)
Average RF: 3.02341e-005 RF StDev: 1.26774e-006 RF %RSD: 4.19308
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 3.08475e-005x - 0.884153
Goodness of fit (r^2): 0.998601



RJ 09/18/2018

	Level 8	Level 9	Level 10	Level 11	Level 12
Amount	50	100	200	500	1000
Area	1661933	3391992	6867421	16915725	30662500
RF	3.008544869 13732e-005	2.94812016066 076e-005	2.912301430187 55e-005	2.955829560955 86e-005	3.2613126783 5304e-005
Last Area					
Residual	-0.382353	-3.75038	-10.9587	-20.924	55.0222
Rep StDev					
Rep %RSD					
Rep 1 Area	1661933	3391992	6867421	16915725	30662500
Rep 1 User	DGS	DGS	DGS	DGS	DGS
Rep 1 Data File	C:\Instarch\PVOC1\Data\091018-8015ICW\004.dat	C:\Instarch\PVOC1\Data\091018-8015ICW\005.dat	C:\Instarch\PVOC1\Data\091018-8015ICW\006.dat	C:\Instarch\PVOC1\Data\091018-8015ICW\007.dat	C:\Instarch\PVOC1\Data\091018-8015ICW\008.dat
Rep 1 Sample ID	GRO 8015W LIN. PT 1	GRO 8015W LIN. PT 2	GRO 8015W LIN. PT 3	GRO 8015W LIN. PT 4	GRO 8015W LIN. PT 5
Rep 1 Calib. Time	Sep 11, 2018 09:01:19	Sep 11, 2018 09:01:20	Sep 11, 2018 09:01:21	Sep 11, 2018 09:01:22	Sep 11, 2018 09:01:23

	Level 13	Level 14
Amount	2000	2500
Area	65479853	88219814*

Calibration Report

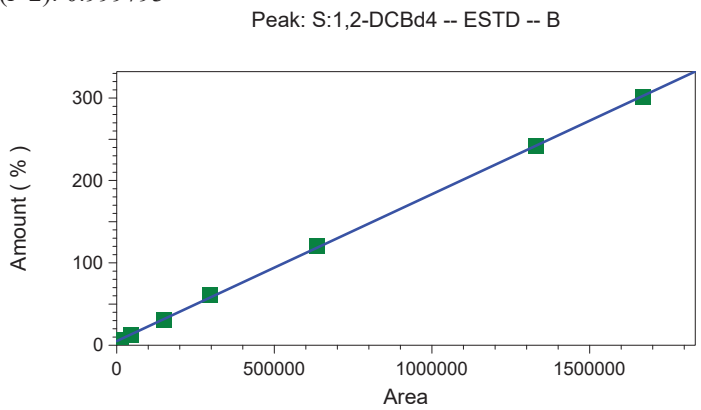
Method: C:\Instarch\PVOC1\Methods\8015p1w091018.met
Print Time: Sep 17, 2018 15:05:04
User: DGS
Instrument: PVOC1

RF	3.054374602 82631e-005	2.83383050433 545e-005
Last Area Residual	-19.0067	-220.478
Rep StDev		
Rep %RSD		
Rep 1 Area	65479853	88219814*
Rep 1 User	DGS	DGS
Rep 1 Data File	C:\Instarch\PVOC1\Data\091018-8015ICW\009.dat	C:\Instarch\PVOC1\Data\091018-8015ICW\010.dat
Rep 1 Sample ID	GRO 8015W LIN. PT 6	GRO 8015W LIN. PT 7
Rep 1 Calib. Time	Sep 11, 2018 09:01:25	Sep 11, 2018 09:01:26

Calibration Report

Method: C:\Instarch\PVOC1\Methods\8015p1w091018.met
Print Time: Sep 18, 2018 11:11:58
User: DGS
Instrument: PVOC1

S:1,2-DCBd4 (B)
Average RF: 0.000236659 RF StDev: 9.01200e-005 RF %RSD: 38.0802
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 0.000178466x + 4.92838
Goodness of fit (r^2): 0.999793



RJ 09/18/2018

	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	6.04	12.08	30.2	60.4	120.8
Area	14055	45182	148391	297204	635390
RF	0.000429740305940946	0.00026736310920278	0.000203516385764635	0.000203227412820823	0.0001901194 54193487
Last Area					
Residual	-1.39672	-0.911843	-1.21118	2.43071	2.47589
Rep StDev					
Rep %RSD					
Rep 1 Area	14055	45182	148391	297204	635390
Rep 1 User	DGS	DGS	DGS	DGS	DGS
Rep 1 Data File	C:\Instarch\PVOC1\Data\091018-8015ICW\013.dat	C:\Instarch\PVOC1\Data\091018-8015ICW\014.dat	C:\Instarch\PVOC1\Data\091018-8015ICW\015.dat	C:\Instarch\PVOC1\Data\091018-8015ICW\016.dat	C:\Instarch\PVOC1\Data\091018-8015ICW\017.dat
Rep 1 Sample ID	GRO 8015W SSTD LIN. PT 1	GRO 8015W SSTD LIN. PT 2	GRO 8015W SSTD LIN. PT 3	GRO 8015W SSTD LIN. PT 4	GRO 8015W SSTD LIN. PT 5
Rep 1 Calib. Time	Sep 11, 2018 09:05:28	Sep 11, 2018 09:05:29	Sep 11, 2018 09:05:30	Sep 11, 2018 09:05:32	Sep 11, 2018 09:05:33

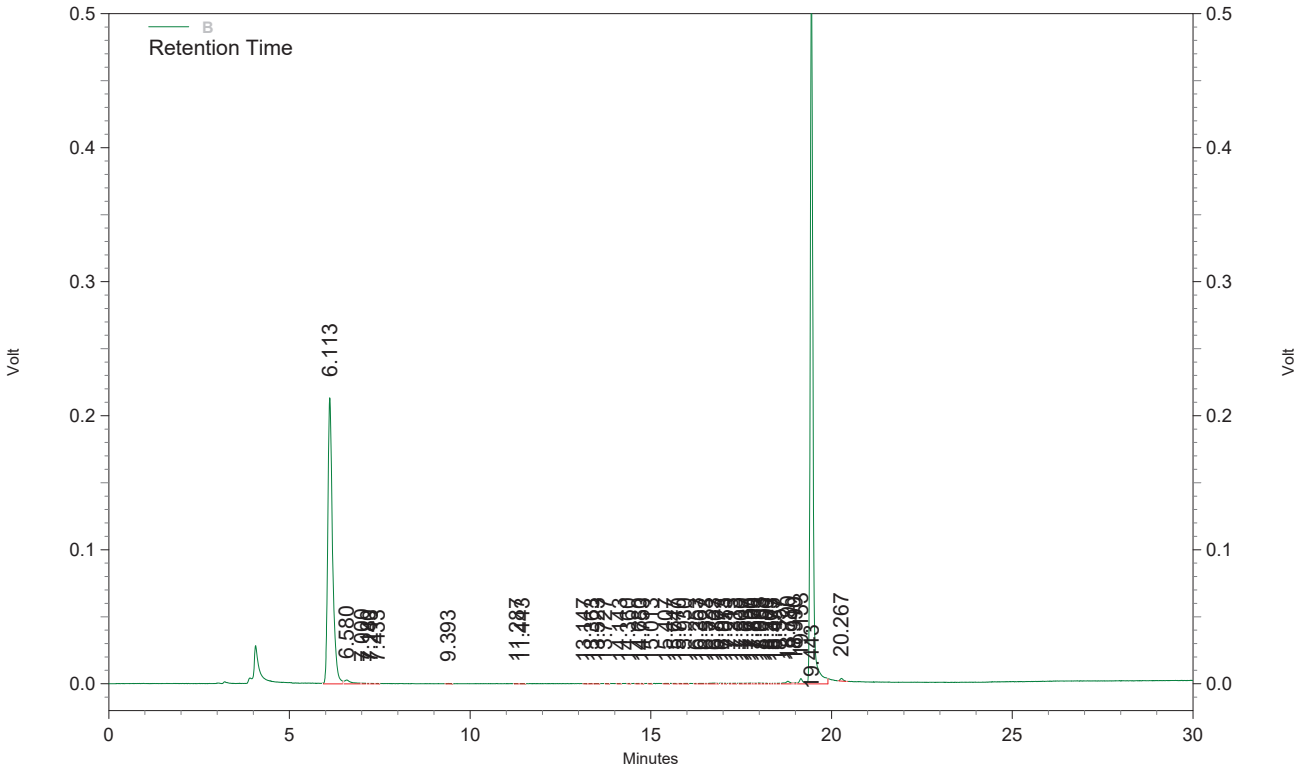
	Level 6	Level 7
Amount	241.6	302

Calibration Report

Method: C:\Instarch\PVOC1\Methods\8015p1w091018.met
Print Time: Sep 18, 2018 11:11:58
User: DGS
Instrument: PVOC1

Area	1330429	1668064
RF	0.000181595560529724	0.00018104820918142 2
Last Area		
Residual	-0.765186	-0.621672
Rep StDev		
Rep %RSD		
Rep 1 Area	1330429	1668064
Rep 1 User	DGS	DGS
Rep 1 Data File	C:\Instarch\PVOC1\Data\091018-8015ICW\018.dat	C:\Instarch\PVOC1\Data\091018-8015ICW\019.dat
Rep 1 Sample ID	GRO 8015W SSTD LIN. PT 6	GRO 8015W SSTDLIN. PT 7
Rep 1 Calib. Time	Sep 11, 2018 09:05:34	Sep 11, 2018 09:05:35

Inst : **PVOC1**
File : C:\INSTARCH\PVOC1\Data\091018-8015ICW\003.dat
Method : C:\Instarch\PVOC1\Methods\8015p1w091018.met
Acquired : Sep 10, 2018 13:58:08
Sample ID : RTW
File Desc. : RETENTION TIME WINDOW STD

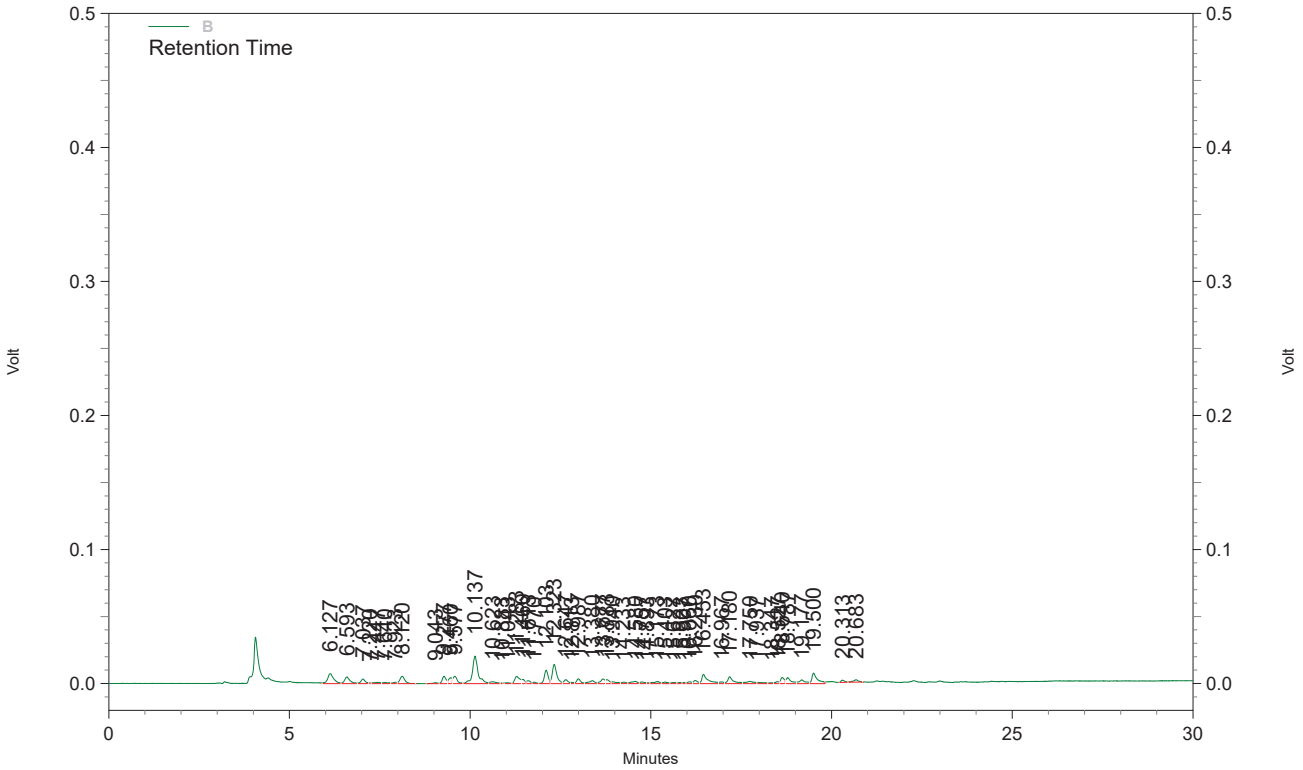


B Results

Compound Name	Retention Time	*Area*	*Conc. (ug/L)*
S:1,2-DCBd4			0.000 BDL
GRO		4877198	149.565

Inst : **PVOC1**
File : C:\INSTARCH\PVOC1\Data\091018-8015ICW\004.dat
Method : C:\Instarch\PVOC1\Methods\8015p1w091018.met
Acquired : Sep 10, 2018 14:34:01
Sample ID : GRO 8015W LIN. PT 1
File Desc. : GRO LIN. PT 1

GRO = 50 ug/L
5.0 ul of 8015 CCV/CALIB. Std.. into 100 ml of DI Water---5.0 ml Purged

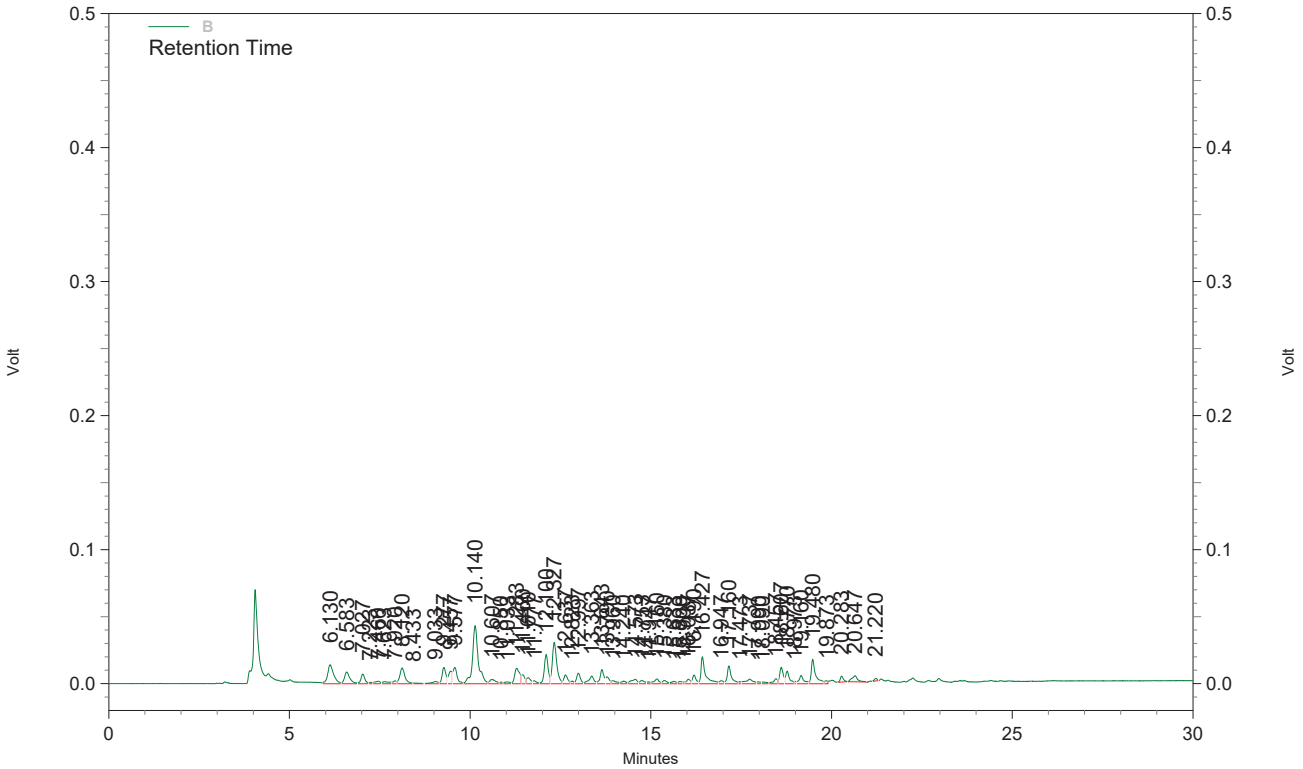


B Results

Compound Name	Retention Time	*Area*	*Conc. (ug/L)*
S:1,2-DCBd4			0.000 BDL
GRO		1661933	50.382

Inst : **PVOC1**
File : C:\INSTARCH\PVOC1\Data\091018-8015ICW\005.dat
Method : C:\Instarch\PVOC1\Methods\8015p1w091018.met
Acquired : Sep 10, 2018 15:09:54
Sample ID : GRO 8015W LIN. PT 2
File Desc. : GRO LIN. PT 2

GRO = 100 ug/L
10.0 ul of 8015 CCV/CALIB. Std.. into 100 ml of DI Water---5.0 ml Purged

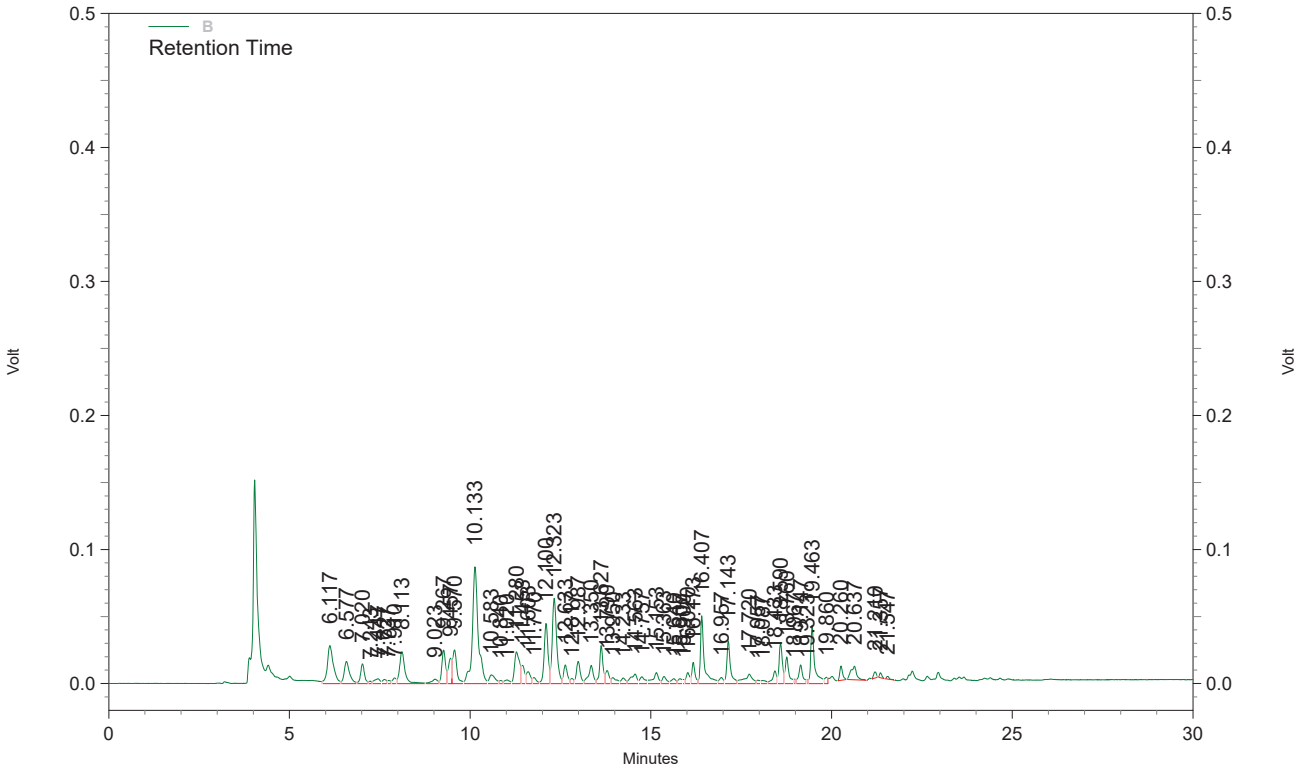


B Results

Compound Name	Retention Time	*Area*	*Conc. (ug/L)*
S:1,2-DCBd4			0.000 BDL
GRO		3391992	103.750

Inst : **PVOC1**
File : C:\INSTARCH\PVOC1\Data\091018-8015ICW\006.dat
Method : C:\Instarch\PVOC1\Methods\8015p1w091018.met
Acquired : Sep 10, 2018 15:45:49
Sample ID : GRO 8015W LIN. PT 3
File Desc. : GRO LIN. PT 3

GRO = 200 ug/L
20.0 ul of 8015 CCV/CALIB. Std.. into 100 ml of DI Water---5.0 ml Purged

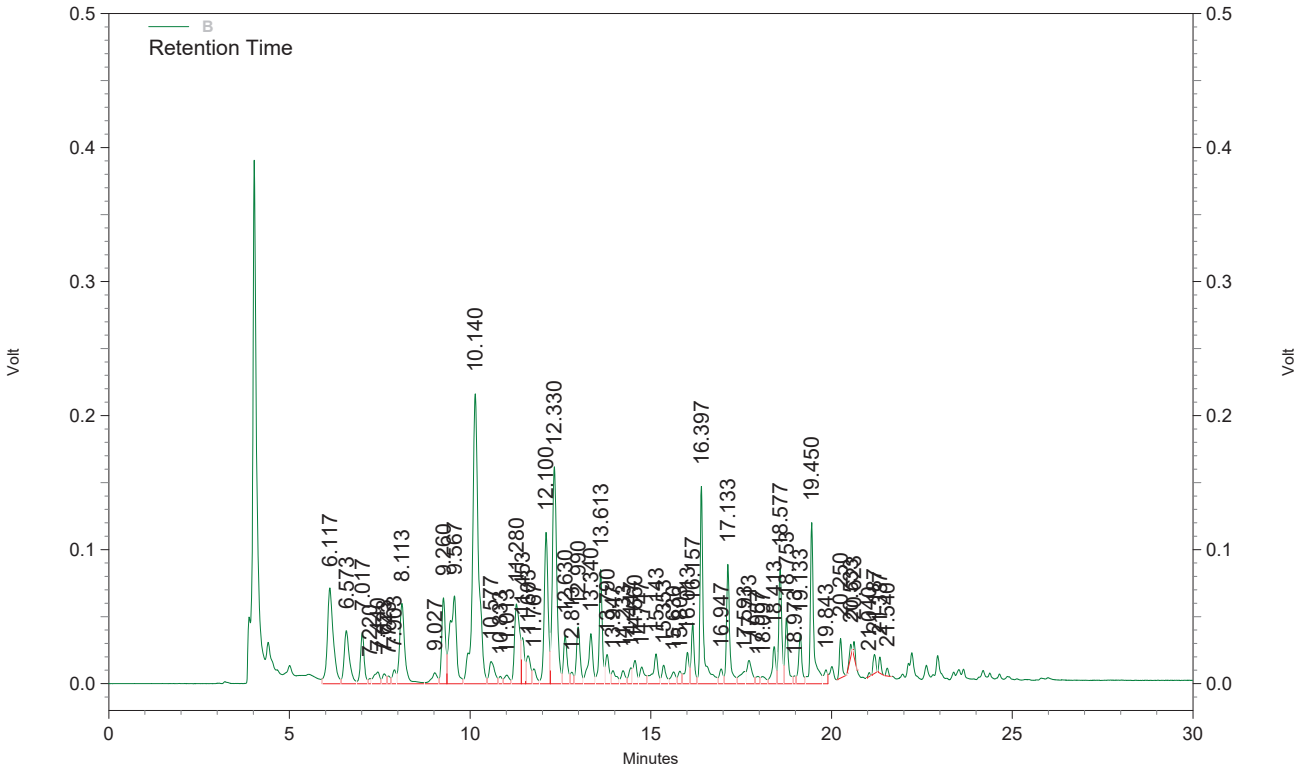


B Results

Compound Name	Retention Time	*Area*	*Conc. (ug/L)*
S:1,2-DCBd4			0.000 BDL
GRO		6867421	210.959

Inst : **PVOC1**
File : C:\INSTARCH\PVOC1\Data\091018-8015ICW\007.dat
Method : C:\Instarch\PVOC1\Methods\8015p1w091018.met
Acquired : Sep 10, 2018 16:21:42
Sample ID : GRO 8015W LIN. PT 4
File Desc. : GRO LIN. PT 4

GRO = 500 ug/L
50.0 ul of 8015 CCV/CALIB. Std.. into 100 ml of DI Water---5.0 ml Purged

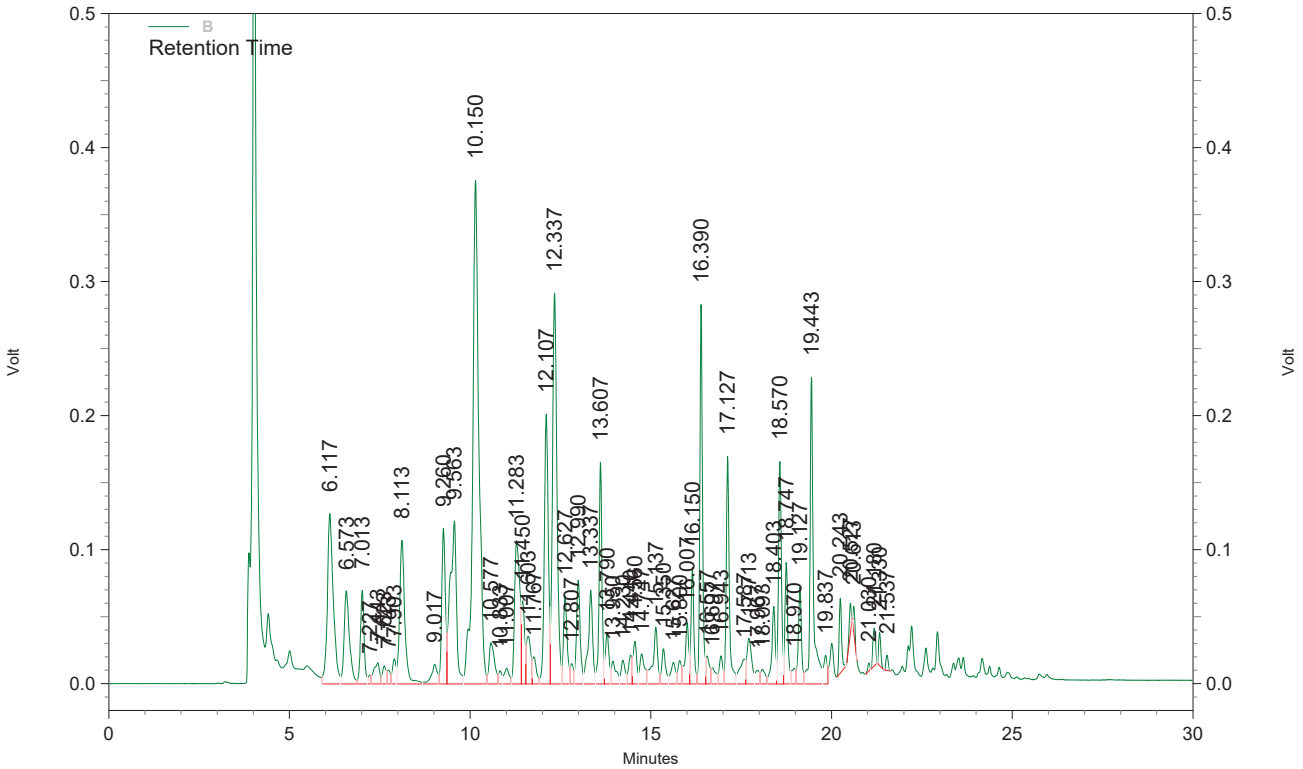


B Results

Compound Name	Retention Time	*Area*	*Conc. (ug/L)*
S:1,2-DCBd4			0.000 BDL
GRO		16915724	520.924

Inst : **PVOC1**
File : C:\INSTARCH\PVOC1\Data\091018-8015ICW\008.dat
Method : C:\Instarch\PVOC1\Methods\8015p1w091018.met
Acquired : Sep 10, 2018 16:57:35
Sample ID : GRO 8015W LIN. PT 5
File Desc. : GRO LIN. PT 5

GRO = 1000 ug/L
100 ul of 8015 CCV/CALIB. Std.. into 100 ml of DI Water---5.0 ml Purged

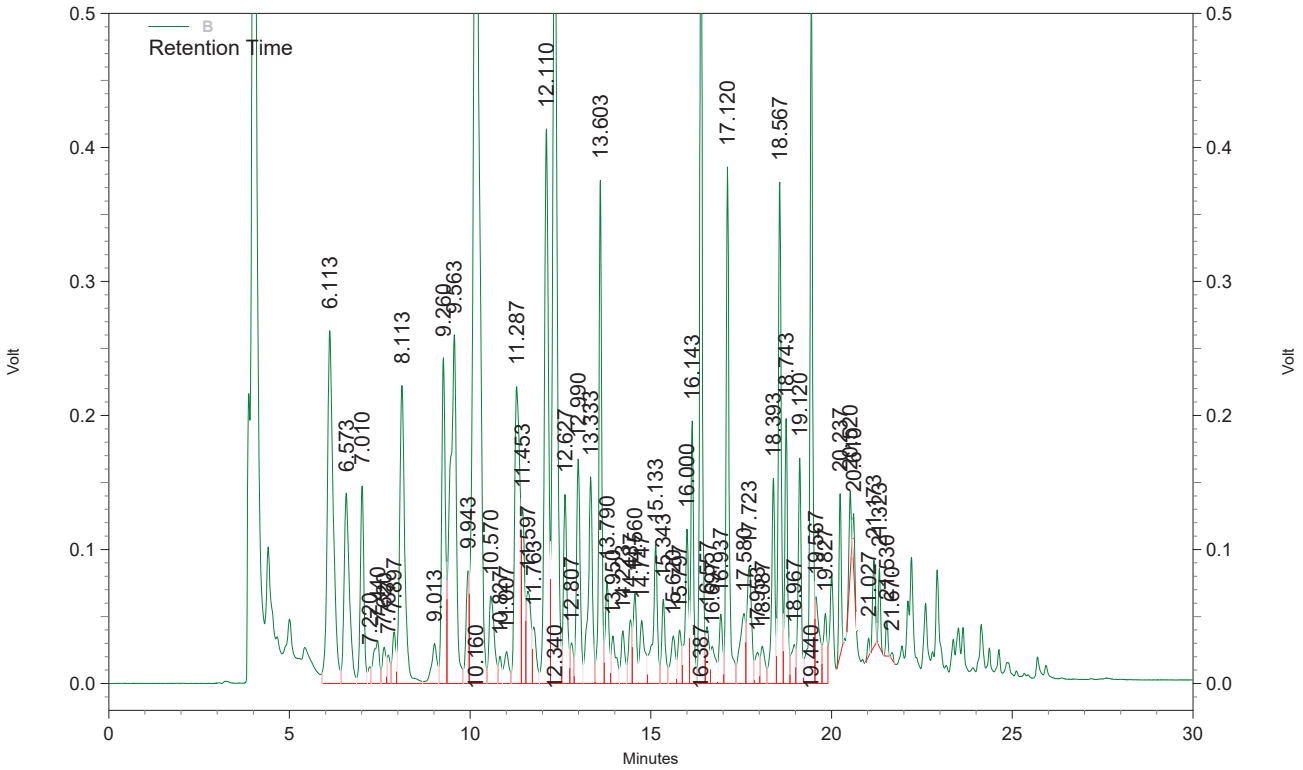


B Results

Compound Name	Retention Time	*Area*	*Conc. (ug/L)*
S:1,2-DCBd4	21.030	22621	8.965 LC
GRO		30662502	944.978

Inst : **PVOC1**
File : C:\INSTARCH\PVOC1\Data\091018-8015ICW\009.dat
Method : C:\Instarch\PVOC1\Methods\8015p1w091018.met
Acquired : Sep 10, 2018 17:33:25
Sample ID : GRO 8015W LIN. PT 6
File Desc. : GRO LIN. PT 6

GRO = 2000 ug/L
200 ul of 8015 CCV/CALIB. Std.. into 100 ml of DI Water---5.0 ml Purged



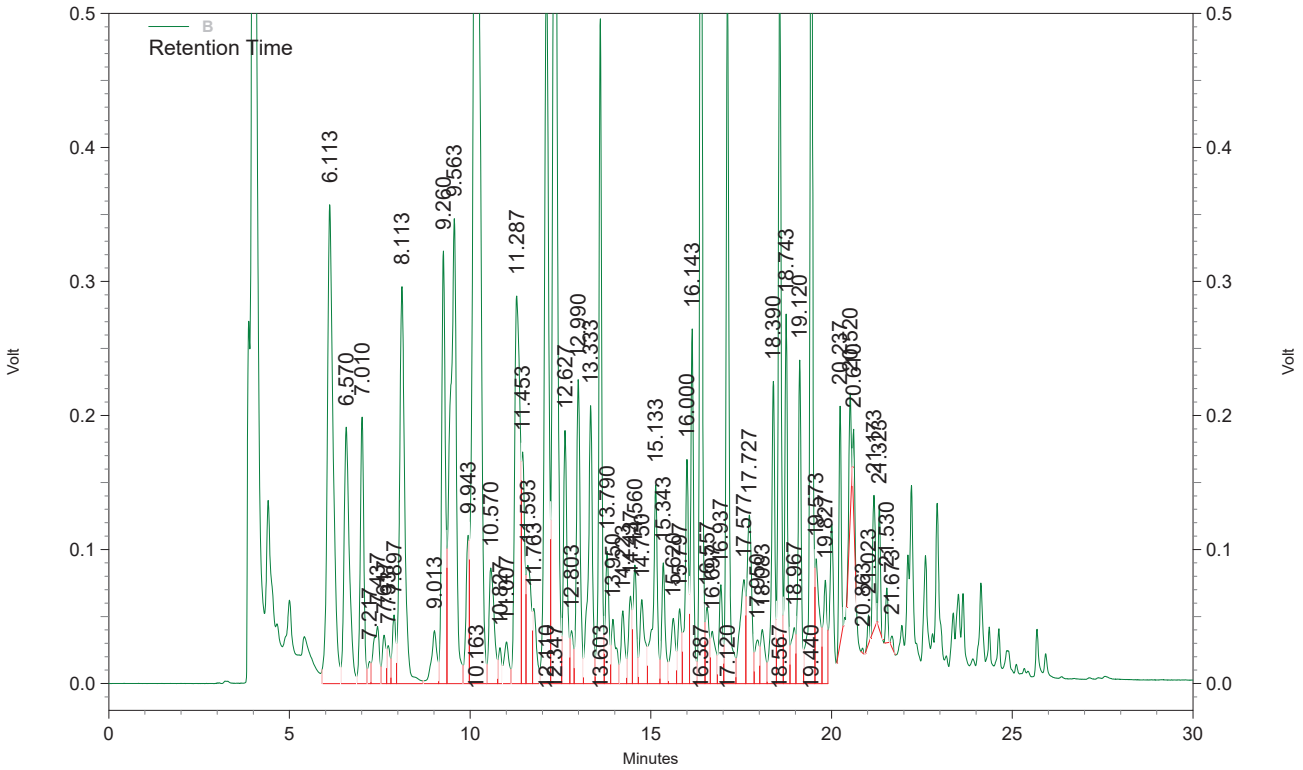
B Results

Compound Name	Retention Time	*Area*	*Conc. (ug/L)*
S:1,2-DCBd4	21.027	53764	14.523 LC
GRO		65479856	2019.007

Inst : **PVOC1**
File : C:\INSTARCH\PVOC1\Data\091018-8015ICW\010.dat
Method : C:\Instarch\PVOC1\Methods\8015p1w091018.met
Acquired : Sep 10, 2018 18:09:13
Sample ID : GRO 8015W LIN. PT 7
File Desc. : GRO LIN. PT 7

GRO = 2500 ug/L
250 ul of 8015 CCV/CALIB. Std.. into 100 ml of DI Water---5.0 ml Purged

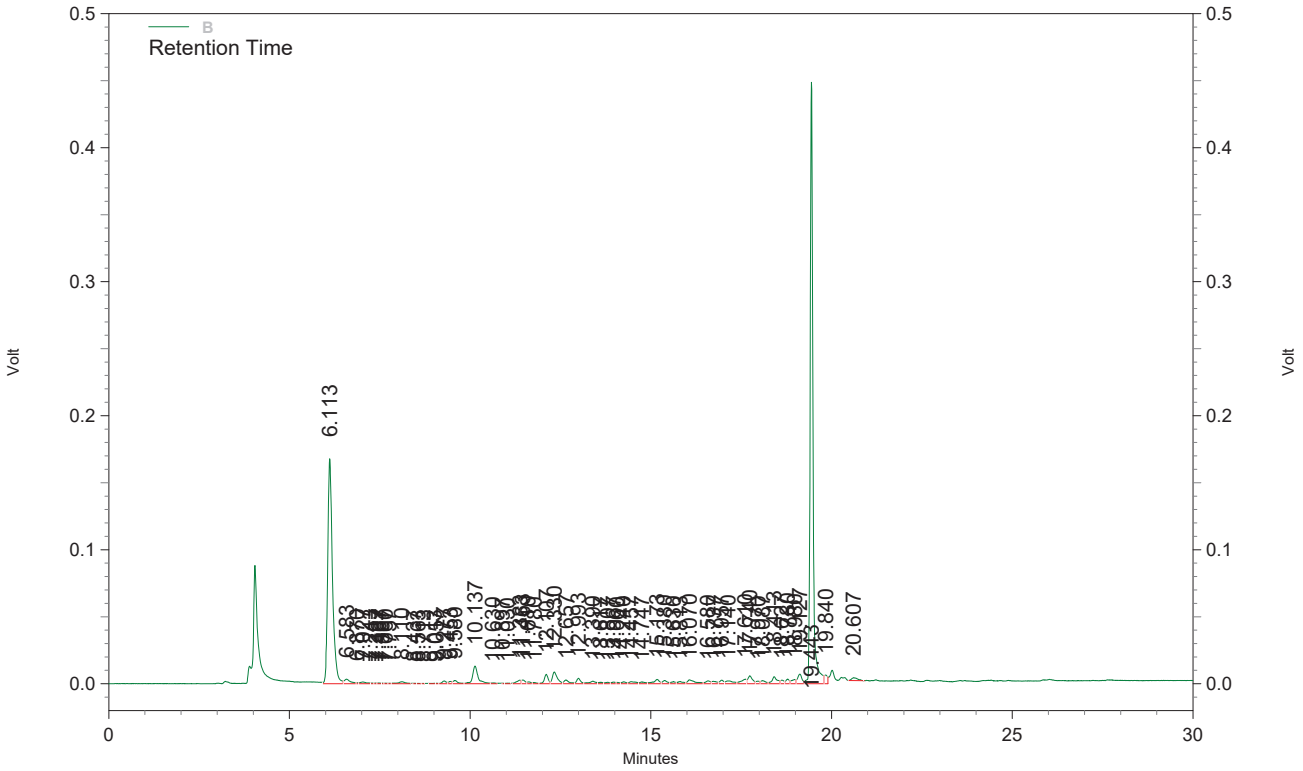
NOT USED



B Results

Compound Name	Retention Time	*Area*	*Conc. (ug/L)*
S:1,2-DCBd4	21.023	83798	19.883 LC
GRO		88219816	2720.478

Inst : **PVOC1**
File : C:\INSTARCH\PVOC1\Data\091018-8015ICW\011.dat
Method : C:\Instarch\PVOC1\Methods\8015p1w091018.met
Acquired : Sep 10, 2018 18:44:58
Sample ID : RTW
File Desc. : RETENTION TIME WINDOW STD

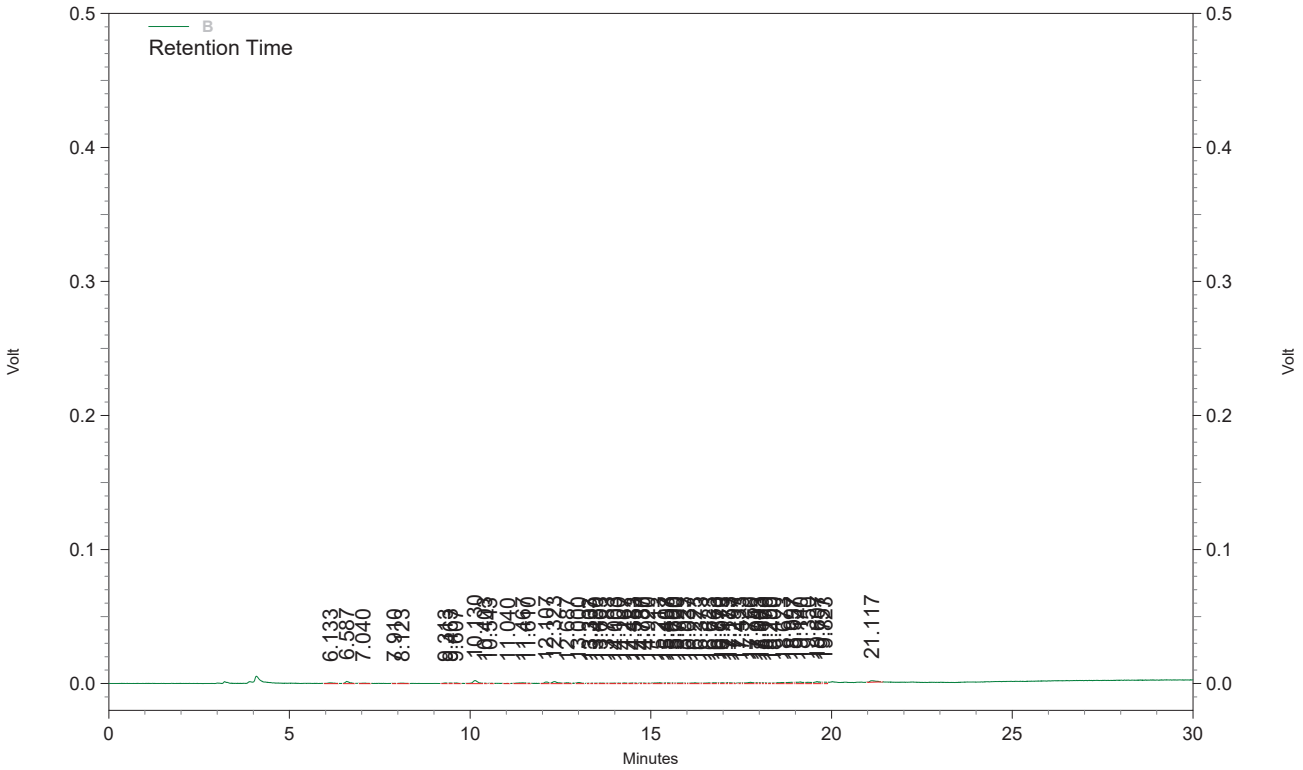


B Results

Compound Name	Retention Time	*Area*	*Conc. (ug/L)*
S:1,2-DCBd4			0.000 BDL
GRO		5184015	159.030

Inst : **PVOC1**
File : C:\INSTARCH\PVOC1\Data\091018-8015ICW\013.dat
Method : C:\Instarch\PVOC1\Methods\8015p1w091018.met
Acquired : Sep 10, 2018 19:56:39
Sample ID : GRO 8015W SSTD LIN. PT 1
File Desc. : GRO LIN. PT 1

GRO = 1 ug/L
1.0 ul of 8015 CCV/CALIB. Std.. into 100 ml of DI Water---5.0 ml Purged

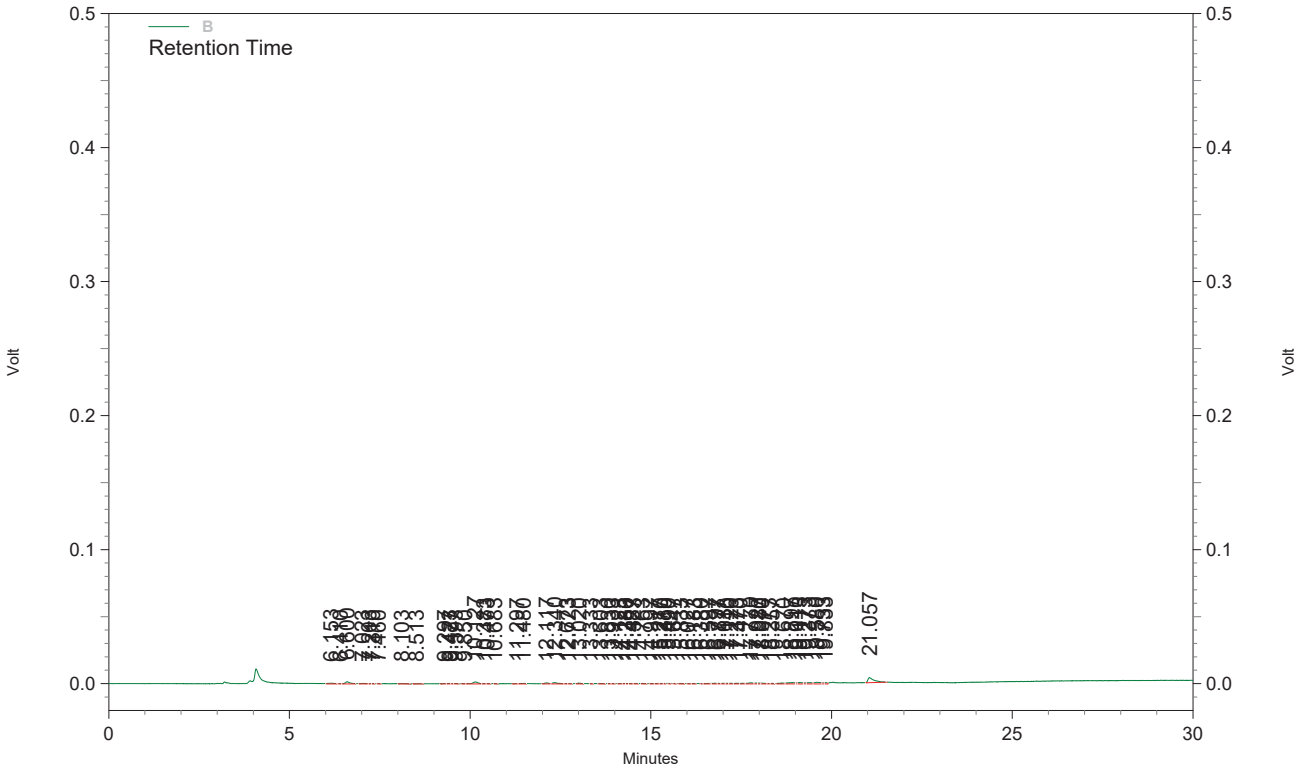


B Results

Compound Name	Retention Time	*Area*	*Conc. (ug/L)*
S:1,2-DCBd4			0.000 BDL
GRO		352808	9.999

Inst : **PVOC1**
File : C:\INSTARCH\PVOC1\Data\091018-8015ICW\014.dat
Method : C:\Instarch\PVOC1\Methods\8015p1w091018.met
Acquired : Sep 10, 2018 20:32:32
Sample ID : GRO 8015W SSTD LIN. PT 2
File Desc. : GRO LIN. PT 2

GRO = 2.0 ug/L
2.0 ul of 8015 CCV/CALIB. Std.. into 100 ml of DI Water---5.0 ml Purged

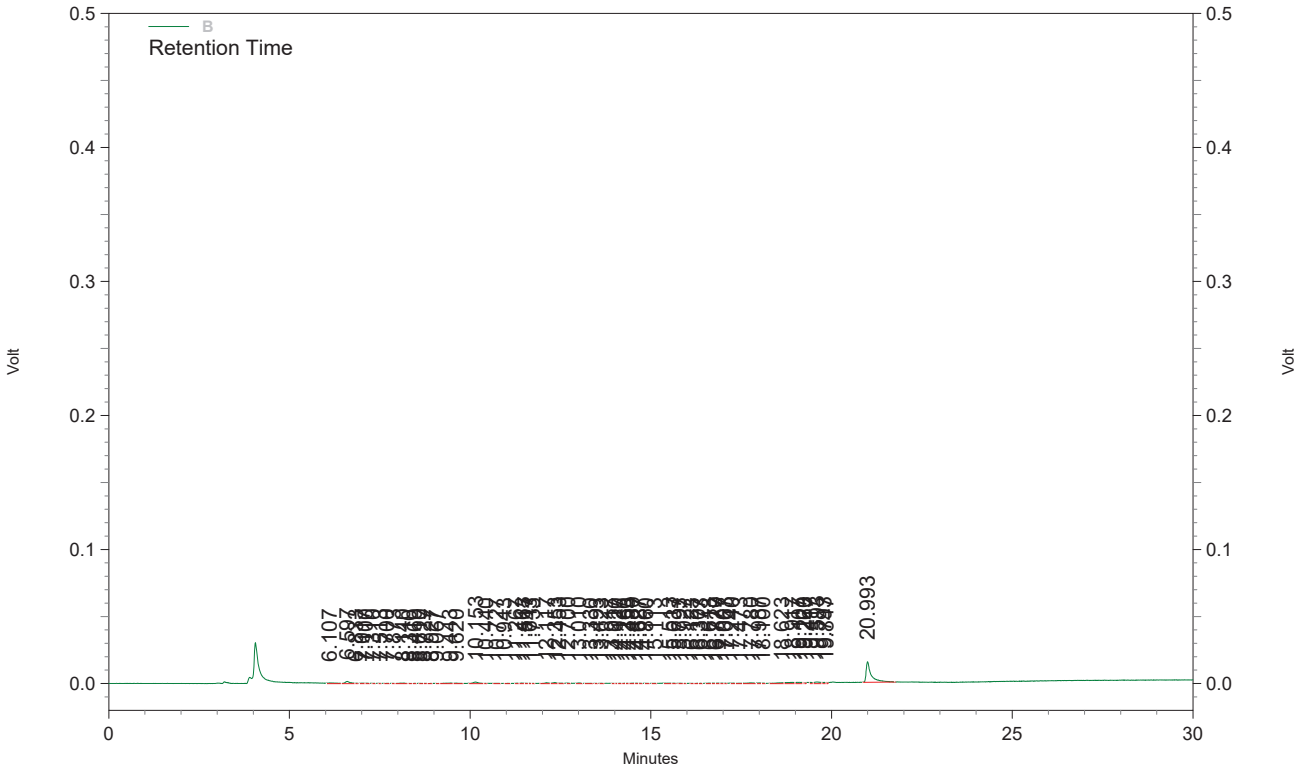


B Results

Compound Name	Retention Time	*Area*	*Conc. (ug/L)*
S:1,2-DCBd4			0.000 BDL
GRO		292702	8.145

Inst : **PVOC1**
File : C:\INSTARCH\PVOC1\Data\091018-8015ICW\015.dat
Method : C:\Instarch\PVOC1\Methods\8015p1w091018.met
Acquired : Sep 10, 2018 21:08:27
Sample ID : GRO 8015W SSTD LIN. PT 3
File Desc. : GRO LIN. PT 3

GRO = 5.0 ug/L
5.0 ul of 8015 CCV/CALIB. Std.. into 100 ml of DI Water---5.0 ml Purged

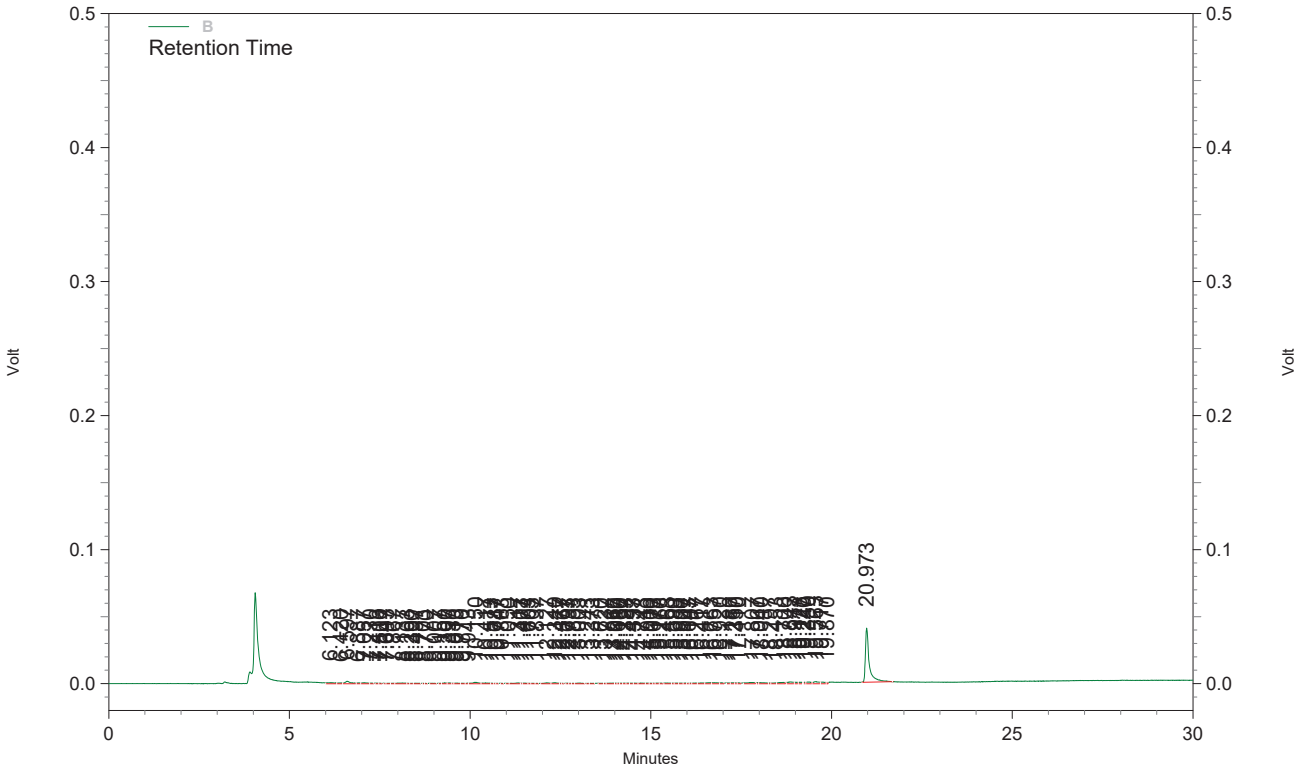


B Results

Compound Name	Retention Time	*Area*	*Conc. (ug/L)*
S:1,2-DCBd4	20.993	148391	31.411 LC
GRO		296313	8.256

Inst : **PVOC1**
File : C:\INSTARCH\PVOC1\Data\091018-8015ICW\016.dat
Method : C:\Instarch\PVOC1\Methods\8015p1w091018.met
Acquired : Sep 10, 2018 21:44:19
Sample ID : GRO 8015W SSTD LIN. PT 4
File Desc. : GRO LIN. PT 4

GRO = 10.0 ug/L
10.0 ul of 8015 CCV/CALIB. Std.. into 100 ml of DI Water---5.0 ml Purged

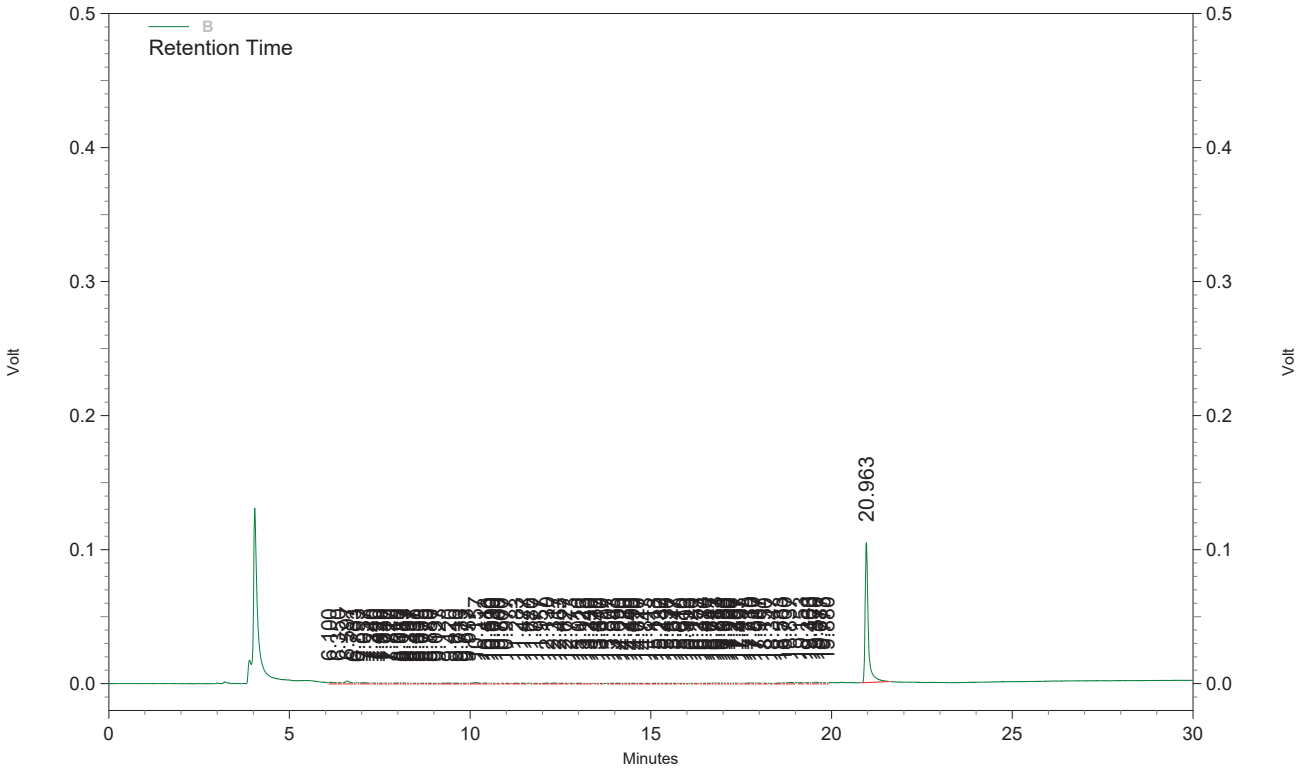


B Results

Compound Name	Retention Time	*Area*	*Conc. (ug/L)*
S:1,2-DCBd4	20.973	297204	57.969 LC
GRO		488350	14.180

Inst : **PVOC1**
File : C:\INSTARCH\PVOC1\Data\091018-8015ICW\017.dat
Method : C:\Instarch\PVOC1\Methods\8015p1w091018.met
Acquired : Sep 10, 2018 22:20:12
Sample ID : GRO 8015W SSTD LIN. PT 5
File Desc. : GRO LIN. PT 5

GRO = 20.0ug/L
20.0 ul of 8015 CCV/CALIB. Std.. into 100 ml of DI Water---5.0 ml Purged

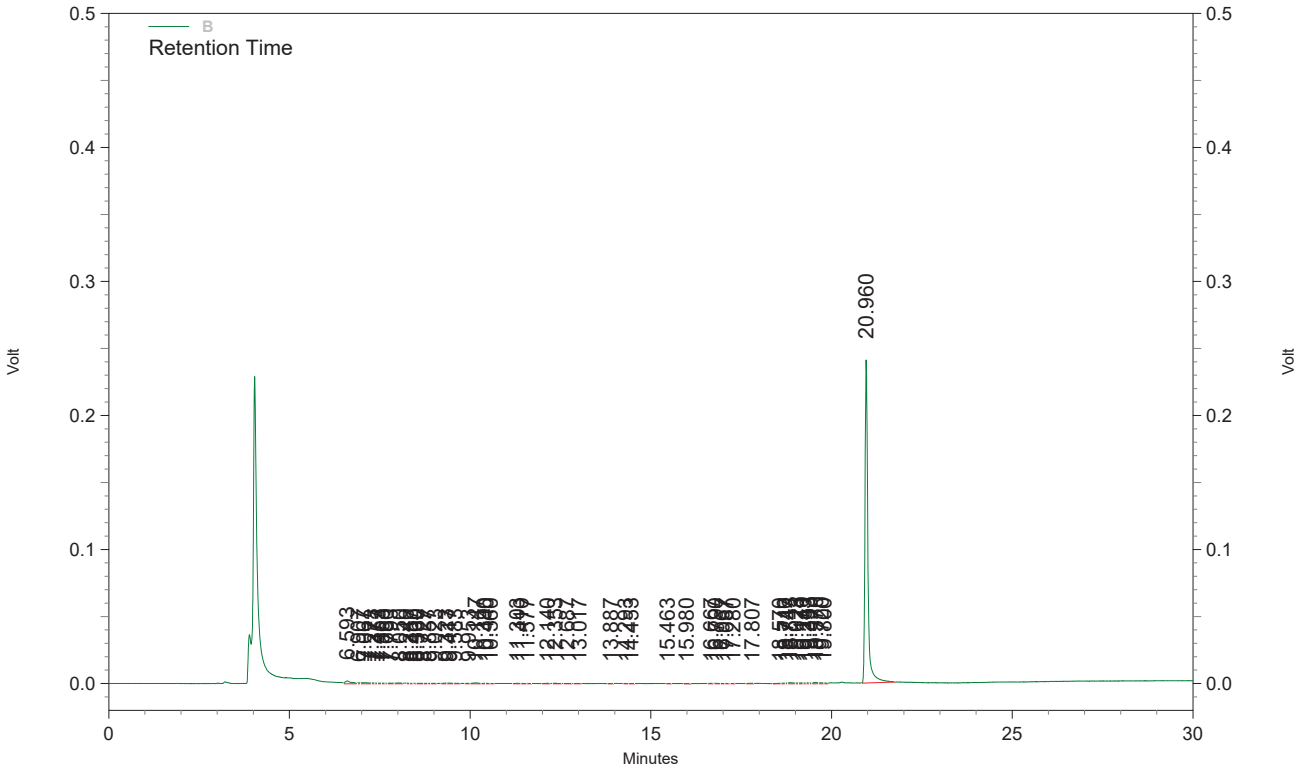


B Results

Compound Name	Retention Time	*Area*	*Conc. (ug/L)*
S:1,2-DCBd4	20.963	635390	118.324
GRO		406276	11.648

Inst : **PVOC1**
File : C:\INSTARCH\PVOC1\Data\091018-8015ICW\018.dat
Method : C:\Instarch\PVOC1\Methods\8015p1w091018.met
Acquired : Sep 10, 2018 22:56:01
Sample ID : GRO 8015W SSTD LIN. PT 6
File Desc. : GRO LIN. PT 6

GRO = 40.0 ug/L
40.0 ul of 8015 CCV/CALIB. Std.. into 100 ml of DI Water---5.0 ml Purged

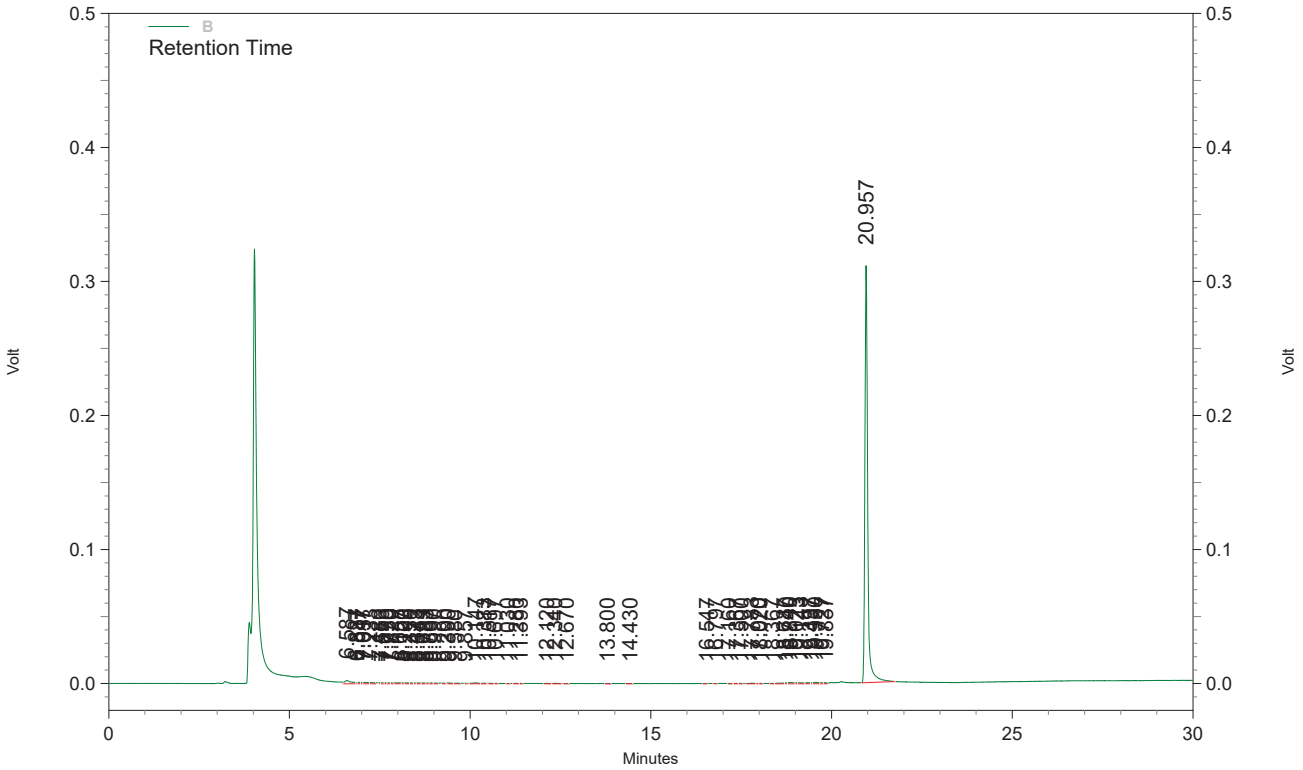


B Results

Compound Name	Retention Time	*Area*	*Conc. (ug/L)*
S:1,2-DCBd4	20.960	1330429	242.365 HC
GRO		218474	5.855

Inst : **PVOC1**
File : C:\INSTARCH\PVOC1\Data\091018-8015ICW\019.dat
Method : C:\Instarch\PVOC1\Methods\8015p1w091018.met
Acquired : Sep 10, 2018 23:31:50
Sample ID : GRO 8015W SSTDLIN. PT 7
File Desc. : GRO LIN. PT 7

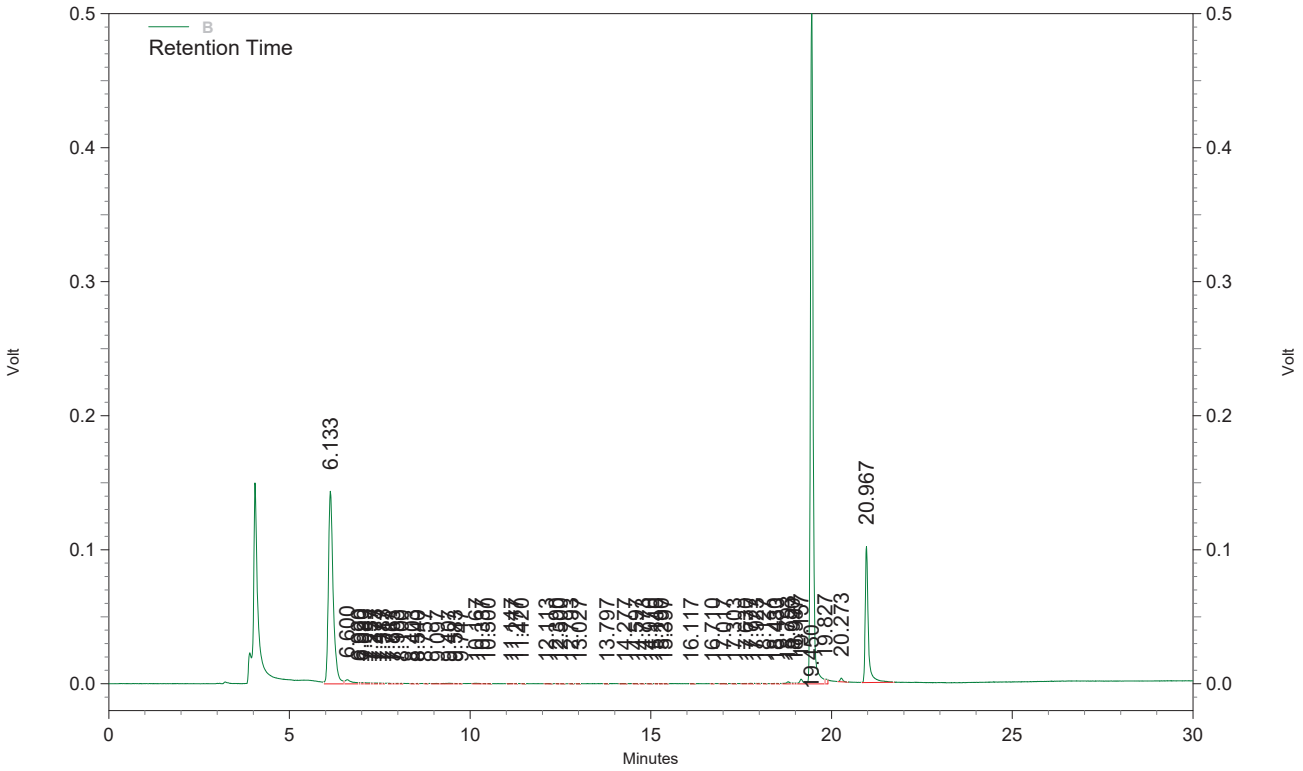
GRO = 50.0 ug/L
50.0 ul of 8015 CCV/CALIB. Std.. into 100 ml of DI Water---5.0 ml Purged



B Results

Compound Name	Retention Time	*Area*	*Conc. (ug/L)*
S:1,2-DCBd4	20.957	1668064	302.622 HC
GRO		255115	6.986

Inst : **PVOC1**
File : C:\INSTARCH\PVOC1\Data\091018-8015ICW\022.dat
Method : C:\Instarch\PVOC1\Methods\8015p1w091018.met
Acquired : Sep 11, 2018 12:16:39
Sample ID : RTW
File Desc. : RETENTION TIME WINDOW STD



B Results

Compound Name	Retention Time	*Area*	*Conc. (ug/L)*
S:1,2-DCBd4	20.967	604308	112.777
GRO		4151481	127.179

QC Check Standard Report

Sequence : C:\INSTARCH\PVOC1\Sequences\091018-8015ICW.seq
User : DGS
Printed : Sep 17, 2018 15:03:04

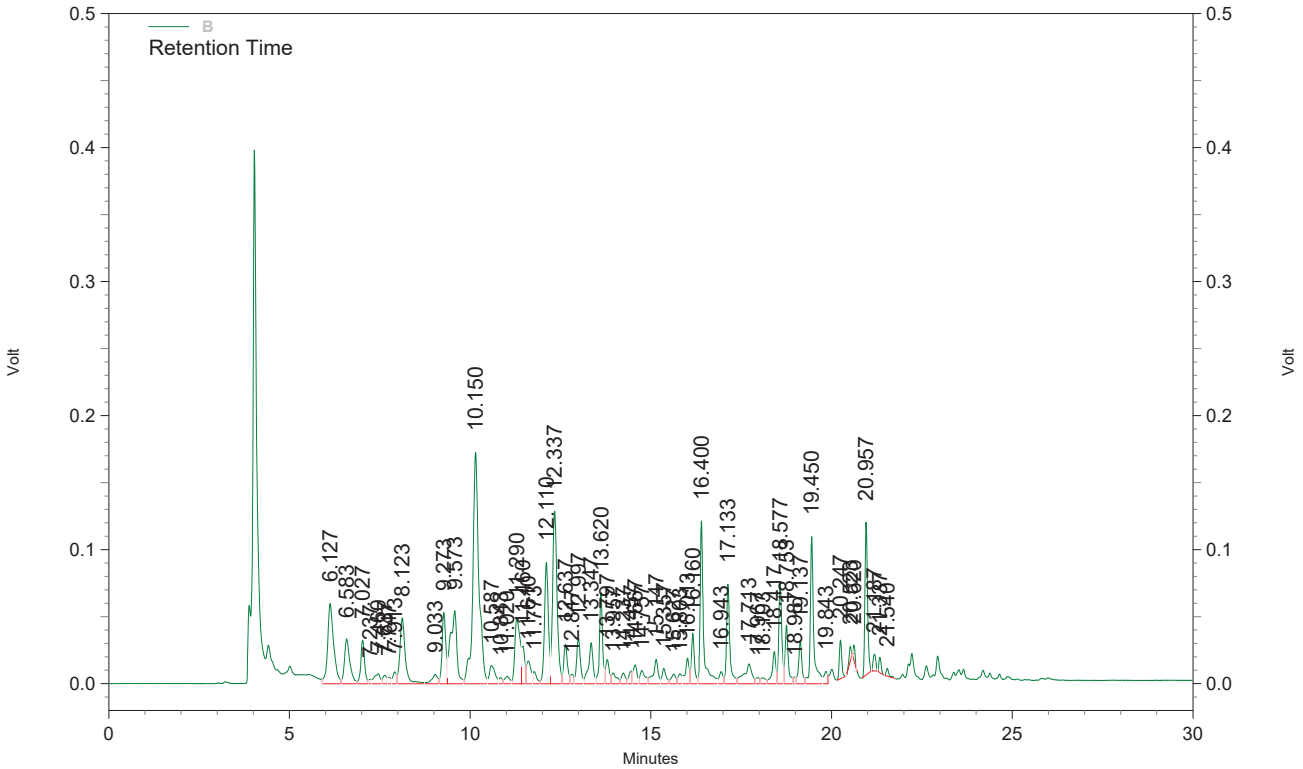
File	Sample ID	Acquired
C:\INSTARCH\PVOC1\Data\091018-8015 ICW\023.dat	GRO 8015 ICV WATER	Sep 17, 2018 15:03:04

B

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
S:1,2-DCBd4	100.000	105.659	5.659	20.000	**Passed**
GRO	400.000	433.998	8.500	20.000	**Passed**

Inst : **PVOC1**
File : C:\INSTARCH\PVOC1\Data\091018-8015ICW\023.dat
Method : C:\Instarch\PVOC1\Methods\8015p1w091018.met
Acquired : Sep 11, 2018 12:52:37
Sample ID : GRO 8015 ICV WATER
File Desc. : GRO 8015 ICV

GRO = 400 ug/mL
40.0 ul of 8015 ICV/SPIKING Std. into 100 mL DI Water---5.0 mL Purged + SSTD

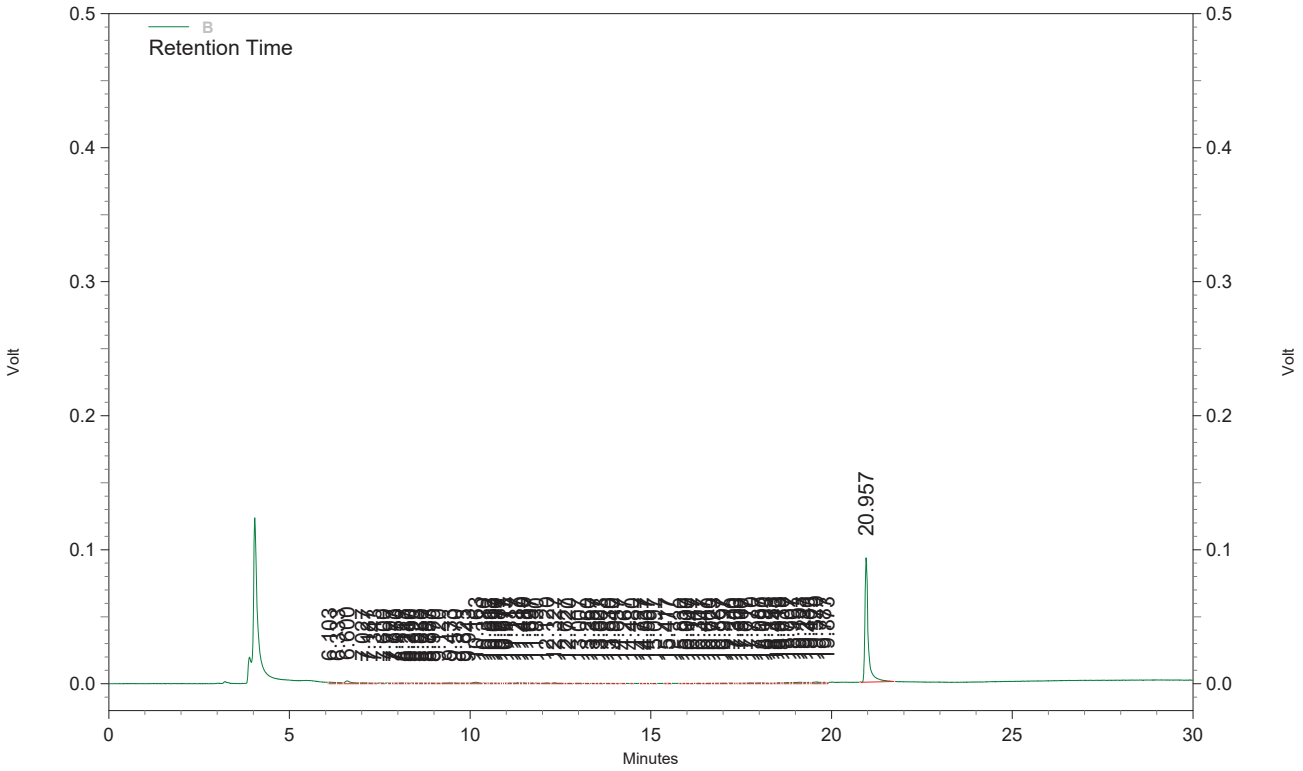


B Results

Compound Name	Retention Time	*Area*	*Conc. (ug/L)*
S:1,2-DCBd4	20.957	564425	105.659
GRO		14097810	433.998

Inst : **PVOC1**
File : C:\INSTARCH\PVOC1\Data\091018-8015ICW\025.dat
Method : C:\Instarch\PVOC1\Methods\8015p1w091018.met
Acquired : Sep 11, 2018 14:04:25
Sample ID : GRO 8015 ICB
File Desc. : INITIAL CALIB. BLANK

5.0 ml DI H2O Puged + SSTD



B Results

Compound Name	Retention Time	*Area*	*Conc. (ug/L)*
S:1,2-DCBd4	20.957	589944	110.214
GRO		424051	12.197

VOLATILE ORGANIC ANALYSIS CONTINUING CALIBRATION DOCUMENTS

BFB

Data File : C:\INSTARCH\Data\OCT0218B\BFB1.D Vial: 1
Acq On : 2 Oct 2018 20:49 Operator: AGK-RLD
Sample : 153915,BFB, Inst : VMS3
Misc : 50 ng Inj. Multiplr: 1.00
Integration File: VOC.P

Method : C:\INSTARCH\METHODS\W100218.M
Title : 8260C Waters Method

Spectrum Information: Average of 4.632 to 4.644 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	24.9	8868	PASS
75	95	30	60	54.9	19555	PASS
95	95	100	100	100.0	35634	PASS
96	95	5	9	8.9	3158	PASS
173	174	0.00	2	2.0	681	PASS
174	95	50	100	97.5	34730	PASS
175	174	5	9	6.8	2374	PASS
176	174	95	101	96.5	33531	PASS
177	176	5	9	8.0	2688	PASS

W100218.M Wed Oct 03 10:38:59 2018

Evaluate Continuing Calibration Report

Data File : C:\INSTARCH\Data\OCT0218B\CCV1.D Vial: 2
Acq On : 2 Oct 2018 21:06 Operator: AGK-RLD
Sample : 153915,CCV, Inst : VMS3
Misc : 10.0/100.0 ug/L, 5.0 mL Purged + IS/SS Multiplr: 1.00
Integrator: RTE

Quant Time: Oct 02 21:27:21 2018

Quant Method : C:\INSTARCH\METHODS\W100218.M
Quant Title : 8260C Waters Method
Response via : Initial Calibration
DataAcq Meth:W100218.M

Min. RRF : 0.030 Min. Rel. Area : 50% Max. R.T. Dev 0.15min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	FLUOROBENZENE**ISTD**	1.0000	1.0000	0.00	100	0.00
2	PT	Dichlorodi	0.2600	0.2966	-14.08	108	0.00
3	PT	Chloromethan	0.1893	0.2071	-9.40	104	0.00
4	PT	VinylChlorid	0.4911	0.5139	-4.64	110	0.00
5	PT	Bromomethane	0.2347	0.3075	-31.02#	124	0.00
6	PT	Chloroethane	0.4529	0.4977	-9.89	108	0.00
7	T	Dichloroflmethane	0.3893	0.3922	-0.74	81	0.00
8	PT	Trichlorofma	0.3877	0.4258	-9.83	113	0.00
9	T	Ethylether	0.2229	0.2249	-0.90	102	0.00
10	T	dichlorotfluoroethan	0.2524	0.2808	-11.25	116	0.00
11	T	propyleneoxide	0.0305	0.0280#	8.20	88	0.00
12	T	Acrolein	0.0528	0.0487	7.77	98	0.00
13	PT	11dichlorthe	0.2376	0.2392	-0.67	108	0.00
14	PT	Trichlorotfluoroeth	0.2209	0.2465	-11.59	108	0.00
15	PT	Acetone	0.0921	0.0870#	5.54	94	0.00
16	T	Iodomethane	0.1470	0.1097	25.37#	83	0.00
17	PT	Carbon Dislf	0.5903	0.6752	-14.38	107	0.00
18	T	allylchloride	0.2891	0.3159	-9.27	108	0.00
19	PT	methylacetate	0.0930	0.0981#	-5.48	102	0.00
20	PT	Methylchlorid	0.4773	0.3374	29.31#	137	0.00
21	T	tbutylalcohol	0.0263	0.0211#	19.77	79	0.00
22	T	Acrylonitrile	0.1023	0.1104	-7.92	105	0.00
23	PT	t12dichlorte	0.2523	0.2678	-6.14	111	0.00
24	PT	MtBE	0.6988	0.7272	-4.06	104	0.00
25	T	Hexane	0.3549	0.4055	-14.26	114	0.00
26	PT	11dichlorota	0.4702	0.4827	-2.66	102	0.00
27	T	Vinylacetate	0.4252	0.5112	-20.23#	104	0.00
28	T	chloroprene	0.3534	0.3714	-5.09	105	0.00
29	T	Diisopether	0.7570	0.7952	-5.05	104	0.00
30	T	ETBE	0.6829	0.7072	-3.56	102	0.00
31	T	22dichloropr	0.3992	0.3991	0.03	103	0.00
32	PT	c12dichlorte	0.2914	0.2896	0.62	100	0.00
33	PT	2Butanone	0.0388	0.0388#	0.00	94	0.00
34	T	propionitrile	0.0364	0.0347	4.67	90	0.00
35	T	Ethylacetate	0.0140	0.0136#	2.86	96	0.00
36	T	methacrylonitrile	0.1280	0.1344	-5.00	105	0.00
37	T	Bromochlorma	0.1340	0.1390	-3.73	109	0.00
38	T	Tetrahydofur	0.0927	0.0942	-1.62	95	0.00
39	PT	Chloroform	0.4826	0.4965	-2.88	108	0.00
40	PT	111trichlota	0.4013	0.4155	-3.54	104	0.00
41	S	SURRDibrflma	0.2565	0.2445	4.68	95	0.00
42	PT	Cyclohexane	0.5157	0.5588	-8.36	107	0.00
43	PT	Carbtetraclo	0.3187	0.3427	-7.53	105	0.00
44	T	11dicloprope	0.1289	0.1338	-3.80	105	0.00
45	S	SURR12DCAd4	0.0661	0.0701	-6.05	109	0.00
46	PT	Benzene	1.0455	1.1244	-7.55	106	0.00
47	PT	12dichlorota	0.3442	0.3641	-5.78	105	0.00
48	T	TAME	0.7032	0.7369	-4.79	104	0.00

49	PT	trichloroete	0.2675	0.2778	-3.85	105	0.00
50	PT	methylcyclohexane	0.4966	0.5325	-7.23	107	0.00
51	PT	12dicloropra	0.2881	0.3091	-7.29	108	0.00
52	T	23Dicl1propene	0.3822	0.3862	-1.05	96	0.00
53	T	Dibromometha	0.1738	0.1715	1.32	99	0.00
54	T	methylmethacrylate	0.1930	0.2023	-4.82	101	0.00
55	T	14dioxane	0.0006	0.0001#	83.33#	27#	0.00
56	PT	Bromodiclrma	0.3426	0.3530	-3.04	100	0.00
57	T	2Nitropropane	0.0896	0.0975	-8.82	101	0.00
58	T	2CLEVE	0.1256	0.1225	2.47	89	0.00
59	PT	c13dicloproe	0.3934	0.4228	-7.47	102	0.00
60	PT	4Meth2Pentan	0.2919	0.3151	-7.95	100	0.00
61	S	SURRd8Tolule	1.0089	0.9983	1.05	100	0.00
62	PT	Toluene	0.6723	0.7002	-4.15	102	0.00
63	PT	t13Dicloprop	0.3542	0.3493	1.38	97	0.00
64	T	ethylmethacrylate	0.3465	0.3555	-2.60	99	0.00
65	PT	112Triclotha	0.2083	0.2179	-4.61	109	0.00
66	PT	Tetrachlorte	0.3163	0.3270	-3.38	107	0.00
67	T	13Diclorpropa	0.4394	0.4523	-2.94	104	0.00
68	I	d5-CHLOROBENZENE**ISTD**	1.0000	1.0000	0.00	99	0.00
69	PT	2Hexanone	0.2587	0.2828	-9.32	99	0.00
70	PT	Clorodibrmta	0.3294	0.3259	1.06	102	0.00
71	PT	12Dibrometha	0.3164	0.3297	-4.20	102	0.00
72	PT	Chlorobenzen	0.9124	0.9599	-5.21	103	0.00
73	T	1Clhexane	0.4727	0.4940	-4.51	106	0.00
74	T	1112Tetclota	0.3294	0.3396	-3.10	104	0.00
75	PT	Ethylbenzene	1.4855	1.5986	-7.61	106	0.00
76	PT	m p-Xylene	0.5855	0.6353	-8.51	104	0.00
77	PT	o-Xylene	0.5877	0.6025	-2.52	103	0.00
78	PT	Styrene	0.9161	0.9863	-7.66	106	0.00
79	PT	Bromoform	0.2744	0.2562	6.63	102	0.00
80	PT	Isopropylben	1.4141	1.5886	-12.34	109	0.00
81	T	cyclohexanone	0.0059	0.0032#	45.76#	58	0.00
82	I	d4-1,4-DICHLOROBENZENE**IS	1.0000	1.0000	0.00	104	0.00
83	S	SURR4BrFBenz	0.7282	0.7342	-0.82	103	0.00
84	T	Bromobenzene	0.7139	0.7626	-6.82	108	0.00
85	PT	1122Tetrclta	0.8437	0.9402	-11.44	109	0.00
86	T	123Triclproa	0.9959	1.0561	-6.04	108	0.00
87	T	14dichloro2butene	0.2351	0.2069	11.99	95	0.00
88	T	n-Propylbenz	2.8339	3.2095	-13.25	105	0.00
89	T	2chlorotolue	1.6464	1.7745	-7.78	107	0.00
90	T	4chlorotolue	1.8484	2.0834	-12.71	108	0.00
91	T	135Trimebenz	1.9947	2.1781	-9.19	107	0.00
92	T	tbutylbenzen	1.7870	1.9103	-6.90	106	0.00
93	T	124Trimetben	1.9293	2.2020	-14.13	110	0.00
94	T	sbutylbenzen	2.5091	2.8730	-14.50	108	0.00
95	PT	13Diclorbenz	1.2687	1.4121	-11.30	109	0.00
96	T	pIsopropylto	2.1271	2.4062	-13.12	110	0.00
97	PT	14dichlorobe	1.3236	1.3814	-4.37	104	0.00
98	PT	12dichlorobe	1.2511	1.3104	-4.74	106	0.00
99	T	nButylbenzen	2.0032	2.1289	-6.27	105	0.00
100	PT	12dibromo3cl	0.1929	0.1783	7.57	96	0.00
101	T	135Trichlorobenzene	0.8638	0.9474	-9.68	110	0.00
102	PT	124Trichlobe	0.7336	0.7736	-5.45	106	0.00
103	T	Hexachlorobu	0.3985	0.4228	-6.10	107	0.00
104	T	Naphthalene	1.6471	1.8984	-15.26	113	0.00
105	T	123Trichlben	0.6827	0.7460	-9.27	107	0.00

(#) = Out of Range SPCC's out = 3 CCC's out = 0

W100218.M Wed Oct 03 10:39:41 2018

Evaluate Continuing Calibration Report

Data File : C:\INSTARCH\Data\OCT0218B\CCV1.D Vial: 2
Acq On : 2 Oct 2018 21:06 Operator: AGK-RLD
Sample : 153915,CCV, Inst : VMS3
Misc : 10.0/100.0 ug/L, 5.0 mL Purged + IS/SS Multiplr: 1.00
Integrator: RTE

Quant Time: Oct 02 21:27:21 2018

Quant Method : C:\INSTARCH\METHODS\W100218.M
Quant Title : 8260C Waters Method
Response via : Initial Calibration
DataAcq Meth:W100218.M

Min. RRF : 0.030 Min. Rel. Area : 50% Max. R.T. Dev 0.15min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	FLUOROBENZENE**ISTD**	20.0000	20.0000	0.00	100	0.00
2	PT	Dichlorodi	10.0000	11.4058	-14.06	108	0.00
3	PT	Chloromethan	10.0000	10.9411	-9.41	104	0.00
4	PT	VinylChlorid	10.0000	10.4631	-4.63	110	0.00
5	PT	Bromomethane	10.0000	13.1048	-31.05#	124	0.00
6	PT	Chloroethane	10.0000	10.9876	-9.88	108	0.00
7	T	Dichloroflmethane	10.0000	10.0731	-0.73	81	0.00
8	PT	Trichlorofma	10.0000	10.9820	-9.82	113	0.00
9	T	Ethylether	10.0000	10.0894	-0.89	102	0.00
10	T	dichlorotfluoroethan	10.0000	11.1255	-11.26	116	0.00
11	T	propyleneoxide	100.0000	91.9713	8.03	88	0.00
12	T	Acrolein	50.0000	46.8180	6.36	98	0.00
13	PT	11dichlorthe	10.0000	10.0681	-0.68	108	0.00
14	PT	Trichlorotfluoroeth	20.0000	22.3165	-11.58	108	0.00
15	PT	Acetone	100.0000	94.4609	5.54	94	0.00
16	T	Iodomethane	20.0000	15.4030	22.98#	83	0.00
17	PT	Carbon Dislf	20.0000	22.8766	-14.38	107	0.00
18	T	allylchloride	20.0000	21.8524	-9.26	108	0.00
19	PT	methylacetate	10.0000	10.5404	-5.40	102	0.00
20	PT	Methylchlorid	10.0000	13.4634	-34.63#	137	0.00
21	T	tbutylalcohol	500.0000	369.6500	26.07#	79	0.00
22	T	Acrylonitrile	50.0000	53.9487	-7.90	105	0.00
23	PT	t12dichlorte	10.0000	10.6126	-6.13	111	0.00
24	PT	MtBE	10.0000	10.4064	-4.06	104	0.00
25	T	Hexane	20.0000	22.8489	-14.24	114	0.00
26	PT	11dichlorota	10.0000	10.2658	-2.66	102	0.00
27	T	Vinylacetate	100.0000	112.3054	-12.31	104	0.00
28	T	chloroprene	20.0000	21.0155	-5.08	105	0.00
29	T	Diisopether	10.0000	10.5036	-5.04	104	0.00
30	T	ETBE	10.0000	10.3571	-3.57	102	0.00
31	T	22dichloropr	10.0000	9.9977	0.02	103	0.00
32	PT	c12dichlorte	10.0000	9.9369	0.63	100	0.00
33	PT	2Butanone	100.0000	100.0477	-0.05	94	0.00
34	T	propionitrile	100.0000	86.0794	13.92	90	0.00
35	T	Ethylacetate	50.0000	48.5737	2.85	96	0.00
36	T	methacrylonitrile	20.0000	21.0003	-5.00	105	0.00
37	T	Bromochlorma	10.0000	10.3773	-3.77	109	0.00
38	T	Tetrahydofur	100.0000	101.5871	-1.59	95	0.00
39	PT	Chloroform	10.0000	10.2877	-2.88	108	0.00
40	PT	111trichlota	10.0000	10.3539	-3.54	104	0.00
41	S	SURRDibrflma	20.0000	19.0644	4.68	95	0.00
42	PT	Cyclohexane	10.0000	10.8363	-8.36	107	0.00
43	PT	Carbtetraclo	10.0000	10.7514	-7.51	105	0.00
44	T	11dicloprope	10.0000	10.3821	-3.82	105	0.00
45	S	SURR12DCAd4	20.0000	21.2144	-6.07	109	0.00
46	PT	Benzene	10.0000	10.7549	-7.55	106	0.00
47	PT	12dichlorota	10.0000	10.5782	-5.78	105	0.00
48	T	TAME	10.0000	10.4806	-4.81	104	0.00

49	PT	trichloroete	10.0000	10.3841	-3.84	105	0.00
50	PT	methylcyclohexane	10.0000	10.7220	-7.22	107	0.00
51	PT	12dicloropra	10.0000	10.7320	-7.32	108	0.00
52	T	23Dicl1propene	10.0000	10.1052	-1.05	96	0.00
53	T	Dibromometha	10.0000	9.8632	1.37	99	0.00
54	T	methylmethacrylate	10.0000	9.6670	3.33	101	0.00
55	T	14dioxane	500.0000	158.0261	68.39#	27	0.00
56	PT	Bromodiclrma	10.0000	10.3041	-3.04	100	0.00
57	T	2Nitropropane	100.0000	108.9074	-8.91	101	0.00
58	T	2CLEVE	50.0000	43.1606	13.68	89	0.00
59	PT	c13dicloproe	10.0000	10.7471	-7.47	102	0.00
60	PT	4Meth2Pentan	100.0000	107.9461	-7.95	100	0.00
61	S	SURRd8Tolule	20.0000	19.7916	1.04	100	0.00
62	PT	Toluene	10.0000	10.4152	-4.15	102	0.00
63	PT	t13Dicloprop	10.0000	9.8609	1.39	97	0.00
64	T	ethylmethacrylate	20.0000	20.5146	-2.57	99	0.00
65	PT	112Triclotha	10.0000	10.4643	-4.64	109	0.00
66	PT	Tetrachlorte	10.0000	10.3381	-3.38	107	0.00
67	T	13Diclorpropa	10.0000	10.2921	-2.92	104	0.00
68	I	d5-CHLOROBENZENE**ISTD**	20.0000	20.0000	0.00	99	0.00
69	PT	2Hexanone	100.0000	109.3235	-9.32	99	0.00
70	PT	Clorodibrmta	10.0000	9.8919	1.08	102	0.00
71	PT	12Dibrometha	10.0000	10.4201	-4.20	102	0.00
72	PT	Chlorobenzen	10.0000	10.5208	-5.21	103	0.00
73	T	1Clhexane	10.0000	10.4505	-4.50	106	0.00
74	T	1112Tetclota	10.0000	10.3090	-3.09	104	0.00
75	PT	Ethylbenzene	10.0000	10.7617	-7.62	106	0.00
76	PT	m p-Xylene	20.0000	21.6991	-8.50	104	0.00
77	PT	o-Xylene	10.0000	10.2513	-2.51	103	0.00
78	PT	Styrene	10.0000	10.7658	-7.66	106	0.00
79	PT	Bromoform	10.0000	9.3376	6.62	102	0.00
80	PT	Isopropylben	10.0000	11.2341	-12.34	109	0.00
81	T	cyclohexanone	200.0000	115.5602	42.22#	58	0.00
82	I	d4-1,4-DICHLOROBENZENE**IS	20.0000	20.0000	0.00	104	0.00
83	S	SURR4BrFBenz	20.0000	20.1636	-0.82	103	0.00
84	T	Bromobenzene	10.0000	10.6822	-6.82	108	0.00
85	PT	1122Tetrclta	10.0000	11.1441	-11.44	109	0.00
86	T	123Triclproa	10.0000	10.6041	-6.04	108	0.00
87	T	14dichloro2butene	10.0000	8.7993	12.01	95	0.00
88	T	n-Propylbenz	10.0000	10.6251	-6.25	105	0.00
89	T	2chlorotolue	10.0000	10.7776	-7.78	107	0.00
90	T	4chlorotolue	10.0000	11.2712	-12.71	108	0.00
91	T	135Trimebenz	10.0000	10.9193	-9.19	107	0.00
92	T	tbutylbenzen	10.0000	10.6900	-6.90	106	0.00
93	T	124Trimetben	10.0000	11.4135	-14.14	110	0.00
94	T	sbutylbenzen	10.0000	11.4504	-14.50	108	0.00
95	PT	13Diclorbenz	10.0000	11.1298	-11.30	109	0.00
96	T	pIsopropylto	10.0000	11.3123	-13.12	110	0.00
97	PT	14dichlorobe	10.0000	10.4363	-4.36	104	0.00
98	PT	12dichlorobe	10.0000	10.4737	-4.74	106	0.00
99	T	nButylbenzen	10.0000	10.6275	-6.27	105	0.00
100	PT	12dibromo3cl	10.0000	9.2415	7.58	96	0.00
101	T	135Trichlorobenzene	10.0000	10.9669	-9.67	110	0.00
102	PT	124Trichlobe	10.0000	10.5457	-5.46	106	0.00
103	T	Hexachlorobu	10.0000	10.6078	-6.08	107	0.00
104	T	Naphthalene	10.0000	11.5254	-15.25	113	0.00
105	T	123Trichlben	10.0000	10.9281	-9.28	107	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

W100218.M Wed Oct 03 10:40:53 2018

Quantitation Report

Data File : C:\INSTARCH\Data\OCT0218B\CCV1.D Vial: 2
Acq On : 2 Oct 2018 21:06 Operator: AGK-RLD
Sample : 153915,CCV, Inst : VMS3
Misc : 10.0/100.0 ug/L, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 21:27:21 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 21:17:51 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M
IS QA File : 50 level for IS QA unknown. No recoveries calculated.

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min) Rcv(Ar)
1) FLUOROBENZENE**ISTD**	7.69	96	1269018	20.00 ug/L	0.00 NA%
68) d5-CHLOROBENZENE**ISTD**	11.60	117	998141	20.00 ug/L	0.00 NA%
82) d4-1,4-DICHLOROBENZENE**IS	14.90	152	562680	20.00 ug/L	0.00 NA%

System Monitoring Compounds

41) SURRDibrflma	6.85	113	310250	19.064 ug/L	0.00
Spiked Amount 20.000	Range 90 - 110		Recovery = 95 %		
45) SURR12DCAd4	7.25	102	88946	21.214 ug/L	0.00
Spiked Amount 20.000	Range 89 - 111		Recovery = 106 %		
61) SURRd8Tolule	9.69	98	1266923	19.792 ug/L	0.00
Spiked Amount 20.000	Range 93 - 107		Recovery = 99 %		
83) SURR4BrFBenz	13.24	95	413116	20.164 ug/L	0.00
Spiked Amount 20.000	Range 83 - 111		Recovery = 101 %		

Target Compounds

					Qvalue
2) Dichlorodi	1.87	85	188173	11.4058 ug/L	97
3) Chloromethan	2.11	50	131405	10.9411 ug/L	98
4) VinylChlorid	2.27	62	326062	10.4631 ug/L	96
5) Bromomethane	2.73	94	195118	13.1048 ug/L	96
6) Chloroethane	2.89	64	315778	10.9876 ug/L	99
7) Dichloroflmethane	3.20	67	248835	10.0731 ug/L	98
8) Trichlorofma	3.28	101	270161	10.9820 ug/L	99
9) Ethylether	3.73	59	142693	10.0894 ug/L	98
10) dichlorotfluoroethan	3.73	67	178191	11.1255 ug/L	93
11) propyleneoxide	4.08	58	177800	91.9713 ug/L #	89
12) Acrolein	3.85	56	154353	46.8180 ug/L	93
13) 11dichlorthe	3.99	96	151758	10.0681 ug/L	99
14) Trichlorotfluoroeth	4.04	101	312759	22.3165 ug/L	97
15) Acetone	4.08	43	552042	94.4609 ug/L	96
16) Iodomethane	4.17	142	139215	15.4030 ug/L	93
17) Carbon Dislf	4.26	76	856888	22.8766 ug/L	98
18) allylchloride	4.48	41	400913	21.8524 ug/L	98
19) methylacetate	4.55	74	62217	10.5404 ug/L	90
20) Methylchlorid	4.63	84	214074	13.4634 ug/L	96
21) tbutylalcohol	4.88	59	669816	369.6500 ug/L	97
22) Acrylonitrile	4.94	53	350338	53.9487 ug/L	97
23) t12dichlorte	5.00	96	169914	10.6126 ug/L	94
24) MtBE	5.05	73	461408	10.4064 ug/L	97
25) Hexane	5.39	57	514573	22.8489 ug/L	97
26) 11dichlorota	5.53	63	306285	10.2658 ug/L	95
27) Vinylacetate	5.63	43	3243391	112.3054 ug/L	99
28) chloroprene	5.65	53	471262	21.0155 ug/L	98
29) Diisopether	5.68	45	504541	10.5036 ug/L	100
30) ETBE	6.14	59	448751	10.3571 ug/L	99
31) 22dichloropr	6.26	77	253216	9.9977 ug/L	97
32) c12dichlorte	6.26	96	183737	9.9369 ug/L	94
33) 2Butanone	6.29	72	246354	100.0477 ug/L	96
34) propionitrile	6.34	54	220452	86.0794 ug/L	96
35) Ethylacetate	6.40	88	43279	48.5737 ug/L	94
36) methacrylonitrile	6.53	67	170597	21.0003 ug/L	98
37) Bromochlorma	6.55	128	88214	10.3773 ug/L	98
38) Tetrahydofur	6.66	42	597602	101.5871 ug/L	98

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\INSTARCH\Data\OCT0218B\CCV1.D Vial: 2
Acq On : 2 Oct 2018 21:06 Operator: AGK-RLD
Sample : 153915,CCV, Inst : VMS3
Misc : 10.0/100.0 ug/L, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 21:27:21 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 21:17:51 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
39)	Chloroform	6.65	83	315037	10.2877 ug/L	98
40)	111trichlota	6.90	97	263647	10.3539 ug/L	97
42)	Cyclohexane	6.98	56	354565	10.8363 ug/L	96
43)	Carbtetraclo	7.11	119	217438	10.7514 ug/L	98
44)	11dicloprope	7.10	110	84896	10.3821 ug/L	94
46)	Benzene	7.35	78	713470	10.7549 ug/L	99
47)	12dichlorota	7.35	62	231010	10.5782 ug/L	96
48)	TAME	7.53	73	467600	10.4806 ug/L	96
49)	trichloroete	8.15	95	176249	10.3841 ug/L	99
50)	methylcyclohexane	8.42	83	337870	10.7220 ug/L	97
51)	12dicloropra	8.41	63	196157	10.7320 ug/L	96
52)	23Dicl1propene	8.48	75	245043	10.1052 ug/L	95
53)	Dibromometha	8.56	93	108792	9.8632 ug/L	96
54)	methylmethacrylate	8.60	69	128337	9.6670 ug/L	98
55)	14dioxane	8.63	88	4426	158.0261 ug/L #	24
56)	Bromodiclrma	8.75	83	224000	10.3041 ug/L	98
57)	2Nitropropane	9.02	43	618914	108.9074 ug/L	98
58)	2CLEVE	9.15	63	388651	43.1606 ug/L	97
59)	c13dicloproe	9.33	75	268286	10.7471 ug/L	98
60)	4Meth2Pentan	9.54	43	1999172	107.9461 ug/L	99
62)	Toluene	9.78	92	444305	10.4152 ug/L	99
63)	t13Dicloprop	10.05	75	221638	9.8609 ug/L	99
64)	ethylmethacrylate	10.20	69	451089	20.5146 ug/L	96
65)	112Triclotha	10.28	83	138275	10.4643 ug/L	95
66)	Tetrachlorte	10.51	166	207495	10.3381 ug/L	99
67)	13Diclorpropa	10.50	76	286976	10.2921 ug/L	100
69)	2Hexanone	10.64	43	1411434	109.3235 ug/L	100
70)	Clorodibrmta	10.80	129	162627	9.8919 ug/L	99
71)	12Dibrometha	10.95	107	164528	10.4201 ug/L	100
72)	Chlorobenzen	11.65	112	479073	10.5208 ug/L	99
73)	1Clhexane	11.62	91	246551	10.4505 ug/L	96
74)	1112Tetclota	11.75	131	169464	10.3090 ug/L	97
75)	Ethylbenzene	11.80	91	797822	10.7617 ug/L	98
76)	m p-Xylene	11.97	106	634071	21.6991 ug/L	100
77)	o-Xylene	12.52	106	300695	10.2513 ug/L	98
78)	Styrene	12.53	104	492237	10.7658 ug/L	99
79)	Bromoform	12.76	173	127852	9.3376 ug/L	98
80)	Isopropylben	13.03	105	792839	11.2341 ug/L	100
81)	cyclohexanone	13.14	55	32339	115.5602 ug/L #	82
84)	Bromobenzene	13.45	156	214543	10.6822 ug/L	93
85)	1122Tetrclta	13.42	83	264517	11.1441 ug/L	100
86)	123Triclproa	13.48	75	297116	10.6041 ug/L	98
87)	14dichloro2butene	13.50	53	58210	8.7993 ug/L	93
88)	n-Propylbenz	13.62	91	902948	10.6251 ug/L	99
89)	2chlorotolue	13.74	91	499230	10.7776 ug/L	99
90)	4chlorotolue	13.89	91	586139	11.2712 ug/L	98
91)	135Trimebenz	13.88	105	612781	10.9193 ug/L	99
92)	tbutylbenzen	14.35	119	537433	10.6900 ug/L	95
93)	124Trimetben	14.41	105	619510	11.4135 ug/L	96
94)	sbutylbenzen	14.66	105	808293	11.4504 ug/L	97
95)	13Diclorbenz	14.81	146	397268	11.1298 ug/L	99
96)	pIsopropylto	14.88	119	676964	11.3123 ug/L	98
97)	14dichlorobe	14.93	146	388630	10.4363 ug/L	95
98)	12dichlorobe	15.47	146	368655	10.4737 ug/L	100
99)	nButylbenzen	15.48	91	598935	10.6275 ug/L	97
100)	12dibromo3cl	16.56	157	50161	9.2415 ug/L	86
101)	135Trichlorobenzene	16.89	180	266534	10.9669 ug/L	98

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\INSTARCH\Data\OCT0218B\CCV1.D Vial: 2
Acq On : 2 Oct 2018 21:06 Operator: AGK-RLD
Sample : 153915,CCV, Inst : VMS3
Misc : 10.0/100.0 ug/L, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 21:27:21 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 21:17:51 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
102) 124Trichlobe	17.71	180	217640	10.5457	ug/L	96
103) Hexachlorobu	17.96	225	118942	10.6078	ug/L	95
104) Naphthalene	18.01	128	534095	11.5254	ug/L	98
105) 123Trichlben	18.33	180	209889	10.9281	ug/L	99

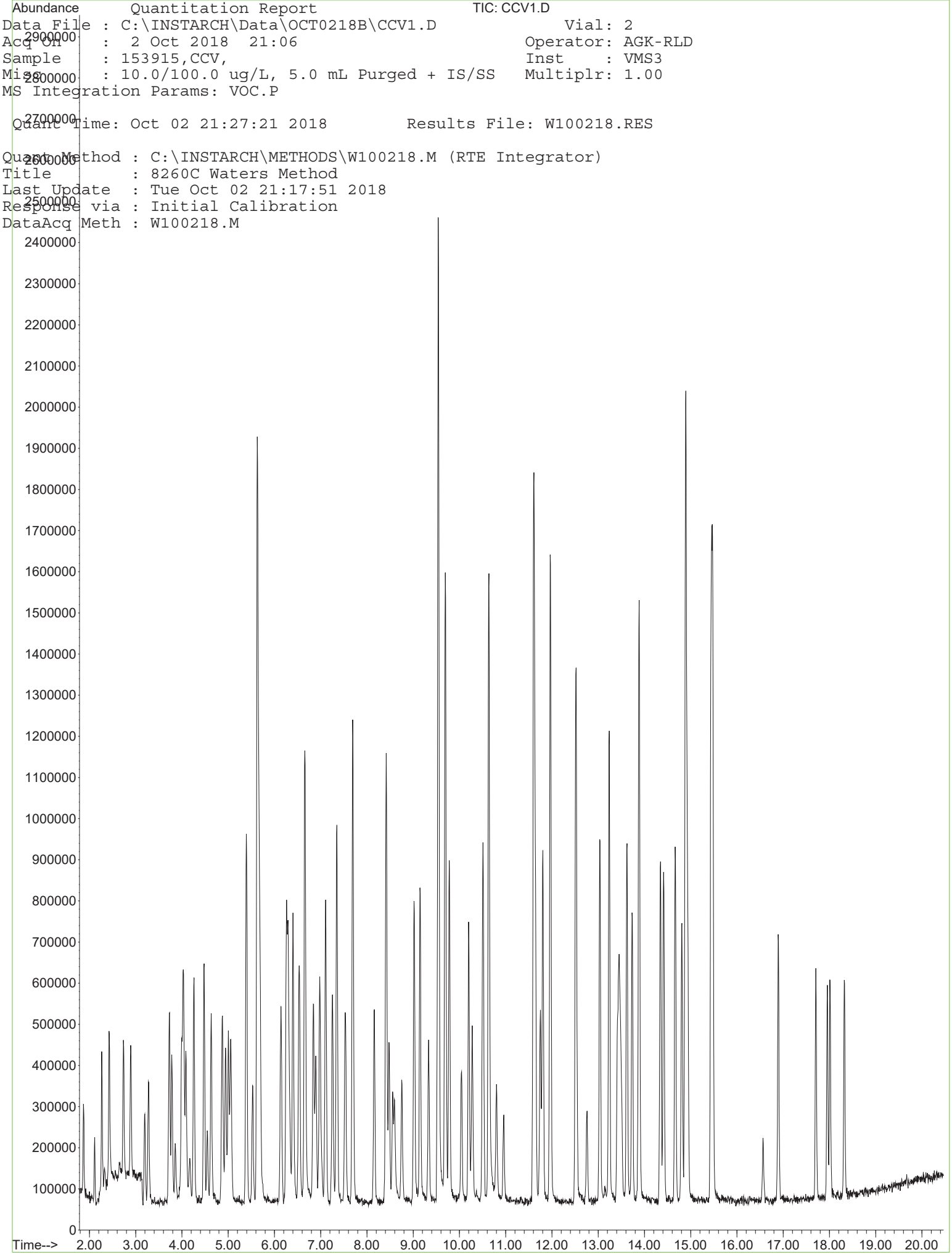
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\INSTARCH\Data\OCT0218B\CCV1.D Vial: 2
Acq On : 2 Oct 2018 21:06 Operator: AGK-RLD
Sample : 153915,CCV, Inst : VMS3
Misc : 10.0/100.0 ug/L, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 21:27:21 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 21:17:51 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M



Evaluate Continuing Calibration Report

Data File : C:\INSTARCH\Data\OCT0218B\CCVF1.D Vial: 12
Acq On : 3 Oct 2018 2:10 Operator: AGK-RLD
Sample : 153915,CCVF, Inst : VMS3
Misc : 10.0/100.0 ug/L, 5.0 mL Purged + IS/SS Multiplr: 1.00
Integrator: RTE

Quant Time: Oct 03 02:30:35 2018

Quant Method : C:\INSTARCH\METHODS\W100218.M
Quant Title : 8260C Waters Method
Response via : Initial Calibration
DataAcq Meth:W100218.M

Min. RRF : 0.030 Min. Rel. Area : 50% Max. R.T. Dev 0.15min
Max. RRF Dev : 50% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	FLUOROBENZENE**ISTD**	1.0000	1.0000	0.00	102	0.00
2	PT	Dichlorodi	0.2600	0.2852	-9.69	106	0.00
3	PT	Chloromethan	0.1893	0.2108	-11.36	108	0.00
4	PT	VinylChlorid	0.4911	0.4766	2.95	105	0.00
5	PT	Bromomethane	0.2347	0.3110	-32.51	128	0.00
6	PT	Chloroethane	0.4529	0.4572	-0.95	102	0.00
7	T	Dichloroflmethane	0.3893	0.5742	-47.50	120	0.00
8	PT	Trichlorofma	0.3877	0.3919	-1.08	106	0.00
9	T	Ethylether	0.2229	0.2221	0.36	103	0.00
10	T	dichlorotfluoroethan	0.2524	0.2714	-7.53	114	0.00
11	T	propyleneoxide	0.0305	0.0297#	2.62	96	0.00
12	T	Acrolein	0.0528	0.0528	0.00	109	0.00
13	PT	11dichlorthe	0.2376	0.2400	-1.01	110	0.00
14	PT	Trichlorotfluoroeth	0.2209	0.2275	-2.99	102	0.00
15	PT	Acetone	0.0921	0.0914#	0.76	101	0.00
16	T	Iodomethane	0.1470	0.1307	11.09	101	0.00
17	PT	Carbon Dislf	0.5903	0.6271	-6.23	102	0.00
18	T	allylchloride	0.2891	0.2926	-1.21	102	0.00
19	PT	methylacetate	0.0930	0.0911#	2.04	96	0.00
20	PT	Methylchlorid	0.4773	0.3725	21.96	154	0.00
21	T	tbutylalcohol	0.0263	0.0260#	1.14	99	0.00
22	T	Acrylonitrile	0.1023	0.1037	-1.37	101	0.00
23	PT	t12dichlorte	0.2523	0.2555	-1.27	108	0.00
24	PT	MtBE	0.6988	0.7261	-3.91	106	0.00
25	T	Hexane	0.3549	0.3629	-2.25	104	0.00
26	PT	11dichlorota	0.4702	0.4852	-3.19	105	0.00
27	T	Vinylacetate	0.4252	0.5078	-19.43	105	0.00
28	T	chloroprene	0.3534	0.3725	-5.40	107	0.00
29	T	Diisopether	0.7570	0.8126	-7.34	109	0.00
30	T	ETBE	0.6829	0.6989	-2.34	103	0.00
31	T	22dichloropr	0.3992	0.3331	16.56	88	0.00
32	PT	c12dichlorte	0.2914	0.2894	0.69	102	0.01
33	PT	2Butanone	0.0388	0.0391#	-0.77	97	0.00
34	T	propionitrile	0.0364	0.0388	-6.59	102	0.00
35	T	Ethylacetate	0.0140	0.0140#	0.00	100	0.00
36	T	methacrylonitrile	0.1280	0.1296	-1.25	103	0.00
37	T	Bromochlorma	0.1340	0.1302	2.84	104	0.00
38	T	Tetrahydofur	0.0927	0.0995	-7.34	103	0.00
39	PT	Chloroform	0.4826	0.4629	4.08	102	0.00
40	PT	111trichlota	0.4013	0.4113	-2.49	105	0.00
41	S	SURRDibrflma	0.2565	0.2516	1.91	100	0.00
42	PT	Cyclohexane	0.5157	0.5558	-7.78	109	0.00
43	PT	Carbtetraclo	0.3187	0.3270	-2.60	102	0.00
44	T	11dicloprope	0.1289	0.1289	0.00	104	0.00
45	S	SURR12DCAd4	0.0661	0.0660	0.15	105	0.00
46	PT	Benzene	1.0455	1.0782	-3.13	104	0.00
47	PT	12dichlorota	0.3442	0.3604	-4.71	106	0.00
48	T	TAME	0.7032	0.7281	-3.54	105	0.00

49	PT	trichloroete	0.2675	0.2761	-3.21	107	0.00
50	PT	methylcyclohexane	0.4966	0.5065	-1.99	103	0.00
51	PT	12dicloropra	0.2881	0.2731	5.21	97	0.00
52	T	23Dicl1propene	0.3822	0.3856	-0.89	98	0.00
53	T	Dibromometha	0.1738	0.1762	-1.38	104	0.00
54	T	methylmethacrylate	0.1930	0.2061	-6.79	105	0.00
55	T	14dioxane	0.0006	0.0006#	0.00	127	0.00
56	PT	Bromodiclrma	0.3426	0.3461	-1.02	100	0.00
57	T	2Nitropropane	0.0896	0.0963	-7.48	101	0.00
58	T	2CLEVE	0.1256	0.1430	-13.85	106	0.00
59	PT	c13dicloproe	0.3934	0.3978	-1.12	98	0.00
60	PT	4Meth2Pentan	0.2919	0.3128	-7.16	101	0.00
61	S	SURRd8Tolule	1.0089	0.9850	2.37	100	0.00
62	PT	Toluene	0.6723	0.6642	1.20	99	0.00
63	PT	t13Dicloprop	0.3542	0.3547	-0.14	101	0.00
64	T	ethylmethacrylate	0.3465	0.3540	-2.16	100	0.00
65	PT	112Triclotha	0.2083	0.2104	-1.01	107	0.00
66	PT	Tetrachlorte	0.3163	0.3329	-5.25	111	0.00
67	T	13Diclorpropa	0.4394	0.4500	-2.41	105	0.00
68	I	d5-CHLOROBENZENE**ISTD**	1.0000	1.0000	0.00	102	0.00
69	PT	2Hexanone	0.2587	0.2817	-8.89	102	0.00
70	PT	Clorodibrmta	0.3294	0.3277	0.52	106	0.00
71	PT	12Dibrometha	0.3164	0.3258	-2.97	105	0.00
72	PT	Chlorobenzen	0.9124	0.9227	-1.13	103	0.00
73	T	1Clhexane	0.4727	0.4641	1.82	103	0.00
74	T	1112Tetclota	0.3294	0.3277	0.52	104	0.00
75	PT	Ethylbenzene	1.4855	1.5540	-4.61	107	0.00
76	PT	m p-Xylene	0.5855	0.6065	-3.59	103	0.00
77	PT	o-Xylene	0.5877	0.5806	1.21	103	0.00
78	PT	Styrene	0.9161	0.9450	-3.15	106	0.00
79	PT	Bromoform	0.2744	0.2471	9.95	102	0.00
80	PT	Isopropylben	1.4141	1.4826	-4.84	106	0.00
81	T	cyclohexanone	0.0059	0.0057#	3.39	106	0.00
82	I	d4-1,4-DICHLOROBENZENE**IS	1.0000	1.0000	0.00	105	0.00
83	S	SURR4BrFBenz	0.7282	0.7390	-1.48	105	0.00
84	T	Bromobenzene	0.7139	0.7583	-6.22	108	0.00
85	PT	1122Tetrclta	0.8437	0.9113	-8.01	107	0.00
86	T	123Triclproa	0.9959	1.0172	-2.14	105	0.00
87	T	14dichloro2butene	0.2351	0.2249	4.34	104	0.00
88	T	n-Propylbenz	2.8339	3.1420	-10.87	104	0.00
89	T	2chlorotolue	1.6464	1.7835	-8.33	109	0.00
90	T	4chlorotolue	1.8484	1.9954	-7.95	104	0.00
91	T	135Trimebenz	1.9947	2.0909	-4.82	104	0.00
92	T	tbutylbenzen	1.7870	1.8489	-3.46	103	0.00
93	T	124Trimetben	1.9293	2.0619	-6.87	104	0.00
94	T	sbutylbenzen	2.5091	2.7355	-9.02	103	0.00
95	PT	13Diclorbenz	1.2687	1.2995	-2.43	101	0.00
96	T	pIsopropylto	2.1271	2.2811	-7.24	105	0.00
97	PT	14dichlorobe	1.3236	1.3217	0.14	100	0.00
98	PT	12dichlorobe	1.2511	1.2458	0.42	102	0.00
99	T	nButylbenzen	2.0032	2.0079	-0.23	100	0.00
100	PT	12dibromo3cl	0.1929	0.1907	1.14	104	0.00
101	T	135Trichlorobenzene	0.8638	0.8610	0.32	101	0.00
102	PT	124Trichlobe	0.7336	0.6916	5.73	95	0.00
103	T	Hexachlorobu	0.3985	0.4060	-1.88	103	0.00
104	T	Naphthalene	1.6471	1.7430	-5.82	105	0.00
105	T	123Trichlben	0.6827	0.6883	-0.82	99	0.00

(#) = Out of Range SPCC's out = 3 CCC's out = 0

W100218.M Wed Oct 03 10:42:47 2018

Evaluate Continuing Calibration Report

Data File : C:\INSTARCH\Data\OCT0218B\CCVF1.D Vial: 12
Acq On : 3 Oct 2018 2:10 Operator: AGK-RLD
Sample : 153915,CCVF, Inst : VMS3
Misc : 10.0/100.0 ug/L, 5.0 mL Purged + IS/SS Multiplr: 1.00
Integrator: RTE

Quant Time: Oct 03 02:30:35 2018

Quant Method : C:\INSTARCH\METHODS\W100218.M
Quant Title : 8260C Waters Method
Response via : Initial Calibration
DataAcq Meth:W100218.M

Min. RRF : 0.030 Min. Rel. Area : 50% Max. R.T. Dev 0.15min
Max. RRF Dev : 50% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	FLUOROBENZENE**ISTD**	20.0000	20.0000	0.00	102	0.00
2	PT	Dichlorodi	10.0000	10.9678	-9.68	106	0.00
3	PT	Chloromethan	10.0000	11.1386	-11.39	108	0.00
4	PT	VinylChlorid	10.0000	9.7033	2.97	105	0.00
5	PT	Bromomethane	10.0000	13.2533	-32.53	128	0.00
6	PT	Chloroethane	10.0000	10.0933	-0.93	102	0.00
7	T	Dichloroflmethane	10.0000	14.7478	-47.48	120	0.00
8	PT	Trichlorofma	10.0000	10.1084	-1.08	106	0.00
9	T	Ethylether	10.0000	9.9646	0.35	103	0.00
10	T	dichlorotfluoroethan	10.0000	10.7501	-7.50	114	0.00
11	T	propyleneoxide	100.0000	97.6389	2.36	96	0.00
12	T	Acrolein	50.0000	51.0188	-2.04	109	0.00
13	PT	11dichlorthe	10.0000	10.1033	-1.03	110	0.00
14	PT	Trichlorotfluoroeth	20.0000	20.5966	-2.98	102	0.00
15	PT	Acetone	100.0000	99.2512	0.75	101	0.00
16	T	Iodomethane	20.0000	17.8473	10.76	101	0.00
17	PT	Carbon Dislf	20.0000	21.2441	-6.22	102	0.00
18	T	allylchloride	20.0000	20.2392	-1.20	102	0.00
19	PT	methylacetate	10.0000	9.7951	2.05	96	0.00
20	PT	Methylchlorid	10.0000	15.0945	-50.94#	154	0.00
21	T	tbutylalcohol	500.0000	456.3107	8.74	99	0.00
22	T	Acrylonitrile	50.0000	50.6627	-1.33	101	0.00
23	PT	t12dichlorte	10.0000	10.1260	-1.26	108	0.00
24	PT	MtBE	10.0000	10.3913	-3.91	106	0.00
25	T	Hexane	20.0000	20.4513	-2.26	104	0.00
26	PT	11dichlorota	10.0000	10.3181	-3.18	105	0.00
27	T	Vinylacetate	100.0000	111.4564	-11.46	105	0.00
28	T	chloroprene	20.0000	21.0808	-5.40	107	0.00
29	T	Diisopether	10.0000	10.7343	-7.34	109	0.00
30	T	ETBE	10.0000	10.2352	-2.35	103	0.00
31	T	22dichloropr	10.0000	8.3445	16.56	88	0.00
32	PT	c12dichlorte	10.0000	9.9296	0.70	102	0.01
33	PT	2Butanone	100.0000	100.7520	-0.75	97	0.00
34	T	propionitrile	100.0000	96.1306	3.87	102	0.00
35	T	Ethylacetate	50.0000	49.7081	0.58	100	0.00
36	T	methacrylonitrile	20.0000	20.2391	-1.20	103	0.00
37	T	Bromochlorma	10.0000	9.7215	2.78	104	0.00
38	T	Tetrahydofur	100.0000	107.3498	-7.35	103	0.00
39	PT	Chloroform	10.0000	9.5913	4.09	102	0.00
40	PT	111trichlota	10.0000	10.2501	-2.50	105	0.00
41	S	SURRDibrflma	20.0000	19.6173	1.91	100	0.00
42	PT	Cyclohexane	10.0000	10.7772	-7.77	109	0.00
43	PT	Carbtetraclo	10.0000	10.2603	-2.60	102	0.00
44	T	11dicloprope	10.0000	10.0007	-0.01	104	0.00
45	S	SURR12DCAd4	20.0000	19.9860	0.07	105	0.00
46	PT	Benzene	10.0000	10.3124	-3.12	104	0.00
47	PT	12dichlorota	10.0000	10.4721	-4.72	106	0.00
48	T	TAME	10.0000	10.3543	-3.54	105	0.00

49	PT	trichloroete	10.0000	10.3199	-3.20	107	0.00
50	PT	methylcyclohexane	10.0000	10.1992	-1.99	103	0.00
51	PT	12dicloropra	10.0000	9.4793	5.21	97	0.00
52	T	23Dicl1propene	10.0000	10.0896	-0.90	98	0.00
53	T	Dibromometha	10.0000	10.1343	-1.34	104	0.00
54	T	methylmethacrylate	10.0000	9.8376	1.62	105	0.00
55	T	14dioxane	500.0000	503.7731	-0.75	127	0.00
56	PT	Bromodiclrma	10.0000	10.1019	-1.02	100	0.00
57	T	2Nitropropane	100.0000	107.5542	-7.55	101	0.00
58	T	2CLEVE	50.0000	49.8678	0.26	106	0.00
59	PT	c13dicloproe	10.0000	10.1101	-1.10	98	0.00
60	PT	4Meth2Pentan	100.0000	107.1811	-7.18	101	0.00
61	S	SURRd8Tolule	20.0000	19.5267	2.37	100	0.00
62	PT	Toluene	10.0000	9.8799	1.20	99	0.00
63	PT	t13Dicloprop	10.0000	10.0129	-0.13	101	0.00
64	T	ethylmethacrylate	20.0000	20.4297	-2.15	100	0.00
65	PT	112Triclotha	10.0000	10.1034	-1.03	107	0.00
66	PT	Tetrachlorte	10.0000	10.5230	-5.23	111	0.00
67	T	13Diclorpropa	10.0000	10.2404	-2.40	105	0.00
68	I	d5-CHLOROBENZENE**ISTD**	20.0000	20.0000	0.00	102	0.00
69	PT	2Hexanone	100.0000	108.9030	-8.90	102	0.00
70	PT	Clorodibrmta	10.0000	9.9486	0.51	106	0.00
71	PT	12Dibrometha	10.0000	10.2970	-2.97	105	0.00
72	PT	Chlorobenzen	10.0000	10.1125	-1.13	103	0.00
73	T	1Clhexane	10.0000	9.8165	1.84	103	0.00
74	T	1112Tetclota	10.0000	9.9500	0.50	104	0.00
75	PT	Ethylbenzene	10.0000	10.4613	-4.61	107	0.00
76	PT	m p-Xylene	20.0000	20.7157	-3.58	103	0.00
77	PT	o-Xylene	10.0000	9.8789	1.21	103	0.00
78	PT	Styrene	10.0000	10.3147	-3.15	106	0.00
79	PT	Bromoform	10.0000	9.0065	9.93	102	0.00
80	PT	Isopropylben	10.0000	10.4843	-4.84	106	0.00
81	T	cyclohexanone	200.0000	180.6296	9.69	106	0.00
82	I	d4-1,4-DICHLOROBENZENE**IS	20.0000	20.0000	0.00	105	0.00
83	S	SURR4BrFBenz	20.0000	20.2957	-1.48	105	0.00
84	T	Bromobenzene	10.0000	10.6228	-6.23	108	0.00
85	PT	1122Tetrclta	10.0000	10.8010	-8.01	107	0.00
86	T	123Triclproa	10.0000	10.2134	-2.13	105	0.00
87	T	14dichloro2butene	10.0000	9.5644	4.36	104	0.00
88	T	n-Propylbenz	10.0000	10.3817	-3.82	104	0.00
89	T	2chlorotolue	10.0000	10.8326	-8.33	109	0.00
90	T	4chlorotolue	10.0000	10.7954	-7.95	104	0.00
91	T	135Trimebenz	10.0000	10.4825	-4.82	104	0.00
92	T	tbutylbenzen	10.0000	10.3467	-3.47	103	0.00
93	T	124Trimetben	10.0000	10.6873	-6.87	104	0.00
94	T	sbutylbenzen	10.0000	10.9023	-9.02	103	0.00
95	PT	13Diclorbenz	10.0000	10.2423	-2.42	101	0.00
96	T	pIsopropylto	10.0000	10.7239	-7.24	105	0.00
97	PT	14dichlorobe	10.0000	9.9857	0.14	100	0.00
98	PT	12dichlorobe	10.0000	9.9581	0.42	102	0.00
99	T	nButylbenzen	10.0000	10.0238	-0.24	100	0.00
100	PT	12dibromo3cl	10.0000	9.8866	1.13	104	0.00
101	T	135Trichlorobenzene	10.0000	9.9675	0.33	101	0.00
102	PT	124Trichlobe	10.0000	9.4282	5.72	95	0.00
103	T	Hexachlorobu	10.0000	10.1882	-1.88	103	0.00
104	T	Naphthalene	10.0000	10.5819	-5.82	105	0.00
105	T	123Trichlben	10.0000	10.0830	-0.83	99	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

W100218.M Wed Oct 03 10:42:31 2018

Quantitation Report

Data File : C:\INSTARCH\Data\OCT0218B\CCVF1.D Vial: 12
Acq On : 3 Oct 2018 2:10 Operator: AGK-RLD
Sample : 153915,CCVF, Inst : VMS3
Misc : 10.0/100.0 ug/L, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 03 02:30:35 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 21:31:17 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M
IS QA File : 50 level for IS QA unknown. No recoveries calculated.

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min) Rcv(Ar)
1) FLUOROBENZENE**ISTD**	7.69	96	1294097	20.00 ug/L	0.00 NA%
68) d5-CHLOROBENZENE**ISTD**	11.60	117	1034801	20.00 ug/L	0.00 NA%
82) d4-1,4-DICHLOROBENZENE**IS	14.90	152	566712	20.00 ug/L	0.00 NA%

System Monitoring Compounds

41) SURRDibrflma	6.85	113	325558	19.617 ug/L	0.00
Spiked Amount 20.000	Range 90 - 110		Recovery = 98 %		
45) SURR12DCAd4	7.25	102	85452	19.986 ug/L	0.00
Spiked Amount 20.000	Range 89 - 111		Recovery = 100 %		
61) SURRd8Tolule	9.69	98	1274667	19.527 ug/L	0.00
Spiked Amount 20.000	Range 93 - 107		Recovery = 98 %		
83) SURR4BrFBenz	13.23	95	418802	20.296 ug/L	0.00
Spiked Amount 20.000	Range 83 - 111		Recovery = 101 %		

Target Compounds					Qvalue
2) Dichlorodi	1.87	85	184522	10.9678 ug/L	98
3) Chloromethan	2.11	50	136421	11.1386 ug/L	98
4) VinylChlorid	2.27	62	308361	9.7033 ug/L	98
5) Bromomethane	2.73	94	201229	13.2533 ug/L	93
6) Chloroethane	2.89	64	295807	10.0933 ug/L	94
7) Dichloroflmethane	3.20	67	371515	14.7478 ug/L	96
8) Trichlorofma	3.28	101	253585	10.1084 ug/L	98
9) Ethylether	3.73	59	143713	9.9646 ug/L	94
10) dichlorotfluoroethan	3.73	67	175580	10.7501 ug/L	90
11) propyleneoxide	4.08	58	192487	97.6389 ug/L	92
12) Acrolein	3.86	56	170877	51.0188 ug/L	94
13) 11dichlorthe	3.99	96	155298	10.1033 ug/L	94
14) Trichlorotfluoroeth	4.03	101	294360	20.5966 ug/L	99
15) Acetone	4.09	43	591500	99.2512 ug/L	97
16) Iodomethane	4.16	142	169185	17.8473 ug/L	99
17) Carbon Dislf	4.26	76	811466	21.2441 ug/L	98
18) allylchloride	4.48	41	378655	20.2392 ug/L	99
19) methylacetate	4.55	74	58960	9.7951 ug/L	83
20) Methylchlorid	4.64	84	241038	15.0945 ug/L	92
21) tbutylalcohol	4.87	59	839949	456.3107 ug/L	99
22) Acrylonitrile	4.94	53	335501	50.6627 ug/L	96
23) t12dichlorte	5.01	96	165327	10.1260 ug/L	99
24) MtBE	5.06	73	469845	10.3913 ug/L	98
25) Hexane	5.40	57	469679	20.4513 ug/L	99
26) 11dichlorota	5.53	63	313932	10.3181 ug/L	99
27) Vinylacetate	5.63	43	3285888	111.4564 ug/L	99
28) chloroprene	5.66	53	482067	21.0808 ug/L	98
29) Diisopether	5.69	45	525814	10.7343 ug/L	99
30) ETBE	6.14	59	452232	10.2352 ug/L	99
31) 22dichloropr	6.26	77	215520	8.3445 ug/L	98
32) c12dichlorte	6.27	96	187230	9.9296 ug/L	95
33) 2Butanone	6.30	72	252991	100.7520 ug/L	96
34) propionitrile	6.34	54	251159	96.1306 ug/L	96
35) Ethylacetate	6.40	88	45165	49.7081 ug/L	94
36) methacrylonitrile	6.53	67	167663	20.2391 ug/L	95
37) Bromochlorma	6.55	128	84273	9.7215 ug/L	95
38) Tetrahydofur	6.66	42	643982	107.3498 ug/L	99

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\INSTARCH\Data\OCT0218B\CCVF1.D Vial: 12
Acq On : 3 Oct 2018 2:10 Operator: AGK-RLD
Sample : 153915,CCVF, Inst : VMS3
Misc : 10.0/100.0 ug/L, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 03 02:30:35 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 21:31:17 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
39)	Chloroform	6.65	83	299515	9.5913	ug/L	98
40)	111trichlota	6.90	97	266161	10.2501	ug/L	97
42)	Cyclohexane	6.98	56	359602	10.7772	ug/L	93
43)	Carbtetraclo	7.11	119	211608	10.2603	ug/L	98
44)	11dicloprope	7.11	110	83393	10.0007	ug/L	99
46)	Benzene	7.35	78	697637	10.3124	ug/L	98
47)	12dichlorota	7.35	62	233211	10.4721	ug/L	99
48)	TAME	7.53	73	471093	10.3543	ug/L	99
49)	trichloroete	8.15	95	178621	10.3199	ug/L	98
50)	methylcyclohexane	8.42	83	327748	10.1992	ug/L	99
51)	12dicloropra	8.41	63	176685	9.4793	ug/L	94
52)	23Dicl1propene	8.48	75	249502	10.0896	ug/L	93
53)	Dibromometha	8.55	93	113991	10.1343	ug/L	99
54)	methylmethacrylate	8.59	69	133326	9.8376	ug/L	96
55)	14dioxane	8.64	88	20551	503.7731	ug/L	81
56)	Bromodiclrma	8.76	83	223944	10.1019	ug/L	100
57)	2Nitropropane	9.02	43	623303	107.5542	ug/L	99
58)	2CLEVE	9.15	63	462740	49.8678	ug/L	99
59)	c13dicloproe	9.33	75	257373	10.1101	ug/L	99
60)	4Meth2Pentan	9.54	43	2024232	107.1811	ug/L	99
62)	Toluene	9.78	92	429797	9.8799	ug/L	97
63)	t13Dicloprop	10.04	75	229502	10.0129	ug/L	95
64)	ethylmethacrylate	10.20	69	458100	20.4297	ug/L	93
65)	112Triclotha	10.28	83	136145	10.1034	ug/L	97
66)	Tetrachlorte	10.51	166	215380	10.5230	ug/L	90
67)	13Diclorpropa	10.50	76	291177	10.2404	ug/L	96
69)	2Hexanone	10.64	43	1457645	108.9030	ug/L	100
70)	Clorodibrmta	10.80	129	169566	9.9486	ug/L	98
71)	12Dibrometha	10.96	107	168556	10.2970	ug/L	97
72)	Chlorobenzen	11.64	112	477393	10.1125	ug/L	96
73)	1Clhexane	11.62	91	240100	9.8165	ug/L	100
74)	1112Tetclota	11.75	131	169570	9.9500	ug/L	97
75)	Ethylbenzene	11.80	91	804036	10.4613	ug/L	99
76)	m p-Xylene	11.96	106	627566	20.7157	ug/L	99
77)	o-Xylene	12.52	106	300415	9.8789	ug/L	98
78)	Styrene	12.53	104	488932	10.3147	ug/L	95
79)	Bromoform	12.76	173	127847	9.0065	ug/L	98
80)	Isopropylben	13.04	105	767100	10.4843	ug/L	100
81)	cyclohexanone	13.14	55	58657	180.6296	ug/L	91
84)	Bromobenzene	13.45	156	214879	10.6228	ug/L	94
85)	1122Tetrclta	13.42	83	258211	10.8010	ug/L	98
86)	123Triclproa	13.48	75	288221	10.2134	ug/L	98
87)	14dichloro2butene	13.50	53	63725	9.5644	ug/L	94
88)	n-Propylbenz	13.62	91	890304	10.3817	ug/L	98
89)	2chlorotolue	13.74	91	505370	10.8326	ug/L	98
90)	4chlorotolue	13.89	91	565418	10.7954	ug/L	99
91)	135Trimebenz	13.88	105	592481	10.4825	ug/L	98
92)	tbutylbenzen	14.35	119	523902	10.3467	ug/L	99
93)	124Trimetben	14.41	105	584247	10.6873	ug/L	97
94)	sbutylbenzen	14.66	105	775112	10.9023	ug/L	99
95)	13Diclorbenz	14.81	146	368209	10.2423	ug/L	98
96)	pIsopropylto	14.88	119	646353	10.7239	ug/L	96
97)	14dichlorobe	14.93	146	374516	9.9857	ug/L	97
98)	12dichlorobe	15.47	146	353016	9.9581	ug/L	98
99)	nButylbenzen	15.48	91	568959	10.0238	ug/L	98
100)	12dibromo3cl	16.57	157	54047	9.8866	ug/L	99
101)	135Trichlorobenzene	16.89	180	243980	9.9675	ug/L	97

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\INSTARCH\Data\OCT0218B\CCVF1.D Vial: 12
Acq On : 3 Oct 2018 2:10 Operator: AGK-RLD
Sample : 153915,CCVF, Inst : VMS3
Misc : 10.0/100.0 ug/L, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 03 02:30:35 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 21:31:17 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
102) 124Trichlobe	17.71	180	195971	9.4282	ug/L	92
103) Hexachlorobu	17.96	225	115055	10.1882	ug/L	95
104) Naphthalene	18.01	128	493890	10.5819	ug/L	99
105) 123Trichlben	18.33	180	195045	10.0830	ug/L	96

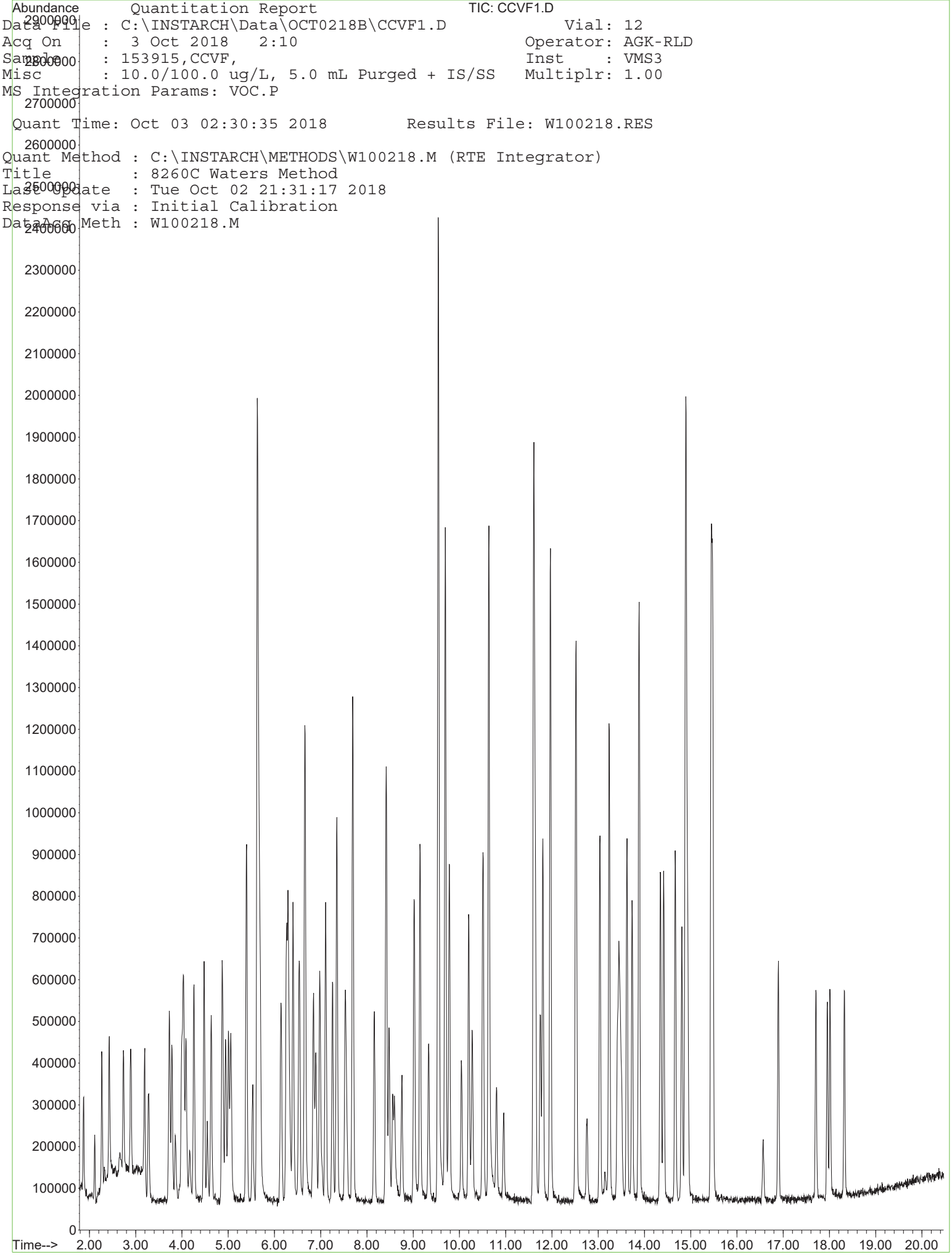
(#) = qualifier out of range (m) = manual integration

Quantitation Report

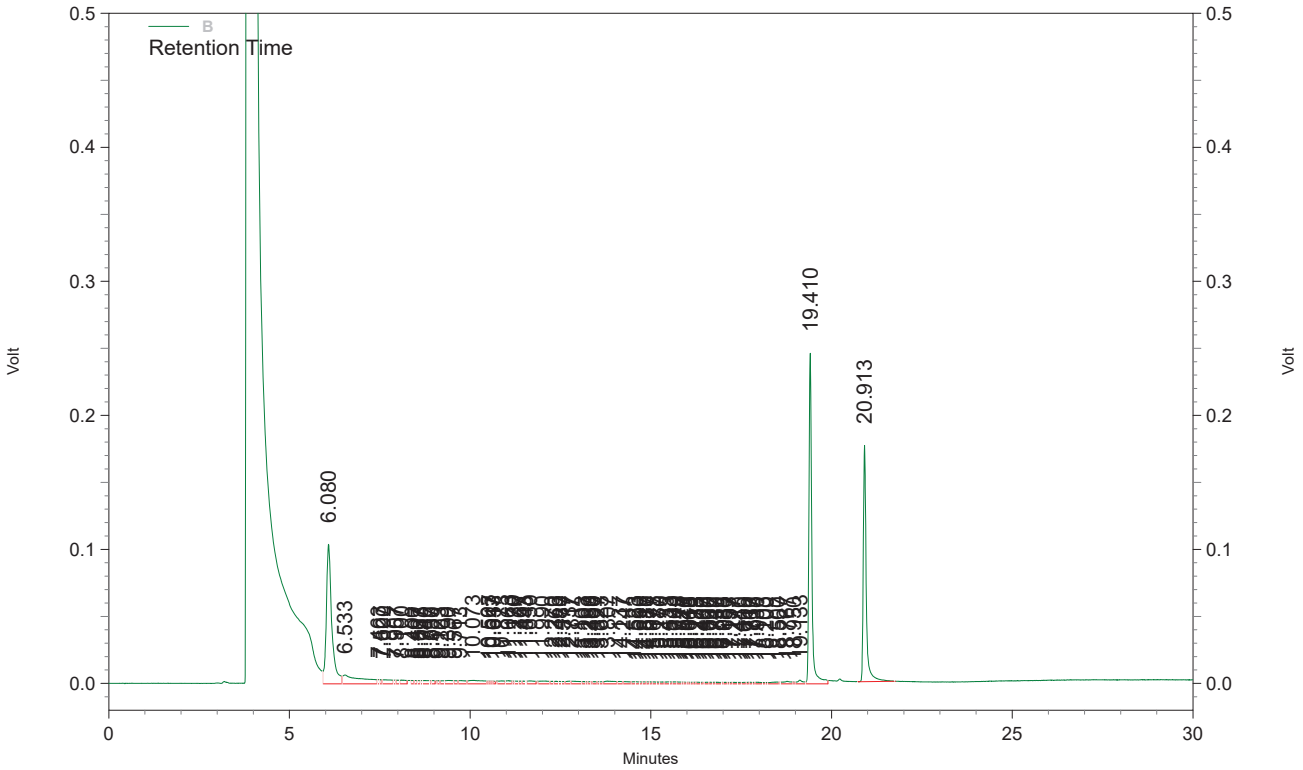
Data File : C:\INSTARCH\Data\OCT0218B\CCVF1.D Vial: 12
Acq On : 3 Oct 2018 2:10 Operator: AGK-RLD
Sample : 153915,CCVF, Inst : VMS3
Misc : 10.0/100.0 ug/L, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 03 02:30:35 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 21:31:17 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M



Inst : **PVOC1**
File : C:\Instarch\PVOC1\Data\092118-8015WS\014.DAT
Method : C:\Instarch\PVOC1\Methods\8015p1s091218.met
Acquired : Sep 21, 2018 19:50:38
Sample ID : 145909,RTW,
File Desc. : RETENTION TIME WINDOW



B Results

Compound Name	Retention Time	*Area*	*Conc. (ug/L)*
S:1,2-DCBd4	20.913	998620	179.139 HC
GRO		3942745	97.673

QC Check Standard Report

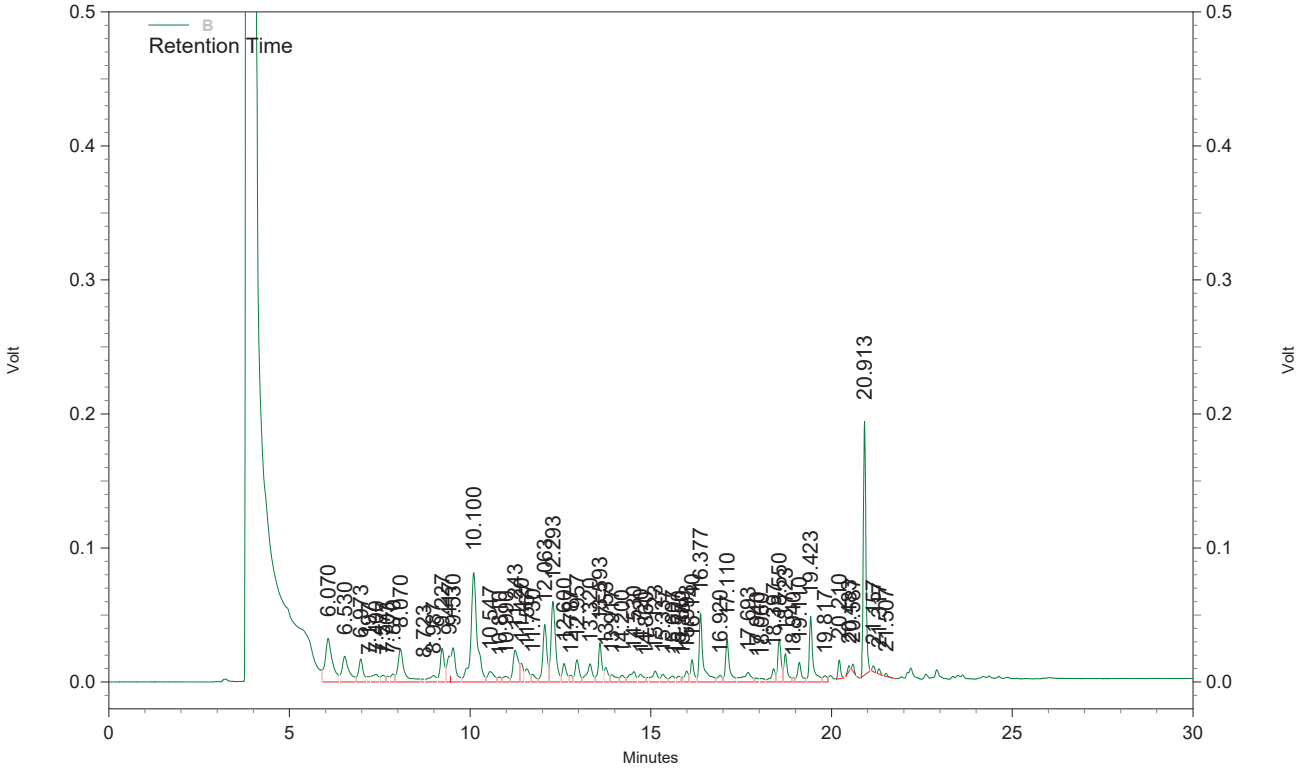
Sequence : C:\INSTARCH\PVOC1\Sequences\092118 -8015 153496 153497 153498.seq
User : DGS
Printed : Sep 24, 2018 12:38:52

File	Sample ID	Acquired
C:\Instarch\PVOC1\Data\092118-8015WS\015.DAT	153498,CCV,	Sep 24, 2018 12:38:52

B

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
S:1,2-DCBd4	100.000	169.145	69.145	20.000	**FAILED**
GRO	200.000	211.514	5.757	20.000	**Passed**

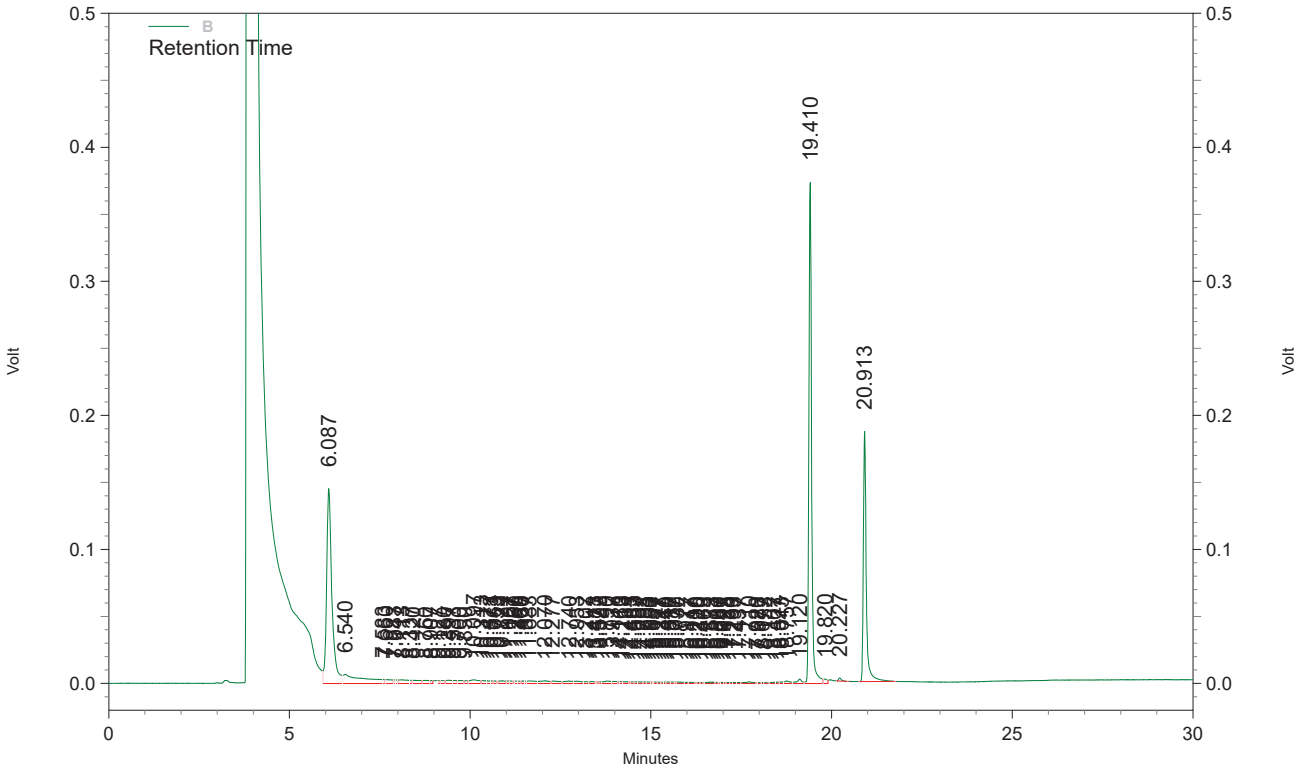
Inst : **PVOC1**
File : C:\Instarch\PVOC1\Data\092118-8015WS\015.DAT
Method : C:\Instarch\PVOC1\Methods\8015p1s091218.met
Acquired : Sep 21, 2018 20:26:27
Sample ID : 153498,CCV,
File Desc. :
GRO = 200 ug/L (10 mg/kg)
10 ul of 8015 CCV/CALIB. Std. + 1.0 ml MeOH into 50 ml F.V. of DI H2O---5.0 mL Purged + SSTD



B Results

Compound Name	Retention Time	*Area*	*Conc. (ug/L)*
S:1,2-DCBd4	20.913	941128	169.145 HC
GRO		7761952	211.514

Inst : **PVOC1**
File : C:\Instarch\PVOC1\Data\092118-8015WS\021.DAT
Method : C:\Instarch\PVOC1\Methods\8015p1s091218.met
Acquired : Sep 22, 2018 00:01:45
Sample ID : 153498,RTW,
File Desc. : RETENTION TIME WINDOW



B Results

Compound Name	Retention Time	*Area*	*Conc. (ug/L)*
S:1,2-DCBd4	20.913	1044404	187.098 HC
GRO		4746343	121.626

QC Check Standard Report

Sequence : C:\INSTARCH\PVOC1\Sequences\092118 -8015 153496 153497 153498.seq
User : DGS
Printed : Sep 24, 2018 12:39:27

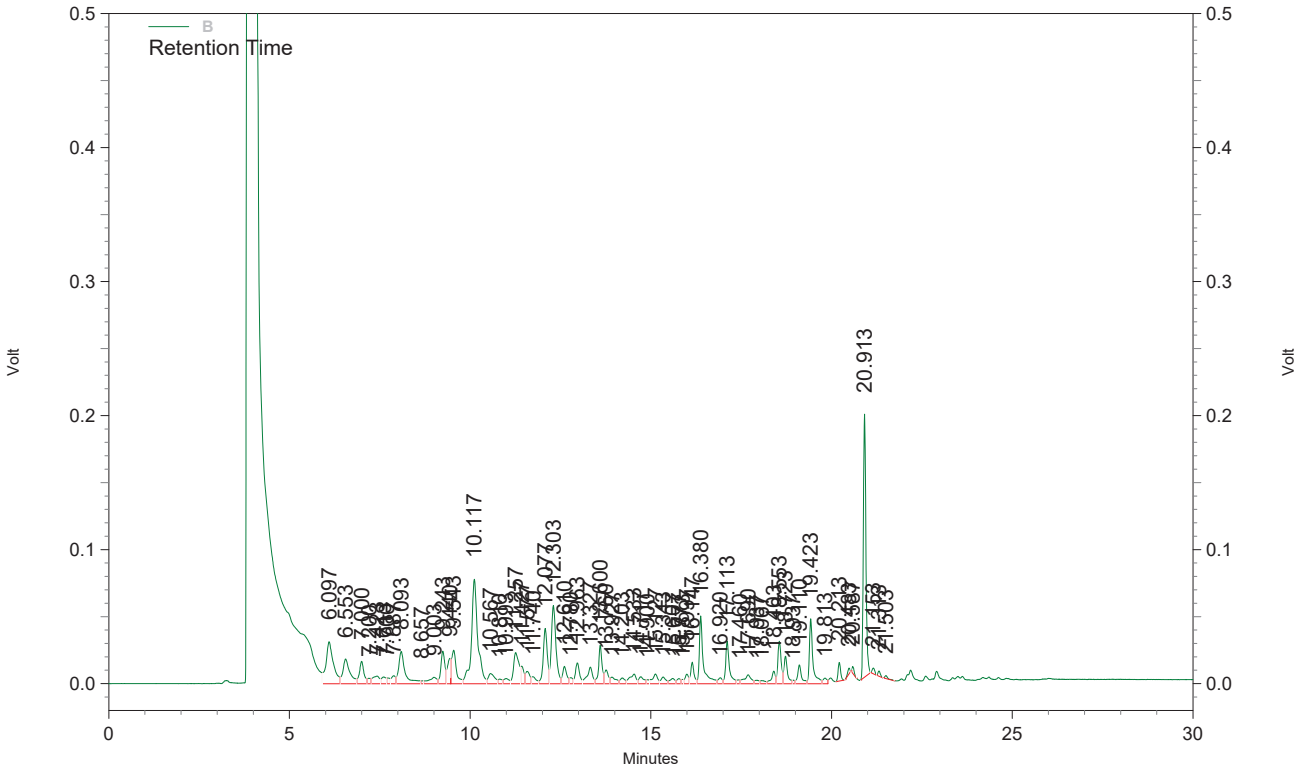
File	Sample ID	Acquired
C:\Instarch\PVOC1\Data\092118-8015WS\022.DAT	145909,CCV,	Sep 24, 2018 12:39:27

B

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
S:1,2-DCBd4	100.000	174.100	74.100	20.000	**FAILED**
GRO	200.000	200.743	0.371	20.000	**Passed**

Inst : **PVOC1**
File : C:\Instarch\PVOC1\Data\092118-8015WS\022.DAT
Method : C:\Instarch\PVOC1\Methods\8015p1s091218.met
Acquired : Sep 22, 2018 00:37:43
Sample ID : 145909,CCV,
File Desc. : 8015 GRO CCV

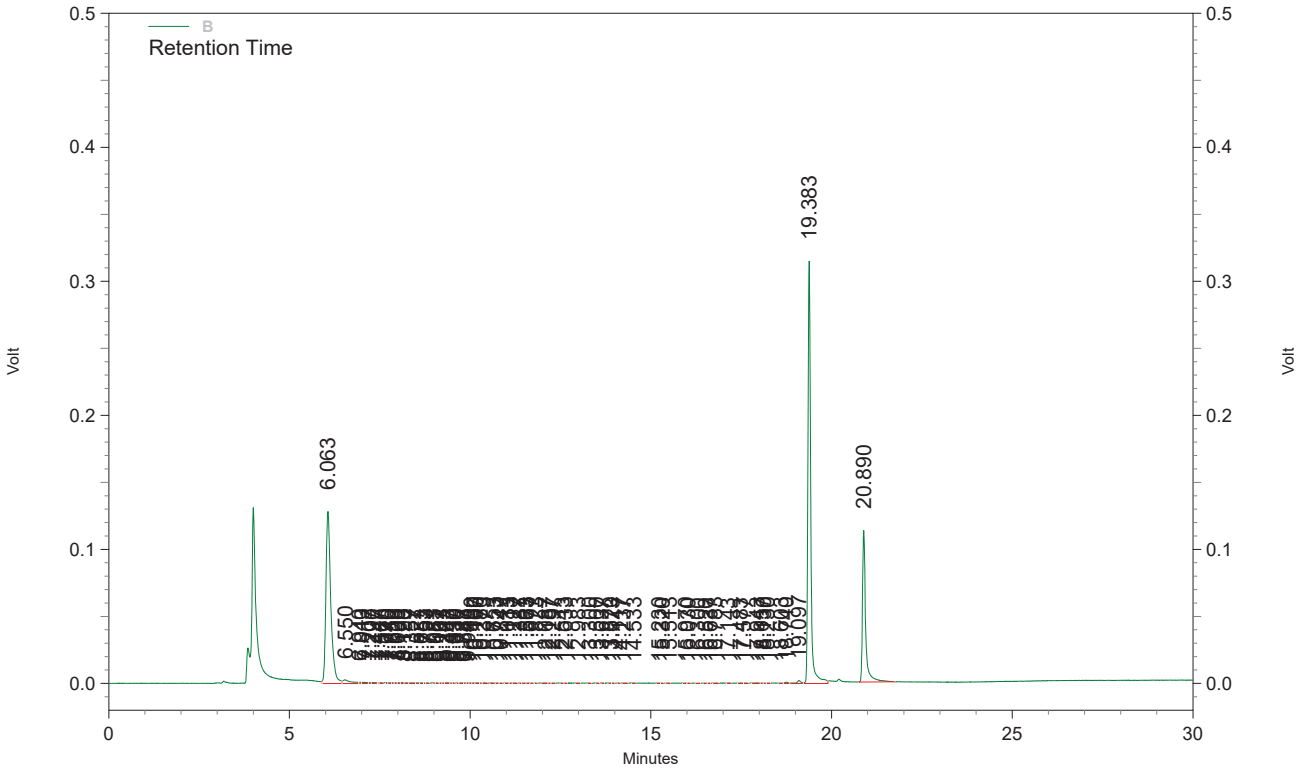
GRO = 200 ug/L
10 ul of 8015 CCV/CALIB. Std. into 50 ml F.V. of DI H2O---5.0 mL Purged + ISTD/SSTD



B Results

Compound Name	Retention Time	*Area*	*Conc. (ug/L)*
S:1,2-DCBd4	20.913	969630	174.100 HC
GRO		7400597	200.743

Inst : **PVOC1**
File : C:\Instarch\PVOC1\Data\092518-8015W\002.DAT
Method : C:\Instarch\PVOC1\Methods\8015p1w091018.met
Acquired : Sep 25, 2018 15:45:35
Sample ID : 153496,RTW,
File Desc. : RETENTION TIME WINDOW



B Results

Compound Name	Retention Time	*Area*	*Conc. (ug/L)*
S:1,2-DCBd4	20.890	679776	126.246 HC
GRO		3158928	96.561

QC Check Standard Report

Sequence : C:\INSTARCH\PVOC1\Sequences\092518 -8015 W.seq
User : DGS
Printed : Sep 26, 2018 07:48:32

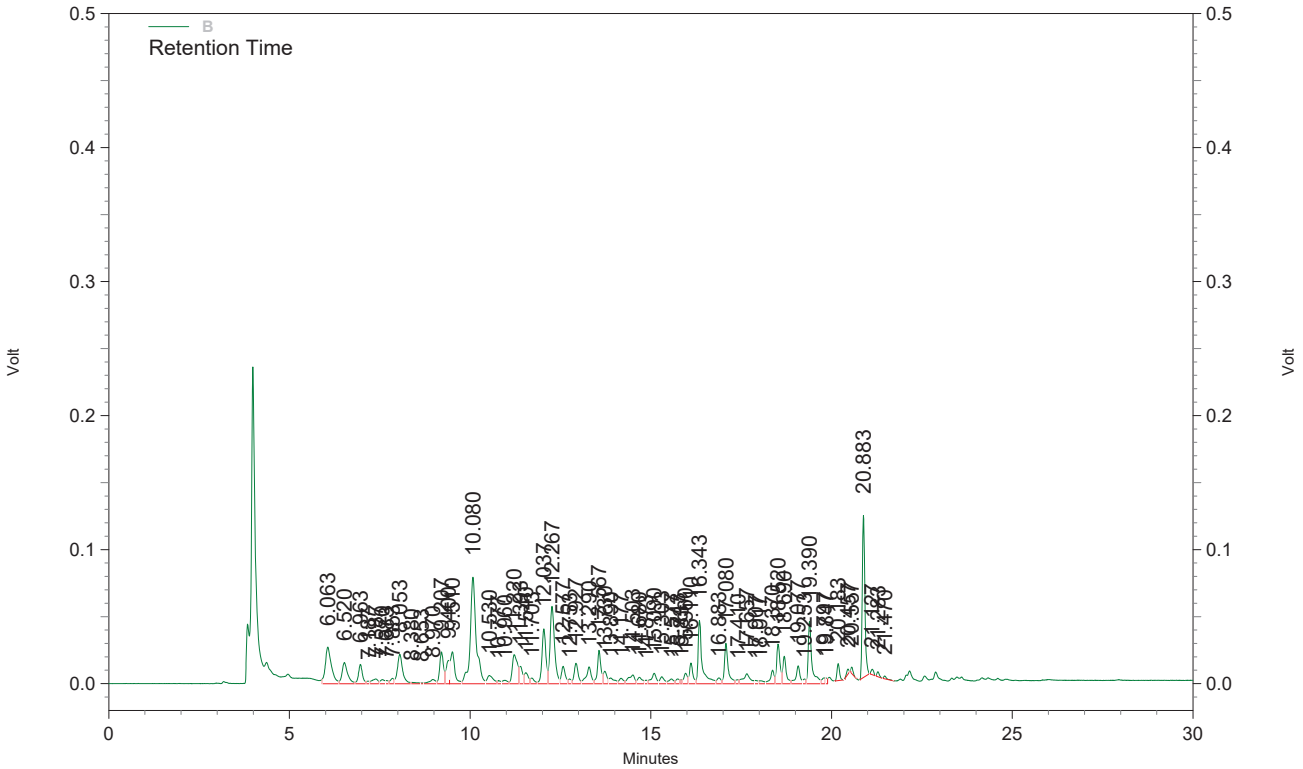
File	Sample ID	Acquired
C:\Instarch\PVOC1\Data\092518-8015W\003.DAT	153496,CCV,	Sep 26, 2018 07:48:32

B

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
S:1,2-DCBd4	100.000	113.842	13.842	20.000	**Passed**
GRO	200.000	202.527	1.264	20.000	**Passed**

Inst : **PVOC1**
File : C:\Instarch\PVOC1\Data\092518-8015W\003.DAT
Method : C:\Instarch\PVOC1\Methods\8015p1w091018.met
Acquired : Sep 25, 2018 16:21:33
Sample ID : 153496,CCV,
File Desc. : 8015 GRO CCV

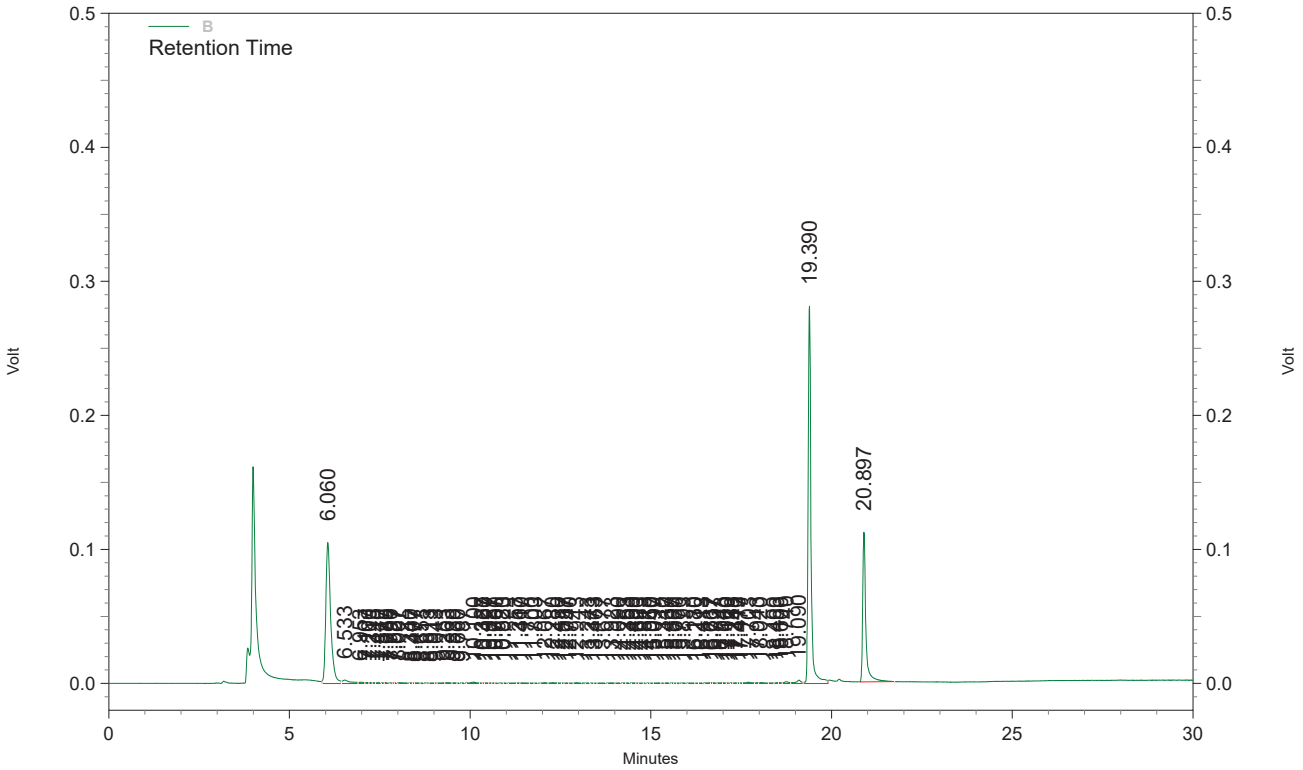
GRO = 200 ug/L
10 ul of 8015 CCV/CALIB. Std. into 50 ml F.V. of DI H2O---5.0 mL Purged + SSTD



B Results

Compound Name	Retention Time	*Area*	*Conc. (ug/L)*
S:1,2-DCBd4	20.883	610274	113.842
GRO		6594089	202.527

Inst : **PVOC1**
File : C:\Instarch\PVOC1\Data\092518-8015W\012.DAT
Method : C:\Instarch\PVOC1\Methods\8015p1w091018.met
Acquired : Sep 25, 2018 21:45:57
Sample ID : 145909,RTW,
File Desc. : RETENTION TIME WINDOW



B Results

Compound Name	Retention Time	*Area*	*Conc. (ug/L)*
S:1,2-DCBd4	20.897	669914	124.485 HC
GRO		2899001	88.543

QC Check Standard Report

Sequence : C:\INSTARCH\PVOC1\Sequences\092518 -8015 W.seq
User : DGS
Printed : Sep 26, 2018 07:49:11

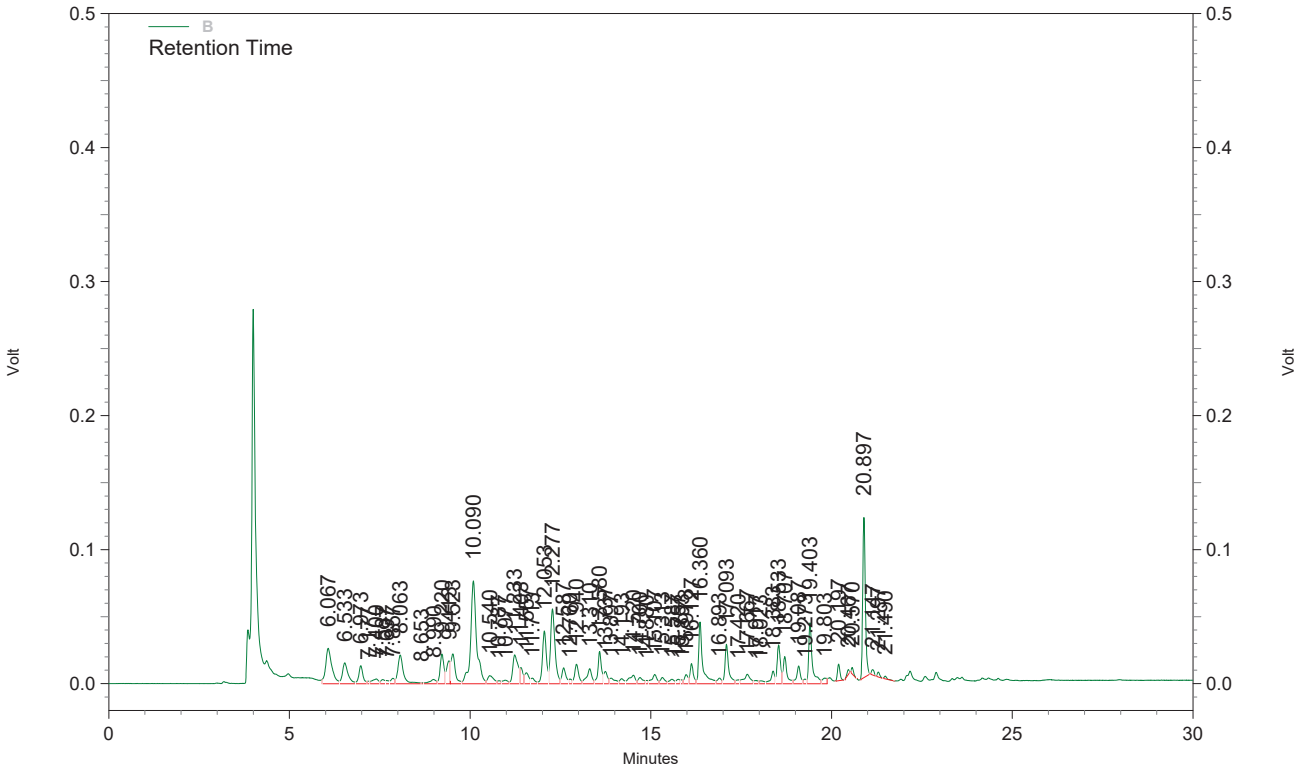
File	Sample ID	Acquired
C:\Instarch\PVOC1\Data\092518-8015W\013.DAT	153496,CCV,	Sep 26, 2018 07:49:11

B

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
S:1,2-DCBd4	100.000	112.739	12.739	20.000	**Passed**
GRO	200.000	195.258	2.371	20.000	**Passed**

Inst : **PVOC1**
File : C:\Instarch\PVOC1\Data\092518-8015W\013.DAT
Method : C:\Instarch\PVOC1\Methods\8015p1w091018.met
Acquired : Sep 25, 2018 22:21:56
Sample ID : 153496,CCV,
File Desc. : 8015 GRO CCV

GRO = 200 ug/L
10 ul of 8015 CCV/CALIB. Std. into 50 ml F.V. of DI H2O---5.0 mL Purged + SSTD



B Results

Compound Name	Retention Time	*Area*	*Conc. (ug/L)*
S:1,2-DCBd4	20.897	604094	112.739
GRO		6358427	195.258

VOLATILE ORGANIC ANALYSIS QUALITY CONTROL DOCUMENTS

Quantitation Report

Data File : C:\INSTARCH\Data\OCT0218B\TLCS1.D Vial: 3
Acq On : 2 Oct 2018 21:36 Operator: AGK-RLD
Sample : 153915,LCSW,100 Inst : VMS3
Misc : pH5, 10.0/100.0 ug/L, 5.0 mL Purged + IS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 21:57:21 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 21:31:17 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M
IS QA File : 50 level for IS QA unknown. No recoveries calculated.

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min) Rcv(Ar)
1) FLUOROBENZENE**ISTD**	7.69	96	1281783	20.00 ug/L	0.00 NA%
68) d5-CHLOROBENZENE**ISTD**	11.60	117	996803	20.00 ug/L	0.00 NA%
82) d4-1,4-DICHLOROBENZENE**IS	14.90	152	562086	20.00 ug/L	0.00 NA%

System Monitoring Compounds

41) SURRDibrflma	6.84	113	310201	18.872 ug/L	0.00
Spiked Amount 20.000	Range 90 - 110		Recovery = 94 %		
45) SURR12DCAd4	7.26	102	85770	20.253 ug/L	0.00
Spiked Amount 20.000	Range 89 - 111		Recovery = 101 %		
61) SURRd8Tolule	9.69	98	1274130	19.706 ug/L	0.00
Spiked Amount 20.000	Range 93 - 107		Recovery = 99 %		
83) SURR4BrFBenz	13.24	95	422213	20.629 ug/L	0.00
Spiked Amount 20.000	Range 83 - 111		Recovery = 103 %		

Target Compounds					Qvalue
2) Dichlorodi	1.88	85	189815	11.3908 ug/L	96
3) Chloromethan	2.11	50	132556	10.9270 ug/L	100
4) VinylChlorid	2.27	62	311376	9.8923 ug/L	94
5) Bromomethane	2.73	94	226937	15.0900 ug/L	93
6) Chloroethane	2.89	64	325311	11.2066 ug/L	98
7) Dichloroflmethane	3.20	67	247812	9.9318 ug/L	95
8) Trichlorofma	3.28	101	279860	11.2629 ug/L	96
9) Ethylether	3.73	59	151664	10.6169 ug/L	99
10) dichlorotfluoroethan	3.72	67	182968	11.3100 ug/L	93
11) propyleneoxide	4.09	58	193718	99.2074 ug/L	92
12) Acrolein	3.86	56	168895	50.9065 ug/L	96
13) 11dichlorthe	3.99	96	166389	10.9289 ug/L	94
14) Trichlorotfluoroeth	4.04	101	315594	22.2945 ug/L	99
15) Acetone	4.08	43	597398	101.2038 ug/L	97
16) Iodomethane	4.17	142	169482	18.0192 ug/L	97
17) Carbon Dislf	4.26	76	869242	22.9753 ug/L	99
18) allylchloride	4.48	41	416216	22.4606 ug/L	94
19) methylacetate	4.55	74	67529	11.3264 ug/L	83
20) Methylchlorid	4.63	84	264229	16.9346 ug/L	98
21) tbutylalcohol	4.88	59	956728	527.1920 ug/L	99
22) Acrylonitrile	4.94	53	375199	57.2016 ug/L	99
23) t12dichlorte	5.01	96	173027	10.6994 ug/L	96
24) MtBE	5.06	73	501603	11.2003 ug/L	96
25) Hexane	5.39	57	530992	23.3432 ug/L	98
26) 11dichlorota	5.53	63	314201	10.4262 ug/L	94
27) Vinylacetate	5.63	43	3521695	122.1317 ug/L	99
28) chloroprene	5.66	53	493483	21.7873 ug/L	100
29) Diisopether	5.69	45	522658	10.7724 ug/L	98
30) ETBE	6.14	59	483593	11.0501 ug/L	97
31) 22dichloropr	6.26	77	257930	10.0825 ug/L	99
32) c12dichlorte	6.26	96	192009	10.2808 ug/L	93
33) 2Butanone	6.30	72	279708	112.4620 ug/L	100
34) propionitrile	6.33	54	258672	99.9612 ug/L	95
35) Ethylacetate	6.40	88	54130	60.1472 ug/L #	92
36) methacrylonitrile	6.53	67	184684	22.5080 ug/L	100
37) Bromochlorma	6.55	128	89771	10.4553 ug/L	97
38) Tetrahydofur	6.66	42	680076	114.4556 ug/L	98

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\INSTARCH\Data\OCT0218B\TLCS1.D Vial: 3
Acq On : 2 Oct 2018 21:36 Operator: AGK-RLD
Sample : 153915,LCSW,100 Inst : VMS3
Misc : pH5, 10.0/100.0 ug/L, 5.0 mL Purged + IS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 21:57:21 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 21:31:17 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
39)	Chloroform	6.65	83	320299	10.3554 ug/L	96
40)	111trichlota	6.89	97	281138	10.9309 ug/L	98
42)	Cyclohexane	6.98	56	369036	11.1662 ug/L	95
43)	Carbtetraclo	7.11	119	229265	11.2233 ug/L	96
44)	11dicloprope	7.10	110	87249	10.5636 ug/L	98
46)	Benzene	7.35	78	719711	10.7409 ug/L	96
47)	12dichlorota	7.35	62	246427	11.1718 ug/L	98
48)	TAME	7.53	73	493463	10.9501 ug/L	96
49)	trichloroete	8.15	95	183093	10.6799 ug/L	97
50)	methylcyclohexane	8.41	83	340356	10.6933 ug/L	98
51)	12dicloropra	8.42	63	196460	10.6415 ug/L	99
52)	23Dicl1propene	8.48	75	261956	10.6950 ug/L	93
53)	Dibromometha	8.56	93	118410	10.6283 ug/L	96
54)	methylmethacrylate	8.60	69	147718	10.9381 ug/L	96
55)	14dioxane	8.65	88	19235	478.9256 ug/L #	61
56)	Bromodiclrma	8.76	83	239068	10.8877 ug/L	95
57)	2Nitropropane	9.02	43	693097	120.7465 ug/L	99
58)	2CLEVE	9.15	63	477189	51.7958 ug/L	99
59)	c13dicloproe	9.33	75	277703	11.0135 ug/L	99
60)	4Meth2Pentan	9.54	43	2254146	120.5014 ug/L	99
62)	Toluene	9.79	92	462414	10.7318 ug/L	99
63)	t13Dicloprop	10.04	75	253995	11.1879 ug/L	96
64)	ethylmethacrylate	10.20	69	507437	22.8474 ug/L	98
65)	112Triclotha	10.28	83	156148	11.6992 ug/L	95
66)	Tetrachlorte	10.52	166	221479	10.9249 ug/L	95
67)	13Diclorpropa	10.50	76	294977	10.4737 ug/L	95
69)	2Hexanone	10.64	43	1615643	125.3087 ug/L	100
70)	Clorodibrmta	10.79	129	178654	10.8814 ug/L	99
71)	12Dibrometha	10.95	107	169775	10.7668 ug/L	100
72)	Chlorobenzen	11.65	112	497400	10.9380 ug/L	98
73)	1Clhexane	11.62	91	254412	10.7982 ug/L	99
74)	1112Tetclota	11.74	131	189248	11.5279 ug/L	96
75)	Ethylbenzene	11.80	91	829072	11.1982 ug/L	99
76)	m p-Xylene	11.96	106	641358	21.9780 ug/L	95
77)	o-Xylene	12.52	106	326445	11.1441 ug/L	96
78)	Styrene	12.53	104	536054	11.7399 ug/L	99
79)	Bromoform	12.75	173	139314	10.1884 ug/L	93
80)	Isopropylben	13.03	105	816575	11.5859 ug/L	99
81)	cyclohexanone	13.15	55	53089	171.3822 ug/L	84
84)	Bromobenzene	13.45	156	228555	11.3919 ug/L	98
85)	1122Tetrclta	13.41	83	281566	11.8749 ug/L	94
86)	123Triclproa	13.48	75	332787	11.8897 ug/L	92
87)	14dichloro2butene	13.51	53	70593	10.6824 ug/L	93
88)	n-Propylbenz	13.62	91	960751	11.3833 ug/L	98
89)	2chlorotolue	13.73	91	555372	12.0023 ug/L	95
90)	4chlorotolue	13.89	91	608597	11.7154 ug/L	100
91)	135Trimebenz	13.88	105	641486	11.4429 ug/L	97
92)	tbutylbenzen	14.35	119	567633	11.3026 ug/L	98
93)	124Trimetben	14.41	105	643204	11.8626 ug/L	99
94)	sbutylbenzen	14.66	105	851851	12.0802 ug/L	97
95)	13Diclorbenz	14.81	146	407320	11.4234 ug/L	99
96)	pIsopropylto	14.88	119	698175	11.6791 ug/L	98
97)	14dichlorobe	14.94	146	421760	11.3379 ug/L	98
98)	12dichlorobe	15.47	146	394351	11.2156 ug/L	98
99)	nButylbenzen	15.48	91	622257	11.0530 ug/L	98
100)	12dibromo3cl	16.56	157	60431	11.1454 ug/L	96
101)	135Trichlorobenzene	16.89	180	276793	11.4011 ug/L	98

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\INSTARCH\Data\OCT0218B\TLCS1.D Vial: 3
Acq On : 2 Oct 2018 21:36 Operator: AGK-RLD
Sample : 153915,LCSW,100 Inst : VMS3
Misc : pH5, 10.0/100.0 ug/L, 5.0 mL Purged + IS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 21:57:21 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 21:31:17 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
102) 124Trichlobe	17.71	180	227251	11.0231 ug/L	97
103) Hexachlorobu	17.96	225	122869	10.9697 ug/L	95
104) Naphthalene	18.01	128	562401	12.1490 ug/L	100
105) 123Trichlben	18.33	180	221608	11.5505 ug/L	98

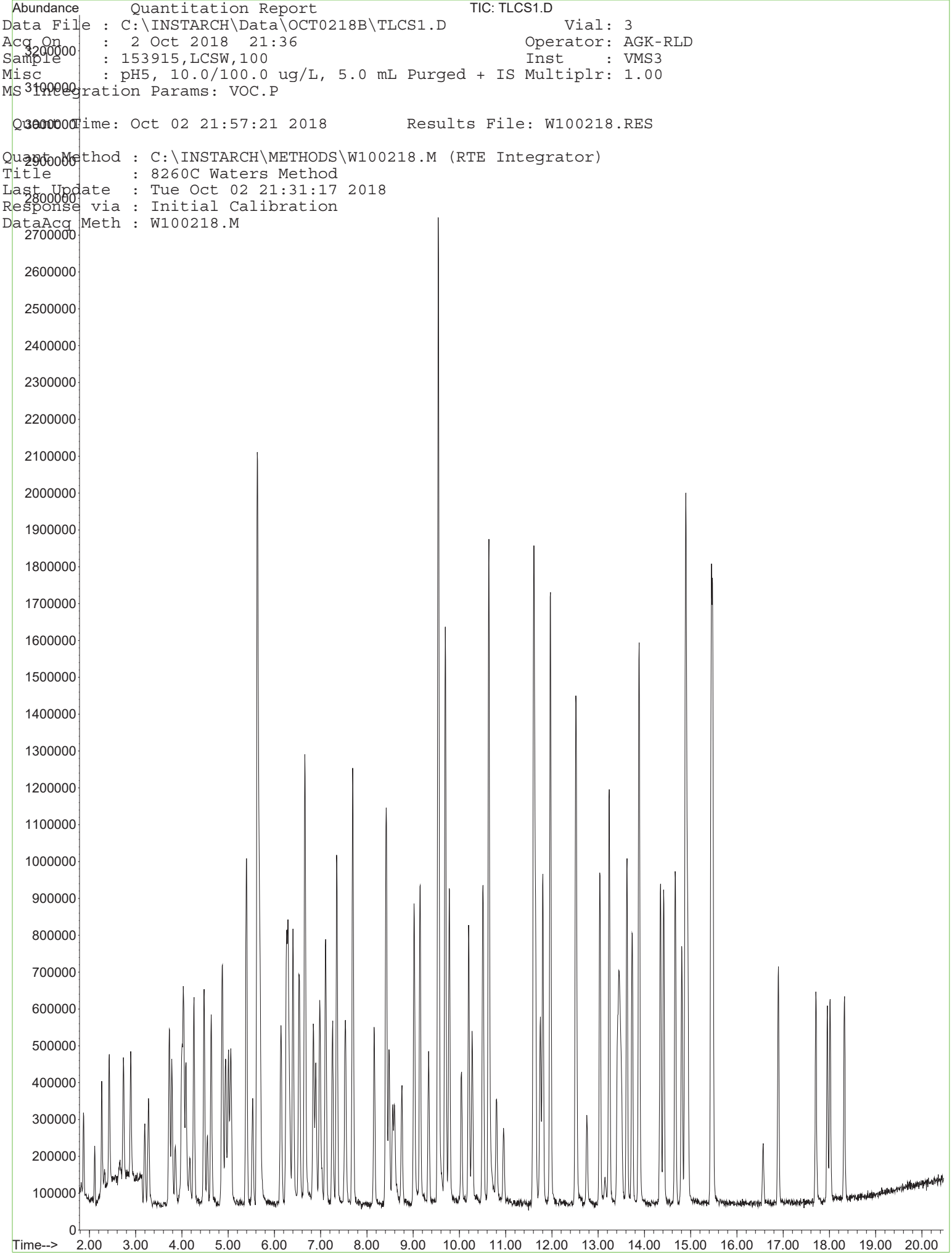
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\INSTARCH\Data\OCT0218B\TLCS1.D Vial: 3
Acq On : 2 Oct 2018 21:36 Operator: AGK-RLD
Sample : 153915,LCSW,100 Inst : VMS3
Misc : pH5, 10.0/100.0 ug/L, 5.0 mL Purged + IS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 21:57:21 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 21:31:17 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M



Quantitation Report

Data File : C:\INSTARCH\Data\OCT0218B\TMB1.D Vial: 6
Acq On : 2 Oct 2018 23:08 Operator: AGK-RLD
Sample : 153915,MBW,100 Inst : VMS3
Misc : pH5, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 23:28:43 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 21:31:17 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M
IS QA File : 50 level for IS QA unknown. No recoveries calculated.

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min) Rcv(Ar)
1) FLUOROBENZENE**ISTD**	7.69	96	1189366	20.00 ug/L	0.00 NA%
68) d5-CHLOROBENZENE**ISTD**	11.60	117	939296	20.00 ug/L	0.00 NA%
82) d4-1,4-DICHLOROBENZENE**IS	14.91	152	500563	20.00 ug/L	0.00 NA%

System Monitoring Compounds

41) SURRDibrflma	6.84	113	306532	20.097 ug/L	0.00
Spiked Amount 20.000	Range 90 - 110		Recovery = 100 %		
45) SURR12DCAd4	7.25	102	83714	21.304 ug/L	0.00
Spiked Amount 20.000	Range 89 - 111		Recovery = 107 %		
61) SURRd8Tolule	9.69	98	1204153	20.071 ug/L	0.00
Spiked Amount 20.000	Range 93 - 107		Recovery = 100 %		
83) SURR4BrFBenz	13.24	95	382750	21.000 ug/L	0.00
Spiked Amount 20.000	Range 83 - 111		Recovery = 105 %		

Target Compounds					Qvalue
2) Dichlorodi	1.92	85	1044	N.D.	
3) Chloromethan	2.11	50	1213	N.D.	
4) VinylChlorid	2.27	62	6791	N.D.	
5) Bromomethane	2.73	94	3627	N.D.	
6) Chloroethane	2.86	64	1798	N.D.	
7) Dichloroflmethane	3.17	67	2043	N.D.	
8) Trichlorofma	3.20	101	1062	N.D.	
9) Ethylether	3.74	59	2052	N.D.	
10) dichlorotfluoroethan	3.73	67	1386	N.D.	
11) propyleneoxide	4.09	58	4389	N.D.	
12) Acrolein	3.93	56	1733	Below Cal	91
13) 11dichlorthe	4.11	96	1287	N.D.	
14) Trichlorotfluoroeth	4.04	101	2569	N.D.	
15) Acetone	4.10	43	8892	N.D.	
16) Iodomethane	4.18	142	3261	2.5652 ug/L #	82
17) Carbon Dislf	4.27	76	3302	N.D.	
18) allylchloride	4.38	41	1932	N.D.	
19) methylacetate	4.55	74	1654	N.D.	
20) Methylchlorid	4.64	84	27607	Below Cal #	86
21) tbutylalcohol	4.88	59	2550	12.3940 ug/L #	1
22) Acrylonitrile	5.02	53	1180	N.D.	
23) t12dichlorte	5.02	96	1158	N.D.	
24) MtBE	5.05	73	1764	N.D.	
25) Hexane	5.39	57	1571	N.D.	
26) 11dichlorota	5.53	63	2154	N.D.	
27) Vinylacetate	5.68	43	1755	Below Cal #	69
28) chloroprene	5.64	53	1049	N.D.	
29) Diisopether	5.68	45	1651	N.D.	
30) ETBE	6.14	59	1678	N.D.	
31) 22dichloropr	6.28	77	1110	N.D.	
32) c12dichlorte	0.00	96	0	N.D.	
33) 2Butanone	6.34	72	1053	N.D.	
34) propionitrile	6.38	54	1153	N.D.	
35) Ethylacetate	6.43	88	1196	1.4322 ug/L #	1
36) methacrylonitrile	6.54	67	1819	N.D.	
37) Bromochlorma	6.55	128	1079	N.D.	
38) Tetrahydofur	6.66	42	4580	N.D.	

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\INSTARCH\Data\OCT0218B\TMB1.D Vial: 6
Acq On : 2 Oct 2018 23:08 Operator: AGK-RLD
Sample : 153915,MBW,100 Inst : VMS3
Misc : pH5, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 23:28:43 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 21:31:17 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
39)	Chloroform	6.65	83	6588	0.2295 ug/L	79
40)	111trichlota	6.86	97	1213	N.D.	
42)	Cyclohexane	6.98	56	1105	N.D.	
43)	Carbtetraclo	0.00	119	0	N.D.	
44)	11dicloprope	7.05	110	1099	N.D.	
46)	Benzene	7.34	78	5545	N.D.	
47)	12dichlorota	7.35	62	1164	N.D.	
48)	TAME	7.51	73	2354	N.D.	
49)	trichloroete	8.19	95	2372	N.D.	
50)	methylcyclohexane	8.42	83	2185	N.D.	
51)	12dicloropra	8.45	63	1854	N.D.	
52)	23Dicl1propene	8.53	75	1162	N.D.	
53)	Dibromometha	0.00	93	0	N.D.	
54)	methylmethacrylate	8.50	69	1463	0.7192 ug/L #	42
55)	14dioxane	8.67	88	1399	95.0244 ug/L #	43
56)	Bromodiclrma	0.00	83	0	N.D.	
57)	2Nitropropane	9.03	43	1395	N.D.	
58)	2CLEVE	9.15	63	1268	3.8822 ug/L #	44
59)	c13dicloproe	9.40	75	1230	N.D.	
60)	4Meth2Pentan	9.57	43	3707	N.D.	
62)	Toluene	9.77	92	3746	N.D.	
63)	t13Dicloprop	0.00	75	0	N.D.	
64)	ethylmethacrylate	0.00	69	0	N.D.	
65)	112Triclotha	10.20	83	1562	N.D.	
66)	Tetrachlorte	10.50	166	2032	N.D.	
67)	13Diclorpropa	10.52	76	1032	N.D.	
69)	2Hexanone	10.72	43	2055	N.D.	
70)	Clorodibrmta	0.00	129	0	N.D.	
71)	12Dibrometha	10.95	107	1145	N.D.	
72)	Chlorobenzen	11.65	112	1890	N.D.	
73)	1Clhexane	11.61	91	3049	N.D.	
74)	1112Tetclota	0.00	131	0	N.D.	
75)	Ethylbenzene	11.79	91	1067	N.D.	
76)	m p-Xylene	11.98	106	1858	N.D.	
77)	o-Xylene	12.62	106	1132	N.D.	
78)	Styrene	12.58	104	1647	N.D.	
79)	Bromoform	0.00	173	0	N.D.	
80)	Isopropylben	13.04	105	3185	N.D.	
81)	cyclohexanone	13.10	55	1136	33.6313 ug/L #	44
84)	Bromobenzene	13.46	156	1427	N.D.	
85)	1122Tetrclta	13.40	83	1226	N.D.	
86)	123Triclproa	13.40	75	1028	N.D.	
87)	14dichloro2butene	13.45	53	1256	0.2134 ug/L #	21
88)	n-Propylbenz	13.64	91	3954	Below Cal #	50
89)	2chlorotolue	13.73	91	1045	N.D.	
90)	4chlorotolue	13.93	91	2186	N.D.	
91)	135Trimebenz	0.00	105	0	N.D.	
92)	tbutylbenzen	14.42	119	1377	N.D.	
93)	124Trimetben	14.43	105	3242	N.D.	
94)	sbutylbenzen	14.67	105	1981	N.D.	
95)	13Diclorbenz	14.88	146	1334	N.D.	
96)	pIsopropylto	14.88	119	3714	N.D.	
97)	14dichlorobe	14.93	146	1724	N.D.	
98)	12dichlorobe	0.00	146	0	N.D.	
99)	nButylbenzen	15.47	91	2214	N.D.	
100)	12dibromo3cl	16.55	157	1075	N.D.	
101)	135Trichlorobenzene	16.88	180	1042	N.D.	

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\INSTARCH\Data\OCT0218B\TMB1.D Vial: 6
Acq On : 2 Oct 2018 23:08 Operator: AGK-RLD
Sample : 153915,MBW,100 Inst : VMS3
Misc : pH5, 5.0 mL Purged + IS/SS Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 02 23:28:43 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 21:31:17 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
102) 124Trichlobe	17.72	180	2824	N.D.	
103) Hexachlorobu	18.00	225	1076	N.D.	
104) Naphthalene	18.02	128	4145	N.D.	
105) 123Trichlben	18.33	180	1130	N.D.	

(#) = qualifier out of range (m) = manual integration

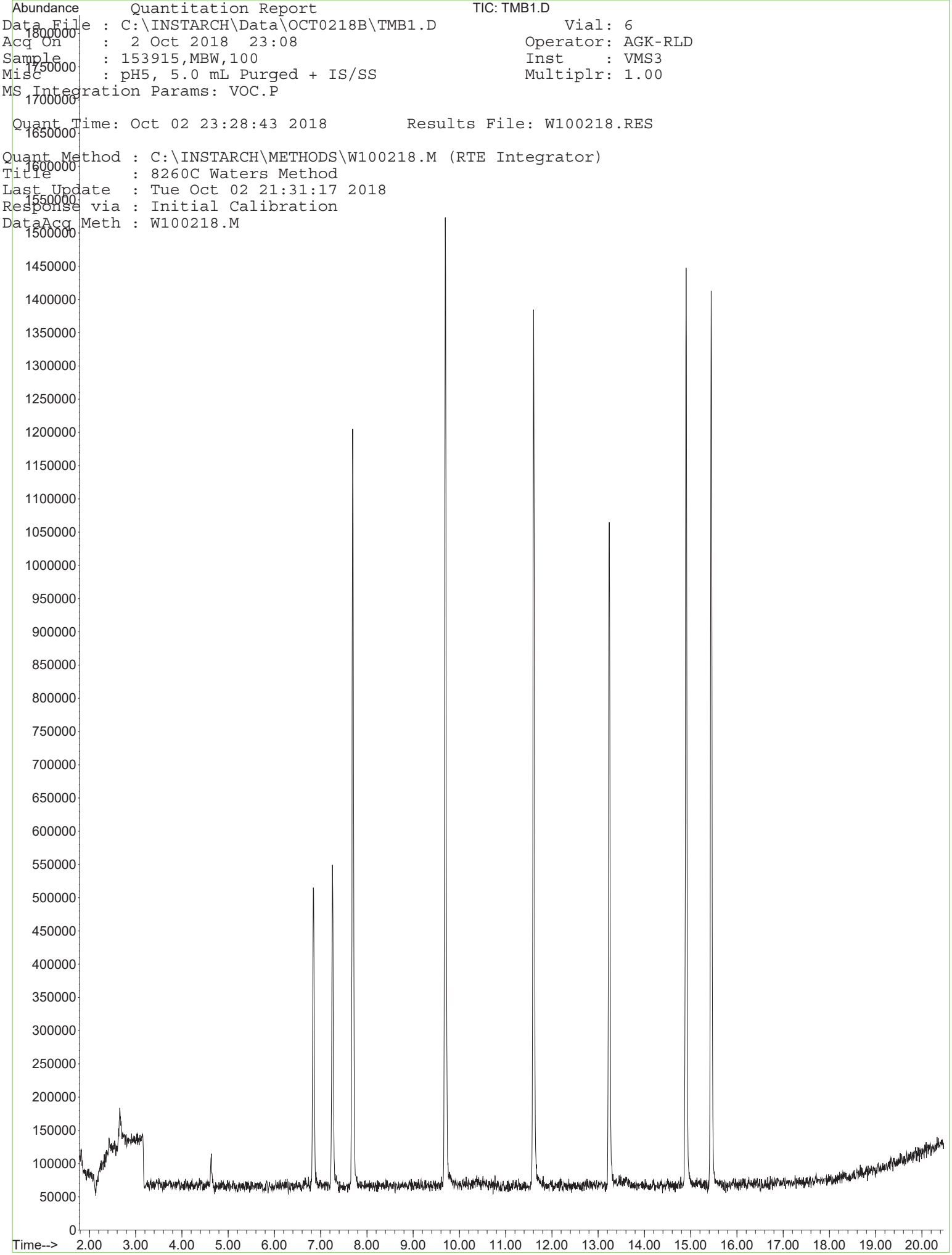
Quantitation Report

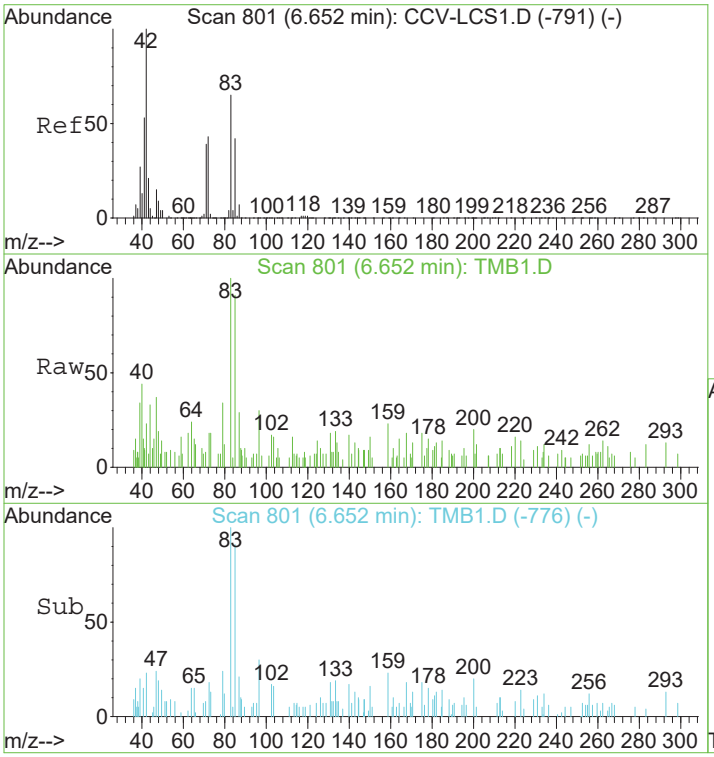
Data File : C:\INSTARCH\Data\OCT0218B\TMB1.D
Acq On : 2 Oct 2018 23:08
Sample : 153915,MBW,100
Misc : pH5, 5.0 mL Purged + IS/SS
MS Integration Params: VOC.P

Vial: 6
Operator: AGK-RLD
Inst : VMS3
Multiplr: 1.00

Quant Time: Oct 02 23:28:43 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 21:31:17 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M

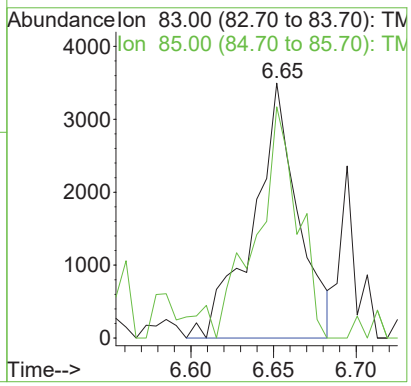




#39
Chloroform
Concen: 0.23 ug/L
RT: 6.65 min Scan# 801
Delta R.T. 0.00 min
Lab File: TMB1.D
Acq: 2 Oct 2018 23:08

Tgt Ion: 83 Resp: 6588

Ion	Ratio	Lower	Upper
83	100		
85	82.7	45.9	85.9



Quantitation Report

Data File : C:\INSTARCH\Data\OCT0218B\175864MS.D Vial: 10
Acq On : 3 Oct 2018 1:08 Operator: AGK-RLD
Sample : 153915,MSW175864,100 Inst : VMS3
Misc : pH5, 10.0/100 ug/L, 5.0 mL Purged + IS/S Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 03 01:29:25 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 21:31:17 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M
IS QA File : 50 level for IS QA unknown. No recoveries calculated.

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min) Rcv(Ar)
1) FLUOROBENZENE**ISTD**	7.69	96	1249125	20.00 ug/L	0.00 NA%
68) d5-CHLOROBENZENE**ISTD**	11.60	117	972071	20.00 ug/L	0.00 NA%
82) d4-1,4-DICHLOROBENZENE**IS	14.90	152	551781	20.00 ug/L	0.00 NA%

System Monitoring Compounds

41) SURRDibrflma	6.84	113	323124	20.172 ug/L	0.00
Spiked Amount 20.000	Range 90 - 110		Recovery = 101 %		
45) SURR12DCAd4	7.26	102	82703	20.039 ug/L	0.00
Spiked Amount 20.000	Range 89 - 111		Recovery = 100 %		
61) SURRd8Tolule	9.69	98	1242177	19.714 ug/L	0.00
Spiked Amount 20.000	Range 93 - 107		Recovery = 99 %		
83) SURR4BrFBenz	13.24	95	410991	20.456 ug/L	0.00
Spiked Amount 20.000	Range 83 - 111		Recovery = 102 %		

Target Compounds					Qvalue
2) Dichlorodi	1.87	85	173808	10.7029 ug/L	96
3) Chloromethan	2.11	50	158597	13.4154 ug/L	95
4) VinylChlorid	2.27	62	297591	9.7015 ug/L	97
5) Bromomethane	2.73	94	191902	13.0940 ug/L	93
6) Chloroethane	2.89	64	323688	11.4422 ug/L	98
7) Dichloroflmethane	3.20	67	239771	9.8607 ug/L	98
8) Trichlorofma	3.28	101	261836	10.8131 ug/L	96
9) Ethylether	3.73	59	129771	9.3219 ug/L	95
10) dichlorotfluoroethan	3.72	67	170500	10.8149 ug/L	90
11) propyleneoxide	4.08	58	167613	88.0826 ug/L #	84
12) Acrolein	3.85	56	144291	44.3580 ug/L	95
13) 11dichlorthe	3.99	96	142774	9.6229 ug/L	98
14) Trichlorotfluoroeth	4.03	101	275743	19.9886 ug/L	97
15) Acetone	4.08	43	540543	93.9663 ug/L	94
16) Iodomethane	4.16	142	118903	13.7017 ug/L	98
17) Carbon Dislf	4.26	76	822370	22.3047 ug/L	98
18) allylchloride	4.48	41	383311	21.2257 ug/L	99
19) methylacetate	4.55	74	59369	10.2181 ug/L	89
20) Methylchlorid	4.63	84	238717	15.5437 ug/L	97
21) tbutylalcohol	4.87	59	838044	472.1127 ug/L	99
22) Acrylonitrile	4.94	53	314454	49.1940 ug/L	95
23) t12dichlorte	5.01	96	158217	10.0394 ug/L	98
24) MtBE	5.05	73	458285	10.5006 ug/L	96
25) Hexane	5.39	57	474995	21.4274 ug/L	98
26) 11dichlorota	5.53	63	294525	10.0288 ug/L	95
27) Vinylacetate	5.63	43	3246729	114.5166 ug/L	99
28) chloroprene	5.66	53	452651	20.5070 ug/L	98
29) Diisopether	5.69	45	490261	10.3688 ug/L	97
30) ETBE	6.15	59	461030	10.8100 ug/L	95
31) 22dichloropr	6.26	77	220845	8.8585 ug/L	99
32) c12dichlorte	6.26	96	184468	10.1353 ug/L	94
33) 2Butanone	6.30	72	223895	92.3749 ug/L	98
34) propionitrile	6.33	54	227604	90.2636 ug/L	93
35) Ethylacetate	6.40	88	45313	51.6665 ug/L #	90
36) methacrylonitrile	6.53	67	154808	19.3602 ug/L	97
37) Bromochlorma	6.54	128	86431	10.3294 ug/L	98
38) Tetrahydofur	6.66	42	573398	99.0249 ug/L	100

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\INSTARCH\Data\OCT0218B\175864MS.D Vial: 10
Acq On : 3 Oct 2018 1:08 Operator: AGK-RLD
Sample : 153915,MSW175864,100 Inst : VMS3
Misc : pH5, 10.0/100 ug/L, 5.0 mL Purged + IS/S Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 03 01:29:25 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 21:31:17 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
39)	Chloroform	6.65	83	297242	9.8612	ug/L	96
40)	111trichlota	6.90	97	252771	10.0849	ug/L	98
42)	Cyclohexane	6.97	56	344763	10.7045	ug/L	93
43)	Carbtetraclo	7.12	119	210800	10.5891	ug/L	97
44)	11dicloprope	7.10	110	82357	10.2320	ug/L	96
46)	Benzene	7.35	78	687747	10.5322	ug/L	98
47)	12dichlorota	7.35	62	224463	10.4421	ug/L	99
48)	TAME	7.53	73	445612	10.1468	ug/L	97
49)	trichloroete	8.16	95	172356	10.3165	ug/L	98
50)	methylcyclohexane	8.42	83	316223	10.1948	ug/L	99
51)	12dicloropra	8.41	63	180617	10.0392	ug/L	93
52)	23Dicl1propene	8.48	75	242953	10.1785	ug/L	94
53)	Dibromometha	8.55	93	110000	10.1316	ug/L	97
54)	methylmethacrylate	8.60	69	123867	9.4899	ug/L	95
55)	14dioxane	8.63	88	19437	494.6663	ug/L	83
56)	Bromodiclrma	8.76	83	211893	9.9024	ug/L	96
57)	2Nitropropane	9.02	43	565449	101.0840	ug/L	98
58)	2CLEVE	9.15	63	407319	45.7478	ug/L	99
59)	c13dicloproe	9.33	75	261266	10.6326	ug/L	97
60)	4Meth2Pentan	9.54	43	1871702	102.6728	ug/L	99
62)	Toluene	9.78	92	453181	10.7925	ug/L	96
63)	t13Dicloprop	10.05	75	221979	10.0333	ug/L	97
64)	ethylmethacrylate	10.20	69	439447	20.3035	ug/L	97
65)	112Triclotha	10.27	83	137823	10.5962	ug/L	94
66)	Tetrachlorte	10.52	166	197990	10.0216	ug/L	97
67)	13Diclorpropa	10.50	76	281923	10.2719	ug/L	99
69)	2Hexanone	10.63	43	1339605	106.5427	ug/L	99
70)	Clorodibrmta	10.80	129	161614	10.0939	ug/L	99
71)	12Dibrometha	10.95	107	160344	10.4274	ug/L	96
72)	Chlorobenzen	11.65	112	473465	10.6765	ug/L	99
73)	1Clhexane	11.62	91	235990	10.2711	ug/L	97
74)	1112Tetclota	11.74	131	165607	10.3445	ug/L	96
75)	Ethylbenzene	11.80	91	792578	10.9777	ug/L	98
76)	m p-Xylene	11.96	106	612538	21.5244	ug/L	98
77)	o-Xylene	12.51	106	299333	10.4785	ug/L	99
78)	Styrene	12.53	104	481433	10.8119	ug/L	100
79)	Bromoform	12.75	173	120524	9.0385	ug/L	97
80)	Isopropylben	13.04	105	756860	11.0119	ug/L	99
81)	cyclohexanone	13.16	55	57713	187.9004	ug/L	90
84)	Bromobenzene	13.45	156	196839	9.9943	ug/L	96
85)	1122Tetrclta	13.41	83	250908	10.7795	ug/L	100
86)	123Triclproa	13.48	75	274206	9.9797	ug/L	98
87)	14dichloro2butene	13.51	53	53650	8.2702	ug/L	98
88)	n-Propylbenz	13.62	91	878402	10.5328	ug/L	100
89)	2chlorotolue	13.74	91	496781	10.9366	ug/L	98
90)	4chlorotolue	13.89	91	572207	11.2206	ug/L	96
91)	135Trimebenz	13.88	105	599554	10.8946	ug/L	99
92)	tbutylbenzen	14.35	119	523994	10.6286	ug/L	100
93)	124Trimetben	14.42	105	580109	10.8987	ug/L	99
94)	sbutylbenzen	14.66	105	772456	11.1589	ug/L	97
95)	13Diclorbenz	14.81	146	362610	10.3595	ug/L	99
96)	pIsopropylto	14.88	119	635454	10.8284	ug/L	99
97)	14dichlorobe	14.94	146	383528	10.5027	ug/L	99
98)	12dichlorobe	15.47	146	377091	10.9250	ug/L	94
99)	nButylbenzen	15.48	91	582597	10.5418	ug/L	97
100)	12dibromo3cl	16.56	157	45934	8.6299	ug/L	87
101)	135Trichlorobenzene	16.90	180	258083	10.8289	ug/L	94

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\INSTARCH\Data\OCT0218B\175864MS.D Vial: 10
Acq On : 3 Oct 2018 1:08 Operator: AGK-RLD
Sample : 153915,MSW175864,100 Inst : VMS3
Misc : pH5, 10.0/100 ug/L, 5.0 mL Purged + IS/S Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 03 01:29:25 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 21:31:17 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
102) 124Trichlobe	17.71	180	210737	10.4129	ug/L	99
103) Hexachlorobu	17.96	225	111839	10.1714	ug/L	95
104) Naphthalene	18.01	128	463839	10.2070	ug/L	99
105) 123Trichlben	18.32	180	193754	10.2873	ug/L	97

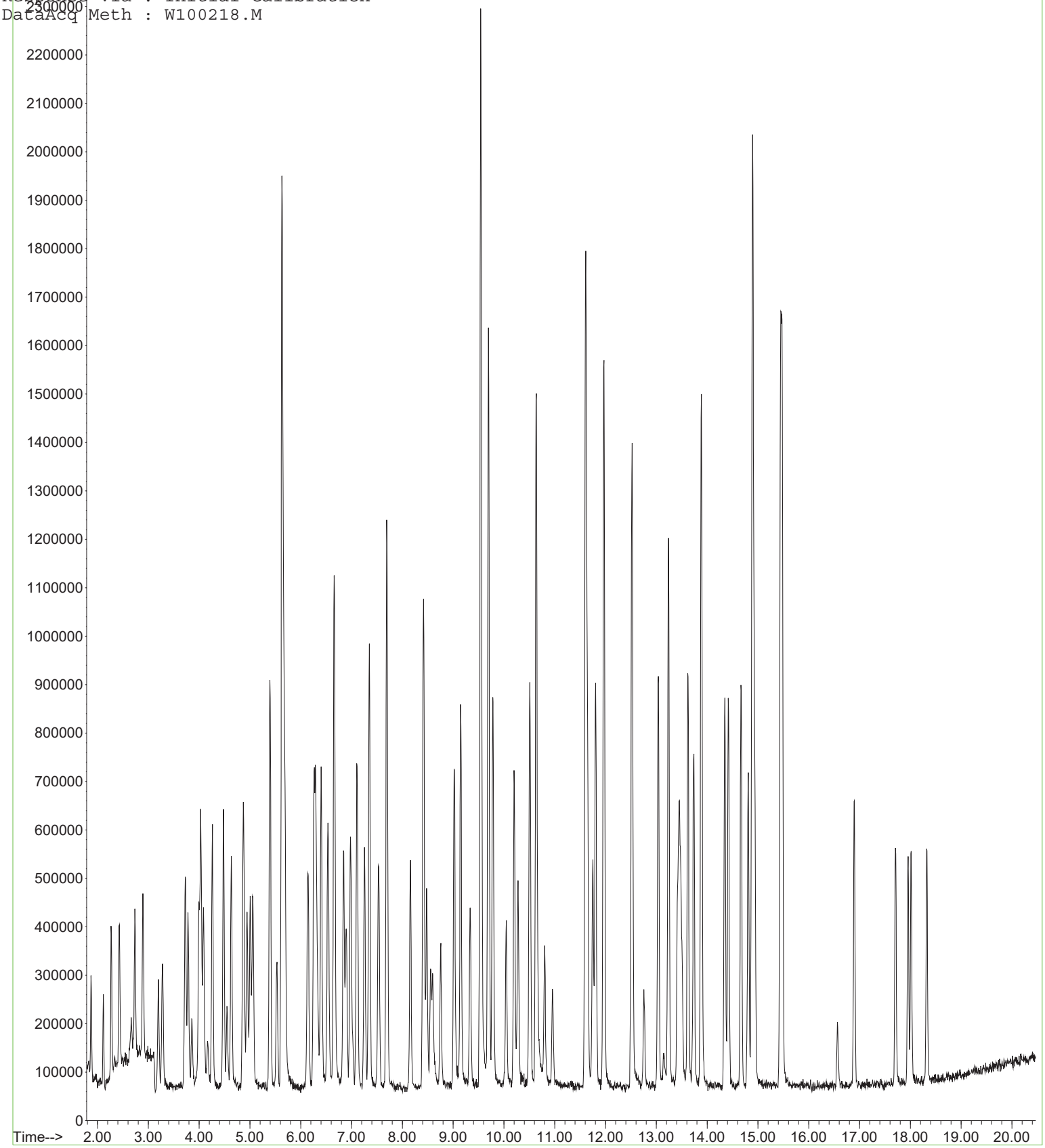
(#) = qualifier out of range (m) = manual integration

Abundance Quantitation Report TIC: 175864MS.D

Data File : C:\INSTARCH\Data\OCT0218B\175864MS.D Vial: 10
Acq On : 3 Oct 2018 1:08 Operator: AGK-RLD
Sample : 153915,MSW175864,100 Inst : VMS3
Misc : pH5, 10.0/100 ug/L, 5.0 mL Purged + IS/S Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 03 01:29:25 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 21:31:17 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M



Quantitation Report

Data File : C:\INSTARCH\Data\OCT0218B\175864SD.D Vial: 11
Acq On : 3 Oct 2018 1:39 Operator: AGK-RLD
Sample : 153915,MSDW175864,100 Inst : VMS3
Misc : pH5, 10.0/100 ug/L, 5.0 mL Purged + IS/S Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 03 02:00:05 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 21:31:17 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M
IS QA File : 50 level for IS QA unknown. No recoveries calculated.

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min) Rcv(Ar)
1) FLUOROBENZENE**ISTD**	7.69	96	1255696	20.00 ug/L	0.00 NA%
68) d5-CHLOROBENZENE**ISTD**	11.60	117	1006354	20.00 ug/L	0.00 NA%
82) d4-1,4-DICHLOROBENZENE**IS	14.90	152	561331	20.00 ug/L	0.00 NA%

System Monitoring Compounds

41) SURRDibrflma	6.84	113	323929	20.116 ug/L	0.00
Spiked Amount 20.000	Range 90 - 110		Recovery = 101 %		
45) SURR12DCAd4	7.25	102	81891	19.739 ug/L	0.00
Spiked Amount 20.000	Range 89 - 111		Recovery = 99 %		
61) SURRd8Tolule	9.69	98	1256288	19.834 ug/L	0.00
Spiked Amount 20.000	Range 93 - 107		Recovery = 99 %		
83) SURR4BrFBenz	13.24	95	412598	20.187 ug/L	0.00
Spiked Amount 20.000	Range 83 - 111		Recovery = 101 %		

Target Compounds

					Qvalue
2) Dichlorodi	1.87	85	179074	10.9695 ug/L	100
3) Chloromethan	2.11	50	131545	11.0689 ug/L	98
4) VinylChlorid	2.27	62	340699	11.0487 ug/L	96
5) Bromomethane	2.73	94	224397	15.2311 ug/L	96
6) Chloroethane	2.89	64	305048	10.7269 ug/L	96
7) Dichloroflmethane	3.19	67	310554	12.7049 ug/L	97
8) Trichlorofma	3.28	101	265866	10.9220 ug/L	98
9) Ethylether	3.73	59	135786	9.7029 ug/L	94
10) dichlorotfluoroethan	3.72	67	170444	10.7547 ug/L	96
11) propyleneoxide	4.09	58	174518	91.2314 ug/L #	88
12) Acrolein	3.86	56	154564	47.4053 ug/L	97
13) 11dichlorthe	3.99	96	158906	10.6542 ug/L	92
14) Trichlorotfluoroeth	4.03	101	294651	21.2475 ug/L	98
15) Acetone	4.08	43	551816	95.4240 ug/L	94
16) Iodomethane	4.18	142	172025	18.5700 ug/L	98
17) Carbon Dislf	4.26	76	829776	22.3878 ug/L	98
18) allylchloride	4.48	41	392492	21.6204 ug/L	99
19) methylacetate	4.55	74	64271	11.0039 ug/L	96
20) Methylchlorid	4.63	84	235343	15.2021 ug/L	98
21) tbutylalcohol	4.88	59	838589	469.8832 ug/L	98
22) Acrylonitrile	4.94	53	325524	50.6594 ug/L	96
23) t12dichlorte	5.00	96	165728	10.4610 ug/L	94
24) MtBE	5.06	73	464159	10.5795 ug/L	95
25) Hexane	5.39	57	468436	21.0209 ug/L	98
26) 11dichlorota	5.53	63	304864	10.3265 ug/L	95
27) Vinylacetate	5.63	43	3311801	116.4710 ug/L	99
28) chloroprene	5.66	53	480640	21.6611 ug/L	98
29) Diisopether	5.69	45	504733	10.6191 ug/L	93
30) ETBE	6.15	59	466307	10.8765 ug/L	97
31) 22dichloropr	6.27	77	232973	9.2961 ug/L	96
32) c12dichlorte	6.26	96	187638	10.2555 ug/L	98
33) 2Butanone	6.30	72	242949	99.7117 ug/L	92
34) propionitrile	6.33	54	245924	97.0055 ug/L	97
35) Ethylacetate	6.41	88	48224	54.6979 ug/L	94
36) methacrylonitrile	6.53	67	164390	20.4509 ug/L	99
37) Bromochlorma	6.54	128	86000	10.2241 ug/L	96
38) Tetrahydofur	6.66	42	603182	103.6235 ug/L	98

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\INSTARCH\Data\OCT0218B\175864SD.D Vial: 11
Acq On : 3 Oct 2018 1:39 Operator: AGK-RLD
Sample : 153915,MSDW175864,100 Inst : VMS3
Misc : pH5, 10.0/100 ug/L, 5.0 mL Purged + IS/S Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 03 02:00:05 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 21:31:17 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
39)	Chloroform	6.65	83	301558	9.9520 ug/L	99
40)	111trichlota	6.90	97	262623	10.4232 ug/L	99
42)	Cyclohexane	6.99	56	347626	10.7369 ug/L	97
43)	Carbtetraclo	7.11	119	208538	10.4207 ug/L	99
44)	11dicloprope	7.10	110	82132	10.1507 ug/L	92
46)	Benzene	7.35	78	686491	10.4580 ug/L	98
47)	12dichlorota	7.35	62	228669	10.5821 ug/L	98
48)	TAME	7.53	73	467272	10.5844 ug/L	96
49)	trichloroete	8.15	95	170996	10.1815 ug/L	99
50)	methylcyclohexane	8.42	83	328618	10.5390 ug/L	99
51)	12dicloropra	8.42	63	193061	10.6747 ug/L	91
52)	23Dicl1propene	8.48	75	246731	10.2827 ug/L	94
53)	Dibromometha	8.56	93	112294	10.2888 ug/L	98
54)	methylmethacrylate	8.60	69	132127	10.0353 ug/L	97
55)	14dioxane	8.65	88	23108	575.8720 ug/L #	81
56)	Bromodiclrma	8.76	83	229355	10.6623 ug/L	99
57)	2Nitropropane	9.02	43	588372	104.6315 ug/L	99
58)	2CLEVE	9.15	63	429503	47.8343 ug/L	98
59)	c13dicloproe	9.33	75	250793	10.1529 ug/L	99
60)	4Meth2Pentan	9.54	43	1931354	105.3906 ug/L	99
62)	Toluene	9.78	92	445950	10.5647 ug/L	99
63)	t13Dicloprop	10.05	75	231098	10.3908 ug/L	98
64)	ethylmethacrylate	10.20	69	460447	21.1624 ug/L	99
65)	112Triclotha	10.28	83	132470	10.1313 ug/L	97
66)	Tetrachlorte	10.51	166	209775	10.5626 ug/L	97
67)	13Diclorpropa	10.50	76	292825	10.6133 ug/L	96
69)	2Hexanone	10.64	43	1371160	105.3374 ug/L	100
70)	Clorodibrmta	10.80	129	168112	10.1421 ug/L	99
71)	12Dibrometha	10.96	107	170402	10.7040 ug/L	95
72)	Chlorobenzen	11.64	112	492540	10.7283 ug/L	100
73)	1Clhexane	11.62	91	240307	10.1027 ug/L	99
74)	1112Tetclota	11.75	131	172475	10.4065 ug/L	97
75)	Ethylbenzene	11.80	91	802885	10.7416 ug/L	99
76)	m p-Xylene	11.97	106	635635	21.5751 ug/L	99
77)	o-Xylene	12.52	106	309711	10.4725 ug/L	98
78)	Styrene	12.53	104	484409	10.5082 ug/L	95
79)	Bromoform	12.76	173	127007	9.2002 ug/L	96
80)	Isopropylben	13.04	105	777541	10.9274 ug/L	100
81)	cyclohexanone	13.16	55	44405	146.8332 ug/L	90
84)	Bromobenzene	13.45	156	211482	10.5551 ug/L	98
85)	1122Tetrclta	13.42	83	252377	10.6582 ug/L	97
86)	123Triclproa	13.48	75	290317	10.3863 ug/L	95
87)	14dichloro2butene	13.50	53	52666	7.9804 ug/L	91
88)	n-Propylbenz	13.62	91	913020	10.7827 ug/L	97
89)	2chlorotolue	13.74	91	503286	10.8913 ug/L	98
90)	4chlorotolue	13.89	91	584385	11.2645 ug/L	97
91)	135Trimebenz	13.88	105	604865	10.8042 ug/L	97
92)	tbutylbenzen	14.35	119	547021	10.9069 ug/L	99
93)	124Trimetben	14.41	105	592582	10.9437 ug/L	99
94)	sbutylbenzen	14.67	105	802246	11.3921 ug/L	99
95)	13Diclorbenz	14.81	146	368152	10.3388 ug/L	99
96)	pIsopropylto	14.88	119	645172	10.8069 ug/L	99
97)	14dichlorobe	14.93	146	387996	10.4443 ug/L	96
98)	12dichlorobe	15.47	146	365232	10.4014 ug/L	98
99)	nButylbenzen	15.48	91	598744	10.6497 ug/L	98
100)	12dibromo3cl	16.57	157	49039	9.0565 ug/L	95
101)	135Trichlorobenzene	16.90	180	250201	10.3196 ug/L	98

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\INSTARCH\Data\OCT0218B\175864SD.D Vial: 11
Acq On : 3 Oct 2018 1:39 Operator: AGK-RLD
Sample : 153915,MSDW175864,100 Inst : VMS3
Misc : pH5, 10.0/100 ug/L, 5.0 mL Purged + IS/S Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 03 02:00:05 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 21:31:17 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
102) 124Trichlobe	17.71	180	211737	10.2843	ug/L	98
103) Hexachlorobu	17.96	225	121361	10.8496	ug/L	99
104) Naphthalene	18.02	128	459566	9.9409	ug/L	98
105) 123Trichlben	18.32	180	198843	10.3779	ug/L	98

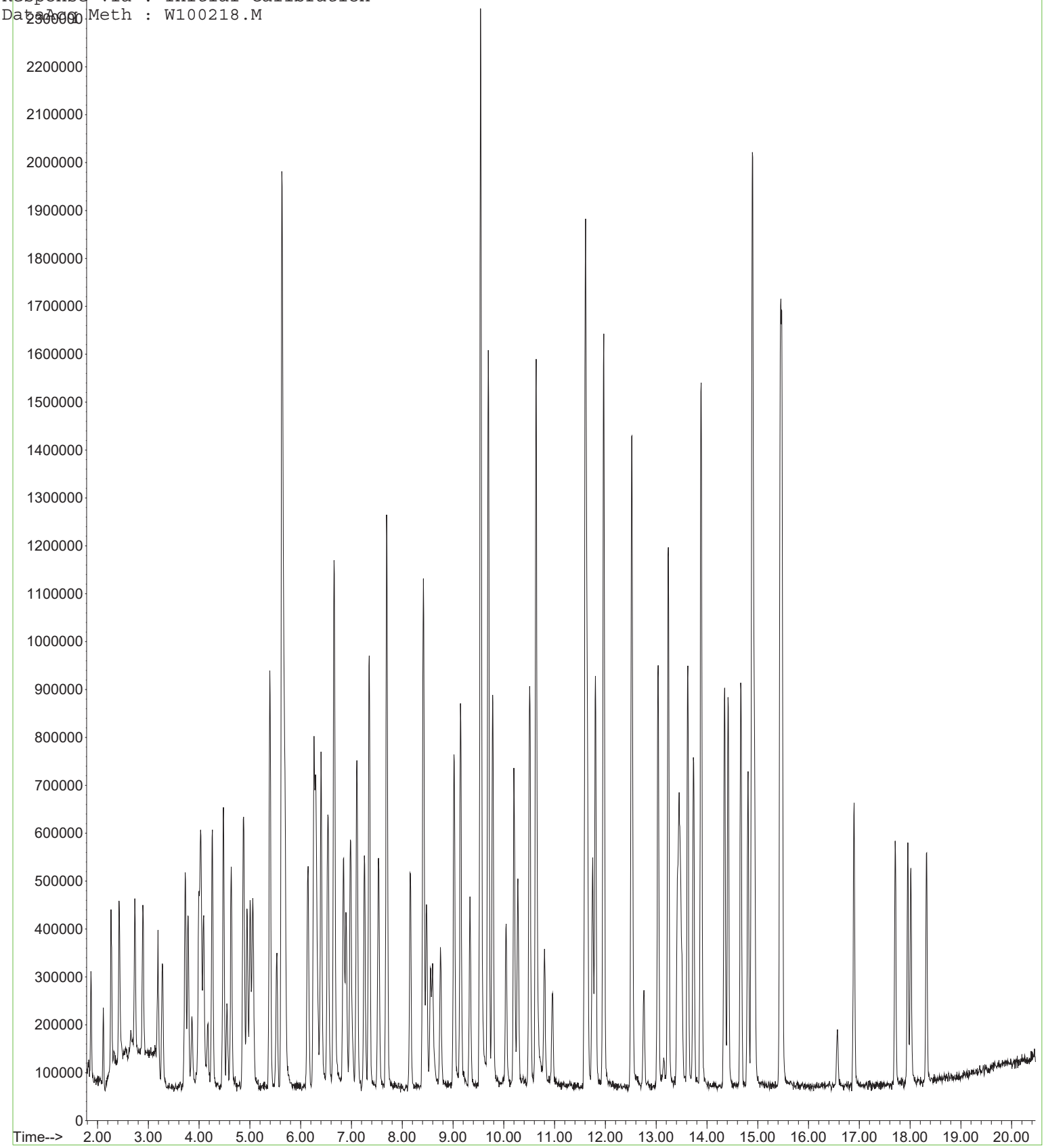
(#) = qualifier out of range (m) = manual integration

Abundance Quantitation Report TIC: 175864SD.D

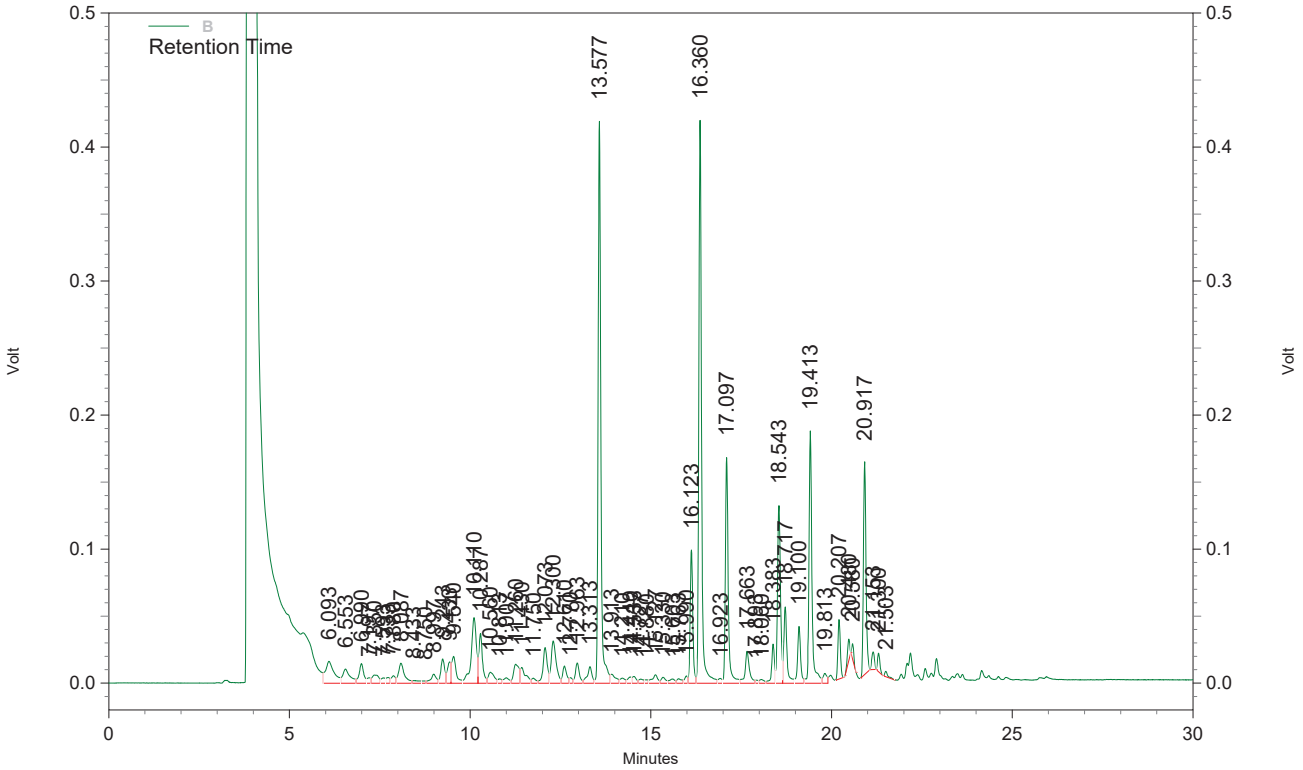
Data File : C:\INSTARCH\Data\OCT0218B\175864SD.D Vial: 11
Acq On : 3 Oct 2018 1:39 Operator: AGK-RLD
Sample : 153915,MSDW175864,100 Inst : VMS3
Misc : pH5, 10.0/100 ug/L, 5.0 mL Purged + IS/S Multiplr: 1.00
MS Integration Params: VOC.P

Quant Time: Oct 03 02:00:05 2018 Results File: W100218.RES

Quant Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Last Update : Tue Oct 02 21:31:17 2018
Response via : Initial Calibration
DataAcq Meth : W100218.M



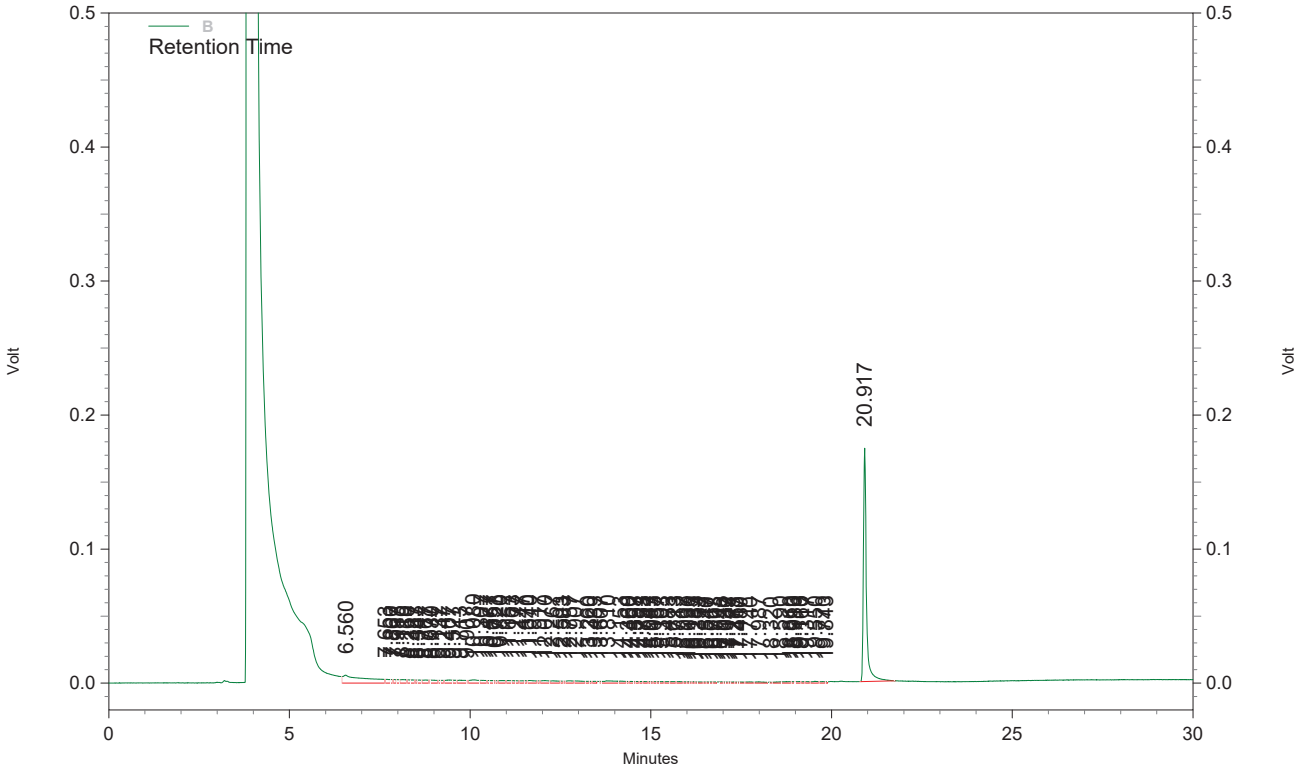
Inst : **PVOC1**
File : C:\Instarch\PVOC1\Data\092118-8015WS\016.DAT
Method : C:\Instarch\PVOC1\Methods\8015p1s091218.met
Acquired : Sep 21, 2018 21:02:21
Sample ID : 153498,LCSS,
File Desc. : LABORATORY CONTROL SAMPLE



B Results

Compound Name	Retention Time	*Area*	*Conc. (ug/L)*
S:1,2-DCBd4	20.917	785279	142.053 HC
GRO		12731333	359.638

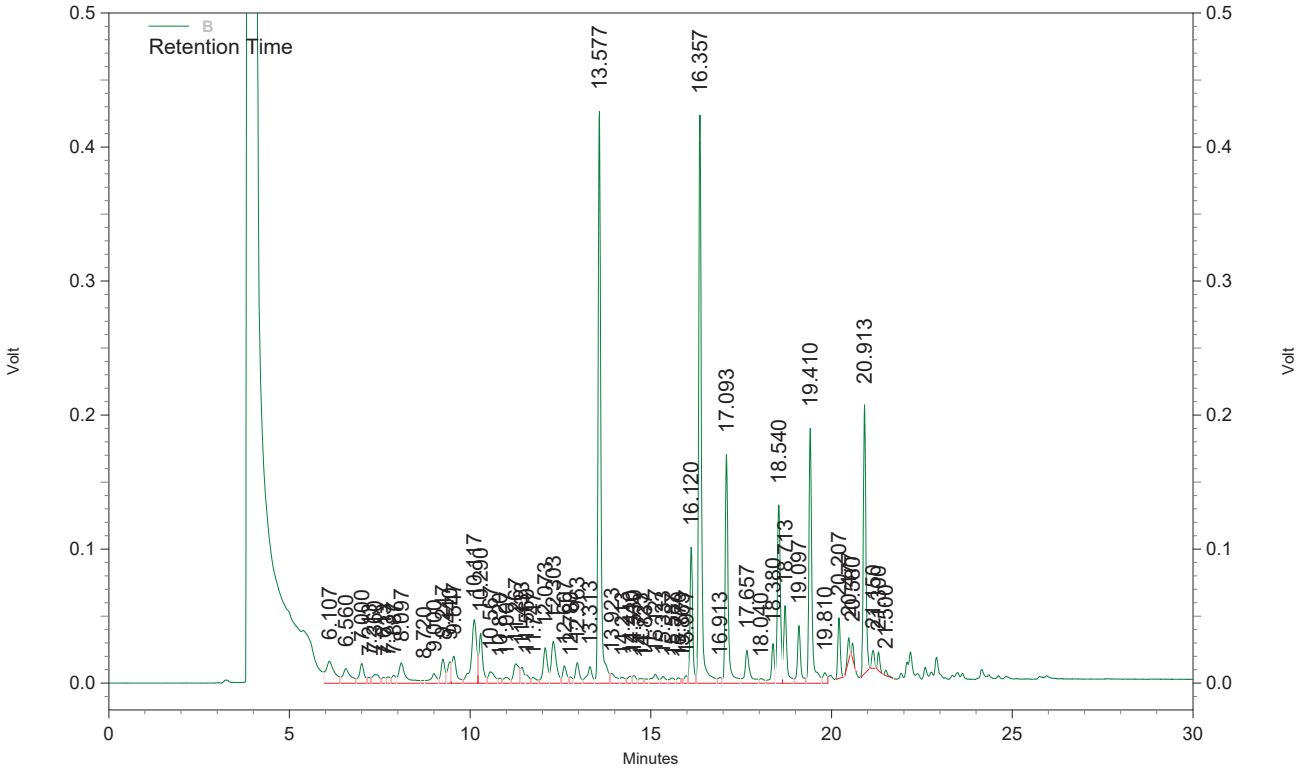
Inst : **PVOC1**
File : C:\Instarch\PVOC1\Data\092118-8015WS\018.DAT
Method : C:\Instarch\PVOC1\Methods\8015p1s091218.met
Acquired : Sep 21, 2018 22:13:59
Sample ID : 153498,MBS,1,
File Desc. : Method Blank 1.0mL Ext/50 m



B Results

Compound Name	Retention Time	*Area*	*Conc. (ug/L)*
S:1,2-DCBd4	20.917	1008178	180.801 HC
GRO		1364907	20.835

Inst : **PVOC1**
File : C:\Instarch\PVOC1\Data\092118-8015WS\020.DAT
Method : C:\Instarch\PVOC1\Methods\8015p1s091218.met
Acquired : Sep 21, 2018 23:25:45
Sample ID : 153498,LCSDS,
File Desc. : LABORATORY CONTROL SAMPLE DUP

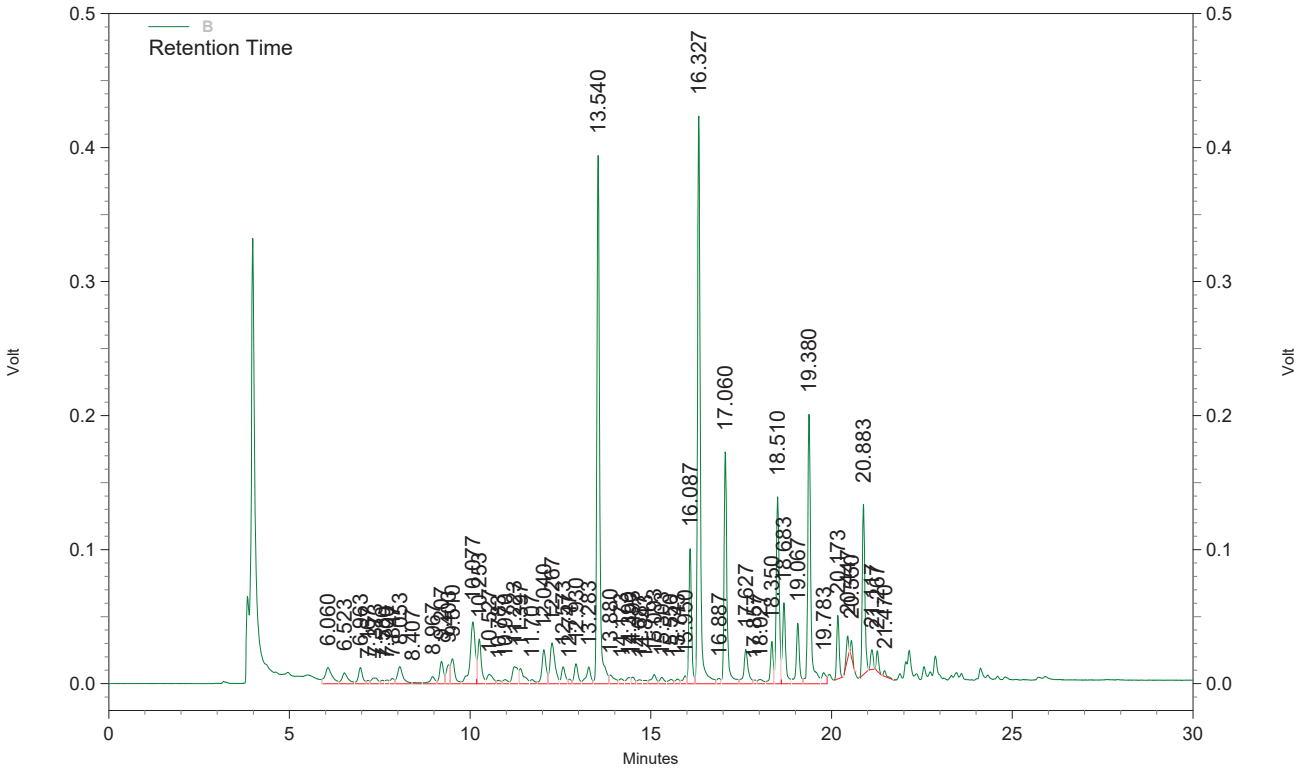


B Results

Compound Name	Retention Time	*Area*	*Conc. (ug/L)*
S:1,2-DCBd4	20.913	982212	176.287 HC
GRO		13231599	374.550

Inst : **PVOC1**
File : C:\Instarch\PVOC1\Data\092518-8015W\004.DAT
Method : C:\Instarch\PVOC1\Methods\8015p1w091018.met
Acquired : Sep 25, 2018 16:57:32
Sample ID : 153496,LCSW,
File Desc. : Laboratory Control Sample

GRO = 400 ug/L
20 ul of 8015 ICV/Spiking Std. into 50 ml F.V. of DI H2O---5.0 mL Purged + SSTD

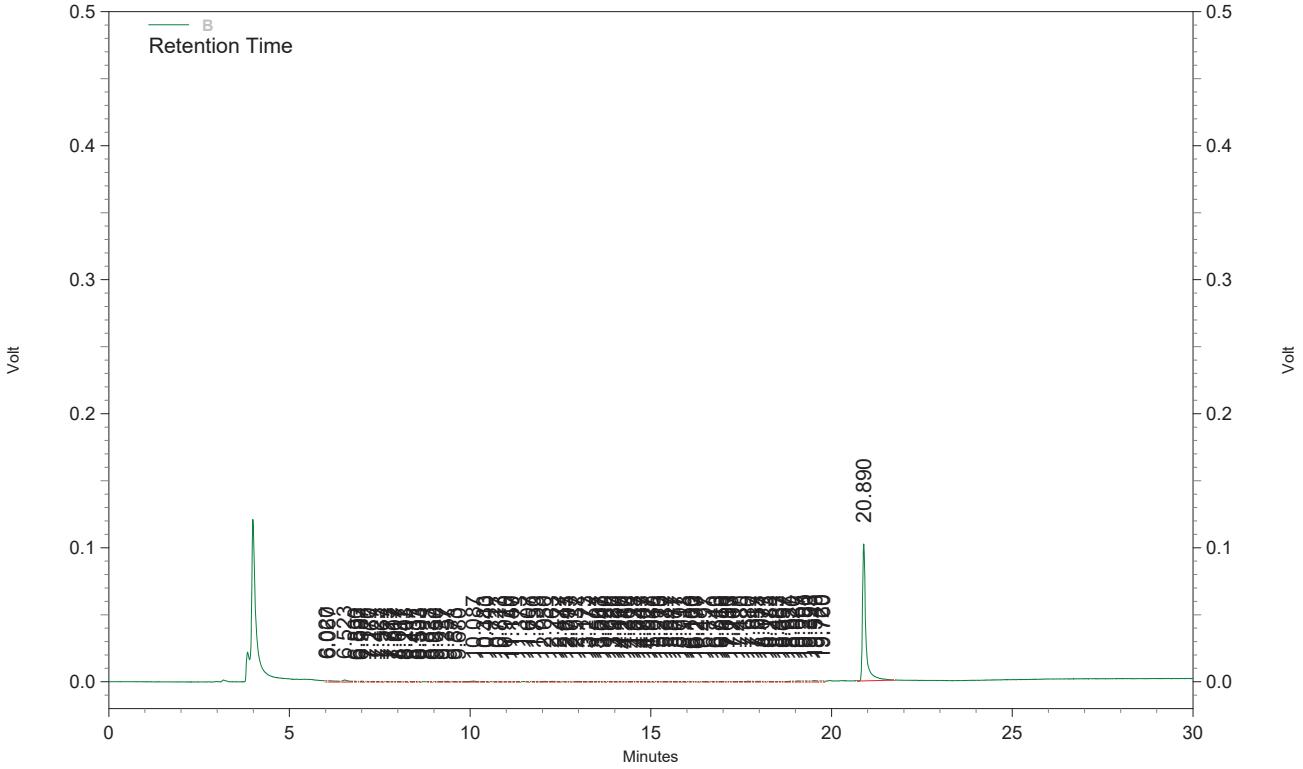


B Results

Compound Name	Retention Time	*Area*	*Conc. (ug/L)*
S:1,2-DCBd4	20.883	630846	117.513
GRO		12361279	380.431

Inst : **PVOC1**
File : C:\Instarch\PVOC1\Data\092518-8015W\006.DAT
Method : C:\Instarch\PVOC1\Methods\8015p1w091018.met
Acquired : Sep 25, 2018 18:09:31
Sample ID : 153496,MBW,1, pH<2
File Desc. : Method Blank

5.0 mL MilliQ DI H2O Purged + SSTD

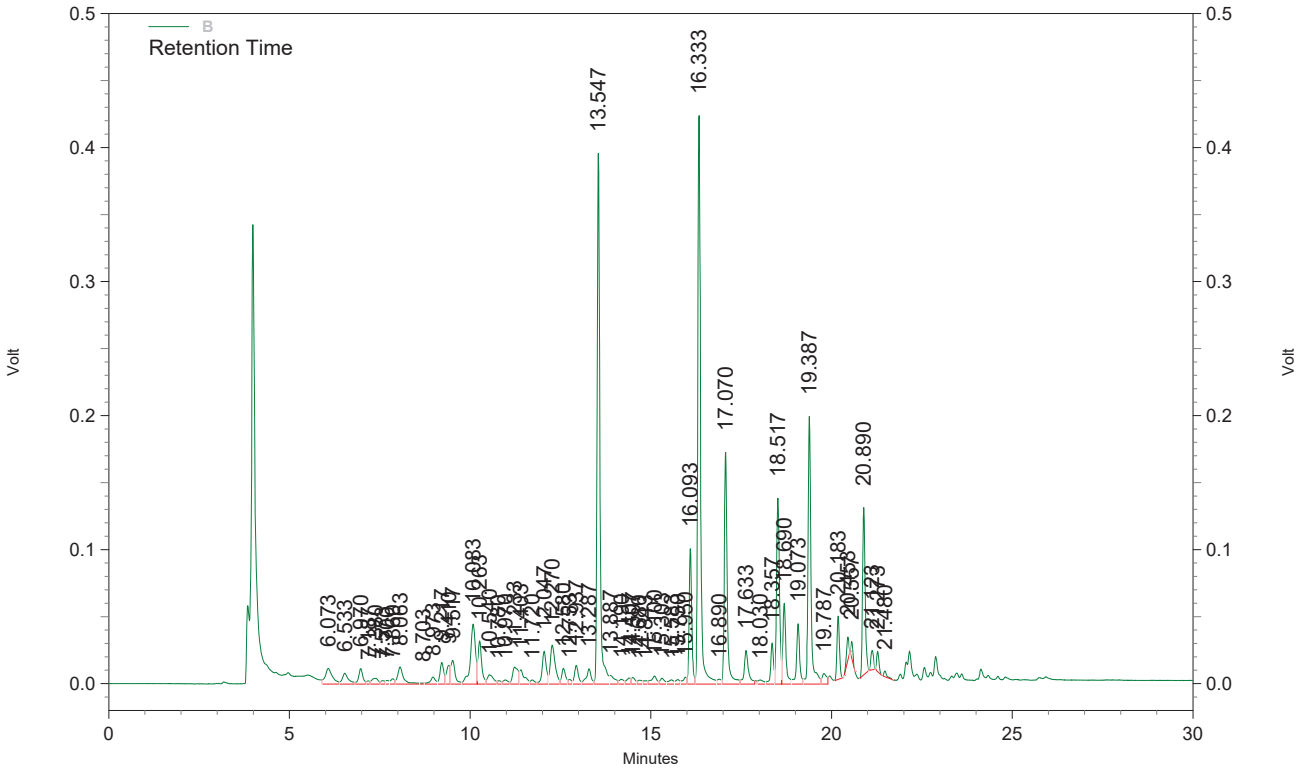


B Results

Compound Name	Retention Time	*Area*	*Conc. (ug/L)*
S:1,2-DCBd4	20.890	655506	121.914 HC
GRO		367682	10.458

Inst : **PVOC1**
File : C:\Instarch\PVOC1\Data\092518-8015W\011.DAT
Method : C:\Instarch\PVOC1\Methods\8015p1w091018.met
Acquired : Sep 25, 2018 21:10:03
Sample ID : 153496,LCSDW,1, pH<2
File Desc. : Laboratory Control Sample

GRO = 400 ug/L
20 ul of 8015 ICV/Spiking Std. into 50 ml F.V. of DI H2O---5.0 mL Purged + SSTD



B Results

Compound Name	Retention Time	*Area*	*Conc. (ug/L)*
S:1,2-DCBd4	20.890	622480	116.020
GRO		12193524	375.256

VOLATILE ORGANIC ANALYSIS
LOGBOOK
DOCUMENTS

VOC 8260 QSM TCLP 5.0 Analytical Run
153915 on 10/03/2018

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME	QC TYPE (Parent Sample)		CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	188279							VOC 8260 QSM TCLP 5.0				
				BFB					0			
	188283							VOC 8260 QSM TCLP 5.0				
				CCV					0			
	188280							VOC 8260 QSM TCLP 5.0				
				LCSW					0			
	188284							VOC 8260 QSM TCLP 5.0				
				MBW					0			
139370	175864		09/11/2008 0800			MAXXAM ANALYTICS	SI AFFF	VOC 8260 QSM TCLP 5.0		M	**4**	
		PETER-WS-001										
139370	175866		09/11/2018 0800			MAXXAM ANALYTICS	SI AFFF	VOC 8260 QSM TCLP 5.0		M	**4**	
		PETER-WW-001										
	188395		09/11/2008 0800					VOC 8260 QSM TCLP 5.0				
		PETER-WS-001		MSW	175864				0			
	188903		09/11/2008 0800					VOC 8260 QSM TCLP 5.0				
		PETER-WS-001		MSDW	188395				0			
	188394							VOC 8260 QSM TCLP 5.0				
				CCVF					0			

9 SAMPLE COUNT ON RUN, INCLUDING METHOD AND INSTRUMENT QC

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

Distribution: C:\LIMSREPS\ANALYTICALRUN.RPT

TCLP/SPLP/ASTM Extraction Summary

Batch: 2913 **Date:** 10/3/18 **Analyst (set up):** AGK **Analyst (take down):** AGK

Sample #	Parameter	Test			Vessel / ZHE	Buffer Determination			Sample wt.	***Free Liquids Present (Y/N)	Vol. Ext. Fluid	Initial pH	ZHE Initial Press	Time In	Date / Time Out	Ext. Time	End pH	ZHE End Press	Date / Time Filtered	Volume Filtered
	(M / SV / V / WC)	TCLP	SPLP	ASTM	#	Initial pH	* End pH	**Ext. Fluid	(g)		(mL)		(psi)			(hrs)		(psi)		(mL)
MB	V	✓			4	~~5~~	–	1	25.00	N	500	5	10	14:30	10/3/18 / 14:30	18	5	10	10/4/18 / 8:40	✓
186174	V	✓			1	~~5~~	–	1	24.99	N	500	5	10	14:30	10/3/18 / 14:30	18	5	10	10/4/18 / 8:45	—
186928	V	✓			7	~~5~~	–	1	25.02	N	500	5	10	14:30	10/3/18 / 14:30	18	5	10	10/4/18 / 8:47	—
						RO 10/4/18														
									AGK 10/4/18											

Extraction Fluid Used: #1 **Ext. Fluid ID #:** M13599 **Ext. Fluid pH(+/-0.05(°C)):** 4.93 **Date measured:** 9-27/18 **Ext. Start Temp (°C):** 20.7

Ext. End Temp(°C): 21.3 (min: 20.6 / max: 21.4) (Acceptable Range 21-25°C) **Filter Manufacturer:** Env Exp **Filter Lot #:** 400146-8137

Balance: VOB01 **pH Meter:** – **1N HCL:** – **Tumbler Unit #(s):** 3

Acceptable rotation rate: 30 ±2 rpm **Verified Rotation rate:** 31 rpm *End pH = pH of representative sample (if initially >5.0) after adding 1N HCl and heating @ 50°C (covered) for 10 minutes and then cooled to room temperature.

M=Metals, SV=Semi Volatiles, V=Volatiles, WC=Wet Chemistry

% Solids Calculation Worksheet

Sample #	A Filter wt. (Tare weights (g))	B Filtrate Vessel wt. (Tare weights (g))	C Transfer Vessel wt. (Tare weights (g))	D Sample + Transfer Vessel (Transfer weights (g))	E Sample wt {D - C} (Transfer weights (g))	F Vessel wt. Post Transfer (Transfer weights (g))	G Residue wt. {F – C} (Separation weights (g))	H Total Waste Amount {E – G} (Separation weights (g))	I Filtrate Vessel + Filtrate (Separation weights (g))	J Liquid Phase of Sample {I – B} (Separation weights (g))	K Solid Phase of Sample {H – J} (% Solids Calculations)	L. % Solids (**) (K/H*100) (% Solids Calculations)	M Waste + Filter (Dry) wt. (g) (% Solids Calculations)	% Solids (Dry) ({M – A}/H)*100 (% Solids Calculations)
								RO 10/4/18						

(***) If Solids = <0.5%, treat filtrate as TCLP extract, if free liquid present use % Solids Calculation Worksheet

Reviewed By/Date: _____

Injection Log Summary Report

Method : C:\INSTARCH\METHODS\W100218.M (RTE Integrator)
Title : 8260C Waters Method
Start (Tune) File ID : C:\INSTARCH\DATA\OCT0218B\BFB1.D
Injection Date : 2 Oct 2018 Log Time Period (hrs) : ALL
Injection Time : 20:49 Total files within period : 11
Sample Directory : C:\INSTARCH\DATA\OCT0218B\

Injection Log Summary Table

File ID	Multiplier I	S	T	Sample Name / Misc Info	Date	Time
CCV1	1.00	1.00	1.00	153915,CCV, 10.0/100.0 ug/L, 5.0 mL P	2 Oct 2018	21:06
TLCS1	1.00	1.00	1.00	153915,LCSW,100 pH5, 10.0/100.0 ug/L, 5.0	2 Oct 2018	21:36
TMB1	1.00	1.00	1.00	153915,MBW,100 pH5, 5.0 mL Purged + IS/S	2 Oct 2018	23:08
175864	1.00	1.00	1.00	153915,175864,100 pH5, 5.0 mL Purged + IS/S	2 Oct 2018	23:38
175866	1.00	1.00	1.00	153915,175866,100 pH5, 5.0 mL Purged + IS/S	3 Oct 2018	00:08
175864MS	1.00	1.00	1.00	153915,MSW175864,100 pH5, 10.0/100 ug/L, 5.0 m	3 Oct 2018	01:08
175864SD	1.00	1.00	1.00	153915,MSDW175864,100 pH5, 10.0/100 ug/L, 5.0 m	3 Oct 2018	01:39
CCVF1	1.00	1.00	1.00	153915,CCVF, 10.0/100.0 ug/L, 5.0 mL P	3 Oct 2018	02:10

8260 ISTD/SSTD 20ug/ml VOC0498
8260 BFB STD. 50ug/ml VOC0499
8260 ICV STD. 100ug/ml VOC0506
8260 CCV/CALIB. 100ug/ml VOC0507

pl_ilog
Injection Log Summary Report

Method : C:\INSTARCH\METHODS\W100218.M
Title : 8260C Waters Method
Start (Tune) File ID : C:\INSTARCH\DATA\OCT0218\BFB1.D
Injection Date : 2 Oct 2018 Log Time Period (hrs) : ALL
Injection Time : 10:24 Total files within period : 17
Sample Directory : C:\INSTARCH\DATA\OCT0218\

Injection Log Summary Table

File ID	Multiplier I	S	T	Sample Name / Misc Info	Date	Time
WCAL1	1.00	1.00	1.00	INITIAL CALIB. PT1 0.50/5.00 ug/L, 5.0	2 Oct 2018	11:42
WCAL2	1.00	1.00	1.00	INITIAL CALIB. PT2 2.00/20.0 ug/L, 5.0	2 Oct 2018	12:12
WCAL3	1.00	1.00	1.00	INITIAL CALIB. PT3 5.00/50.0 ug/L, 5.0	2 Oct 2018	12:43
WCAL4	1.00	1.00	1.00	INITIAL CALIB. PT4 10.0/100.0 ug/L, 5.0	2 Oct 2018	13:14
WCAL5	1.00	1.00	1.00	INITIAL CALIB. PT5 20.0/200.0 ug/L, 5.0	2 Oct 2018	13:44
WCAL6	1.00	1.00	1.00	INITIAL CALIB. PT6 30.0/300.0 ug/L, 5.0	2 Oct 2018	14:14
WCAL7	1.00	1.00	1.00	INITIAL CALIB. PT7 40.0/400.0 ug/L, 5.0	2 Oct 2018	14:45
WCAL8	1.00	1.00	1.00	INITIAL CALIB. PT8 80.0/800.0 ug/L, 5.0	2 Oct 2018	15:14
ICV1	1.00	1.00	1.00	INITIAL CALIB. VERIF 10.0/100 ug/L, 5.0 m	2 Oct 2018	16:15
ICV2	1.00	1.00	1.00	INITIAL CALIB. VERIF 30.0/300 ug/L, 5.0 m	2 Oct 2018	16:45
WCAL1R	1.00	1.00	1.00	INITIAL CALIB. PT1 0.50/5.00 ug/L, 5.0	2 Oct 2018	18:15
ICB1	1.00	1.00	1.00	INITIAL CALB. BLANK pH<2, 5.0 mL DI H20	2 Oct 2018	19:16

8260 ISTD/SSTD 20ug/ml VOC0498
8260 BFB STD. 50ug/ml VOC0499
8260 ICV STD. 100ug/ml VOC0506
8260 CCV/CALIB. 100ug/ml VOC0507

FVO4-01 Data Review Checklist

FORM #: FVO4-01
Rev. #: 2.1
Effective Date: 07/16/18

INDEPENDENT DATA REVIEW CHECKLIST			Method: GCMS (EPA SW-846 8260C)				
Analysis Date	**LIMS Run #(s):**	**Analyst/Data Interpreter**	**Independent Reviewer**	**Date of Review**	**Approved?**		**Instrument**
					Yes	No	
10/02/2018	153915 154017	AGK	RLD	10/03/2018	Yes		VMS3

Instructions: Complete one checklist per *analytical sequence* . Enter the appropriate response for each question. Each "No" response requires an explanation in the Comments section and may require the initiation of a Nonconformance Report.

Requirement	Acceptance Criteria	Analyst Review		Independent Review		Comments
		Yes	No	Yes	No	
I. BFB Tune Check						
Was a BFB tune check analyzed with acceptable results?	Relative abundance criteria met?	Yes		Yes		If No, Do not proceed with analyses.
II. Initial Calibration Verification (ICV)						
Was initial calibration performed using a minimum of five standard concentration levels (minimum of 6 levels for quadratic curves)?	Lowest standard at or below RL?	Yes		Yes		If No, recalibrate with required # of levels.
Were the Average Relative Response Factors (ARRF) acceptable?	ARRF≥ specified limits (see SOP)	Yes		Yes		If No, analyses stopped, recalibrate.
Was a second-source ICV(s) analyzed?	Required before sample analyses.	Yes		Yes		If No, analyze prior to sample analyses.
Were all target compound %Deviation or %Drift acceptable?	%D < 20% or project/program specific	Yes		Yes		If No, reanalyzed ICV to address failures.
Was Initial Calibration Blank (ICB) analyzed?	Required before sample analyses.	Yes		Yes		If No, analyzed ICB before sample analyses.
Were the ICB results for all target analytes less than the limit of detection (LOD).	<LOD or < project/program specific limits		No		No	If No, analyze another blank to address detects.
III. Continuing Calibration Verification (CCV)						
Was an acceptable BFB tune check run at the beginning of every twelve hour shift?	Relative abundance criteria met?	Yes		Yes		If No, reanalyze BFB until acceptable; re-tuning the instrument may be necessary.
Was a CCV analyzed after every 12 hour tune check?	Required before sample analyses.	Yes		Yes		If No, analyzed CCV after acceptable tune check.
Was a second CCV (CCV2) for compounds calibrated using quadratic curves analyzed after every 12 hour tune check?	Required before analyses of WI samples (above the inflection point of the curve).	Yes		Yes		If No, analyzed CCV2 after acceptable tune check.
Were all target compound %Deviation or %Drift acceptable?	%D < 20% or project/program specific	Yes		Yes		If No, reanalysis or recalibration may be required.
If necessary, were the results for outlying compounds qualified?						If Yes, results qualified "Z".

IV. Blanks						
Was a Method Blank (MB) analyzed prior to analysis of samples?	1 per 20 samples or project/program specific.	Yes		Yes		If No, analyze a MB with each sample batch.
Were the MB results for all target analytes less than the limit of detection (LOD)?	*All target analytes <LOD or < project/program specific limits (<1/2 RL for DoD-QSM)		No		No	If No, reanalyze MB an all affected data if possible or see SOP for more detailed criteria.
If analytes were detected in the MB with no associated positives in the samples, no further action is needed. If the analyte detects in the MB were greater than the acceptance criteria and there were detects in the samples, was the data qualified.?		Yes		Yes		If Yes, affected results qualified "B".
V. Laboratory Control Spike (LCS)						
Was a LCS (and LCSD if needed) analyzed at the required frequency?	1 per 20 samples or project/program specific.	Yes		Yes		If No, analyze a LCS with each sample batch.
Were the LCS (LCSD) recoveries for all analytes within acceptance criteria?	Default 70-130%, or see internally generated limits, or project/program specified limits.	Yes		Yes		If No, Reanalyze LCS and all affected data if possible or data requires qualification.
If applicable, were associated sample detects (and non-detects for low recoveries) qualified?		Yes		Yes		If Yes, affected results qualified "Q".
Is the relative percent difference (RPD) for each analyte between the LCS and LSCD (if applicable) acceptable?	Default 20%, or see internally generated limits, or client specific limits.					If No, affected results qualified "Y".
VI. Matrix Spike/Matrix Spike Duplicate (MS/MSD)						
Was a Martrix Spike (MS) and a Matrix Spike Duplicate (MSD) analyzed at the required frequency?	1 per 20 samples or project/program specific.	Yes		Yes		If No, analyze a MS/MSD pair with each sample batch.
Were the MS/MSD recoveries for all analytes within acceptance criteria?	Default 70-130%, or see internally generated limits, or project/program specified limits.	Yes		Yes		If No, qualify detects (with an "M" flag) in the parent sample, also qualify non-detects if MS/MSD recoveries were low.
Is the relative percent difference (RPD) for each analyte between the MS and MSD acceptable?	Default 20%, or see internally generated limits, or client specific limits.	Yes		Yes		If No, affected results qualified "Y".
VII. Sample Analyses						
Are chromatogram characteristics, including peak shapes and areas, consistent with those of the CCV?		Yes		Yes		If No, instrument maintenance may be required to correct problems.
Were surrogate recoveries for all samples and QC within acceptance criteria?	Default 70-130%, or see internally generated program limits, or client specified limits.	Yes		Yes		If No, samples with high surrogate recoveries and no associated analyte detects were not reanalyzed. Low surrogate recoveries require reanalysis.
If possible, were the affected samples reanalyzed?						If No, see below **
**Were reported sample results with failing surrogate recoveries qualified?						If Yes, affected results qualified "S".
Were all samples having analytes detected in amounts exceeding the calibration range diluted and reanalyzed? If not qualify (X).	Target upper middle range of calibration curve.	Yes		Yes		
Did all samples meet hold time and preservation criteria as defined by method/program?	H2O sample: pH < 2 = 14 days, pH >2 = 7 days. Soil samples: 14 days (other criteria may apply)	Yes		Yes		If No, see below: If analyzed past hold, qualify "H" If improperly preserved qualify "T"
Were all samples and QC injected within 12 hours of BFB tune check?		Yes		Yes		If No, affected samples reanalyzed.
Were internal standard recoveries acceptable relevant to associated ICAL?	Response = -50 to +200%; Ret. time = +/- 30 sec.	Yes		Yes		If No, affected samples reanalyzed.

VIII. Records and Reporting						
Is sequence file / injection log present in the data package?		Yes		Yes		If No, include sequence run with raw data.
Were all data, calculations, and values verified in LIMS upon completion of data capture?		Yes		Yes		If No, recapture the data and verify data prior to validation.
Were manual integrations performed correctly?	Manual integration must be initialed, dated, and reason given, along with before & after chromatograms.	Yes		Yes		
Was the rational for the manual integration verified?		Yes		Yes		
Are reported results whose amounts exceeded the acceptance criteria flagged with an appropriate qualifier and, if needed, were any non-matrix related nonconformities documented in the NCR spreadsheet?		Yes		Yes		If No, include proper qualification(s) in LIMS and enter nonconformities into the NCR spreadsheet before data review/validation.

Non-Applicable Yes/No Cells Are Left Blank

Comments:

LPVO1-03-VOC
Volatiles Standard Prep Logbook
Logbook Created: 06/18/18

NOTEBOOK VIEW: LTN_LPVO1_03_VOC_Default, NOTEBOOK: LPVO1_03_VOC, PAGE: 15
Page is Unlocked
Page is not Witnessed
Project: Unassigned
Page Title: 100118

Standard ID #	Standard Prepped	Prep	Solvent / Lot #	Final Concentration	Prep Date	Expiration Date	Analyst
VOC0506	8260 ICV/Spiking Std.	150uL of 2,000 ug/mL VOC Mix V0887, 300uL of 1,000/10,000 ug/mL VOC 8260 Additions Std. V0888, and 300uL of 1,000/10,000 ug/mL 8260 Special Additions Std. V0892 into 2250uL of MeOH.	MeOH / B&J / DT961	100 ug/mL	10/01/2018	10/08/2018	RLD

Standard ID #	Standard Prepped	Prep	Solvent / Lot #	Final Concentration	Prep Date	Expiration Date	Analyst
VOC0507	8260 CCV/Calib. Std.	150uL of 2,000 ug/mL VOC Mix V0885, 300uL of 1,000/10,000 ug/mL VOC 8260 Additions Std. V0889, and 300uL of 1,000/10,000 ug/mL 8260 Special Additions Std. V0893 into 2250uL of MeOH.	MeOH / B&J / DT961	100 ug/mL	10/01/2018	10/08/2018	RLD

1

CT Laboratories, LLC

LPVO1-03-VOC
Volatiles Standard Prep Logbook
Logbook Created: 06/18/18

NOTEBOOK VIEW: LTN_LPVO1_03_VOC_Default, NOTEBOOK: LPVO1_03_VOC, PAGE: 12
Page is Unlocked
Page is not Witnessed
Project: Unassigned
Page Title: 091118

Standard ID #	Standard Prepped	Prep	Solvent / Lot #	Final Concentration	Prep Date	Expiration Date	Analyst
VOC0498	8260 BFB Std.	75uL of 2,000 ug/mL 4-Bromofluorobenzene Std. V0861 into 2925uL of MeOH.	MeOH / B&J / DT961	50 ug/mL	09/11/2018	10/11/2018	RLD

Standard ID #	Standard Prepped	Prep	Solvent / Lot #	Final Concentration	Prep Date	Expiration Date	Analyst
VOC0499	8260 ISTD/SSTD	200uL of 2,500 ug/mL 8260 Istd./Sstd. Mix V0869 and 250uL of 2000 ug/mL 1,2-Dichlorobenzene-$_{d4}$ Std. V0870 into 25mL of MeOH.	MeOH / B&J / DT961	20 ug/mL	09/11/2018	10/11/2018	RLD

Standard ID #	Standard Prepped	Prep	Solvent / Lot #	Final Concentration	Prep Date	Expiration Date	Analyst
VOC0500	8260 ICV/Spiking Std.	150uL of 2,000 ug/mL VOC Mix V0887, 300uL of 1,000/10,000 ug/mL VOC 8260 Additions Std. V0888, and 300uL of 1,000/10,000 ug/mL 8260 Special Additions Std. V0892 into 2250uL of MeOH.	MeOH / B&J / DT961	100 ug/mL	09/11/2018	09/18/2018	RLD

Standard ID #	Standard Prepped	Prep	Solvent / Lot #	Final Concentration	Prep Date	Expiration Date	Analyst
VOC0501	8260 CCV/Calib. Std.	150uL of 2,000 ug/mL VOC Mix V0885, 300uL of 1,000/10,000 ug/mL VOC 8260 Additions Std. V0889, and 300uL of 1,000/10,000 ug/mL 8260 Special Additions Std. V0893 into 2250uL of MeOH.	MeOH / B&J / DT961	100 ug/mL	09/11/2018	09/18/2018	RLD

1

CT Laboratories, LLC

LSVO1-01
Volatiles Standards Logbook
Logbook Created: 12/08/2015
NOTEBOOK VIEW: LTN_LSVO1_01_VOC_Default, NOTEBOOK: LSVO1_01_VOC, PAGE: 67
Page is Locked
Author: rdigmann on: 8/24/2018 11:36:30 AM
Page is not Witnessed
Project: Unassigned
Page Title: 082218

Standard ID #	Compound/Standard Name	Supplier/Manufacturer	Standard Part #	Standard Lot #
V0892	VOC 8260 Special Additions	SPEX CertiPrep	VO-CTWI-5	AA180817010
Concentration	Neat (% purity) or Solvent	Expiration Date	Date Received	Analyst
1,000 - 50,000 ug/mL	MeOH	02/13/2019	08/22/2018	RLD
# of Ampules/Units:	2	Comments:	Used for 8260 ICV/Spiking standard preparation.	

Standard ID #	Compound/Standard Name	Supplier/Manufacturer	Standard Part #	Standard Lot #
V0893	VOC 8260 Special Additions	SPEX CertiPrep	VO-CTWI-5	EN180815011
Concentration	Neat (% purity) or Solvent	Expiration Date	Date Received	Analyst
1,000 - 50,000 ug/mL	MeOH	02/11/2019	08/22/2018	RLD
# of Ampules/Units:	2	Comments:	Used for 8260 CCV/Calib. standard preparation.	

1

CT Laboratories, LLC

LSVO1-01
Volatiles Standards Logbook
Logbook Created: 12/08/2015
NOTEBOOK VIEW: LTN_LSVO1_01_VOC_Default, NOTEBOOK: LSVO1_01_VOC, PAGE: 66
Page is Locked
Author: rdigmann on: 8/22/2018 11:47:13 AM
Page is not Witnessed
Project: Unassigned
Page Title: 080818

Standard ID #	Compound/Standard Name	Supplier/Manufacturer	Standard Part #	Standard Lot #
V0890	VOC 8260 Additions	SPEX CertiPrep	VO-CTWI-12	EN180801005
Concentration	Neat (% purity) or Solvent	Expiration Date	Date Received	Analyst
1,000 - 10,000 ug/mL	MeOH	10/30/2018	08/07/2018	RLD
# of Ampules/Units:	2	Comments:	Used for 8260 ICV/Spiking standard preparation.	

Standard ID #	Compound/Standard Name	Supplier/Manufacturer	Standard Part #	Standard Lot #
V0891	VOC 8260 Additions	SPEX CertiPrep	VO-CTWI-12	
Concentration	Neat (% purity) or Solvent	Expiration Date	Date Received	Analyst
1,000 - 10,000 ug/mL	MeOH	10/30/2018	08/07/2018	RLD
# of Ampules/Units:	2	Comments:	Used for 8260 CCV/Calib. standard preparation.	

1

CT Laboratories, LLC

LSVO1-01
Volatiles Standards Logbook
Logbook Created: 12/08/2015
NOTEBOOK VIEW: LTN_LSVO1_01_VOC_Default, NOTEBOOK: LSVO1_01_VOC, PAGE: 65
Page is Locked
Author: rdigmann on: 6/14/2018 2:20:35 PM
Witness: akurth on: 7/31/2018 9:54:29 AM
Project: Unassigned
Page Title: 061118

Standard ID #	Compound/Standard Name	Supplier/Manufacturer	Standard Part #	Standard Lot #
V0888	VOC 8260 Special Additions	SPEX CertiPrep	VO-CTWI-5	TS180525014
Concentration	Neat (% purity) or Solvent	Expiration Date	Date Received	Analyst
1,000 - 50,000 ug/mL	MeOH	11/21/2018	06/07/2018	RLD
# of Ampules/Units:	2	Comments:	Used for 8260 ICV/Spiking Std. preparation.	

Standard ID #	Compound/Standard Name	Supplier/Manufacturer	Standard Part #	Standard Lot #
V0889	VOC 8260 Special Additions	SPEX CertiPrep	VO-CTWI-5	EN180529004
Concentration	Neat (% purity) or Solvent	Expiration Date	Date Received	Analyst
1,000 - 50,000 ug/mL	MeOH	11/25/2018	06/07/2018	RLD
# of Ampules/Units:	2	Comments:	Used for 8260 CCV/Calib. Std. preparation.	

1

CT Laboratories, LLC

LSVO1-01
Volatiles Standards Logbook
Logbook Created: 12/08/2015
NOTEBOOK VIEW: LTN_LSVO1_01_VOC_Default, NOTEBOOK: LSVO1_01_VOC, PAGE: 64
Page is Locked
Author: rdigmann on: 5/25/2018 7:47:52 AM
Witness: akurth on: 7/31/2018 9:54:19 AM
Project: Unassigned
Page Title: 05/24/18

Standard Log #:	VO886	Standard/Reagent:	Methane Ethene Ethane STD
Analyst:	AGK	Final Concentration:	200.0 PPM
Prep Date:	05/24/18	Expiration Date:	05/17/21
Prep:	Airgas Methane, Ethene, Ethane Standard Received 05/24/18 LOT# 54-401204472-1 REF# 54-401204472-1 Cylinder # P180959		

Standard ID #	Compound/Standard Name	Supplier/Manufacturer	Standard Part #	Standard Lot #
V0887	8260 VOC Mix	AccuStandard	M-502-10X-PAK	218051114
Concentration	Neat (% purity) or Solvent	Expiration Date	Date Received	Analyst
2,000 ug/mL	MeOH	05/15/2021	05/22/2018	RLD
# of Ampules/Units:	5	Comments:	Used for 8260 ICV/Spiking standard preparation.	

1

CT Laboratories, LLC

LSVO1-01
Volatiles Standards Logbook
Logbook Created: 12/08/2015
NOTEBOOK VIEW: LTN_LSVO1_01_VOC_Default, NOTEBOOK: LSVO1_01_VOC, PAGE: 63
Page is Locked
Author: rdigmann on: 5/16/2018 8:41:49 AM
Witness: akurth on: 7/31/2018 9:54:07 AM
Project: Unassigned
Page Title: 051518

Standard ID #	Compound/Standard Name	Supplier/Manufacturer	Standard Part #	Standard Lot #
V0885	8260 VOC Mix	Ultra Scientific	DWM-588-1	CS-1226
Concentration	Neat (% purity) or Solvent	Expiration Date	Date Received	Analyst
2,000 ug/mL	MeOH	04/30/2021	05/15/2018	RLD
# of Ampules/Units:	4	Comments:	Used for 8260 CCV/Calib. standard preparation.	

1

CT Laboratories, LLC

LSVO1-01
Volatiles Standards Logbook
Logbook Created: 12/08/2015
NOTEBOOK VIEW: LTN_LSVO1_01_VOC_Default, NOTEBOOK: LSVO1_01_VOC, PAGE: 62
Page is Locked
Author: rdigmann on: 5/15/2018 8:59:10 AM
Witness: akurth on: 7/31/2018 9:53:56 AM
Project: Unassigned
Page Title: 051118

Standard ID #	Compound/Standard Name	Supplier/Manufacturer	Standard Part #	Standard Lot #
V0881	Unleaded Gasoline	RESTEK	30096	A0132723
Concentration	Neat (% purity) or Solvent	Expiration Date	Date Received	Analyst
5,000 ug/mL	MeOH	12/2014	05/11/2018	RLD
# of Ampules/Units:	2	Comments:	Used for 8015 CCV/Calib. standard preparation.	

Standard ID #	Compound/Standard Name	Supplier/Manufacturer	Standard Part #	Standard Lot #
V0882	PVOC/GRO Mix	RESTEK	30095	A0133565
Concentration	Neat (% purity) or Solvent	Expiration Date	Date Received	Analyst
1,000/10,000 ug/mL	MeOH	01/2025	05/11/2018	RLD
# of Ampules/Units:	2	Comments:	Used for PVOC/GRO CCV/Calib. standard preparation.	

Standard ID #	Compound/Standard Name	Supplier/Manufacturer	Standard Part #	Standard Lot #
V0883	VOC 8260 Additions	SPEX CertiPrep	VO-CTWI-12	TS180508001
Concentration	Neat (% purity) or Solvent	Expiration Date	Date Received	Analyst
1,000 - 10,000 ug/mL	MeOH	08/06/2018	05/11/2018	RLD
# of Ampules/Units:	2	Comments:	Used for 8260 CCV/Calib. standard preparation.	

Standard ID #	Compound/Standard Name	Supplier/Manufacturer	Standard Part #	Standard Lot #
V0884	VOC 8260 Additions	SPEX CertiPrep	VO-CTWI-12	EN180508003
Concentration	Neat (% purity) or Solvent	Expiration Date	Date Received	Analyst
1,000 - 10,000 ug/mL	MeOH	08/06/2018	05/11/2018	RLD
# of Ampules/Units:	2	Comments:	Used for 8260 ICV/Spiking standard preparation.	

Standard ID #	Compound/Standard Name	Supplier/Manufacturer	Standard Part #	Standard Lot #
V0869	8260 ISTD/SSTD Mix	Ultra Scientific	STM-540	CP-5637
Concentration	Neat (% purity) or Solvent	Expiration Date	Date Received	Analyst
2,500 ug/mL	MeOH	12/31/17	01/09/18	AGK
# of Ampules/Units:	2	Comments:	Used for 8260 SSTD/ISTD	

Standard ID #	Compound/Standard Name	Supplier/Manufacturer	Standard Part #	Standard Lot #
V0870	1,2-Dichlorobenzene-$_{d4}$	Ultra Scientific	STS-210-1	CM-4301
Concentration	Neat (% purity) or Solvent	Expiration Date	Date Received	Analyst
2,000 ug/mL	MeOH	09/30/19	01/09/18	AGK
# of Ampules/Units:	2	Comments:	Used for 6260 ISTD/SSTD	

Standard ID #	Compound/Standard Name	Supplier/Manufacturer	Standard Part #	Standard Lot #
V0871	8260 VOC Mix	Ultra Scientific	DWM-588-1	CR-4674
Concentration	Neat (% purity) or Solvent	Expiration Date	Date Received	Analyst
2,000 ug/mL	MeOH	11/30/20	01/09/18	AGK
# of Ampules/Units:	4	Comments:	Used for 8260 CCV Standard	

Standard ID #	Compound/Standard Name	Supplier/Manufacturer	Standard Part #	Standard Lot #
V0872	Fluorobenzene	Ultra Scientific	STS-160	CL-3264A
Concentration	Neat (% purity) or Solvent	Expiration Date	Date Received	Analyst
2,000 ug/mL	MeOH	06/30/21	01/09/18	AGK
# of Ampules/Units:	2	Comments:	Used for PVOC/GRO ISTD/SSTD preperation	

Standard ID #	Compound/Standard Name	Supplier/Manufacturer	Standard Part #	Standard Lot #
V0861	4-Bromofluorobenzene	Ultra Scientific	STS-110N	CH-3248Z
Concentration	Neat (% purity) or Solvent	Expiration Date	Date Received	Analyst
2,000 ug/mL	MeOH	10/31/2019	11/08/2017	RLD
# of Ampules/Units:	2	Comments:	Used for 8260 Tuning Standard preparation.	

Standard ID #	Compound/Standard Name	Supplier/Manufacturer	Standard Part #	Standard Lot #
V0862	Fluorobenzene	Ultra Scientific	STS-160	CL-3264A
Concentration	Neat (% purity) or Solvent	Expiration Date	Date Received	Analyst
2,000 ug/mL	MeOH	06/30/2021	11/08/2017	RLD
# of Ampules/Units:	2	Comments:	Used for PVOC/GRO ISTD & ISTD/SSTD preparation.	

Standard ID #	Compound/Standard Name	Supplier/Manufacturer	Standard Part #	Standard Lot #
V0863	α,α,α-Trifluorotoluene	Ultra Scientific	STS-220N	CM-5040
Concentration	Neat (% purity) or Solvent	Expiration Date	Date Received	Analyst
2,000 ug/mL	MeOH	10/31/2019	11/08/2017	RLD
# of Ampules/Units:	2	Comments:	Used for PVOC/GRO SSTD & ISTD/SSTD preparation.	

V GRO 8015 QSM SOIL 5.0 Analytical Run
153498 on 09/25/2018

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME	QC TYPE (Parent Sample)	CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	182971						V GRO 8015 QSM SOIL 5.0				
				CCV							
	183163						GRO 8015 QSM 5.0				
				LCSS				68745			
	183162						GRO 8015 QSM 5.0				
				MBS				68745			
139370	175865		09/11/2018 0800		MAXXAM ANALYTICS	SI AFFF	GRO 8015 QSM 5.0		S	**4**	Y
		PETER-WS-001						68745			
	183164						GRO 8015 QSM 5.0				
				LCSDS 183163				68745			
	183160						V GRO 8015 QSM SOIL 5.0				
				CCV							

6 SAMPLE COUNT ON RUN, INCLUDING METHOD AND INSTRUMENT QC

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

Distribution: C:\LIMSREPS\ANALYTICALRUN.RPT

PREP WORKSHEET
on 10/04/2018

Prep Batch **68,745** Date Prepped: 09/21/2018 Prepped By DGS

Folder #	Order	QC Type	Link	Test	Matrix	Volume	Weight	Initial Volume	SDG Level	Notes
	183162	MBS		GRO 8015 QSM 5.0	SOLID	10.0	10.0			
	183163	LCSS		GRO 8015 QSM 5.0	SOLID	10.0	10.0			
	183164	LCSDS	183163	GRO 8015 QSM 5.0	SOLID	10.0	10.0			
139370	175865			GRO 8015 QSM 5.0	SOIL	10.0	10.01		4	

Notes:

FVO3,4,5,7-04

VOC SOILS PRESERVED - PREP BENCHSHEET

Prep Batch #:	68745
Method:	8015
Analyst:	DGS
Date:	09/21/2018
Start Time:	08:00

NON-LUST

	Sample ID			Sample Weight (g)		MeOH Added (mL)
1	175865			10.01		10.0
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						

Samples received unpreserved are preserved at a 1:1 ratio, weight to volume with methanol

Balance: Mettler Toledo, VOB01

LCS & MB prepared @ 1:1 ratio MeOH/Silica Sand

MeOH used (Supplier/Lot#):

Sample Weight = Vial Weight - Tare Weight

Stop Time:	10:00

Sequence Summary Report

Sequence Filename: C:\INSTARCH\PVOC1\Sequences\092118 -8015 153496 153497 153498.seq
Instrument: PVOC1
Processing Date: Sep 22, 2018 00:37:43

'Run Number	Sample ID	Data Filename	Method Filename	Run Time
1	INSTRUMENT BLANK	C:\Instarch\PVOC1\Data\092118-...	C:\Instarch\PVOC1\Methods\80...	Sep 21, 2018 12:04:21
2	153496,RTW,	C:\Instarch\PVOC1\Data\092118-...	C:\Instarch\PVOC1\Methods\80...	Sep 21, 2018 12:40:09
3	153496,CCV,	C:\Instarch\PVOC1\Data\092118-...	C:\Instarch\PVOC1\Methods\80...	Sep 21, 2018 13:16:03
4	153496,LCSW,	C:\Instarch\PVOC1\Data\092118-...	C:\Instarch\PVOC1\Methods\80...	Sep 21, 2018 13:52:03
5	INSTRUMENT BLANK	C:\Instarch\PVOC1\Data\092118-...	C:\Instarch\PVOC1\Methods\80...	Sep 21, 2018 14:27:52
6	153496,MBW,1, pH<2	C:\Instarch\PVOC1\Data\092118-...	C:\Instarch\PVOC1\Methods\80...	Sep 21, 2018 15:03:46
7	153496,167502,1, pH<2	C:\Instarch\PVOC1\Data\092118-...	C:\Instarch\PVOC1\Methods\80...	Sep 21, 2018 15:39:43
8	153496,175867,1, pH<2	C:\Instarch\PVOC1\Data\092118-...	C:\Instarch\PVOC1\Methods\80...	Sep 21, 2018 16:15:28
9	153496,LCSDW,1, pH<2	C:\Instarch\PVOC1\Data\092118-...	C:\Instarch\PVOC1\Methods\80...	Sep 21, 2018 16:51:15
10	145909,RTW,	C:\Instarch\PVOC1\Data\092118-...	C:\Instarch\PVOC1\Methods\80...	Sep 21, 2018 17:27:19
11	153496,CCV,	C:\Instarch\PVOC1\Data\092118-...	C:\Instarch\PVOC1\Methods\80...	Sep 21, 2018 18:03:04
12	INSTRUMENT BLANK	C:\Instarch\PVOC1\Data\092118-...	C:\Instarch\PVOC1\Methods\80...	Sep 21, 2018 18:38:52
13	IB	C:\Instarch\PVOC1\Data\092118-...	C:\Instarch\PVOC1\Methods\80...	Sep 21, 2018 19:14:39
14	145909,RTW,	C:\Instarch\PVOC1\Data\092118-...	C:\Instarch\PVOC1\Methods\80...	Sep 21, 2018 19:50:38
15	153498,CCV,	C:\Instarch\PVOC1\Data\092118-...	C:\Instarch\PVOC1\Methods\80...	Sep 21, 2018 20:26:27
16	153498,LCSS,	C:\Instarch\PVOC1\Data\092118-...	C:\Instarch\PVOC1\Methods\80...	Sep 21, 2018 21:02:21
17	INSTRUMENT BLANK	C:\Instarch\PVOC1\Data\092118-...	C:\Instarch\PVOC1\Methods\80...	Sep 21, 2018 21:38:04
18	153498,MBS,1,	C:\Instarch\PVOC1\Data\092118-...	C:\Instarch\PVOC1\Methods\80...	Sep 21, 2018 22:13:59
19	153498,175865,1,	C:\Instarch\PVOC1\Data\092118-...	C:\Instarch\PVOC1\Methods\80...	Sep 21, 2018 22:49:56
20	153498,LCSDS,	C:\Instarch\PVOC1\Data\092118-...	C:\Instarch\PVOC1\Methods\80...	Sep 21, 2018 23:25:45
21	153498,RTW,	C:\Instarch\PVOC1\Data\092118-...	C:\Instarch\PVOC1\Methods\80...	Sep 22, 2018 00:01:45
22	145909,CCV,	C:\Instarch\PVOC1\Data\092118-...	C:\Instarch\PVOC1\Methods\80...	Sep 22, 2018 00:37:43

8015 Surrogate Spiking STD	100 ug/L	VOC0497
8015 GRO CCV/Calib. STD	1000 ug/L	VOC0447
8015 GRO ICV/Spiking STD	1000 ug/L	VOC0448
8015 RTW STD	1000 ug/L	V0873

Sequence Summary Report

Sequence Filename: C:\INSTARCH\PVOC1\Sequences\091218-8015ICS.seq
Instrument: PVOC1
Processing Date: Sep 13, 2018 12:15:39

'Run Number	Sample ID	Data Filename	Method Filename	Run Time
1	RTW	C:\INSTARCH\PVOC1\Data\091...	C:\Instarch\PVOC1\Methods\80...	Sep 12, 2018 15:27:26
2	GRO 8015S LIN. PT 1	C:\INSTARCH\PVOC1\Data\091...	C:\INSTARCH\PVOC1\Method...	Sep 12, 2018 16:03:37
3	GRO 8015S LIN. PT 2	C:\INSTARCH\PVOC1\Data\091...	C:\INSTARCH\PVOC1\Method...	Sep 12, 2018 16:39:28
4	GRO 8015S LIN. PT 3	C:\INSTARCH\PVOC1\Data\091...	C:\INSTARCH\PVOC1\Method...	Sep 12, 2018 17:15:37
5	GRO 8015S LIN. PT 4	C:\INSTARCH\PVOC1\Data\091...	C:\INSTARCH\PVOC1\Method...	Sep 12, 2018 17:51:43
6	GRO 8015S LIN. PT 5	C:\INSTARCH\PVOC1\Data\091...	C:\INSTARCH\PVOC1\Method...	Sep 12, 2018 18:27:48
7	GRO 8015S LIN. PT 6	C:\INSTARCH\PVOC1\Data\091...	C:\INSTARCH\PVOC1\Method...	Sep 12, 2018 19:03:41
8	GRO 8015S LIN. PT 7	C:\INSTARCH\PVOC1\Data\091...	C:\INSTARCH\PVOC1\Method...	Sep 12, 2018 19:39:45
9	RTW	C:\INSTARCH\PVOC1\Data\091...	C:\Instarch\PVOC1\Methods\80...	Sep 12, 2018 20:15:45
10	GRO 8015S SSTD LIN. PT 1	C:\INSTARCH\PVOC1\Data\091...	C:\INSTARCH\PVOC1\Method...	Sep 12, 2018 21:27:21
11	GRO 8015S SSTD LIN. PT 2	C:\INSTARCH\PVOC1\Data\091...	C:\INSTARCH\PVOC1\Method...	Sep 12, 2018 22:03:15
12	GRO 8015S SSTD LIN. PT 3	C:\INSTARCH\PVOC1\Data\091...	C:\INSTARCH\PVOC1\Method...	Sep 12, 2018 22:38:56
13	GRO 8015S SSTD LIN. PT 4	C:\INSTARCH\PVOC1\Data\091...	C:\INSTARCH\PVOC1\Method...	Sep 12, 2018 23:14:41
14	GRO 8015S SSTD LIN. PT 5	C:\INSTARCH\PVOC1\Data\091...	C:\INSTARCH\PVOC1\Method...	Sep 12, 2018 23:50:30
15	GRO 8015S SSTD LIN. PT 6	C:\INSTARCH\PVOC1\Data\091...	C:\INSTARCH\PVOC1\Method...	Sep 13, 2018 00:26:23
16	GRO 8015S SSTDLIN. PT 7	C:\INSTARCH\PVOC1\Data\091...	C:\INSTARCH\PVOC1\Method...	Sep 13, 2018 01:02:21
17	RTW	C:\INSTARCH\PVOC1\Data\091...	C:\Instarch\PVOC1\Methods\80...	Sep 13, 2018 10:28:13
18	GRO 8015 ICVR SOIL	C:\INSTARCH\PVOC1\Data\091...	C:\Instarch\PVOC1\Methods\80...	Sep 13, 2018 11:04:01
19	GRO 8015 ICB	C:\INSTARCH\PVOC1\Data\091...	C:\Instarch\PVOC1\Methods\80...	Sep 13, 2018 12:15:39

8015 Surrogate Calib. STD	100 ug/L	VOC0496
8015 GRO CCV/Calib. STD	1000 ug/L	VOC0447
8015 GRO ICV/Spiking STD	1000 ug/L	VOC0448
8015 RTW STD	1000 ug/L	V0873

8015 Surrogate Spiking STD	100 ug/L	VOC0497
8015 GRO CCV/Calib. STD	1000 ug/L	VOC0447
8015 GRO ICV/Spiking STD	1000 ug/L	VOC0448
8015 RTW STD	1000 ug/L	V0873

FVO5,7-01 Data Review Checklist

	Method: GC (PID/FID) US-EPA SW846 Method 8015 (GRO)/8020 (PVOC/BETX, non-WI), WI- GRO (PVOC/GRO) and SW846 8021B					
LIMS Run #(s)	**Analysis Dates(s)**	**Analyst / Data Interpreter**	**Independent Reviewer**	**Date of Review**	**Approved? (Yes or No)**	**Instrument**
153498	09/21/2018	DGS	RLD	09/26/2018	Yes	PVOC1

Instructions: Complete one checklist per *analytical sequence* . Enter the appropriate response for each question. Each "No" response requires an explanation in the Comments section, and may require the initiation of a Nonconformance Report.

Requirement	Acceptance Criteria	Analyst Review		Independent Review		Comments: (Indicate reference to an attachment if necessary)
1. INITIAL CALIBRATION (ICAL)		Yes	No	Yes	No	
a. Was the initial calibration performed using a minimum of five concentration levels?	Lowest standard at or near RL	Yes		Yes		If No, recalibrate
b. For each analyte/component is the variation between calibration response factors for all concentration levels <20% RSD or is r^2 [3] .99 or r [3] .995 for the regression line?	RSD <20% or r^2 .99 or r .995	Yes		Yes		If No, recalibrate
c. Are the identification and date of the ICAL listed on the printout (or PDF) of the analytical run and in the method file?	ID# and date of ICAL listed	Yes		Yes		
d. Was a second source Initial Calibration Verification (ICV) analyzed after the ICAL?	Separate supplier or Lot #	Yes		Yes		If No, analyze ICV prior to sample analyses.
e. Were the recoveries for each analyte/group in the ICV within required limits?	%R 85–115 for Methods 8015B/8020/8021B, 80-120 for WI-GRO	Yes		Yes		If No, reanalyze ICV. If still No then necessary maintenance and recalibration should be performed.
f. Was an Initial Calibration Blank (ICB) analyzed?		Yes		Yes		If No, reanalyze ICB before sample analyses.
g. Were the ICB results for all target analytes/components less than the reporting limit (RL)?	<RL or < program/project specific	Yes		Yes		
2. CONTINUING CALIBRATION VERIFICATION (CCV)						
a . Were CCVs analyzed at the beginning of each analytical shift and at end of the sequence/run?	Every 12 hour shift for 8015B/8020, or per 20 samples for WI GRO (PVOC)	Yes		Yes		If No, then necessary maintenance and possible recalibration should be performed. Affected samples must be reanalyzed.
b. Were the recoveries for each analyte/component in the CCV within acceptance criteria?	85-115% for Methods 8015/8020, 80-120% for WI-GRO	Yes		Yes		If No, then necessary maintenance and possible recalibration should be performed. Affected samples must be reanalyzed for compounds exceeding CCV criteria.
3. METHOD BLANKS (MB)						
a. Was a method blank (MB) analyzed?	1 / 20 / matrix with results < the RL or program/project specific (DoD-QSM: <1/2 the RL).	Yes		Yes		If No, reanalyze sample batch with an associated MB.
b. Were the MB results for all analytes/components less than reporting limit?	All target analytes/components <RL or within program/project specific limits	Yes		Yes		If analytes/components were detected in the MB with no associated positives in the samples, no further action is needed. If analyte detects are greater than the RL with associated positives in the samples, flag associated positives with a "B" qualifier.
4. LABORATORY CONTROL SPIKE (LCS) and / or LABORATORY CONTROL SPIKE DUPLICATES (LCSD)	**LCSD required with WI-GRO soils**					
a. Was a LCS and/or LCSD analyzed at a frequency of one per 20 samples of similar medium (liquid or solid) with the LCS before and the LCSD after sample analyses for WI-GRO soils.	1 / 20 / matrix or program/project specific	Yes		Yes		
b. Were LCS (and LCSD if applicable) recoveries for all analytes within the acceptance criteria?	Default = 70-130%, WI-GRO (PVOC) = 80-120%, or In-house generated or program/project specific limits	Yes		Yes		If No, Reanalyze LCS or LCSD to confirm no preparation error.
c. If LCS or LCSD recoveries exceed acceptance criteria, was the LCS or LCSD reanalyzed in an effort to eliminate the possibility of a preparation error?		Yes		Yes		If LCS or LCSD recoveries exceed acceptance criteria again, investigate and correct problem and reanalyze affected samples, if possible. If LCS and LCSD recoveries exceed criteria after sample reanalysis and if samples are not reanalyzed, See Below: *If LCS or LCSD recovery is high with no associated positives in samples, no further action needed. *If LCS or LCSD recovery is high with associated positives in samples, flag associated positives "Q". *If LCS or LCSD recoveries are low, flag all affected analytes/components within the batch "Q".
5. MATRIX SPIKE (MS)/ MATRIX SPIKE DUPLICATES (MSD)						
a. If applicable, Was a matrix spiked sample (MS) and duplicate matrix spiked sample (MSD) analyzed at the required frequency per matrix?	1 / 20 / matrix or program/project specific frequency (n/a for WI-PVOC/GRO soils)	N/A		N/A		If No, analyze a MS/MSD from the specific sample batch.
b. Were MS/MSD recoveries for all analytes within acceptance criteria?	Default =70-130%, WI-GRO (PVOC) = 80-120%, or In-house generated or program/project specific limits	N/A		N/A		If No, See Below: *If MS/MSD recoveries are below acceptable limits, and unspiked sample has detects or no detects for affected analytes, flag affected analytes "M". *If MS/MSD recoveries are above acceptable limits, and the unspiked sample has no detects for affected analytes, no action is required. *If MS/MSD recoveries are outside of acceptable limits, and unspiked sample has detects for affected analytes, flag affected analytes "M" in parent sample.

6. PRECISION						
c. Is the relative percent difference (RPD) for each analyte between duplicate QC samples (i.e. LCS/LCSD), or for each MS/MSD within the acceptance criteria?	Default = 20 %, WI-GRO (PVOC) = 20%, or In-house generated or program/project specific limits	Yes		Yes		If No, "Y" flag all affected compounds on every sample in the analytical batch if the precision problem is between an LCS and LCSD, and only the affected compound in the unspiked sample if the precision failure is between the MS and MSD.
7. SAMPLES (INCLUDING BLANKS, STANDARDS, AND QC SAMPLES)						
a. Are chromatogram characteristics, including peak shapes and areas, consistent with those of the CCV?		Yes		Yes		If No, document any discrepancies. Manual integrations should include before and after chromatography. Manual integrations should be signed and dated.
b. Do internal standard (IS) responses in each sample conform to acceptance criteria when compared to IS responses in the previous CCV for methods 8020, 8021, and WI-PVOC?	50-200 % or program/project specific	Yes		Yes		If No, reanalyze affected samples
c. Are surrogate recoveries for all samples, blanks, standards, and QC samples within acceptance criteria?	Default =80-120%, WI –PVOC = 80-120%, or In-house generated or program/project specific limits		No		No	If surrogate recoveries were low, reanalyze affected sample, If surrogate recoveries were high, See Below: WI PVOC samples, no further action to be taken (assume matrix affect). 8015B, 8021B and Non-WI PVOC samples, dilute & reanalyze sample to minimized matrix affect. Sample results reported with failing surrogate recoveries should be qualified with an "S" flag.
d. Were all samples having analytes detected in amounts exceeding the calibration range diluted and reanalyzed or reanalyzed using a smaller sample aliquot? Affected analyte detects should remain above the limit of quantitation (LOQ) after reanalysis.		Yes		Yes		If No, dilute and reanalyze samples for compounds exceeding calibration range.
e. Do all reported hits have retention times (RT) within the RT windows determined by the ICV/CCV?	RTW = ± 3 SD of absolute. RT for WI-PVOC & Method 8020, 0.1 min. before onset of MtBE and 0.1 min. after Naphthalene. for WI-GRO	Yes		Yes		WI GRO must be qualified with an "L" flag if significant peaks are found outside of the GRO retention time window.
f. If applicable, was retention time window established for 8015-GRO using 2-Methylpentane and 1,2,4-Trimethylbenzene at the beginning of each 12-hour shift?	Lower RT limit for 2-Methylpentane to the upper RT limit for 1,2,4-TMB	Yes		Yes		If No, reanalyze affected samples with retention time standards bracketing analyses.
g. Were all samples adequately preserved and analyzed within holding time?	Analysis within 14 days of sampling for soils and preserved waters, 7 days for unpreserved waters, and 21 days for MeOH preserved PVOC/GRO soils	Yes		Yes		If No, see below: Qualify liquid samples improperly preserved with a "T" flag . Qualify WI solid samples with a "W" flag if the MeOH/Sample ratio is greater than 20%. Qualify samples analyzed past hold time with an "H" flag.
8. RECORDS AND REPORTING						
a. Is a sequence run file present in the raw data file?		Yes		Yes		If No, include sequence run with raw data.
b. Is the data initialed and dated by analyst?	Analysis Run sheet is initialed & dated by the analyst processing the raw data.	Yes		Yes		If No, if no obtain initials and date from analyst.
c. Do all values, units, etc. listed match the raw data and associated calculations and records?		Yes		Yes		If No, data should be reprocessed to include correct units and results.
d. If required, were the 8021 PID results confirmed?	Second dissimilar detector or column confirmation results ≤ 40% Diff. N/A for WI PVOC/Naph samples.	Yes		Yes		If Yes, qualify reported data with a "P" flag if confirmation results exceed acceptable criteria. If No, confirm PID results with FID results or reanalyze samples using a dissimilar column. If detects do not confirm by second detector or column, report initial results as non detects (<RL).
e. Has the data been electronically transferred to the LIMS and were the applicable qualifiers assigned?		Yes		Yes		If No, recapture data. Manual entries into LIMS must be documented to ensure proper review.
f. Were manual integrations addressed properly and were the audit trails turned on (where applicable)?	Manual integration must be initialed, dated, and reason given, along with before & after chromatograms. Audit trail must be on (if available).	Yes		Yes		If No, address manual integration and/or turn on audit trail feature and document reason why it may have been turned off.
g. Are reported results whose amounts exceeded the acceptance criteria flagged with an appropriate qualifier and, if needed, were any non-matrix related nonconformities documented in the NCR spreadsheet?		Yes		Yes		If No, include proper qualification(s) in LIMS and enter nonconformities into the NCR spreadsheet before data review/validation.

Non-Applicable Yes/No Cells Are Left Blank

Comments:

V GRO 8015 QSM WATER 5.0 Analytical Run
153497 on 09/26/2018

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME	QC TYPE (Parent Sample)	CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	182967						V GRO 8015 QSM WATER 5.0				
				CCV							
	182968						V GRO 8015 QSM WATER 5.0				
				LCSW							
	182970						V GRO 8015 QSM WATER 5.0				
				MBW							
139370	175867		09/11/2018 0800		MAXXAM ANALYTICS	SI AFFF	GRO 8015 QSM 5.0		GW	**4**	Y
		PETER-WW-001									
	182969						V GRO 8015 QSM WATER 5.0				
				LCSDW 182968							
	183140						V GRO 8015 QSM WATER 5.0				
				CCV							

6 SAMPLE COUNT ON RUN, INCLUDING METHOD AND INSTRUMENT QC

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

Distribution: C:\LIMSREPS\ANALYTICALRUN.RPT

Sequence Summary Report

Sequence Filename: C:\INSTARCH\PVOC1\Sequences\092518 -8015 W.seq
Instrument: PVOC1
Processing Date: Sep 25, 2018 22:57:59

'Run Number	Sample ID	Data Filename	Method Filename	Run Time
2	153496,RTW,	C:\Instarch\PVOC1\Data\092518-...	C:\Instarch\PVOC1\Methods\80...	Sep 25, 2018 15:45:35
3	153496,CCV,	C:\Instarch\PVOC1\Data\092518-...	C:\Instarch\PVOC1\Methods\80...	Sep 25, 2018 16:21:33
4	153496,LCSW,	C:\Instarch\PVOC1\Data\092518-...	C:\Instarch\PVOC1\Methods\80...	Sep 25, 2018 16:57:32
8	153496,175867,1, pH<2	C:\Instarch\PVOC1\Data\092518-...	C:\Instarch\PVOC1\Methods\80...	Sep 25, 2018 19:21:51
11	153496,LCSDW,1, pH<2	C:\Instarch\PVOC1\Data\092518-...	C:\Instarch\PVOC1\Methods\80...	Sep 25, 2018 21:10:03
12	145909,RTW,	C:\Instarch\PVOC1\Data\092518-...	C:\Instarch\PVOC1\Methods\80...	Sep 25, 2018 21:45:57
13	153496,CCV,	C:\Instarch\PVOC1\Data\092518-...	C:\Instarch\PVOC1\Methods\80...	Sep 25, 2018 22:21:56

PVOC/GRO ISTD/SSTD	80 ug/L	VOC0497
8015 GRO CCV/Calib. STD	1000 ug/L	VOC0447
8015 GRO ICV/Spiking STD	1000 ug/L	VOC0448
8015 RTW STD	1000 ug/L	V0873

Sequence Summary Report

Sequence Filename: C:\INSTARCH\PVOC1\Sequences\091018-8015ICW.seq
Instrument: PVOC1
Processing Date: Sep 11, 2018 14:04:25

'Run Number	Sample ID	Data Filename	Method Filename	Run Time
1	RTW	C:\INSTARCH\PVOC1\Data\091...	C:\Instarch\PVOC1\Methods\80...	Sep 10, 2018 13:58:08
2	GRO 8015W LIN. PT 1	C:\INSTARCH\PVOC1\Data\091...	C:\Instarch\PVOC1\Methods\80...	Sep 10, 2018 14:34:01
3	GRO 8015W LIN. PT 2	C:\INSTARCH\PVOC1\Data\091...	C:\Instarch\PVOC1\Methods\80...	Sep 10, 2018 15:09:54
4	GRO 8015W LIN. PT 3	C:\INSTARCH\PVOC1\Data\091...	C:\Instarch\PVOC1\Methods\80...	Sep 10, 2018 15:45:49
5	GRO 8015W LIN. PT 4	C:\INSTARCH\PVOC1\Data\091...	C:\Instarch\PVOC1\Methods\80...	Sep 10, 2018 16:21:42
6	GRO 8015W LIN. PT 5	C:\INSTARCH\PVOC1\Data\091...	C:\Instarch\PVOC1\Methods\80...	Sep 10, 2018 16:57:35
7	GRO 8015W LIN. PT 6	C:\INSTARCH\PVOC1\Data\091...	C:\Instarch\PVOC1\Methods\80...	Sep 10, 2018 17:33:25
8	GRO 8015W LIN. PT 7	C:\INSTARCH\PVOC1\Data\091...	C:\Instarch\PVOC1\Methods\80...	Sep 10, 2018 18:09:13
9	RTW	C:\INSTARCH\PVOC1\Data\091...	C:\Instarch\PVOC1\Methods\80...	Sep 10, 2018 18:44:58
10	GRO 8015W SSTD LIN. PT 1	C:\INSTARCH\PVOC1\Data\091...	C:\Instarch\PVOC1\Methods\80...	Sep 10, 2018 19:56:39
11	GRO 8015W SSTD LIN. PT 2	C:\INSTARCH\PVOC1\Data\091...	C:\Instarch\PVOC1\Methods\80...	Sep 10, 2018 20:32:32
12	GRO 8015W SSTD LIN. PT 3	C:\INSTARCH\PVOC1\Data\091...	C:\Instarch\PVOC1\Methods\80...	Sep 10, 2018 21:08:27
13	GRO 8015W SSTD LIN. PT 4	C:\INSTARCH\PVOC1\Data\091...	C:\Instarch\PVOC1\Methods\80...	Sep 10, 2018 21:44:19
14	GRO 8015W SSTD LIN. PT 5	C:\INSTARCH\PVOC1\Data\091...	C:\Instarch\PVOC1\Methods\80...	Sep 10, 2018 22:20:12
15	GRO 8015W SSTD LIN. PT 6	C:\INSTARCH\PVOC1\Data\091...	C:\Instarch\PVOC1\Methods\80...	Sep 10, 2018 22:56:01
16	GRO 8015W SSTDLIN. PT 7	C:\INSTARCH\PVOC1\Data\091...	C:\Instarch\PVOC1\Methods\80...	Sep 10, 2018 23:31:50
17	RTW	C:\INSTARCH\PVOC1\Data\091...	C:\Instarch\PVOC1\Methods\80...	Sep 11, 2018 12:16:39
18	GRO 8015 ICV WATER	C:\INSTARCH\PVOC1\Data\091...	C:\Instarch\PVOC1\Methods\80...	Sep 11, 2018 12:52:37
19	GRO 8015 ICB	C:\INSTARCH\PVOC1\Data\091...	C:\Instarch\PVOC1\Methods\80...	Sep 11, 2018 14:04:25

8015 Surrogate Calib. STD	100 ug/L	VOC0496
8015 GRO CCV/Calib. STD	1000 ug/L	VOC0447
8015 GRO ICV/Spiking STD	1000 ug/L	VOC0448
8015 RTW STD	1000 ug/L	V0873

8015 Surrogate Spiking STD	100 ug/L	VOC0497
8015 GRO CCV/Calib. STD	1000 ug/L	VOC0447
8015 GRO ICV/Spiking STD	1000 ug/L	VOC0448
8015 RTW STD	1000 ug/L	V0873

FVO5,7-01 Data Review Checklist

	Method: GC (PID/FID) US-EPA SW846 Method 8015 (GRO)/8020 (PVOC/BETX, non-WI), WI- GRO (PVOC/GRO) and SW846 8021B					
LIMS Run #(s)	**Analysis Dates(s)**	**Analyst / Data Interpreter**	**Independent Reviewer**	**Date of Review**	**Approved? (Yes or No)**	**Instrument**
153701 153497 153496	09/25/2018	DGS	RLD	09/26/2018	RLD	PVOC1

Instructions: Complete one checklist per *analytical sequence* . Enter the appropriate response for each question. Each "No" response requires an explanation in the Comments section, and may require the initiation of a Nonconformance Report.

Requirement	Acceptance Criteria	Analyst Review		Independent Review		Comments: (Indicate reference to an attachment if necessary)
1. INITIAL CALIBRATION (ICAL)		Yes	No	Yes	No	
a. Was the initial calibration performed using a minimum of five concentration levels?	Lowest standard at or near RL	Yes		Yes		If No, recalibrate
b. For each analyte/component is the variation between calibration response factors for all concentration levels <20% RSD or is r^2 .99 or r .995 for the regression line?	RSD <20% or r^2 .99 or r .995	Yes		Yes		If No, recalibrate
c. Are the identification and date of the ICAL listed on the printout (or PDF) of the analytical run and in the method file?	ID# and date of ICAL listed	Yes		Yes		
d. Was a second source Initial Calibration Verification (ICV) analyzed after the ICAL?	Separate supplier or Lot #	Yes		Yes		If No, analyze ICV prior to sample analyses.
e. Were the recoveries for each analyte/group in the ICV within required limits?	%R 85–115 for Methods 8015B/8020/8021B, 80-120 for WI-GRO	Yes		Yes		If No, reanalyze ICV. If still No then necessary maintenance and recalibration should be performed.
f. Was an Initial Calibration Blank (ICB) analyzed?		Yes		Yes		If No, reanalyze ICB before sample analyses.
g. Were the ICB results for all target analytes/components less than the reporting limit (RL)?	<RL or < program/project specific	Yes		Yes		
2. CONTINUING CALIBRATION VERIFICATION (CCV)						
a . Were CCVs analyzed at the beginning of each analytical shift and at end of the sequence/run?	Every 12 hour shift for 8015B/8020, or per 20 samples for WI GRO (PVOC)	Yes		Yes		If No, then necessary maintenance and possible recalibration should be performed. Affected samples must be reanalyzed.
b. Were the recoveries for each analyte/component in the CCV within acceptance criteria?	85-115% for Methods 8015/8020, 80-120% for WI-GRO	Yes		Yes		If No, then necessary maintenance and possible recalibration should be performed. Affected samples must be reanalyzed for compounds exceeding CCV criteria.
3. METHOD BLANKS (MB)						
a. Was a method blank (MB) analyzed?	1 / 20 / matrix with results < the RL or program/project specific (DoD-QSM: <1/2 the RL).	Yes		Yes		If No, reanalyze sample batch with an associated MB.
b. Were the MB results for all analytes/components less than reporting limit?	All target analytes/components <RL or within program/project specific limits	Yes		Yes		If analytes/components were detected in the MB with no associated positives in the samples, no further action is needed. If analyte detects are greater than the RL with associated positives in the samples, flag associated positives with a "B" qualifier.
4. LABORATORY CONTROL SPIKE (LCS) and / or LABORATORY CONTROL SPIKE DUPLICATES (LCSD)	**LCSD required with WI-GRO soils**					
a. Was a LCS and/or LCSD analyzed at a frequency of one per 20 samples of similar medium (liquid or solid) with the LCS before and the LCSD after sample analyses for WI-GRO soils.	1 / 20 / matrix or program/project specific	Yes		Yes		
b. Were LCS (and LCSD if applicable) recoveries for all analytes within the acceptance criteria?	Default = 70-130%, WI-GRO (PVOC) = 80-120%, or In-house generated or program/project specific limits	Yes		Yes		If No, Reanalyze LCS or LCSD to confirm no preparation error.
c. If LCS or LCSD recoveries exceed acceptance criteria, was the LCS or LCSD reanalyzed in an effort to eliminate the possibility of a preparation error?		Yes		Yes		If LCS or LCSD recoveries exceed acceptance criteria again, investigate and correct problem and reanalyze affected samples, if possible. If LCS and LCSD recoveries exceed criteria after sample reanalysis and if samples are not reanalyzed, See Below: *If LCS or LCSD recovery is high with no associated positives in samples, no further action needed. *If LCS or LCSD recovery is high with associated positives in samples, flag associated positives "Q". *If LCS or LCSD recoveries are low, flag all affected analytes/components within the batch "Q".
5. MATRIX SPIKE (MS)/ MATRIX SPIKE DUPLICATES (MSD)						
a. If applicable, Was a matrix spiked sample (MS) and duplicate matrix spiked sample (MSD) analyzed at the required frequency per matrix?	1 / 20 / matrix or program/project specific frequency (n/a for WI-PVOC/GRO soils)	N/A		N/A		If No, analyze a MS/MSD from the specific sample batch.
b. Were MS/MSD recoveries for all analytes within acceptance criteria?	Default =70-130%, WI-GRO (PVOC) = 80-120%, or In-house generated or program/project specific limits	N/A		N/A		If No, See Below: *If MS/MSD recoveries are below acceptable limits, and unspiked sample has detects or no detects for affected analytes, flag affected analytes "M". *If MS/MSD recoveries are above acceptable limits, and the unspiked sample has no detects for affected analytes, no action is required. *If MS/MSD recoveries are outside of acceptable limits, and unspiked sample has detects for affected analytes, flag affected analytes "M" in parent sample.

6. PRECISION						
c. Is the relative percent difference (RPD) for each analyte between duplicate QC samples (i.e. LCS/LCSD), or for each MS/MSD within the acceptance criteria?	Default = 20 %, WI-GRO (PVOC) = 20%, or In-house generated or program/project specific limits	Yes		Yes		If No, "Y" flag all affected compounds on every sample in the analytical batch if the precision problem is between an LCS and LCSD, and only the affected compound in the unspiked sample if the precision failure is between the MS and MSD.
7. SAMPLES (INCLUDING BLANKS, STANDARDS, AND QC SAMPLES)						
a. Are chromatogram characteristics, including peak shapes and areas, consistent with those of the CCV?		Yes		Yes		If No, document any discrepancies. Manual integrations should include before and after chromatography. Manual integrations should be signed and dated.
b. Do internal standard (IS) responses in each sample conform to acceptance criteria when compared to IS responses in the previous CCV for methods 8020, 8021, and WI-PVOC?	50-200 % or program/project specific	Yes		Yes		If No, reanalyze affected samples
c. Are surrogate recoveries for all samples, blanks, standards, and QC samples within acceptance criteria?	Default =80-120%, WI –PVOC = 80-120%, or In-house generated or program/project specific limits	Yes		Yes		If surrogate recoveries were low, reanalyze affected sample, If surrogate recoveries were high, See Below: WI PVOC samples, no further action to be taken (assume matrix affect). 8015B, 8021B and Non-WI PVOC samples, dilute & reanalyze sample to minimized matrix affect. Sample results reported with failing surrogate recoveries should be qualified with an "S" flag.
d. Were all samples having analytes detected in amounts exceeding the calibration range diluted and reanalyzed or reanalyzed using a smaller sample aliquot? Affected analyte detects should remain above the limit of quantitation (LOQ) after reanalysis.		Yes		Yes		If No, dilute and reanalyze samples for compounds exceeding calibration range.
e. Do all reported hits have retention times (RT) within the RT windows determined by the ICV/CCV?	RTW = ± 3 SD of absolute. RT for WI-PVOC & Method 8020, 0.1 min. before onset of MtBE and 0.1 min. after Naphthalene. for WI-GRO	Yes		Yes		WI GRO must be qualified with an "L" flag if significant peaks are found outside of the GRO retention time window.
f. If applicable, was retention time window established for 8015-GRO using 2-Methylpentane and 1,2,4-Trimethylbenzene at the beginning of each 12-hour shift?	Lower RT limit for 2-Methylpentane to the upper RT limit for 1,2,4-TMB	Yes		Yes		If No, reanalyze affected samples with retention time standards bracketing analyses.
g. Were all samples adequately preserved and analyzed within holding time?	Analysis within 14 days of sampling for soils and preserved waters, 7 days for unpreserved waters, and 21 days for MeOH preserved PVOC/GRO soils	Yes		Yes		If No, see below: Qualify liquid samples improperly preserved with a "T" flag . Qualify WI solid samples with a "W" flag if the MeOH/Sample ratio is greater than 20%. Qualify samples analyzed past hold time with an "H" flag.
8. RECORDS AND REPORTING						
a. Is a sequence run file present in the raw data file?		Yes		Yes		If No, include sequence run with raw data.
b. Is the data initialed and dated by analyst?	Analysis Run sheet is initialed & dated by the analyst processing the raw data.	Yes		Yes		If No, if no obtain initials and date from analyst.
c. Do all values, units, etc. listed match the raw data and associated calculations and records?		Yes		Yes		If No, data should be reprocessed to include correct units and results.
d. If required, were the 8021 PID results confirmed?	Second dissimilar detector or column confirmation results ≤ 40% Diff. N/A for WI PVOC/Naph samples.	Yes		Yes		If Yes, qualify reported data with a "P" flag if confirmation results exceed acceptable criteria. If No, confirm PID results with FID results or reanalyze samples using a dissimilar column. If detects do not confirm by second detector or column, report initial results as non detects (<RL).
e. Has the data been electronically transferred to the LIMS and were the applicable qualifiers assigned?		Yes		Yes		If No, recapture data. Manual entries into LIMS must be documented to ensure proper review.
f. Were manual integrations addressed properly and were the audit trails turned on (where applicable)?	Manual integration must be initialed, dated, and reason given, along with before & after chromatograms. Audit trail must be on (if available).	Yes		Yes		If No, address manual integration and/or turn on audit trail feature and document reason why it may have been turned off.
g. Are reported results whose amounts exceeded the acceptance criteria flagged with an appropriate qualifier and, if needed, were any non-matrix related nonconformities documented in the NCR spreadsheet?		Yes		Yes		If No, include proper qualification(s) in LIMS and enter nonconformities into the NCR spreadsheet before data review/validation.

Non-Applicable Yes/No Cells Are Left Blank

Comments:

Standard Log #:	VOC0496	Standard/Reagent:	8015 Surrogate Calibration S
Analyst:	RLD	Final Concentration:	100 ug/ml
Prep Date:	09/07/2018	Expiration Date:	03/07/2019
Prep:	0.15 ml of 2000 ug/ml 1,2-dichlorobenzened4 (V0870) standard (B&J, Lot DT961). FV=3.0 ml 2850 ul of methanol		

Standard Log #:	VOC0497	Standard/Reagent:	8015 Surrogate Spiking Std.
Analyst:	RLD	Final Concentration:	80.0 ug/ml
Prep Date:	09/07/2018	Expiration Date:	03/07/2019
Prep:	0.4 ml of 2000 ug/ml 1,2-dichlorobenzened4 (V0870) standard into a 10 ml volumetric flask and brought to volume with methanol (B&J, Lot DT961).		

LPVO1-02 VOC
Volatiles Standards Prep Logbook
Logbook Created: 10/10/16
Balance used in reagent prep: VOB01
NOTEBOOK VIEW: LTN_LPVO1_02_VOC_Default, NOTEBOOK: LPVO1_02_VOC, PAGE: 88
Page is Locked
Author: rdigmann on: 5/9/2018 8:33:58 AM
Page is not Witnessed
Project: Unassigned
Page Title: 050218

Standard ID #	Standard Prepped	Prep	Solvent / Lot #	Final Concentration	Prep Date	Expiration Date	Analyst
VOC0447	8015 CCV/Calib. Std.	Into a 5-mL volumetric flask, add 1.0 mL of 5,000 ug/mL Unleaded Gasoline Std. V0837 and bring to volume with MeOH.	MeOH / B&J DS286	1,000 ug/mL	05/02/2018	11/02/2018	RLD

Standard ID #	Standard Prepped	Prep	Solvent / Lot #	Final Concentration	Prep Date	Expiration Date	Analyst
VOC0448	8015 ICV/Spiking Std.	Into a 5-mL volumetric flask, add 0.25 mL of 20,000 ug/mL Unleaded Gasoline Std. V0840 and bring to volume with MeOH.	MeOH / B&J DS286	1,000 ug/mL	05/02/2018	11/02/2018	RLD

Standard ID #	Standard Prepped	Prep	Solvent / Lot #	Final Concentration	Prep Date	Expiration Date	Analyst
VOC0449	PVOC/GRO CCV/Calib. Std	1.0mL of 1,000/10,000 ug/mL PVOC/GRO Mix V0852 into 10mL of MeOH.	MeOH / B&J / DS286	100/1000 ug/mL	05/02/2018	11/02/2018	RLD

Standard ID #	Standard Prepped	Prep	Solvent / Lot #	Final Concentration	Prep Date	Expiration Date	Analyst

Standard ID #	Compound/Standard Name	Supplier/Manufacturer	Standard Part #	Standard Lot #
V0873	2-Methylpentane; 1,2,4-Trimethylbenzene	SPEX CertiPrep	VO-CTWI-1	TS180125001
Concentration	Neat (% purity) or Solvent	Expiration Date	Date Received	Analyst
1,000 ug/mL	MeOH	01/24/2021	01/30/18	AGK
# of Ampules/Units:	1	Comments:	RETENTION TIME STANDARDS FOR GRO/8015	

LSVO1-01
Volatiles Standards Logbook
Logbook Created: 12/08/2015
NOTEBOOK VIEW: LTN_LSVO1_01_VOC_Default, NOTEBOOK: LSVO1_01_VOC, PAGE: 39
Page is Locked
Author: rdigmann on: 5/12/2017 8:40:25 AM
Witness: AKURTH on: 9/25/2017 3:27:54 PM
Project: Unassigned
Page Title: 050117

Standard ID #	Compound/Standard Name	Supplier/Manufacturer	Standard Part #	Standard Lot #
V0837	Unleaded Gasoline	RESTEK	30096	A0124612
Concentration	Neat (% purity) or Solvent	Expiration Date	Date Received	Analyst
5,000 ug/mL	MeOH	03/21/2024	05/01/2017	RLD
# of Ampules/Units:	2	Comments:	Used for 8015 CCV/Calib. Std. preparation.	

Standard ID #	Compound/Standard Name	Supplier/Manufacturer	Standard Part #	Standard Lot #
V0838	VOC 8260 Additions	SPEX CertiPrep	VO-CTWI-12	BW170424010
Concentration	Neat (% purity) or Solvent	Expiration Date	Date Received	Analyst
1,000 - 10,000 ug/mL	MeOH	07/23/2017	05/01/2017	RLD
# of Ampules/Units:	2	Comments:	Used for 8260 ICV/Spiking Std. preparation.	

Standard ID #	Compound/Standard Name	Supplier/Manufacturer	Standard Part #	Standard Lot #
V0839	VOC 8260 Additions	SPEX CertiPrep	VO-CTWI-12	BW170424011
Concentration	Neat (% purity) or Solvent	Expiration Date	Date Received	Analyst
1,000 - 10,000 ug/mL	MeOH	07/23/2017	05/01/2017	RLD
# of Ampules/Units:	2	Comments:	Used for 8260 CCV/Calib. Std. preparation.	

1

CT Laboratories, LLC

LSVO1-01
Volatiles Standards Logbook
Logbook Created: 12/08/2015
NOTEBOOK VIEW: LTN_LSVO1_01_VOC_Default, NOTEBOOK: LSVO1_01_VOC, PAGE: 35
Page is Locked
Author: rdigmann on: 2/22/2017 11:45:43 AM
Witness: AKURTH on: 9/25/2017 3:28:25 PM
Project: Unassigned
Page Title: 021317

Standard ID #	Compound/Standard Name	Supplier/Manufacturer	Standard Part #	Standard Lot #
V0817	2-Methylpentane; 1,2,4-Trimethylbenzene	SPEX CertiPrep	VO-CTWI-1	C1141107008
Concentration	Neat (% purity) or Solvent	Expiration Date	Date Received	Analyst
1,000 ug/mL	MeOH	11/069/2017	02/13/2017	RLD
# of Ampules/Units:	1	Comments:	Used for 8015C RTW Standard prep.	

Standard ID #	Compound/Standard Name	Supplier/Manufacturer	Standard Part #	Standard Lot #
V0818	1,4-Dioxane	SPEX CertiPrep	S-1715	BW160115004
Concentration	Neat (% purity) or Solvent	Expiration Date	Date Received	Analyst
1,000 ug/mL	MeOH	01/14/2019	02/13/2017	RLD
# of Ampules/Units:	1	Comments:	Used for 8260 (1,4-Dioxane) SIM ICV/Spiking Std. Prep.	

Standard ID #	Compound/Standard Name	Supplier/Manufacturer	Standard Part #	Standard Lot #
V0819	1,4-Dioxane	SPEX CertiPrep	S-1715	BW160907011
Concentration	Neat (% purity) or Solvent	Expiration Date	Date Received	Analyst
1,000 ug/mL	MeOH	09/07/2019	02/13/2017	RLD
# of Ampules/Units:	1	Comments:	Used for 8260 (1,4-Dioxane) SIM CCV/Calib.Std. Prep.	

Standard ID #	Compound/Standard Name	Supplier/Manufacturer	Standard Part #	Standard Lot #
V0820	VOC 8260 Additions	SPEX CertiPrep	VO-CTWI-12	BW170207014
Concentration	Neat (% purity) or Solvent	Expiration Date	Date Received	Analyst
1,000 - 10,000 ug/mL	MeOH	05/08/2017	02/13/2017	RLD
# of Ampules/Units:	2	Comments:	Used for 8260C ICV/Spiking Std. preparation.	

SEMI-VOLATILE ORGANIC ANALYSIS QUALITY CONTROL SUMMARY DOCUMENTS

CT LABORATORIES
delivering more than data from your environmental analyses

1B

SEMIVOLATILE ORGANICS ANALYSIS

Sample Description

PETER-WS-001

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Matrix:	SOIL	SDG No.:	139370
Sample wt/vol:	10.03 (g/L)	CTL Sample ID:	175865
% Solids:	93.6	Date Received:	09/13/2018
Conc. Extract Vol:	1.0 (mL)	Date/Time Prepared:	09/18/2018 / 09:00
Analytical Method:	EPA 8015C	Analytical Prep Batch #	68672
Analytical Run #:	153374	Dilution Factor:	1.00
Date & Time Analyzed:	09/21/2018 / 08:16	GPC Cleanup Date/Time:	/
TCLP / SPLP / MLP or ASTM Procedure Extraction Date (*if applicable*):			/
ICAL Calibration #:	092018droic	Concentration Units:	mg/kg

CAS NO.	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
DIESELCOMP	Diesel Range Organics	16	U	5.3	16	43	43

CT LABORATORIES
delivering more than data from your environmental analyses

1B

SEMIVOLATILE ORGANICS ANALYSIS

Sample Description

PETER-WS-001

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Matrix:	TCLP	SDG No.:	139370
Sample wt/vol:	0.10 (g/L)	CTL Sample ID:	175864
% Solids:		Date Received:	09/13/2018
Conc. Extract Vol:	1.0 (mL)	Date/Time Prepared:	09/24/2018 / 11:00
Analytical Method:	EPA 8270D	Analytical Prep Batch #	68734
Analytical Run #:	153655	Dilution Factor:	1.00
Date & Time Analyzed:	09/25/2018 / 22:25	GPC Cleanup Date/Time:	/
TCLP / SPLP / MLP or ASTM Procedure Extraction Date (*if applicable*):			09/18/2018 / 08:00
ICAL Calibration #:	2S092418	Concentration Units:	mg/L

CAS NO.	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
106-46-7	1,4-Dichlorobenzene	0.0040	U	0.0019	0.0040	0.010	0.010
95-95-4	2,4,5-Trichlorophenol	0.020	U	0.011	0.020	0.050	0.050
88-06-2	2,4,6-Trichlorophenol	0.020	U	0.010	0.020	0.050	0.050
121-14-2	2,4-Dinitrotoluene	0.0040	U	0.0021	0.0040	0.010	0.010
95-48-7	2-Methylphenol	0.020	U	0.0086	0.020	0.050	0.050
1319-77-3	3 & 4-Methylphenol	0.036	U	0.014	0.036	0.090	0.090
118-74-1	Hexachlorobenzene	0.0040	U	0.0027	0.0040	0.010	0.010
87-68-3	Hexachlorobutadiene	0.0040	U	0.0018	0.0040	0.010	0.010
67-72-1	Hexachloroethane	0.0040	U	0.0022	0.0040	0.010	0.010
98-95-3	Nitrobenzene	0.0040	U	0.0016	0.0040	0.010	0.010
87-86-5	Pentachlorophenol	0.020	U	0.011	0.020	0.050	0.050
110-86-1	Pyridine	0.010	U	0.0062	0.010	0.030	0.040

CT LABORATORIES
delivering more than data from your environmental analyses

1B

SEMIVOLATILE ORGANICS ANALYSIS

Sample Description

PETER-WW-001

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Matrix:	GROUND WATER	SDG No.:	139370
Sample wt/vol:	0.98 (g/L)	CTL Sample ID:	175867
% Solids:		Date Received:	09/13/2018
Conc. Extract Vol:	1.0 (mL)	Date/Time Prepared:	09/18/2018 / 10:00
Analytical Method:	EPA 8015C	Analytical Prep Batch #	68670
Analytical Run #:	153405	Dilution Factor:	1.00
Date & Time Analyzed:	09/21/2018 / 10:59	GPC Cleanup Date/Time:	/
TCLP / SPLP / MLP or ASTM Procedure Extraction Date (*if applicable*):			/
ICAL Calibration #:	092018droic	Concentration Units:	ug/L

CAS NO.	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
DIESELCOMP	Diesel Range Organics	92	J	34	100	200	200

CT LABORATORIES
delivering more than data from your environmental analyses

1B

SEMIVOLATILE ORGANICS ANALYSIS

Sample Description

PETER-WW-001

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Matrix:	TCLP	SDG No.:	139370
Sample wt/vol:	0.10 (g/L)	CTL Sample ID:	175866
% Solids:		Date Received:	09/13/2018
Conc. Extract Vol:	1.0 (mL)	Date/Time Prepared:	09/24/2018 / 11:00
Analytical Method:	EPA 8270D	Analytical Prep Batch #	68734
Analytical Run #:	153655	Dilution Factor:	1.00
Date & Time Analyzed:	09/25/2018 / 22:46	GPC Cleanup Date/Time:	/
TCLP / SPLP / MLP or ASTM Procedure Extraction Date (*if applicable*):			09/19/2018 / 0700
ICAL Calibration #:	2S092418	Concentration Units:	mg/L

CAS NO.	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
106-46-7	1,4-Dichlorobenzene	0.0040	U	0.0019	0.0040	0.010	0.010
95-95-4	2,4,5-Trichlorophenol	0.020	U	0.011	0.020	0.050	0.050
88-06-2	2,4,6-Trichlorophenol	0.020	U	0.010	0.020	0.050	0.050
121-14-2	2,4-Dinitrotoluene	0.0040	U	0.0021	0.0040	0.010	0.010
95-48-7	2-Methylphenol	0.020	U	0.0086	0.020	0.050	0.050
1319-77-3	3 & 4-Methylphenol	0.036	U	0.014	0.036	0.090	0.090
118-74-1	Hexachlorobenzene	0.0040	U	0.0027	0.0040	0.010	0.010
87-68-3	Hexachlorobutadiene	0.0040	U	0.0018	0.0040	0.010	0.010
67-72-1	Hexachloroethane	0.0040	U	0.0022	0.0040	0.010	0.010
98-95-3	Nitrobenzene	0.0040	U	0.0016	0.0040	0.010	0.010
87-86-5	Pentachlorophenol	0.020	U	0.011	0.020	0.050	0.050
110-86-1	Pyridine	0.010	U	0.0062	0.010	0.030	0.040

CT LABORATORIES
delivering more than data from your environmental analyses

1B-2

SEMIVOLATILE ORGANICS ANALYSIS (MB or CC

Sample Description

METHOD BLANK

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Matrix:		SDG No.:	139370
Sample wt/vol:	1.00 (g/L)	CTL Sample ID:	177823
% Solids:		Date Received:	09/13/2018
Conc. Extract Vol:	1.0 (mL)	Date/Time Prepared:	09/18/2018 / 10:00
Analytical Method:	EPA 8015C	Analytical Prep Batch #	68670
Analytical Run #:	153405	Dilution Factor:	1.00
Cleanup Date/Time/Type:	. . ,		
TCLP / SPLP / MLP or ASTM Procedure Extraction Date (*if applicable*):			/
ICAL Calibration #:	092018droic	Concentration Units:	ug/L

CAS NO.	Analyte	Analysis Date/Time		Concentration	Qualifiers	DL/LOD	RL	*Control Limit*
DIESELCOMP	Diesel Range Organics	09/21/2018	10:05	33	U	33	200	***100***

CT LABORATORIES
delivering more than data from your environmental analyses

1B-2

SEMIVOLATILE ORGANICS ANALYSIS (MB or CC

Sample Description

METHOD BLANK

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Matrix:		SDG No.:	139370
Sample wt/vol:	10.00 (g/L)	CTL Sample ID:	177826
% Solids:		Date Received:	09/13/2018
Conc. Extract Vol:	1.0 (mL)	Date/Time Prepared:	09/18/2018 / 09:00
Analytical Method:	EPA 8015C	Analytical Prep Batch #	68672
Analytical Run #:	153374	Dilution Factor:	1.00
Cleanup Date/Time/Type:	. . ,		
TCLP / SPLP / MLP or ASTM Procedure Extraction Date (*if applicable*):			/
ICAL Calibration #:	092018droic	Concentration Units:	mg/kg

CAS NO.	Analyte	Analysis Date/Time	Concentration	Qualifiers	DL/LOD	RL	*Control Limit*
DIESELCOMP	Diesel Range Organics	09/21/2018 07:22	5	U	5	40	***20***

CT LABORATORIES
delivering more than data from your environmental analyses

1B-2

SEMIVOLATILE ORGANICS ANALYSIS (MB or CC

Sample Description

METHOD BLANK

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Matrix:		SDG No.:	139370
Sample wt/vol:	0.10 (g/L)	CTL Sample ID:	179886
% Solids:		Date Received:	09/13/2018
Conc. Extract Vol:	1.0 (mL)	Date/Time Prepared:	09/24/2018 / 11:00
Analytical Method:	EPA 8270D	Analytical Prep Batch #	68734
Analytical Run #:	153655	Dilution Factor:	1.00
Cleanup Date/Time/Type:	. . ,		
TCLP / SPLP / MLP or ASTM Procedure Extraction Date (*if applicable*):			09/19/2018 / 0700
ICAL Calibration #:	2S092418	Concentration Units:	mg/L

CAS NO.	Analyte	Analysis Date/Time		Concentration	Qualifiers	DL/LOD	RL	*Control Limit*
106-46-7	1,4-Dichlorobenzene	09/25/2018	21:22	0.00019	U	0.00019	0.00100	***0.00050***
95-95-4	2,4,5-Trichlorophenol	09/25/2018	21:22	0.0011	U	0.0011	0.0050	***0.0025***
88-06-2	2,4,6-Trichlorophenol	09/25/2018	21:22	0.0010	U	0.0010	0.0050	***0.0025***
121-14-2	2,4-Dinitrotoluene	09/25/2018	21:22	0.00021	U	0.00021	0.00100	***0.00050***
95-48-7	2-Methylphenol	09/25/2018	21:22	0.00086	U	0.00086	0.00500	***0.002500***
1319-77-3	3 & 4-Methylphenol	09/25/2018	21:22	0.0014	U	0.0014	0.0090	***0.0045***
118-74-1	Hexachlorobenzene	09/25/2018	21:22	0.00027	U	0.00027	0.00100	***0.00050***
87-68-3	Hexachlorobutadiene	09/25/2018	21:22	0.00018	U	0.00018	0.00100	***0.00050***
67-72-1	Hexachloroethane	09/25/2018	21:22	0.00022	U	0.00022	0.00100	***0.00050***
98-95-3	Nitrobenzene	09/25/2018	21:22	0.00016	U	0.00016	0.00100	***0.00050***
87-86-5	Pentachlorophenol	09/25/2018	21:22	0.0011	U	0.0011	0.0050	***0.0025***
110-86-1	Pyridine	09/25/2018	21:22	0.00062	U	0.00062	0.00400	***0.00200***

CT LABORATORIES
delivering more than data from your environmental analyses

2C

WATER SEMI VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Analytical Method:	EPA 8015C	SDG:	139370
Analytical Run #:	153405	ICAL Calibration #:	092018droic

CTLab #	175867				
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
SURR: Octacosane	100	77	60	142	
Surr: Triacontane	100	88	29	140	

CTLab #	177823	Sample Type:		Method Blank	
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
SURR: Octacosane	100	63.4	60	142	
Surr: Triacontane	100	69.8	29	140	

CTLab #	177824	Sample Type:		Lab Control Spike	
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
SURR: Octacosane	100	93.4	60	142	
Surr: Triacontane	100	103	29	140	

CTLab #	177825	Sample Type:		Normal Field Sample	
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
SURR: Octacosane	100	88.6	60	142	
Surr: Triacontane	100	97.1	29	140	

CT LABORATORIES
delivering more than data from your environmental analyses

2C

WATER SEMI VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Analytical Method:	EPA 8270D	SDG:	139370
Analytical Run #:	153655	ICAL Calibration #:	2S092418

CTLab #	175864				
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
Surr: 2,4,6-Tribromophenol	100	93	43	140	
Surr: 2-Fluorobiphenyl	100	79	44	119	
Surr: 2-Fluorophenol	100	39	19	119	
Surr: Nitrobenzene-d5	100	75	44	120	
Surr: Phenol-d5	100	35	1	114	
Surr: Terphenyl-d14	100	102	50	134	

CTLab #	175866				
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
Surr: 2,4,6-Tribromophenol	100	89	43	140	
Surr: 2-Fluorobiphenyl	100	77	44	119	
Surr: 2-Fluorophenol	100	53	19	119	
Surr: Nitrobenzene-d5	100	75	44	120	
Surr: Phenol-d5	100	40	1	114	
Surr: Terphenyl-d14	100	103	50	134	

CTLab #	179886	Sample Type:		Method Blank	
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
Surr: 2,4,6-Tribromophenol	100	88.9	43	140	
Surr: 2-Fluorobiphenyl	100	75.8	44	119	
Surr: 2-Fluorophenol	100	41.4	19	119	
Surr: Nitrobenzene-d5	100	70.1	44	120	
Surr: Phenol-d5	100	30.3	1	114	
Surr: Terphenyl-d14	100	99.4	50	134	

CTLab #	179887	Sample Type:		Lab Control Spike	
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
Surr: 2,4,6-Tribromophenol	100	103	43	140	
Surr: 2-Fluorobiphenyl	100	82.8	44	119	
Surr: 2-Fluorophenol	100	51.5	19	119	
Surr: Nitrobenzene-d5	100	78.5	44	120	
Surr: Phenol-d5	100	49.2	1	114	
Surr: Terphenyl-d14	100	109	50	134	

CTLab #	179889	Sample Type:		Matrix Spike	
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
Surr: 2,4,6-Tribromophenol	100	95.6	43	140	
Surr: 2-Fluorobiphenyl	100	76.5	44	119	
Surr: 2-Fluorophenol	100	31.9	19	119	
Surr: Nitrobenzene-d5	100	68.4	44	120	
Surr: Phenol-d5	100	42.7	1	114	
Surr: Terphenyl-d14	100	102	50	134	

CT LABORATORIES
delivering more than data from your environmental analyses

2D

SOIL SEMI VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Analytical Method:	EPA 8015C	SDG:	139370
Analytical Run #:	153374	ICAL Calibration #:	092018droic

CTLab #	175865				
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
SURR: Octacosane	100	82	44	125	
Surr: Triacontane	100	89	35	136	

CTLab #	177826	Sample Type:		Method Blank	
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
SURR: Octacosane	100	87.2	44	125	
Surr: Triacontane	100	97.0	35	136	

CTLab #	177827	Sample Type:		Lab Control Spike	
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
SURR: Octacosane	100	91.1	44	125	
Surr: Triacontane	100	101	35	136	

CTLab #	177829	Sample Type:		Matrix Spike	
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
SURR: Octacosane	100	84.9	44	125	
Surr: Triacontane	100	89.1	35	136	

CTLab #	177830	Sample Type:		Matrix Spike Duplicate	
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
SURR: Octacosane	100	94.1	44	125	
Surr: Triacontane	100	100	35	136	

CT LABORATORIES
delivering more than data from your environmental analyses

3C

Sample Description

PETER-WS-001

WATER SEMIVOLATILE MATRIX SPIKE RECOVERY

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

Matrix: TCLP

SDG No.: 139370

Analytical Method: EPA 8270D

Concentration Units: mg/L

Analytical Run #: 153655

Sample No.: 179889

Parent Sample No.: 175864

Analytical Prep Batch #: 68734

Analytical Preparation Date/Time: 09/24/2018 11:00

ICAL Calibration #: 2S092418

Analyte	Analysis Date/Time		Control Limit (%R)	Spike Result	Parent Result	Spike Amount	%R
1,4-Dichlorobenzene	09/25/2018	23:07	29-112	0.120	BDL	0.200	60
2,4,5-Trichlorophenol	09/25/2018	23:07	53-123	0.165	BDL	0.200	82
2,4,6-Trichlorophenol	09/25/2018	23:07	50-125	0.150	BDL	0.200	75
2,4-Dinitrotoluene	09/25/2018	23:07	57-128	0.179	BDL	0.200	90
2-Methylphenol	09/25/2018	23:07	30-117	0.135	BDL	0.200	68
3 & 4-Methylphenol	09/25/2018	23:07	29-110	0.136	BDL	0.200	68
Hexachlorobenzene	09/25/2018	23:07	53-125	0.168	BDL	0.200	84
Hexachlorobutadiene	09/25/2018	23:07	22-124	0.124	BDL	0.200	62
Hexachloroethane	09/25/2018	23:07	21-115	0.113	BDL	0.200	56
Nitrobenzene	09/25/2018	23:07	45-121	0.135	BDL	0.200	68
Pentachlorophenol	09/25/2018	23:07	35-138	0.186	BDL	0.200	93
Pyridine	09/25/2018	23:07	0-106	0.0258	BDL	0.200	13

Spike Recovery: 0 out of 12 outside QC limits

CT LABORATORIES
delivering more than data from your environmental analyses

3C

Sample Description

LCS

WATER SEMIVOLATILE LAB CONTROL SAMPLE

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

Sample No.: 177824

SDG No.: 139370

Analytical Method: EPA 8015C

Concentration Units: ug/L

Sample No.: 177824

Parent Sample No.: 0

Analytical Prep Batch #: 68670

Analytical Preparation Date/Time: 09/18/2018 10:00

Analytical Run #: 153405

ICAL Calibration #: 092018droic

Analyte	Analysis Date/Time		Control Limit (%R)	Spike Result	Parent Result	Spike Amount	%R
Diesel Range Organics	09/21/2018	10:32	36-132	1920		2500	77

Spike Recovery: 0 out of 1 outside limits

CT LABORATORIES
delivering more than data from your environmental analyses

3C

Sample Description

LCS

WATER SEMIVOLATILE LAB CONTROL SAMPLE

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

Sample No.: 179887

SDG No.: 139370

Analytical Method: EPA 8270D

Concentration Units: mg/L

Sample No.: 179887

Parent Sample No.: 0

Analytical Prep Batch #: 68734

Analytical Preparation Date/Time: 09/24/2018 11:00

Analytical Run #: 153655

ICAL Calibration #: 2S092418

Analyte	Analysis Date/Time		Control Limit (%R)	Spike Result	Parent Result	Spike Amount	%R
1,4-Dichlorobenzene	09/25/2018	22:04	29-112	0.125		0.200	62
2,4,5-Trichlorophenol	09/25/2018	22:04	53-123	0.173		0.200	86
2,4,6-Trichlorophenol	09/25/2018	22:04	50-125	0.159		0.200	80
2,4-Dinitrotoluene	09/25/2018	22:04	57-128	0.190		0.200	95
2-Methylphenol	09/25/2018	22:04	30-117	0.140		0.200	70
3 & 4-Methylphenol	09/25/2018	22:04	29-110	0.135		0.200	68
Hexachlorobenzene	09/25/2018	22:04	53-125	0.177		0.200	88
Hexachlorobutadiene	09/25/2018	22:04	22-124	0.128		0.200	64
Hexachloroethane	09/25/2018	22:04	21-115	0.117		0.200	58
Nitrobenzene	09/25/2018	22:04	45-121	0.141		0.200	70
Pentachlorophenol	09/25/2018	22:04	35-138	0.191		0.200	96
Pyridine	09/25/2018	22:04	0-106	0.0909		0.200	45

Spike Recovery: 0 out of 12 outside limits

CT LABORATORIES
delivering more than data from your environmental analyses

3C

WATER SEMIVOLATILE LAB CONTROL SAMPLE

Sample Description

LCSD

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

Sample No.: 177825

SDG No.: 139370

Analytical Method: EPA 8015C

Concentration Units: ug/L

Analytical Run #: 153405 Sample No.: 177825 Parent Sample No.: 177824

Analytical Prep Batch #: 68670 Analytical Preparation Date/Time: 09/18/2018 10:00

ICAL Calibration #: 092018droic

Analyte	Analysis Date/Time	Spike Result	Parent Result	Spike Amount	%R	%RPD	Control Limit (%R)	Control Limit (%RPD)
Diesel Range Organics	09/21/2018 11:26	1880	1920	2500	75	2	36-132	30

RPD or Spike Recovery: 0 out of 1 outside QC limits

CT LABORATORIES
delivering more than data from your environmental analyses

3D

Sample Description

PETER-WS-001

SOIL SEMIVOLATILE MATRIX SPIKE RECOVERY

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

Matrix: SOIL

SDG No.: 139370

Analytical Method: EPA 8015C

Concentration Units: mg/kg

Analytical Run #: 153374

Sample No.: 177829

Parent Sample No.: 175865

Analytical Prep Batch #: 68672

Analytical Preparation Date/Time: 09/18/2018 09:00

ICAL Calibration #: 092018droic

Analyte	Analysis Date/Time		Control Limit (%R)	Spike Result	Parent Result	Spike Amount	%R
Diesel Range Organics	09/21/2018	08:43	38-132	210	BDL	266	79

Spike Recovery: 0 out of 1 outside QC limits

CT LABORATORIES
delivering more than data from your environmental analyses

3D

Sample Description

PETER-WS-001

SOIL SEMIVOLATILE MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

Matrix: SOIL

SDG No.: 139370

Analytical Method: EPA 8015C

Concentration Units: mg/kg

Analytical Run #: 153374

Sample No.: 177830

Parent Sample No.: 177829

Analytical Prep Batch #: 68672

Analytical Preparation Date/Time: 09/18/2018 09:00

ICAL Calibration #: 092018droic

Analyte	Analysis Date/Time		Spike Result	Spike Amount	%R	%RPD	Control Limits (%R)	Control Limits (%RPD)
Diesel Range Organics	09/21/2018	09:10	224	266	84	6	38-132	30

RPD or Spike Recovery: 0 out of 1 outside QC limits

CT LABORATORIES
delivering more than data from your environmental analyses

3D

Sample Description

LCS

SOIL SEMIVOLATILE LAB CONTROL SAMPLE

Lab Name:	CT Laboratories	Contract	MAXXAM ANALYTICS-SI AFFF
Sample No.:	177827	SDG No.:	139370
Analytical Method:	EPA 8015C	Concentration Units:	mg/kg

Sample No.:	177827	Parent Sample No.:	0
Analytical Prep Batch #:	68672	Analytical Preparation Date/Time:	09/18/2018 09:00
Analytical Run #:	153374	ICAL Calibration #:	092018droic

Analyte	Analysis Date/Time	Control Limit (%R)	Spike Result	Parent Result	Spike Amount	%R
Diesel Range Organics	09/21/2018 07:49	38-132	211		250	84

Spike Recovery: 0 out of 1 outside limits

CT LABORATORIES
delivering more than data from your environmental analyses

4B

SEMIVOLATILE METHOD BLANK SUMMARY

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Sample ID:	177823	SDG No.:	139370
Matrix:	LIQUID	Date Extracted:	09/18/2018
Date Analyzed:	09/21/2018	Time Analyzed:	10:05
Analytical Method:	EPA 8015C	Extraction Method:	SW3510C
Analytical Run #:	153405	Extraction Batch #:	68670
		ICAL Calibration #:	092018droic

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES AND QC:

SEQUENCE	SAMPLE DESCRIPTION	SAMPLE ID	DATE/TIME ANALYZED	CALIBRATION # ID
1	MBW	177823	09/21/2018 10:05	092018droic
2	LCSW	177824	09/21/2018 10:32	092018droic
3	PETER-WW-001	175867	09/21/2018 10:59	092018droic
4	LCSDW	177825	09/21/2018 11:26	092018droic

CT LABORATORIES
delivering more than data from your environmental analyses

4B

SEMIVOLATILE METHOD BLANK SUMMARY

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Sample ID:	177826	SDG No.:	139370
Matrix:	SOLID	Date Extracted:	09/18/2018
Date Analyzed:	09/21/2018	Time Analyzed:	07:22
Analytical Method:	EPA 8015C	Extraction Method:	SW3546
Analytical Run #:	153374	Extraction Batch #:	68672
		ICAL Calibration #:	092018droic

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES AND QC:

SEQUENCE	SAMPLE DESCRIPTION	SAMPLE ID	DATE/TIME ANALYZED	CALIBRATION # ID
1	MBS	177826	09/21/2018 07:22	092018droic
2	LCSS	177827	09/21/2018 07:49	092018droic
3	PETER-WS-001	175865	09/21/2018 08:16	092018droic
4	PETER-WS-001MSS	177829	09/21/2018 08:43	092018droic
5	PETER-WS-001MSDS	177830	09/21/2018 09:10	092018droic

CT LABORATORIES
delivering more than data from your environmental analyses

4B

SEMIVOLATILE METHOD BLANK SUMMARY

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Sample ID:	179886	SDG No.:	139370
Matrix:	LIQUID	Date Extracted:	09/24/2018
Date Analyzed:	09/25/2018	Time Analyzed:	21:22
Analytical Method:	EPA 8270D	Extraction Method:	SW3510
Analytical Run #:	153655	Extraction Batch #:	68734
		ICAL Calibration #:	2S092418

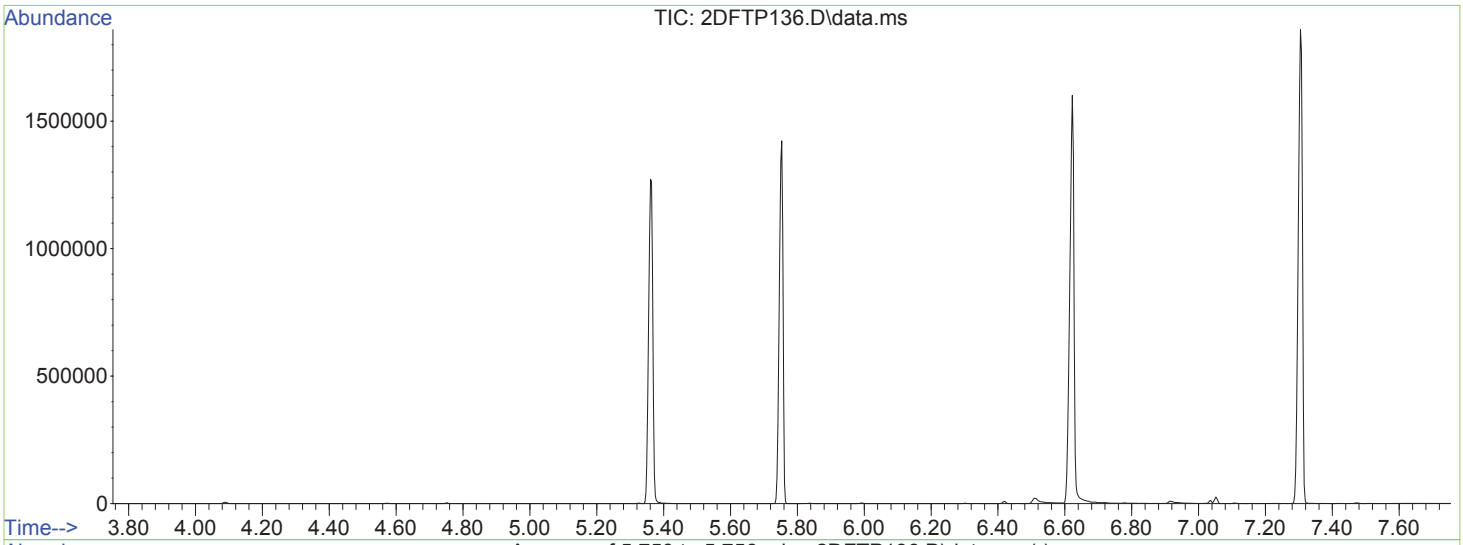
THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES AND QC:

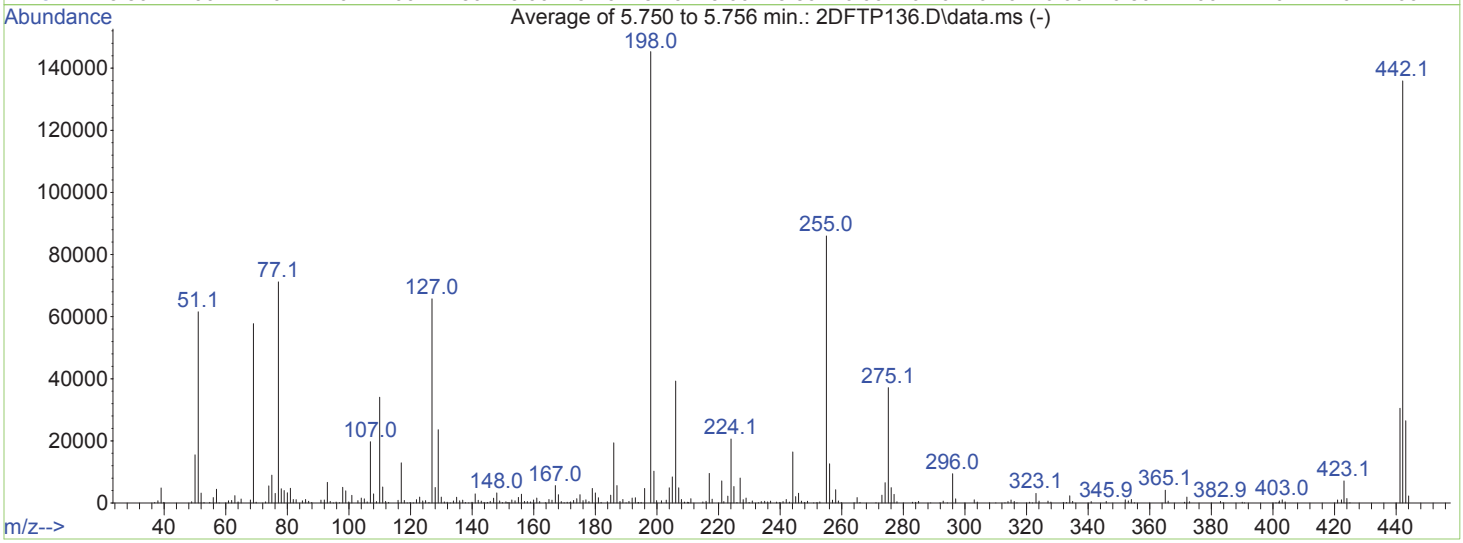
SEQUENCE	SAMPLE DESCRIPTION	SAMPLE ID	DATE/TIME ANALYZED	CALIBRATION # ID
1	MBW	179886	09/25/2018 21:22	2S092418
2	LCSW	179887	09/25/2018 22:04	2S092418
3	PETER-WS-001	175864	09/25/2018 22:25	2S092418
4	PETER-WW-001	175866	09/25/2018 22:46	2S092418
5	PETER-WS-001MSW	179889	09/25/2018 23:07	2S092418

DFTPP

Data File : C:\INSTARCH\DATA\2S092418\2DFTP136.D Vial: 1
Acq On : 24 Sep 2018 13:09 Operator: RPN
Sample : DFTPP TUNE SVMS7999 Inst : SVMS2
Misc : SVMS2, 25ng DFTPP Multiplr: 1.00
Integrator: RTE

Method : C:\INSTARCH\METHOD\2S092418.M
Title : Method for 8270 Analysis
Last Update : Mon Sep 24 16:53:25 2018





AutoFind: Scans 868, 869, 870; Background Corrected with Scan 859

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	42.4	61568	PASS
68	69	0.00	2	1.7	973	PASS
70	69	0.00	2	0.4	248	PASS
127	198	10	80	45.2	65725	PASS
197	198	0.00	2	0.0	0	PASS
198	198	50	100	100.0	145323	PASS
199	198	5	9	7.0	10238	PASS
275	198	10	60	25.6	37160	PASS
365	198	1	100	2.9	4150	PASS
441	442	0.01	24	22.5	30512	PASS
442	198	50	100	93.5	135888	PASS
443	442	15	24	19.5	26477	PASS

Injection Log Summary Report

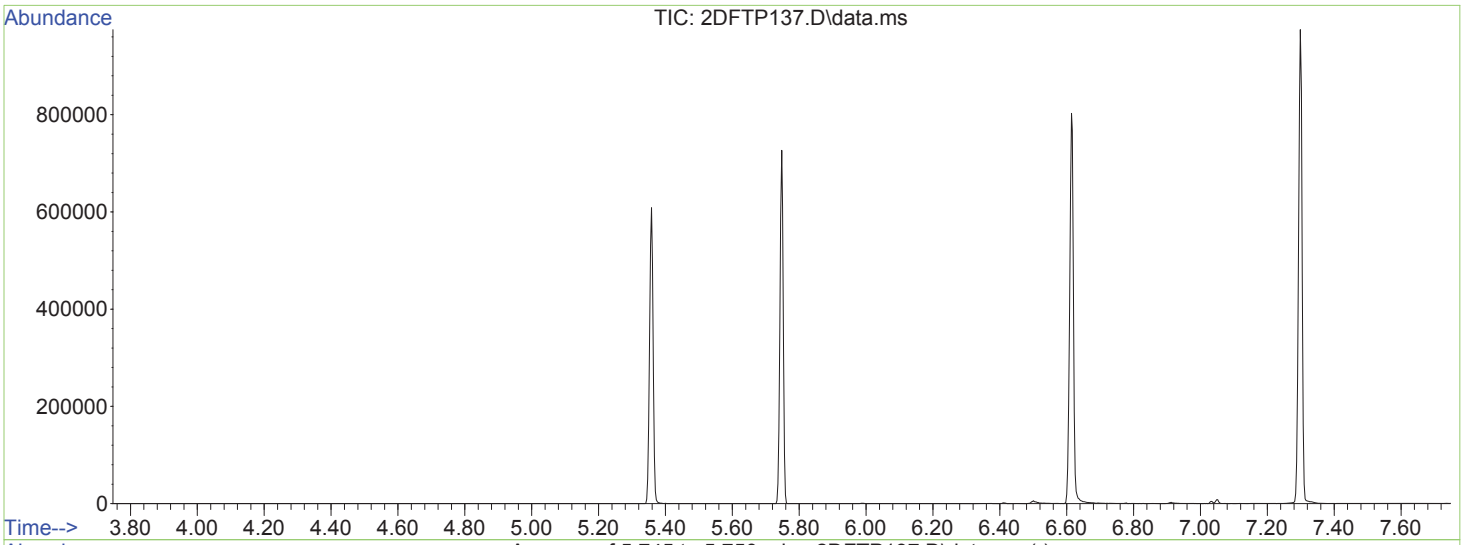
Method : C:\INSTARCH\METHOD\2S092418.M (RTE Integrator)
Title : Method for 8270 Analysis
Start (Tune) File ID : C:\INSTARCH\DATA\2S092418\2DFTP136.D
Injection Date : 24 Sep 2018 Log Time Period (hrs) : ALL
Injection Time : 13:09 Total files within period : 20
Sample Directory : C:\INSTARCH\DATA\2S092418\

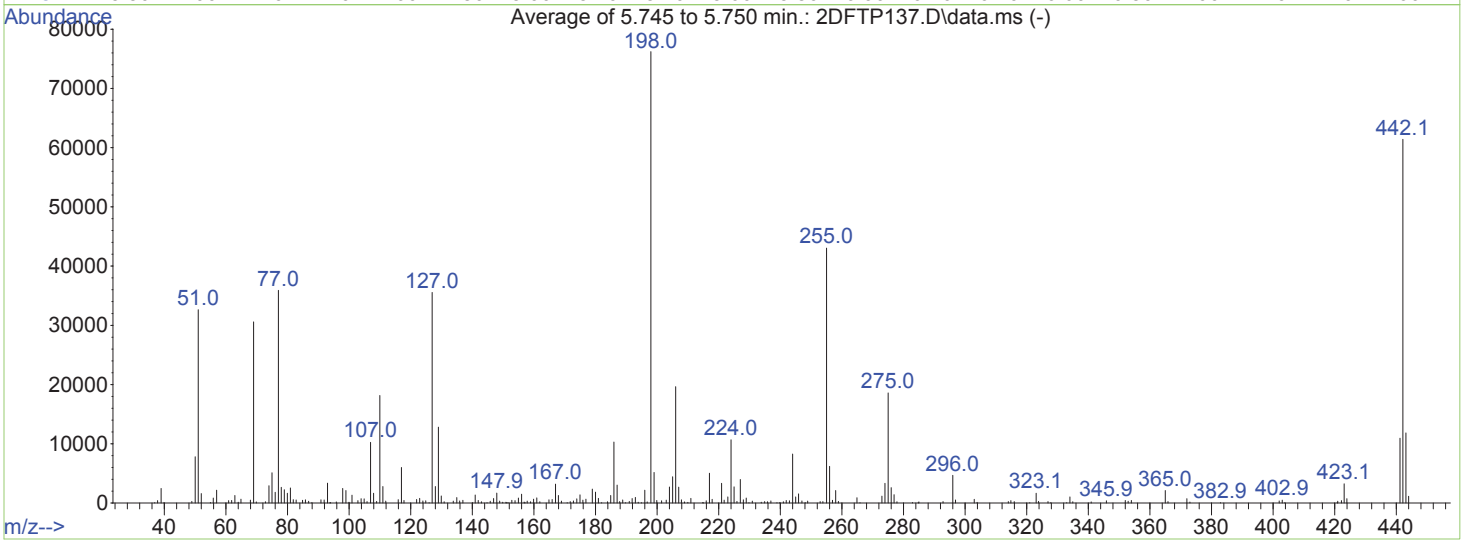
Injection Log Summary Table

File ID	Multiplier I	S	T	Sample Name / Misc Info	Date	Time
2IB02	1.00	1.00	1.00	InstrumentBlank 500ul+5ul IS S3900D	24 Sep 2018	13:24
2ICAL7	1.00	1.00	1.00	ICAL 50ug/mL SVMS8104 500ul+5ul IS S3916B	24 Sep 2018	13:45
2ICAL6	1.00	1.00	1.00	ICAL 40ug/mL SVMS8103 500ul+5ul IS S3916B	24 Sep 2018	14:05
2ICAL5	1.00	1.00	1.00	ICAL 30ug/mL SVMS8102 500ul+5ul IS S3916B	24 Sep 2018	14:25
2ICAL4	1.00	1.00	1.00	ICAL 20ug/mL SVMS8101 500ul+5ul IS S3916B	24 Sep 2018	14:46
2ICAL3	1.00	1.00	1.00	ICAL 10ug/mL SVMS8100 500ul+5ul IS S3916B	24 Sep 2018	15:06
2ICAL2	1.00	1.00	1.00	ICAL 5ug/mL SVMS8099 500ul+5ul IS S3916B	24 Sep 2018	15:26
2ICAL1	1.00	1.00	1.00	ICAL 1ug/mL SVMS8098 500ul+5ul IS S3916B	24 Sep 2018	15:47
2ICV1	1.00	1.00	1.00	ICV 20ug/mL SVMS8105 500ul+5ul IS S3916B	24 Sep 2018	16:07
2ICV2	1.00	1.00	1.00	ICV 40ug/mL SVMS8106 500ul+5ul IS S3916B	24 Sep 2018	16:27

Data File : C:\INSTARCH\DATA\2S092518\2DFTP137.D Vial: 1
Acq On : 25 Sep 2018 13:30 Operator: RPN
Sample : DFTPP TUNE SVMS7999 Inst : SVMS2
Misc : SVMS2, 25ng DFTPP Multiplr: 1.00
Integrator: RTE

Method : C:\INSTARCH\METHOD\2DFTPP.M
Title : DFTPP TUNE
Last Update : Wed Sep 26 15:28:33 2018





AutoFind: Scans 866, 867, 868; Background Corrected with Scan 859

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	42.8	32635	PASS
68	69	0.00	2	1.6	476	PASS
70	69	0.00	2	0.6	190	PASS
127	198	10	80	46.6	35547	PASS
197	198	0.00	2	0.3	200	PASS
198	198	50	100	100.0	76211	PASS
199	198	5	9	6.8	5149	PASS
275	198	10	60	24.4	18589	PASS
365	198	1	100	2.8	2110	PASS
441	442	0.01	24	17.8	10953	PASS
442	198	50	100	80.6	61403	PASS
443	442	15	24	19.3	11847	PASS

Injection Log Summary Report

Method : C:\INSTARCH\METHOD\2S092418.M (RTE Integrator)
Title : Method for 8270 Analysis
Start (Tune) File ID : C:\INSTARCH\DATA\2S092518\2DFTP137.D
Injection Date : 25 Sep 2018 Log Time Period (hrs) : ALL
Injection Time : 13:30 Total files within period : 26
Sample Directory : C:\INSTARCH\DATA\2S092518\

Injection Log Summary Table

File ID	Multiplier I	S	T	Sample Name / Misc Info	Date	Time
2CCV205	1.00	1.00	1.00	CCV 20ug/mL SVMS8107 500ul+5ul IS S3916B	25 Sep 2018	13:46
2CCV206	1.00	1.00	1.00	CCV 20ug/mL SVMS8117 500ul+5ul IS S3916B	25 Sep 2018	15:04
2MBW01	1.00	1.00	1.00	152651,MBW, 146997,500ul+5ul IS S3916	25 Sep 2018	15:24
143853	1.00	1.00	1.00	152651,143853, LODW,500ul+5ul IS S3916B	25 Sep 2018	15:48
168625	1.00	1.00	1.00	152651,168625, LOQW,500ul+5ul IS S3916B	25 Sep 2018	16:09
2LOQW2	1.00	1.00	1.00	152651,168625, LOQW,500ul+5ul IS S3916B	25 Sep 2018	16:29
2LOQW3	1.00	1.00	1.00	152651,168625, LOQW,500ul+5ul IS S3916B	25 Sep 2018	16:50
2CCV207	1.00	1.00	1.00	CCV 20ug/mL SVMS8117 500ul+5ul IS S3916B	25 Sep 2018	17:11
2MBW02	1.00	1.00	1.00	153555,MBW, 179881,500ul+5ul IS S3916	25 Sep 2018	17:32
2LCSW02	1.00	1.00	1.00	153555,LCSW, 179882,500ul+5ul IS S3916	25 Sep 2018	17:53
178074	1.00	1.00	1.00	153555,178074, 500ul+5ul IS S3916B	25 Sep 2018	18:14
178086	1.00	1.00	1.00	153555,178086, 500ul+5ul IS S3916B	25 Sep 2018	18:35
178087	1.00	1.00	1.00	153555,178087, 500ul+5ul IS S3916B	25 Sep 2018	18:56
178088	1.00	1.00	1.00	153555,178088, 500ul+5ul IS S3916B	25 Sep 2018	19:17
178089	1.00	1.00	1.00	153555,178089, 500ul+5ul IS S3916B	25 Sep 2018	19:38
178824	1.00	1.00	1.00	153555,178824, 500ul+5ul IS S3916B	25 Sep 2018	19:59
178824MS	1.00	1.00	1.00	153555,MSW178824, 179884,500ul+5ul IS S3916	25 Sep 2018	20:20
178824SD	1.00	1.00	1.00	153555,MSDW178824, 179885,500ul+5ul IS S3916	25 Sep 2018	20:40
2MBW03	1.00	1.00	1.00	153655,MBW, 179886,500ul+5ul IS S3916	25 Sep 2018	21:01
2MBTV03	1.00	1.00	1.00	153655,MBTV, 2907,500ul+5ul IS S3916B	25 Sep 2018	21:22
2MBTS03	1.00	1.00	1.00	153655,MBTS, 2907,500ul+5ul IS S3916B	25 Sep 2018	21:43
2LCSW03	1.00	1.00	1.00	153655,LCSW, 179887,500ul+5ul IS S3916	25 Sep 2018	22:04

Injection Log Summary Report

Method : C:\INSTARCH\METHOD\2S092418.M (RTE Integrator)
Title : Method for 8270 Analysis
Start (Tune) File ID : C:\INSTARCH\DATA\2S092518\2DFTP137.D
Injection Date : 25 Sep 2018 Log Time Period (hrs) : ALL
Injection Time : 13:30 Total files within period : 26
Sample Directory : C:\INSTARCH\DATA\2S092518\

Injection Log Summary Table

File ID	Multiplier I	S	T	Sample Name / Misc Info	Date	Time
175864	1.00	1.00	1.00	153655,175864, 500ul+5ul IS S3916B	25 Sep 2018	22:25
175866	1.00	1.00	1.00	153655,175866, 500ul+5ul IS S3916B	25 Sep 2018	22:46
175864MS	1.00	1.00	1.00	153655,MSW175864, 500ul+5ul IS S3916B	25 Sep 2018	23:07
2CCV208	1.00	1.00	1.00	CCV 20ug/mL SVMS8107 500ul+5ul IS S3916B	25 Sep 2018	23:28

8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name : Contract :
Project : Site : Location : Group :
Lab File ID (Standard): 2ICAL4.D Date Analyzed : 24 Sep 2018
Instrument ID : SVMS2 Time Analyzed : 14:46
GC Column : ID : (mm) Heated Purge (Y:N) :

	IS1 (DCB)		IS2 (NPT)		IS3 (ANT)	
	Area #	RT #	Area #	RT #	Area #	RT #
ICAL MID PT	42449	4.76	179033	6.36	94528	7.82
UPPER LIMIT	84898	5.26	358066	6.86	189056	8.32
LOWER LIMIT	21225	4.26	89517	5.86	47264	7.32
File ID Sample						
143853 152651,14	38784	4.76	162694	6.36	86533	7.82
168625 152651,16	42819	4.76	172448	6.36	90911	7.82
175864 153655,17	41627	4.76	168683	6.36	91451	7.82
175864MS 153655,MS	36437	4.76	150729	6.36	86553	7.82
175866 153655,17	41047	4.76	169911	6.36	93064	7.82
178074 153555,17	40565	4.76	170191	6.36	92063	7.82
178086 153555,17	40807	4.76	174874	6.36	94890	7.81
178087 153555,17	39423	4.76	170387	6.36	92060	7.83
178088 153555,17	41103	4.76	171585	6.36	92057	7.82
178089 153555,17	44087	4.76	181399	6.36	95472	7.82
178824 153555,17	42141	4.76	176851	6.36	94549	7.82
178824MS 153555,MS	39620	4.76	163914	6.36	89524	7.82
178824SD 153555,MS	40590	4.76	166496	6.36	90192	7.82
2CCV205 CCV 20ug/	40521	4.76	167678	6.36	88832	7.82
2CCV206 CCV 20ug/	42931	4.76	178098	6.36	93616	7.81
2CCV207 CCV 20ug/	45230	4.76	183796	6.36	97190	7.82
2CCV208 CCV 20ug/	50964	4.76	199973	6.36	106795	7.82
2LCSW02 153555,LC	40537	4.76	165102	6.36	88020	7.82
2LCSW03 153655,LC	40209	4.76	166654	6.36	89924	7.82
2LOQW2 152651,16	40523	4.76	170569	6.36	90538	7.82
2LOQW3 152651,16	41345	4.76	166768	6.36	87219	7.82
2MBTS03 153655,MB	43833	4.76	176689	6.36	98616	7.82
2MBTV03 153655,MB	41221	4.76	170244	6.36	92992	7.82
2MBW01 152651,MB	39389	4.76	166405	6.36	89283	7.82
2MBW02 153555,MB	39707	4.76	164288	6.36	87942	7.82

IS1 (DCB) = 14Diclbenzd4
IS2 (NPT) = Naphthalened8
IS3 (ANT) = Acenaphthened10

AREA UPPER LIMIT = 200% of internal standard area
AREA LOWER LIMIT = 50% of internal standard area
RT UPPER LIMIT = 0.5 minutes of internal standard RT
RT LOWER LIMIT = -0.5 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk
* Values outside of contract required QC limits

8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name : Contract :
Project : Site : Location : Group :
Lab File ID (Standard): 2ICAL4.D Date Analyzed : 24 Sep 2018
Instrument ID : SVMS2 Time Analyzed : 14:46
GC Column : ID : (mm) Heated Purge (Y:N) :

	IS1 (DCB)		IS2 (NPT)		IS3 (ANT)	
	Area #	RT #	Area #	RT #	Area #	RT #
ICAL MID PT	42449	4.76	179033	6.36	94528	7.82
UPPER LIMIT	84898	5.26	358066	6.86	189056	8.32
LOWER LIMIT	21225	4.26	89517	5.86	47264	7.32
File ID Sample						
2MBW03 153655,MB	40146	4.76	166395	6.36	90258	7.82

IS1 (DCB) = 14Diclbenzd4
IS2 (NPT) = Naphthalened8
IS3 (ANT) = Acenaphthened10

AREA UPPER LIMIT = 200% of internal standard area
AREA LOWER LIMIT = 50% of internal standard area
RT UPPER LIMIT = 0.5 minutes of internal standard RT
RT LOWER LIMIT = -0.5 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk
* Values outside of contract required QC limits

8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name : Contract :
Project : Site : Location : Group :
Lab File ID (Standard): 2ICAL4.D Date Analyzed : 24 Sep 2018
Instrument ID : SVMS2 Time Analyzed : 14:46
GC Column : ID : (mm) Heated Purge (Y:N) :

	IS4 (PHN)		IS5 (CRY)		IS6 (PRY)	
	Area #	RT #	Area #	RT #	Area #	RT #
ICAL MID PT	148817	8.66	142234	10.14	140596	11.16
UPPER LIMIT	297634	9.16	284468	10.64	281192	11.66
LOWER LIMIT	74409	8.16	71117	9.64	70298	10.66
File ID Sample						
143853 152651,14	142842	8.66	141900	10.14	134005	11.16
168625 152651,16	148173	8.66	145423	10.14	139034	11.16
175864 153655,17	155840	8.66	153933	10.14	145239	11.16
175864MS 153655,MS	140835	8.66	135191	10.14	131845	11.16
175866 153655,17	154410	8.66	152185	10.14	143959	11.15
178074 153555,17	152030	8.66	152102	10.14	143601	11.16
178086 153555,17	148621	8.66	140784	10.14	138338	11.16
178087 153555,17	149577	8.66	144928	10.14	139595	11.15
178088 153555,17	152469	8.66	151688	10.14	143471	11.16
178089 153555,17	160127	8.66	158732	10.14	150041	11.16
178824 153555,17	156790	8.66	154868	10.14	147683	11.15
178824MS 153555,MS	139781	8.66	140385	10.14	137815	11.16
178824SD 153555,MS	145593	8.66	142207	10.14	141254	11.16
2CCV205 CCV 20ug/	142398	8.66	139113	10.14	138439	11.16
2CCV206 CCV 20ug/	155109	8.66	149786	10.14	140498	11.16
2CCV207 CCV 20ug/	163056	8.66	158444	10.14	148623	11.16
2CCV208 CCV 20ug/	172787	8.66	168324	10.15	168306	11.16
2LCSW02 153555,LC	138563	8.66	137182	10.14	135826	11.16
2LCSW03 153655,LC	144341	8.66	140582	10.14	139344	11.16
2LOQW2 152651,16	145204	8.66	144117	10.14	138316	11.15
2LOQW3 152651,16	143006	8.66	143541	10.14	137919	11.16
2MBTS03 153655,MB	165412	8.66	161923	10.14	153857	11.16
2MBTV03 153655,MB	156386	8.66	151738	10.14	143185	11.16
2MBW01 152651,MB	148089	8.66	143013	10.14	135691	11.16
2MBW02 153555,MB	146476	8.66	144321	10.14	138182	11.16

IS4 (PHN) = Phenanthrd10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = 200% of internal standard area
AREA LOWER LIMIT = 50% of internal standard area
RT UPPER LIMIT = 0.5 minutes of internal standard RT
RT LOWER LIMIT = -0.5 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk
* Values outside of contract required QC limits

8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name : Contract :
Project : Site : Location : Group :
Lab File ID (Standard): 2ICAL4.D Date Analyzed : 24 Sep 2018
Instrument ID : SVMS2 Time Analyzed : 14:46
GC Column : ID : (mm) Heated Purge (Y:N) :

	IS4 (PHN)		IS5 (CRY)		IS6 (PRY)	
	Area #	RT #	Area #	RT #	Area #	RT #
ICAL MID PT	148817	8.66	142234	10.14	140596	11.16
UPPER LIMIT	297634	9.16	284468	10.64	281192	11.66
LOWER LIMIT	74409	8.16	71117	9.64	70298	10.66
File ID Sample						
2MBW03 153655,MB	150668	8.66	147743	10.14	140315	11.16

IS4 (PHN) = Phenanthrd10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = 200% of internal standard area
AREA LOWER LIMIT = 50% of internal standard area
RT UPPER LIMIT = 0.5 minutes of internal standard RT
RT LOWER LIMIT = -0.5 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk
* Values outside of contract required QC limits

SEMI - VOLATILE ORGANIC ANALYSIS
SAMPLE DATA
DOCUMENTS

Quantitation Report (QT Reviewed)

Data File : C:\INSTARCH\DATA\2S092518\175864.D Vial: 23
Acq On : 25 Sep 2018 22:25 Operator: RPN
Sample : 153655,175864, Inst : SVMS2
Misc : 500ul+5ul IS S3916B Multiplr: 1.00
Integrator: RTE
Quant Time: Sep 26 09:36:49 2018

Quant Method : C:\INSTARCH\METHOD\2S092418.M
Quant Title : Method for 8270 Analysis
QLast Update : Mon Sep 24 16:53:25 2018
Response via : Initial Calibration
DataAcq Meth:2S092418.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 14Diclbenzd4	4.763	152	41627	20.00	ug/mL	0.00
21) Naphthalened8	6.357	136	168683	20.00	ug/mL	0.00
39) Acenaphthened10	7.817	164	91451	20.00	ug/mL	0.00
63) Phenanthrd10	8.656	188	155840	20.00	ug/mL	0.00
75) Chrysene-d12	10.142	240	153933	20.00	ug/mL	0.00
86) Perylene-d12	11.159	264	145239	20.00	ug/mL	0.00
System Monitoring Compounds						
4) SURR2Flphenol	3.459	112	44676	38.89	%REC	0.00
Spiked Amount 100.000			Recovery = 38.89%			
7) SURRPhenol-d5	4.300	99	48287	34.74	%REC	0.00
Spiked Amount 100.000			Recovery = 34.74%			
22) SURRNitrbenzened5	5.479	82	51038	74.96	%REC	0.00
Spiked Amount 100.000			Recovery = 74.96%			
44) SURR2Flbiphenyl	7.334	172	109411	78.90	%REC	0.00
Spiked Amount 100.000			Recovery = 78.90%			
62) SURR246Tribrphenl	8.315	330	27301	92.59	%REC	0.00
Spiked Amount 100.000			Recovery = 92.59%			
78) SURRTerphenyl-d14	9.468	244	138601	102.38	%REC	0.00
Spiked Amount 100.000			Recovery = 102.38%			
Target Compounds						Qvalue
60) Diethylphthal	8.090	149	3848	0.5312	ug/mL	96
73) Dinbtylphthal	8.906	149	1887	0.1905	ug/mL	92

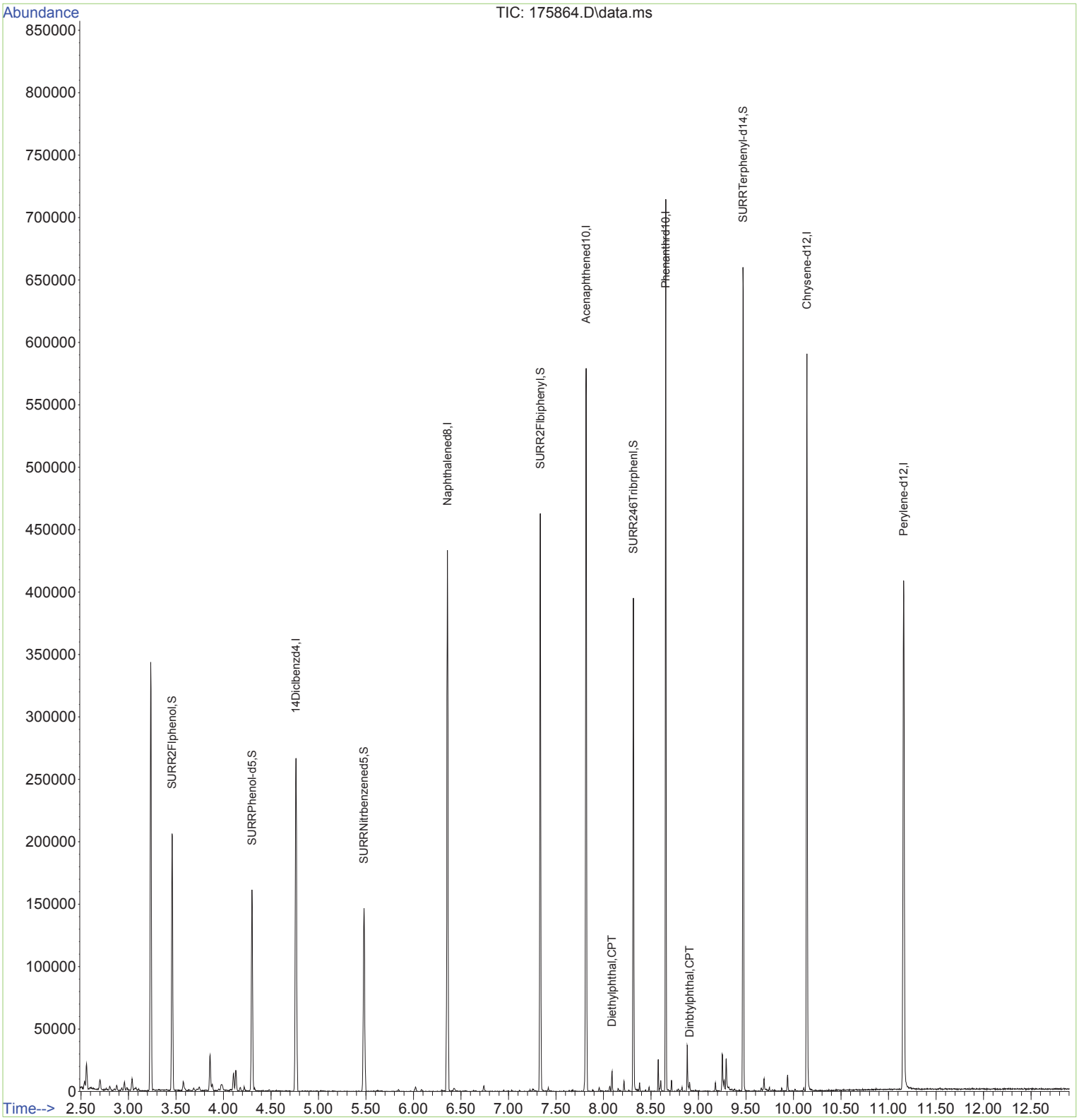
(#) = qualifier out of range (m) = manual integration (+) = signals summed

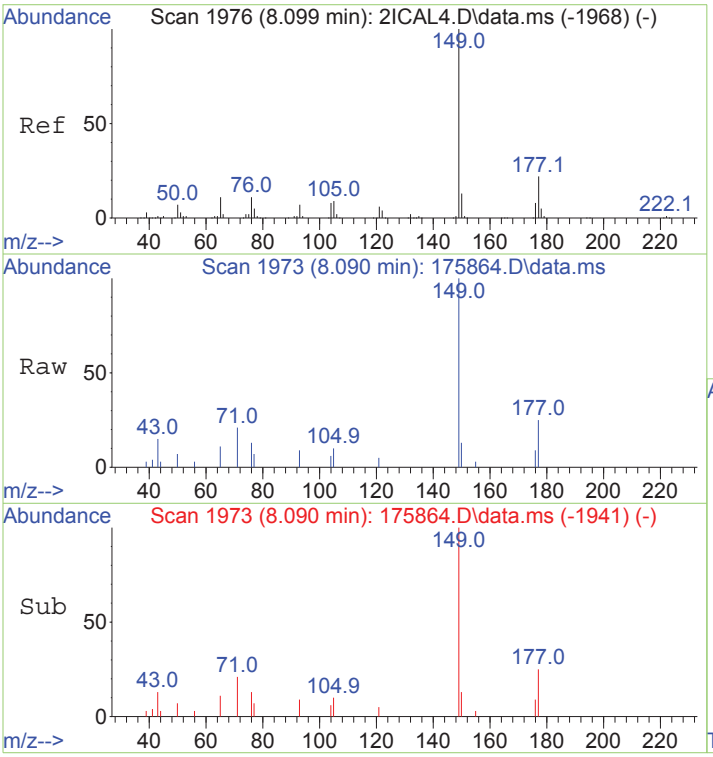
Quantitation Report (QT Reviewed)

Data File : C:\INSTARCH\DATA\2S092518\175864.D
Acq On : 25 Sep 2018 22:25
Sample : 153655,175864,
Misc : 500ul+5ul IS S3916B
Integrator: RTE
Quant Time: Sep 26 09:36:49 2018

Vial: 23
Operator: RPN
Inst : SVMS2
Multiplr: 1.00

Quant Method : C:\INSTARCH\METHOD\2S092418.M
Quant Title : Method for 8270 Analysis
QLast Update : Mon Sep 24 16:53:25 2018
Response via : Initial Calibration
DataAcq Meth:2S092418.M

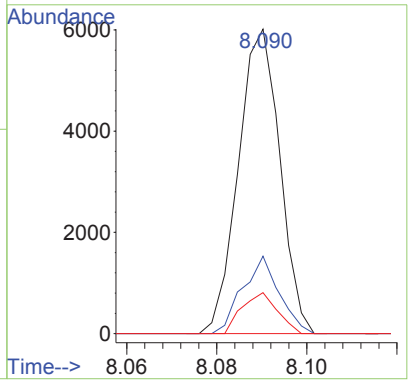


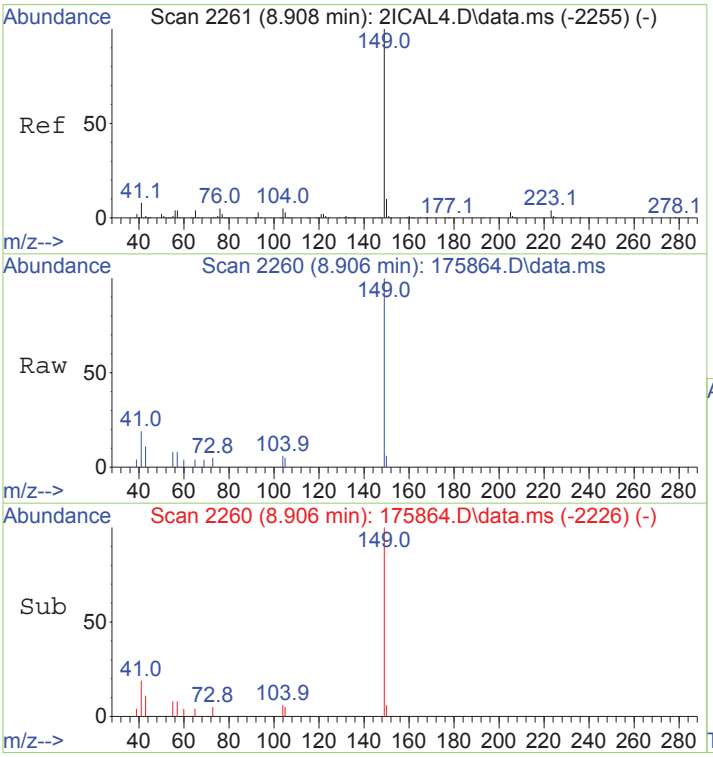


#60
Diethylphthal
Concen: 0.53 ug/mL
RT: 8.090 min Scan# 1973
Delta R.T. -0.009 min
Lab File: 175864.D
Acq: 25 Sep 2018 22:25

Tgt Ion:149 Resp: 3848

Ion	Ratio	Lower	Upper
149	100		
177	25.4	0.0	52.4
150	13.5	0.0	43.1

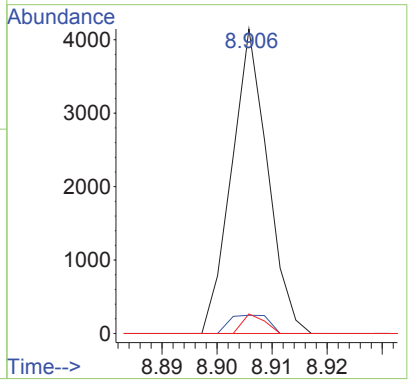




#73
Dinbtylphthal
Concen: 0.19 ug/mL
RT: 8.906 min Scan# 2260
Delta R.T. -0.002 min
Lab File: 175864.D
Acq: 25 Sep 2018 22:25

Tgt Ion:149 Resp: 1887

Ion	Ratio	Lower	Upper
149	100		
150	6.0	0.0	39.7
104	6.4	0.0	35.0



Quantitation Report (Not Reviewed)

Data File : C:\INSTARCH\DATA\2S092518\175866.D Vial: 24
Acq On : 25 Sep 2018 22:46 Operator: RPN
Sample : 153655,175866, Inst : SVMS2
Misc : 500ul+5ul IS S3916B Multiplr: 1.00
Integrator: RTE
Quant Time: Sep 27 12:03:08 2018

Quant Method : C:\INSTARCH\METHOD\2S092418.M
Quant Title : Method for 8270 Analysis
QLast Update : Mon Sep 24 16:53:25 2018
Response via : Initial Calibration
DataAcq Meth:2S092418.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 14Diclbenzd4	4.763	152	41047	20.00	ug/mL	0.00
21) Naphthalened8	6.363	136	169911	20.00	ug/mL	0.00
39) Acenaphthened10	7.823	164	93064	20.00	ug/mL	0.00
63) Phenanthrd10	8.659	188	154410	20.00	ug/mL	0.00
75) Chrysene-d12	10.136	240	152185	20.00	ug/mL	0.00
86) Perylene-d12	11.153	264	143959	20.00	ug/mL	0.00
System Monitoring Compounds						
4) SURR2Flphenol	3.459	112	59784	52.78	%REC	0.00
Spiked Amount 100.000			Recovery = 52.78%			
7) SURRPhenol-d5	4.300	99	54179	39.53	%REC	0.00
Spiked Amount 100.000			Recovery = 39.53%			
22) SURRNitrbenzened5	5.482	82	51577	75.21	%REC	0.00
Spiked Amount 100.000			Recovery = 75.21%			
44) SURR2Flbiphenyl	7.343	172	108284	76.74	%REC	0.00
Spiked Amount 100.000			Recovery = 76.74%			
62) SURR246Tribrphenl	8.320	330	26637	88.77	%REC	0.00
Spiked Amount 100.000			Recovery = 88.77%			
78) SURRTerphenyl-d14	9.466	244	137693	102.88	%REC	0.00
Spiked Amount 100.000			Recovery = 102.88%			
Target Compounds						Qvalue
60) Diethylphthal	8.099	149	3639	0.4937	ug/mL	96

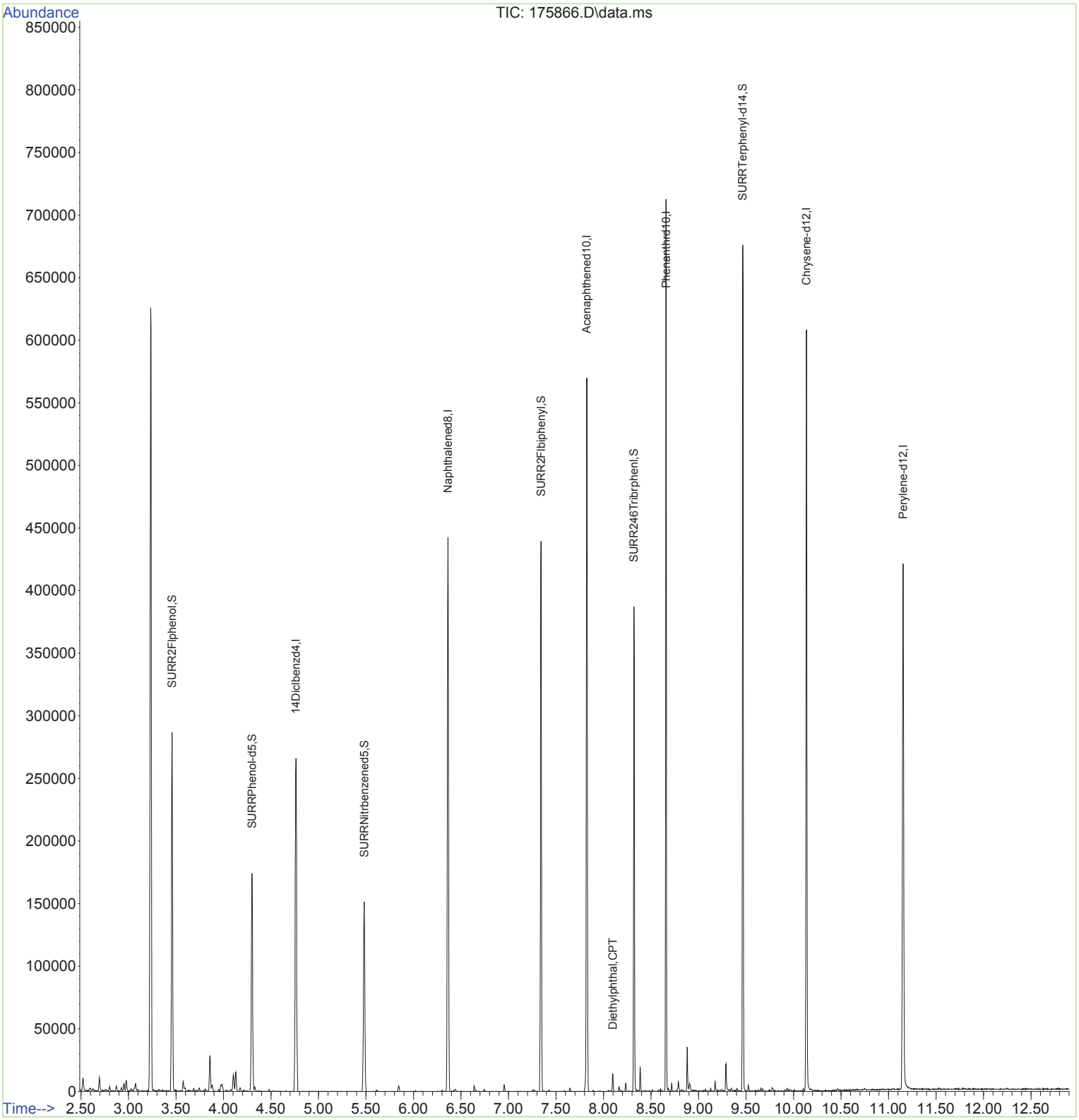
(#) = qualifier out of range (m) = manual integration (+) = signals summed

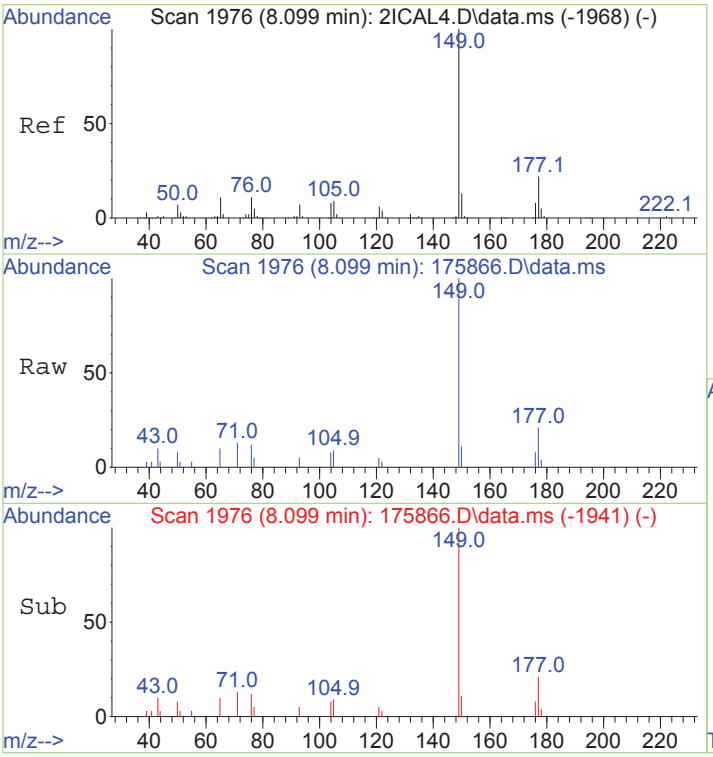
Quantitation Report (Not Reviewed)

Data File : C:\INSTARCH\DATA\2S092518\175866.D
Acq On : 25 Sep 2018 22:46
Sample : 153655,175866,
Misc : 500ul+5ul IS S3916B
Integrator: RTE
Quant Time: Sep 27 12:03:08 2018

Vial: 24
Operator: RPN
Inst : SVMS2
Multiplr: 1.00

Quant Method : C:\INSTARCH\METHOD\2S092418.M
Quant Title : Method for 8270 Analysis
QLast Update : Mon Sep 24 16:53:25 2018
Response via : Initial Calibration
DataAcq Meth:2S092418.M

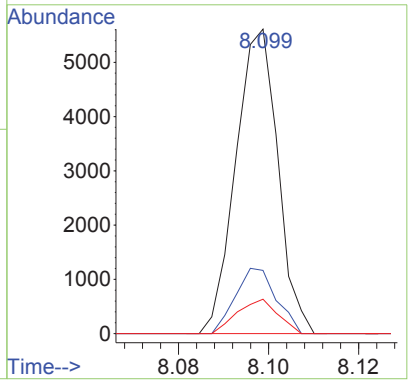




#60
Diethylphthal
Concen: 0.49 ug/mL
RT: 8.099 min Scan# 1976
Delta R.T. -0.000 min
Lab File: 175866.D
Acq: 25 Sep 2018 22:46

Tgt Ion:149 Resp: 3639

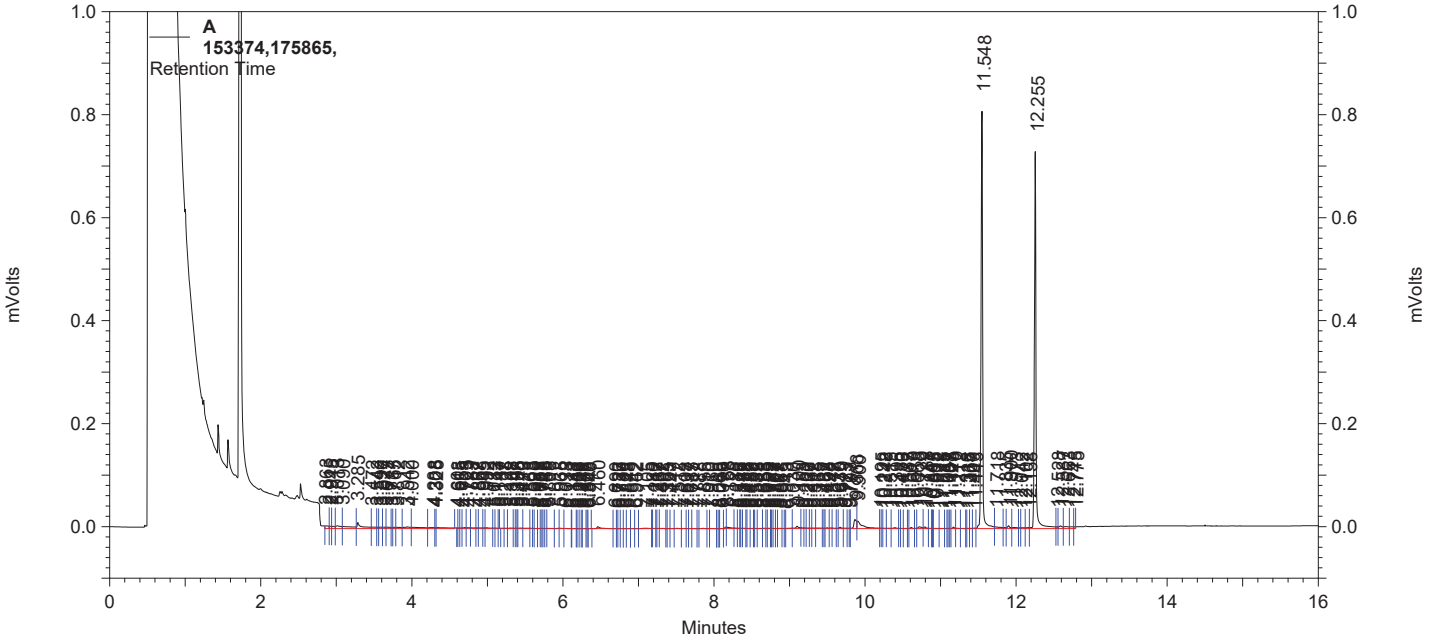
Ion	Ratio	Lower	Upper
149	100		
177	20.8	0.0	52.4
150	11.3	0.0	43.1



8015B Analysis Report

Data File: C:\Instarch\Semi 4\Data\092118dro\006.dat
Method: C:\Instarch\Semi 4\Methods\8015C\092018droic\092118dro.met
User: AJZ
Sample ID: 153374,175865,
Acquired: Sep 21, 2018 08:16:48
Printed: Sep 21, 2018 12:11:08

Data Summary: {Data Description}



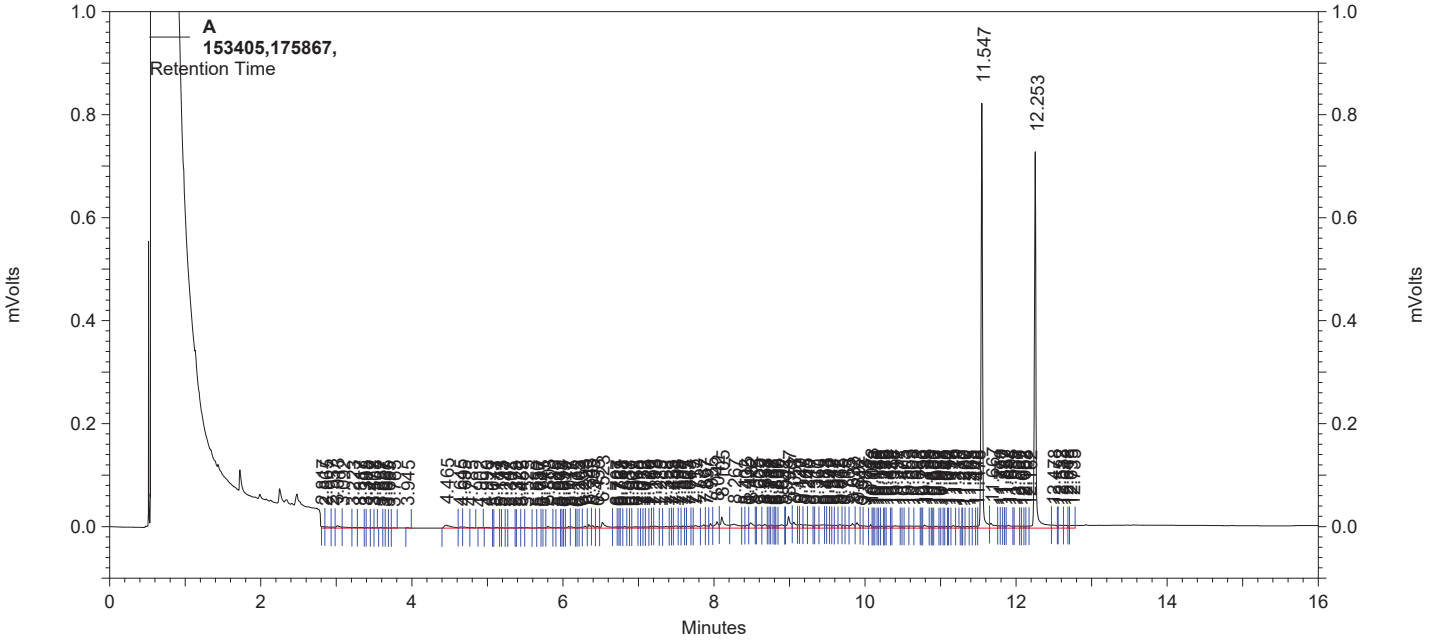
A Results

Component	Retention Time	Area Counts	Concentration (ug/ml)
Octacosane	11.548	1224342	82.491
Triacontane	12.255	1107847	88.615
DIESEL		760474	38.770

8015B Analysis Report

Data File: C:\Instarch\Semi 4\Data\092118dro\012.dat
Method: C:\Instarch\Semi 4\Methods\8015C\092018droic\092118dro.met
User: AJZ
Sample ID: 153405,175867,
Acquired: Sep 21, 2018 10:59:28
Printed: Sep 21, 2018 12:11:41

Data Summary: {Data Description}



A Results

Component	Retention Time	Area Counts	Concentration (ug/ml)
Octacosane	11.547	1137670	77.136
Triacontane	12.253	1103550	88.290
DIESEL		1625312	89.709

SEMI - VOLATILE ORGANIC ANALYSIS
INITIAL CALIBRATION
DOCUMENTS

Injection Log Summary Report

Method : C:\INSTARCH\METHOD\2S092418.M (RTE Integrator)
Title : Method for 8270 Analysis
Start (Tune) File ID : C:\INSTARCH\DATA\2S092418\2DFTP136.D
Injection Date : 24 Sep 2018 Log Time Period (hrs) : ALL
Injection Time : 13:09 Total files within period : 20
Sample Directory : C:\INSTARCH\DATA\2S092418\

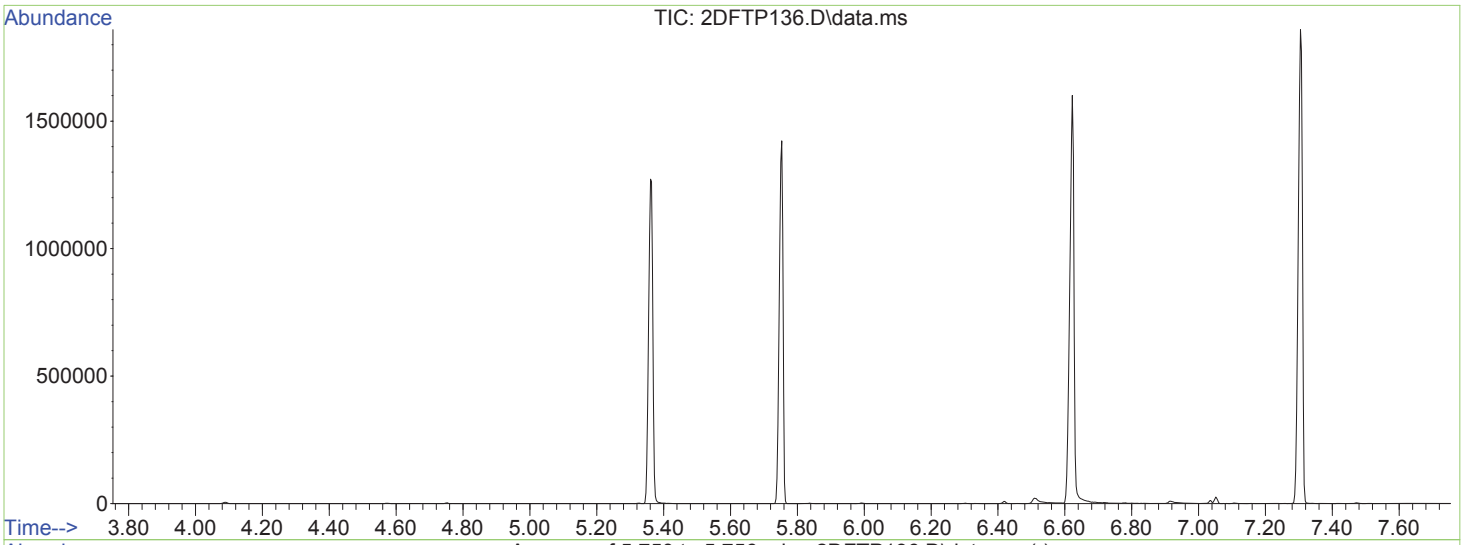
Injection Log Summary Table

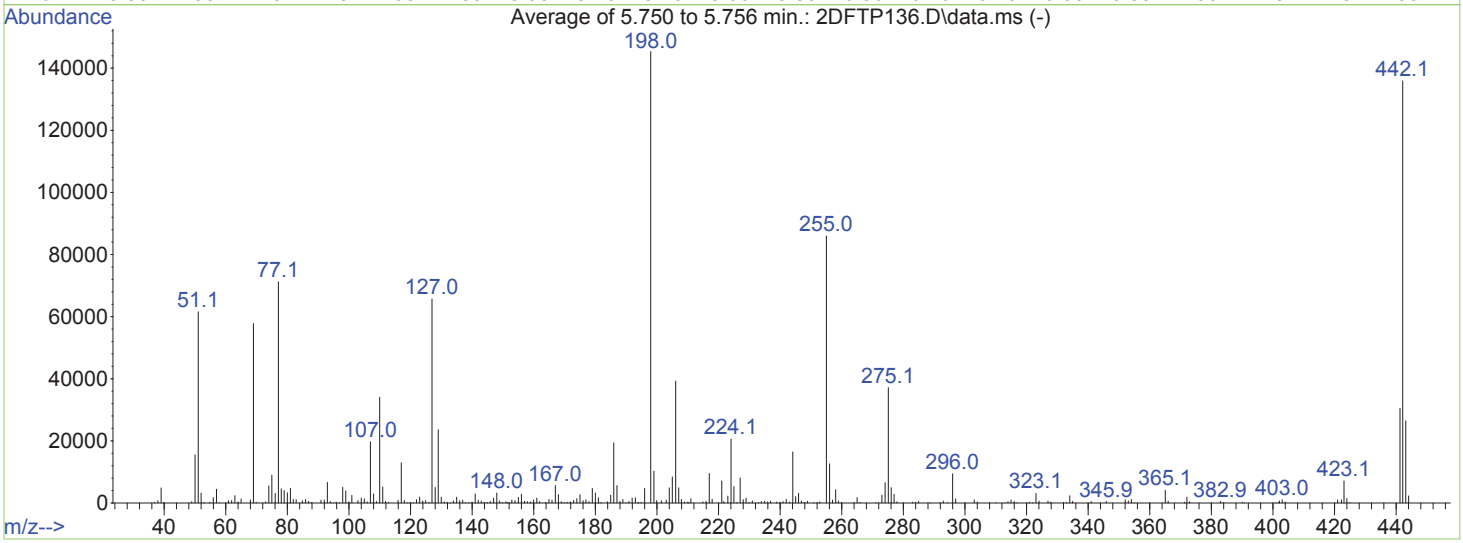
File ID	Multiplier I	S	T	Sample Name / Misc Info	Date	Time
2IB02	1.00	1.00	1.00	InstrumentBlank 500ul+5ul IS S3900D	24 Sep 2018	13:24
2ICAL7	1.00	1.00	1.00	ICAL 50ug/mL SVMS8104 500ul+5ul IS S3916B	24 Sep 2018	13:45
2ICAL6	1.00	1.00	1.00	ICAL 40ug/mL SVMS8103 500ul+5ul IS S3916B	24 Sep 2018	14:05
2ICAL5	1.00	1.00	1.00	ICAL 30ug/mL SVMS8102 500ul+5ul IS S3916B	24 Sep 2018	14:25
2ICAL4	1.00	1.00	1.00	ICAL 20ug/mL SVMS8101 500ul+5ul IS S3916B	24 Sep 2018	14:46
2ICAL3	1.00	1.00	1.00	ICAL 10ug/mL SVMS8100 500ul+5ul IS S3916B	24 Sep 2018	15:06
2ICAL2	1.00	1.00	1.00	ICAL 5ug/mL SVMS8099 500ul+5ul IS S3916B	24 Sep 2018	15:26
2ICAL1	1.00	1.00	1.00	ICAL 1ug/mL SVMS8098 500ul+5ul IS S3916B	24 Sep 2018	15:47
2ICV1	1.00	1.00	1.00	ICV 20ug/mL SVMS8105 500ul+5ul IS S3916B	24 Sep 2018	16:07
2ICV2	1.00	1.00	1.00	ICV 40ug/mL SVMS8106 500ul+5ul IS S3916B	24 Sep 2018	16:27

DFTPP

Data File : C:\INSTARCH\DATA\2S092418\2DFTP136.D Vial: 1
Acq On : 24 Sep 2018 13:09 Operator: RPN
Sample : DFTPP TUNE SVMS7999 Inst : SVMS2
Misc : SVMS2, 25ng DFTPP Multiplr: 1.00
Integrator: RTE

Method : C:\INSTARCH\METHOD\2S092418.M
Title : Method for 8270 Analysis
Last Update : Mon Sep 24 16:53:25 2018





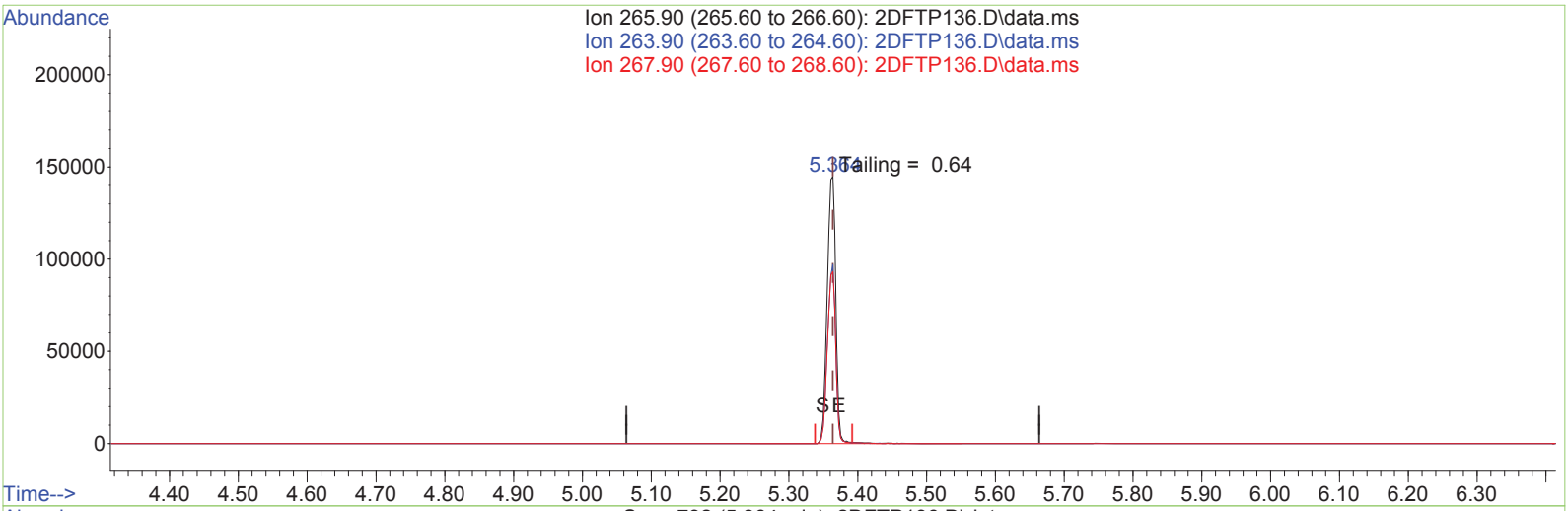
AutoFind: Scans 868, 869, 870; Background Corrected with Scan 859

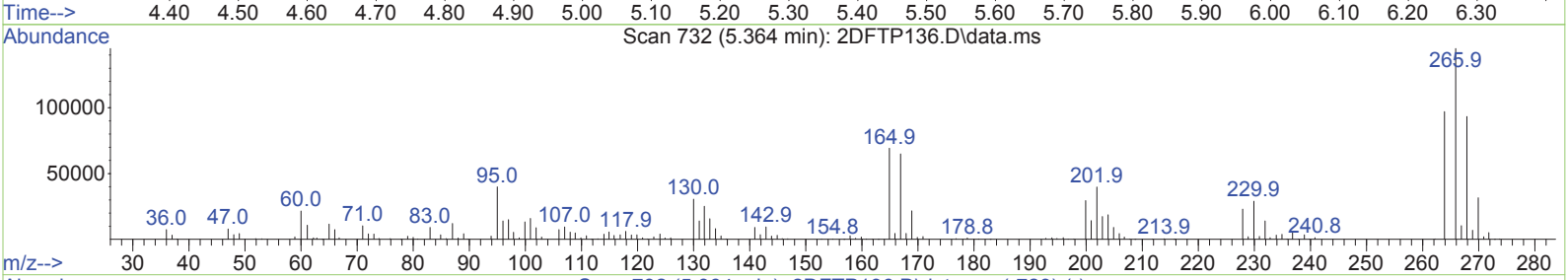
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	42.4	61568	PASS
68	69	0.00	2	1.7	973	PASS
70	69	0.00	2	0.4	248	PASS
127	198	10	80	45.2	65725	PASS
197	198	0.00	2	0.0	0	PASS
198	198	50	100	100.0	145323	PASS
199	198	5	9	7.0	10238	PASS
275	198	10	60	25.6	37160	PASS
365	198	1	100	2.9	4150	PASS
441	442	0.01	24	22.5	30512	PASS
442	198	50	100	93.5	135888	PASS
443	442	15	24	19.5	26477	PASS

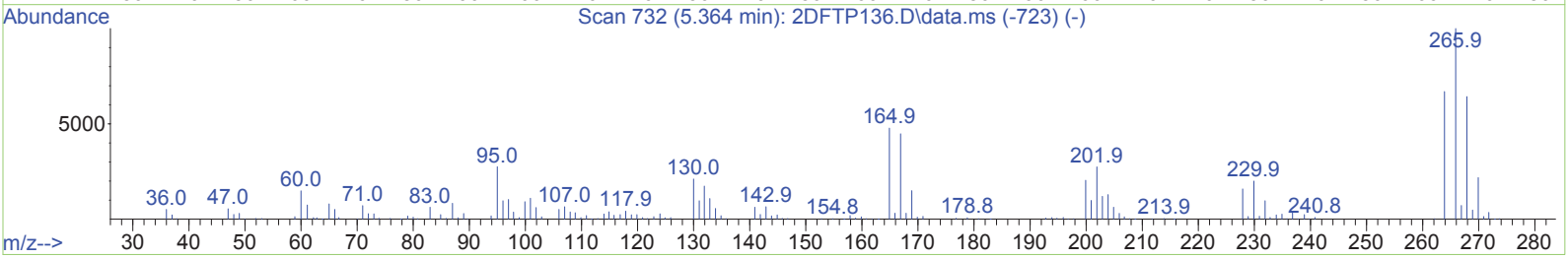
Quantitation Report (Qedit)

Data File : C:\INSTARCH\DATA\2S092418\2DFTP136.D Vial: 1
Acq On : 24 Sep 2018 13:09 Operator: RPN
Sample : DFTPP TUNE SVMS7999 Inst : SVMS2
Misc : SVMS2, 25ng DFTPP Multiplr: 1.00
Integrator: RTE
Quant Time: Sep 26 15:28:47 2018

Quant Method : C:\INSTARCH\METHOD\2DFTPP.M
Quant Title : DFTPP TUNE
QLast Update : Wed Sep 26 15:28:33 2018
Response via : Initial Calibration
DataAcq Meth:2DFTPP.M







TIC: 2DFTP136.D\data.ms

(1) Pentachlorophenol

5.364min (-0.000) 7.22 ng

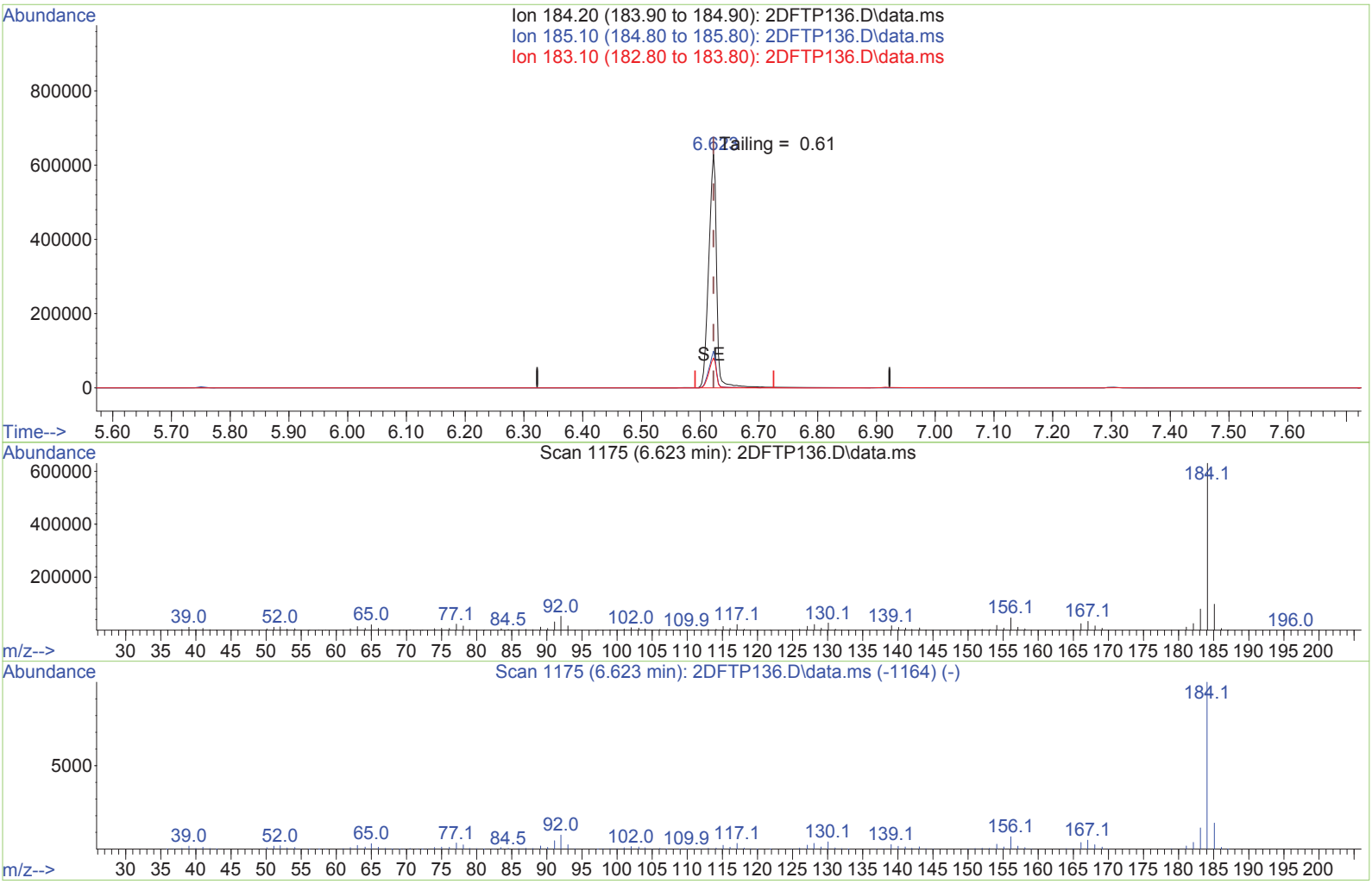
response 125060

Ion	Exp%	Act%
265.90	100.00	100.00
263.90	64.10	64.07
267.90	63.60	63.55
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : C:\INSTARCH\DATA\2S092418\2DFTP136.D Vial: 1
Acq On : 24 Sep 2018 13:09 Operator: RPN
Sample : DFTPP TUNE SVMS7999 Inst : SVMS2
Misc : SVMS2, 25ng DFTPP Multiplr: 1.00
Integrator: RTE
Quant Time: Sep 26 15:28:47 2018

Quant Method : C:\INSTARCH\METHOD\2DFTPP.M
Quant Title : DFTPP TUNE
QLast Update : Wed Sep 26 15:28:33 2018
Response via : Initial Calibration
DataAcq Meth:2DFTPP.M



TIC: 2DFTP136.D\data.ms

(3) Benzidine

6.623min (0.000) 8.92 ng

response 586430

Ion	Exp%	Act%
184.20	100.00	100.00
185.10	14.60	14.62
183.10	12.00	12.00
0.00	0.00	0.00

Data File Name	2DFTP136.D
Vial Number	1
Data File Path	C:\INSTARCH\DATA\2S092418\
Operator	RPN
Date Acquired	9/24/2018 13:09
Instrument Name	SVMS2
Sample Name	DFTPP TUNE SVMS7999
Sample Multiplier	1
Misc Info	SVMS2, 25ng DFTPP
Calibration Title	DFTPP TUNE
Last Calibration Update	Wed Sep 26 15:28:33 2018

#	Name	Ret Time	Target Response
1)	Pentachlorophenol	5.36	125060
2)	DFTPP	5.75	127070
3)	Benzidine	6.62	586430
4)	DDE	6.78	363
5)	DDD	7.05	4086
6)	DDT	7.30	316248

DDT % Degradation

$$\frac{DDD+DDEx100}{DDD+DDE+DDT} \quad 1.39\ \%$$

Response Factor Report SVMS2

Method Path : C:\INSTARCH\METHOD\
Method File : 2S092418.M
Title : Method for 8270 Analysis
Last Update : Mon Sep 24 16:53:25 2018
Response Via : Initial Calibration

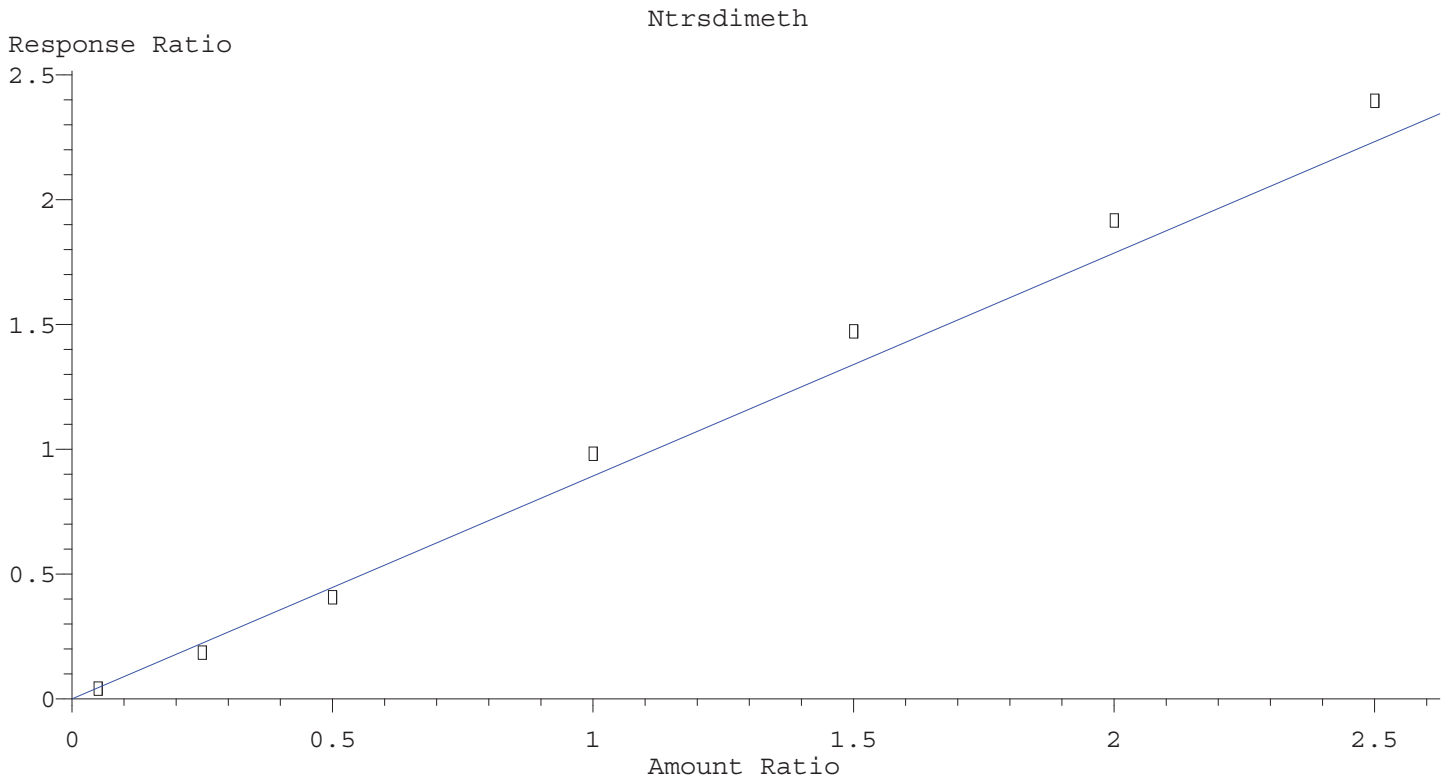
Calibration Files
1 =2ICAL1.D 5 =2ICAL2.D 10 =2ICAL3.D 20 =2ICAL4.D 30 =2ICAL5.D 40 =2ICAL6.D 50 =2ICAL7.D

		Compound	1	5	10	20	30	40	50	Avg	%RSD
1)	I	14Diclbenzd4	----------ISTD----------								
2)	CT	Ntrsdimeth	0.816	0.741	0.814	0.982	0.982	0.958	0.958	0.893	11.16
3)	CT	Pyridine	1.659	1.429	1.492	1.757	1.745	1.704	1.733	1.646	8.00
4)	S	SURR2Flphenol	0.556	0.478	0.515	0.598	0.581	0.569	0.566	0.552	7.51
5)	CT	Aniline	2.105	1.725	1.835	2.174	2.113	2.088	2.064	2.015	8.28
6)	CPT	bis2Clethletr	1.420	1.226	1.289	1.509	1.448	1.417	1.423	1.390	7.03
7)	S	SURRPhenol-d5	0.679	0.569	0.615	0.726	0.702	0.698	0.687	0.668	8.33
8)	CPT	Phenol	1.638	1.392	1.467	1.672	1.628	1.613	1.583	1.570	6.50
9)	CPT	2-Cl-phenol	1.357	1.180	1.221	1.447	1.402	1.372	1.354	1.333	7.27
10)	CT	13Diclbenz	1.753	1.467	1.512	1.753	1.702	1.645	1.634	1.638	6.86
11)	CT	14Diclbenz	1.750	1.396	1.451	1.699	1.642	1.595	1.574	1.587	8.03
12)	CT	12Diclbenz	1.644	1.362	1.431	1.661	1.593	1.555	1.534	1.540	7.11
13)	CT	Benzyl alcoho	0.799	0.768	0.807	0.964	0.954	0.921	0.904	0.874	9.22
14)	CPT	bis2clispreth	1.716	1.744	1.813	2.110	2.033	1.973	1.958	1.907	7.91
15)	CPT	2Methylphenol	1.032	0.869	0.895	1.046	1.013	0.976	0.956	0.970	6.99
16)	CT	Ntrspyrrol	0.556	0.580	0.643	0.765	0.752	0.742	0.739	0.682	12.88
17)	CPT	Acetophenone	2.261	1.900	1.997	2.274	2.162	2.073	2.005	2.096	6.76
18)	CPT	Hexaclethane	0.666	0.576	0.641	0.746	0.716	0.694	0.681	0.675	8.17
19)	CPT	N-Ntrsdinprop	1.235	1.051	1.131	1.290	1.218	1.191	1.156	1.182	6.58
20)	CPT	3&4Methylphenol	1.665	1.349	1.436	1.646	1.553	1.477	1.430	1.508	7.82
21)	I	Naphthalened8	----------ISTD----------								
22)	S	SURRNitrbenzened5	0.080	0.072	0.072	0.088	0.086	0.084	0.083	0.081	8.15
23)	CPT	Nitrobenzene	0.578	0.480	0.493	0.577	0.555	0.526	0.513	0.532	7.43
24)	CPT	Isophorone	0.625	0.547	0.571	0.684	0.665	0.651	0.654	0.628	8.09
25)	CPT	2-Nitrophenol	0.144	0.159	0.174	0.220	0.212	0.207	0.202	0.188	15.57
26)	CPT	24Dimthpheno	0.329	0.277	0.291	0.334	0.328	0.316	0.305	0.311	6.92
27)	CPT	bis2clethoxym	0.494	0.391	0.415	0.474	0.462	0.438	0.427	0.443	8.08
28)	CPT	24Diclphenol	0.313	0.277	0.293	0.342	0.328	0.315	0.306	0.311	6.87
29)	CT	124Triclbenz	0.411	0.334	0.342	0.396	0.380	0.366	0.359	0.370	7.55
30)	CT	Benzoic acid		0.103	0.149	0.226	0.240	0.242	0.239	0.200	29.78#
31)	CPT	Naphthalene	1.294	1.041	1.046	1.187	1.137	1.081	1.044	1.119	8.50
32)	CPT	4-Cl-aniline	0.453	0.406	0.404	0.468	0.450	0.434	0.422	0.434	5.68
33)	CT	26Diclphenol	0.300	0.257	0.269	0.307	0.294	0.281	0.269	0.282	6.61
34)	CT	Hexaclprop	0.213	0.194	0.203	0.245	0.241	0.231	0.227	0.222	8.70
35)	CPT	Hexaclbutdien	0.225	0.191	0.192	0.218	0.210	0.200	0.199	0.205	6.40
36)	CPT	4Cl3methylphe	0.337	0.303	0.309	0.367	0.360	0.349	0.345	0.339	7.21
37)	CPT	2Methylnaphth	0.786	0.643	0.662	0.757	0.728	0.685	0.670	0.704	7.59
38)	CT	1Methylnaphth	0.721	0.577	0.587	0.679	0.650	0.612	0.606	0.633	8.28
39)	I	Acenaphthened10	----------ISTD----------								
40)	CPT	Hxclcycpentdi	0.344	0.327	0.357	0.424	0.416	0.397	0.378	0.378	9.72
41)	CPT	1245Tetrclbenz	0.752	0.604	0.622	0.698	0.664	0.630	0.606	0.654	8.35
42)	CPT	246Triclpheno	0.405	0.402	0.447	0.512	0.498	0.490	0.473	0.461	9.58

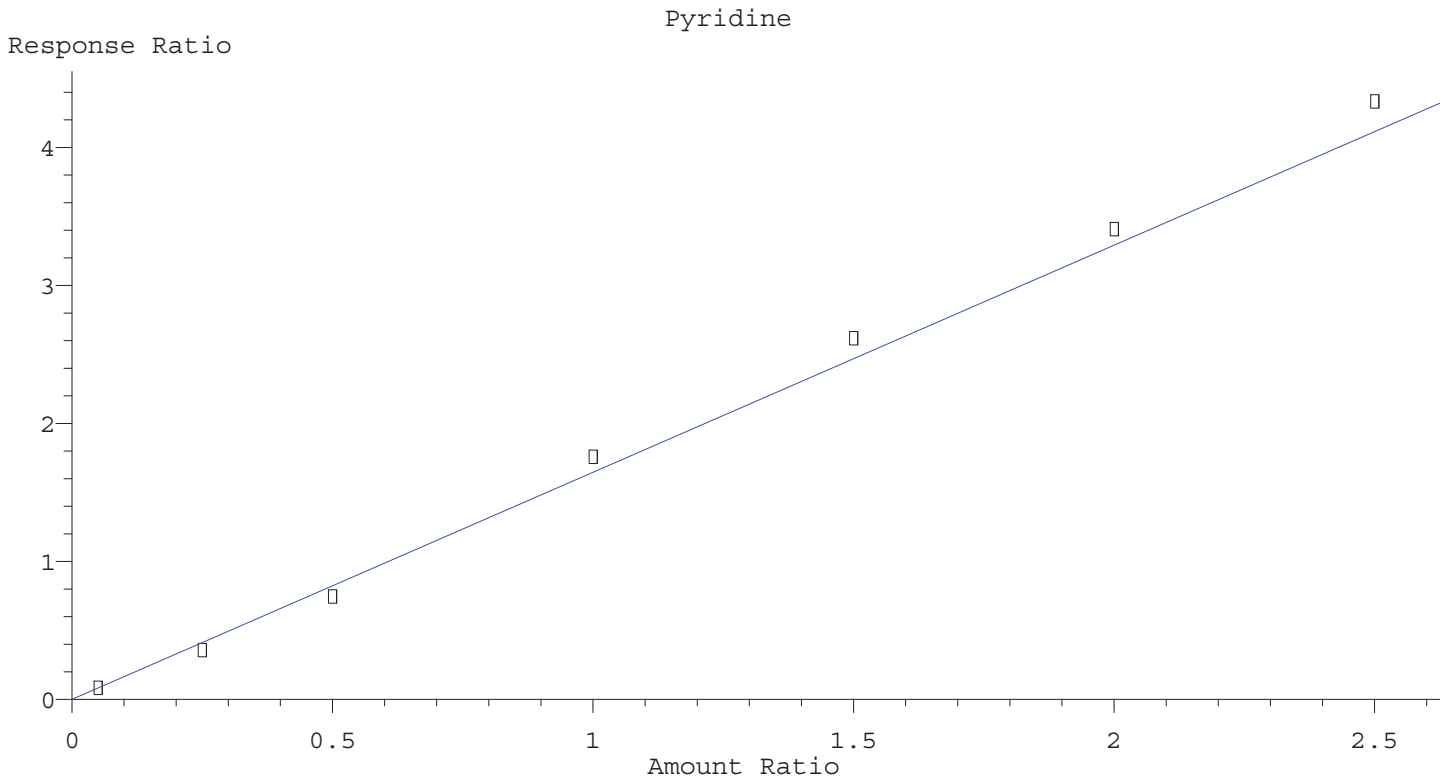
Method Path : C:\INSTARCH\METHOD\
Method File : 2S092418.M

43)	CPT	245Triclpheno	0.468	0.423	0.441	0.537	0.517	0.496	0.478	0.480	8.38
44)	S	SURR2Flbiphenyl	0.344	0.277	0.288	0.324	0.309	0.296	0.285	0.303	7.87
45)	CPT	2Clnaphthalen	1.537	1.265	1.294	1.453	1.380	1.323	1.273	1.361	7.50
46)	CPT	2Nitroaniline	0.349	0.363	0.410	0.486	0.483	0.470	0.453	0.430	13.27
47)	CPT	Acnaphthylene	2.256	1.849	1.922	2.163	2.047	1.908	1.823	1.995	8.27
48)	CPT	Dimethylphtha	1.764	1.457	1.492	1.695	1.633	1.553	1.472	1.581	7.55
49)	CPT	26Dinitrotolu	0.345	0.325	0.348	0.403	0.391	0.372	0.366	0.364	7.46
50)	CPT	Acenaphthene	1.375	1.163	1.234	1.415	1.375	1.305	1.171	1.291	7.96
51)	CPT	3Nitroaniline	0.328	0.321	0.350	0.396	0.387	0.373	0.364	0.360	7.87
52)	CPT	24Dinitphenol			0.183	0.267	0.287	0.283	0.271	0.258	16.58
53)	CPT	Dibenzofuran	2.064	1.702	1.716	1.907	1.804	1.714	1.611	1.788	8.55
54)	CPT	24Dinitrotolu	0.441	0.437	0.458	0.532	0.519	0.500	0.479	0.481	7.80
55)	CPT	4-Nitrophenol		0.275	0.295	0.357	0.351	0.338	0.329	0.324	10.02
56)	CT	2,3,5,6-Tetrac...	0.334	0.319	0.346	0.418	0.396	0.392	0.378	0.369	9.85
57)	CPT	2,3,4,6-Tetrac...	0.334	0.350	0.348	0.425	0.414	0.390	0.378	0.377	9.22
58)	CPT	Fluorene	1.711	1.380	1.377	1.528	1.436	1.347	1.264	1.435	10.19
59)	CPT	4Clphlphlethr	0.897	0.708	0.705	0.780	0.740	0.695	0.663	0.741	10.48
60)	CPT	Diethylphthal	1.776	1.471	1.493	1.687	1.613	1.553	1.496	1.584	7.20
61)	CPT	4Nitroaniline	0.343	0.316	0.336	0.378	0.359	0.343	0.327	0.343	5.98
62)	S	SURR246Tribrphenl	0.057	0.059	0.060	0.072	0.069	0.069	0.065	0.064	8.99
63)	I	Phenanthrd10	----------ISTD----------								
64)	CPT	46Dinit2mylph		0.105	0.143	0.194	0.191	0.188	0.181	0.167	21.43#
65)	CPT	Ntrsdiphlam&Di...	0.788	0.628	0.636	0.688	0.629	0.588	0.562	0.646	11.51
66)	CT	Azobenz&12Diph...	0.262	0.223	0.226	0.248	0.229	0.217	0.207	0.230	8.15
67)	CPT	4Brphlphlethr	0.243	0.215	0.218	0.248	0.238	0.226	0.219	0.230	5.90
68)	CPT	Hexaclbenzene	0.275	0.203	0.213	0.246	0.236	0.224	0.217	0.231	10.61
69)	CPT	Pentaclphenol		0.111	0.128	0.156	0.155	0.150	0.150	0.142	12.75
70)	CPT	Phenanthrene	1.269	0.999	1.032	1.148	1.093	1.030	0.987	1.080	9.31
71)	CPT	Anthracene	1.290	1.029	1.050	1.181	1.103	1.039	1.000	1.099	9.40
72)	CPT	Carbazole	1.150	0.941	0.965	1.075	0.990	0.938	0.905	0.995	8.77#
73)	CPT	Dinbtylphthal	1.497	1.195	1.224	1.375	1.274	1.184	1.147	1.271	9.80
74)	CPT	Fluoranthene	1.415	1.165	1.211	1.373	1.294	1.230	1.200	1.270	7.40
75)	I	Chrysene-d12	----------ISTD----------								
76)	CT	Benzidine	0.441	0.386	0.369	0.435	0.482	0.465	0.466	0.435	9.80
77)	CPT	Pyrene	1.512	1.236	1.271	1.481	1.407	1.351	1.300	1.365	7.73
78)	S	SURRTerphenyl-d14	0.196	0.158	0.163	0.191	0.181	0.174	0.168	0.176	8.08
79)	CPT	Btylbzylphth	0.580	0.523	0.576	0.708	0.669	0.650	0.630	0.619	10.19#
80)	CT	bis2Ethlhxlad	0.425	0.410	0.445	0.543	0.527	0.509	0.497	0.479	10.91
81)	CPT	33Diclbnzidin	0.410	0.357	0.335	0.379	0.392	0.408	0.409	0.384	7.60
82)	CPT	B[a]anthracen	1.431	1.118	1.184	1.378	1.298	1.237	1.227	1.267	8.63
83)	CPT	Chrysene	1.372	1.077	1.138	1.315	1.271	1.196	1.140	1.215	8.80
84)	CPT	bis2Ethlhxlph	0.800	0.768	0.827	0.987	0.929	0.865	0.835	0.859	8.84
85)	CPT	Dinoctylphthl	1.170	1.249	1.406	1.749	1.680	1.598	1.551	1.486	14.70
86)	I	Perylene-d12	----------ISTD----------								
87)	CPT	B[b]fluoranth	1.211	1.008	1.082	1.333	1.212	1.242	1.184	1.182	9.03
88)	CPT	B[k]fluoranth	1.204	1.066	1.089	1.242	1.260	1.150	1.128	1.163	6.43
89)	CPT	Benz[a]pyrene	1.363	1.137	1.178	1.393	1.337	1.302	1.251	1.280	7.47
90)	CPT	Indeno-pyrene	0.982	0.974	1.078	1.296	1.252	1.241	1.188	1.144	11.61
91)	CPT	Dib[ah]anthr	0.843	0.846	0.920	1.128	1.082	1.076	1.013	0.987	11.88
92)	CPT	B[ghi]perylen	0.888	0.841	0.934	1.101	1.077	1.046	1.004	0.985	10.04

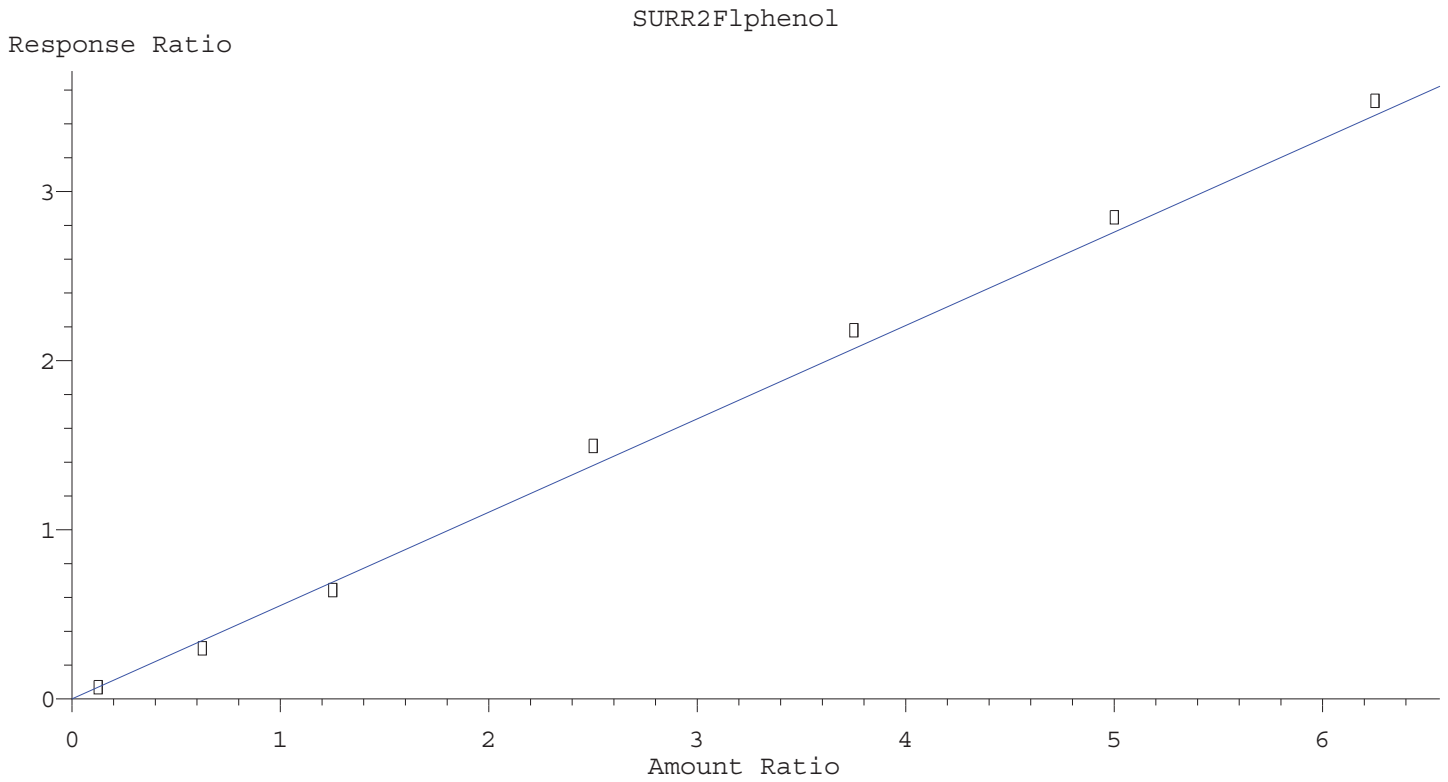
Calibration Plot Report



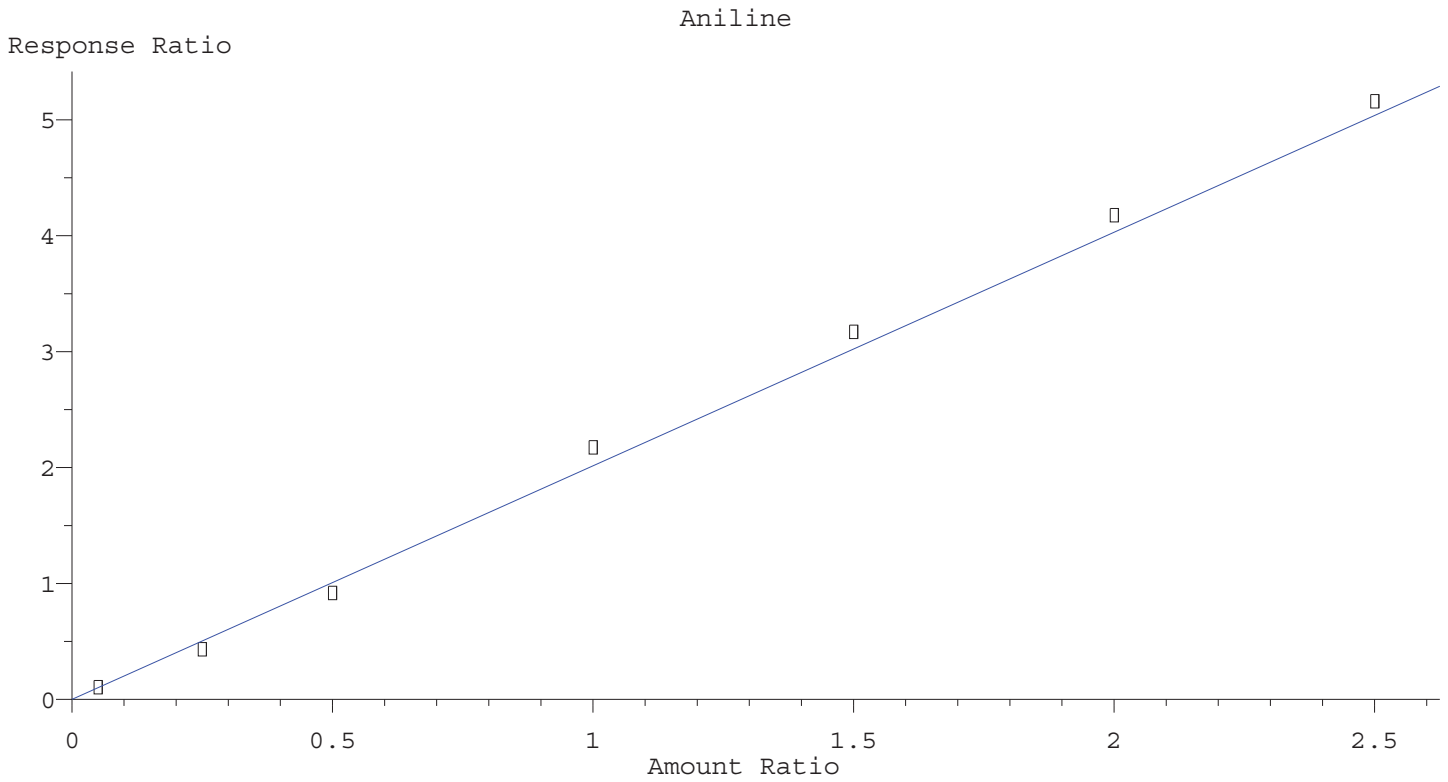
Resp Ratio = 8.930e-001 * Amt
RF Rel Std Dev = 11.165% Curve Fit: Avg RF



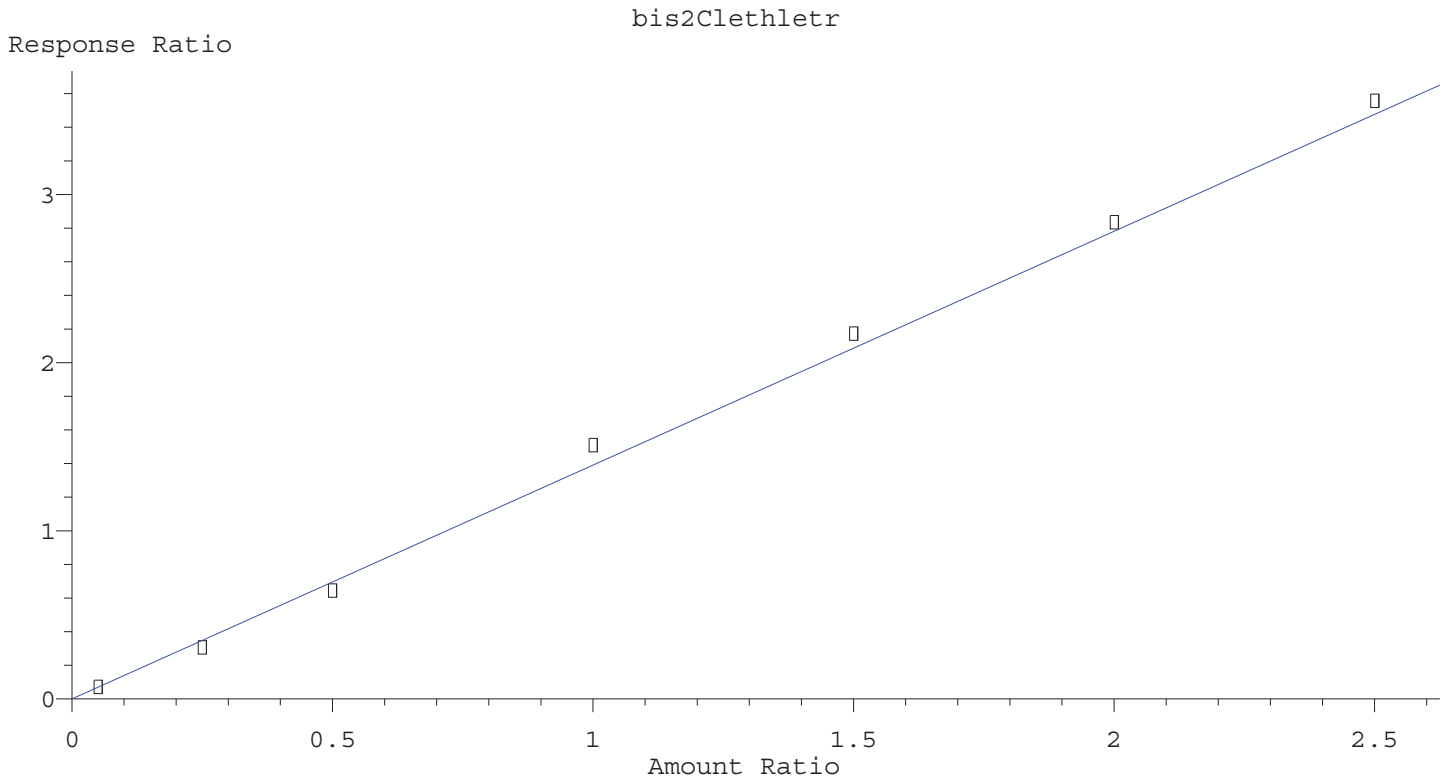
Resp Ratio = 1.646e+000 * Amt
RF Rel Std Dev = 8.001% Curve Fit: Avg RF



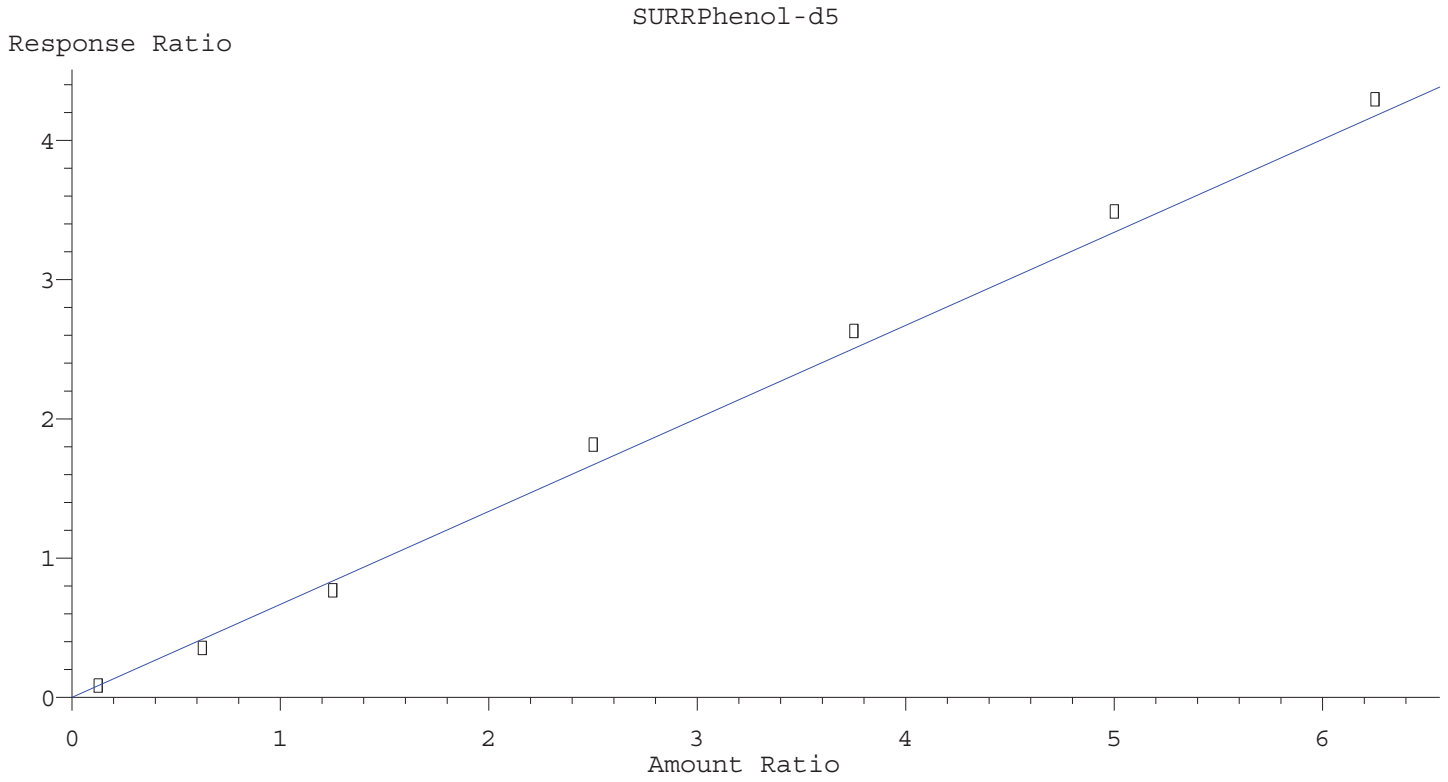
Resp Ratio = 5.520e-001 * Amt
RF Rel Std Dev = 7.514% Curve Fit: Avg RF



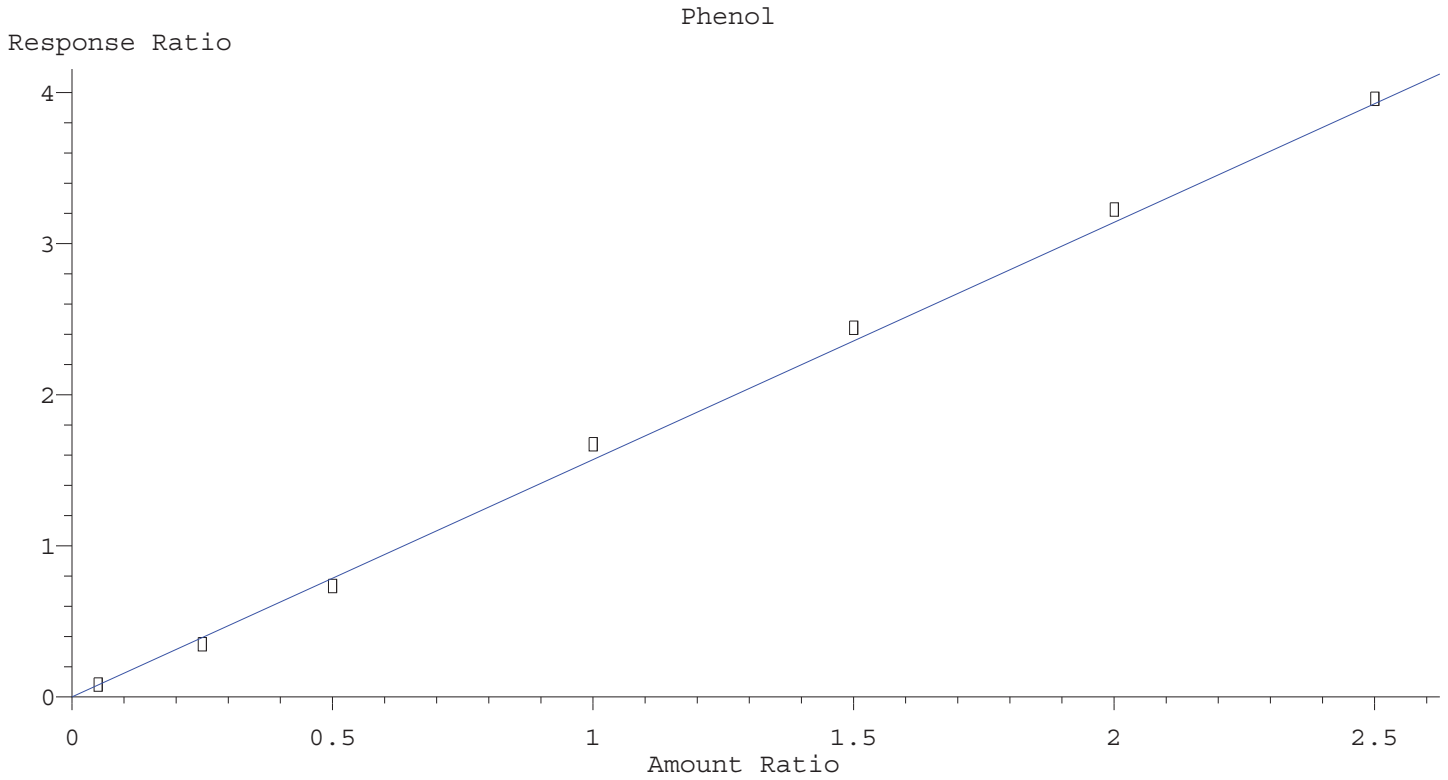
Resp Ratio = 2.015e+000 * Amt
RF Rel Std Dev = 8.278% Curve Fit: Avg RF



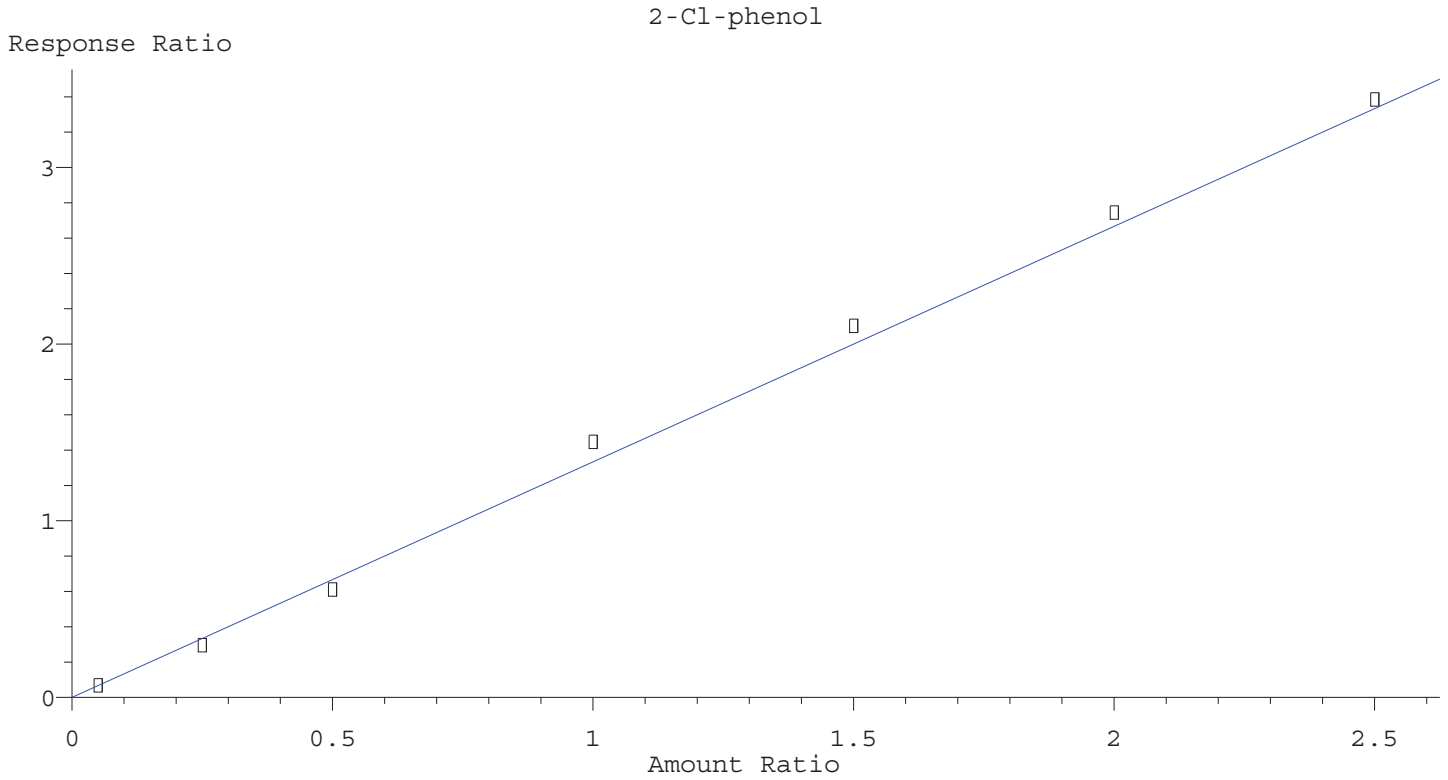
Resp Ratio = 1.390e+000 * Amt
RF Rel Std Dev = 7.033% Curve Fit: Avg RF



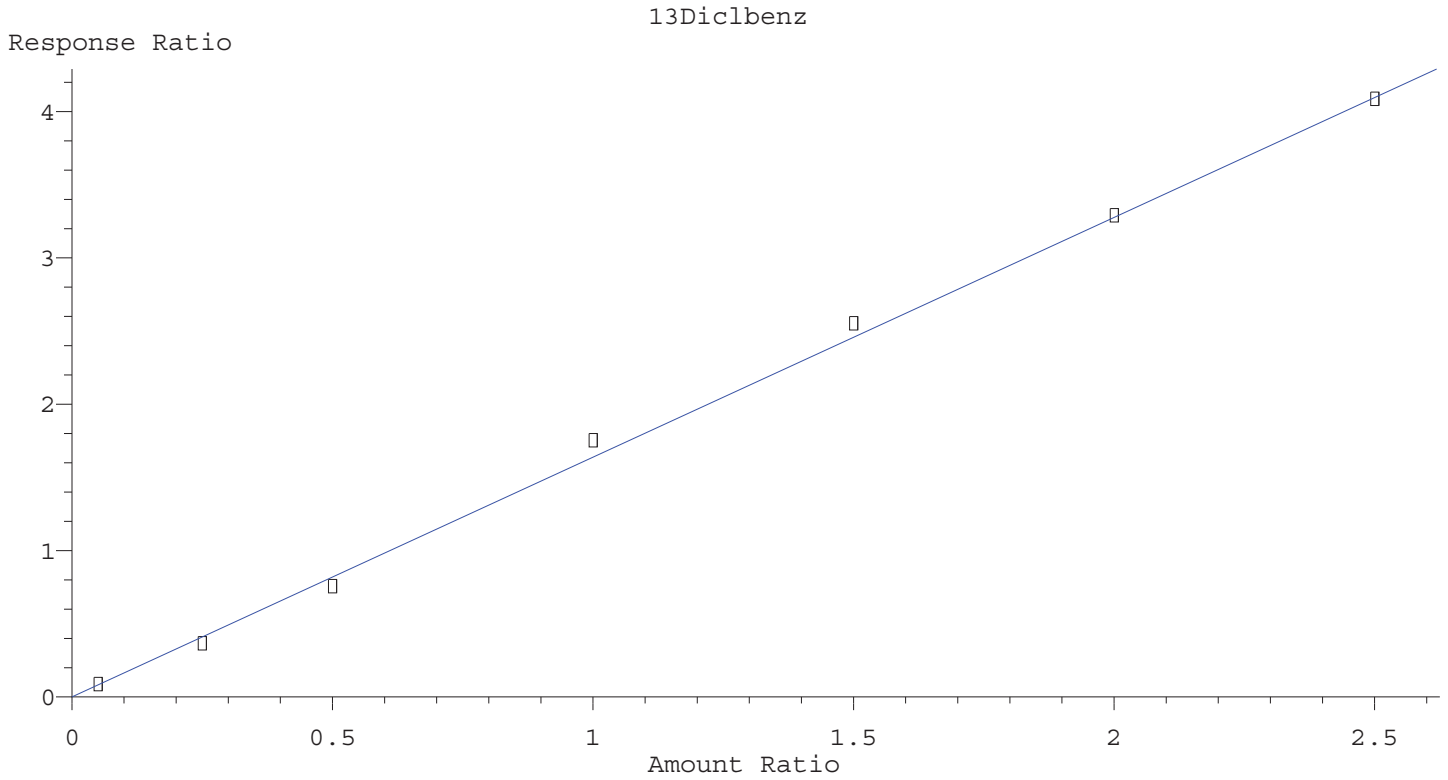
Resp Ratio = 6.679e-001 * Amt
RF Rel Std Dev = 8.326% Curve Fit: Avg RF



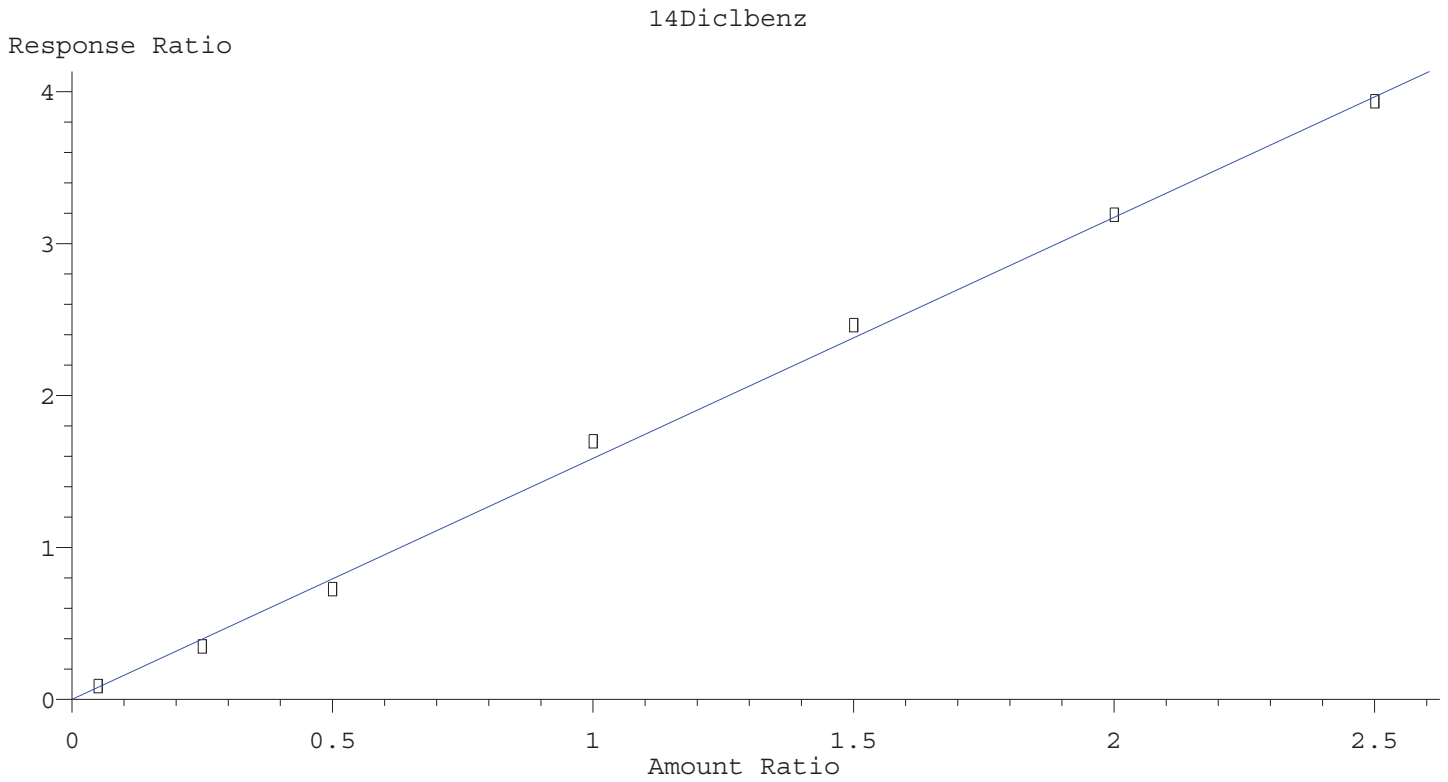
Resp Ratio = 1.570e+000 * Amt
RF Rel Std Dev = 6.497% Curve Fit: Avg RF



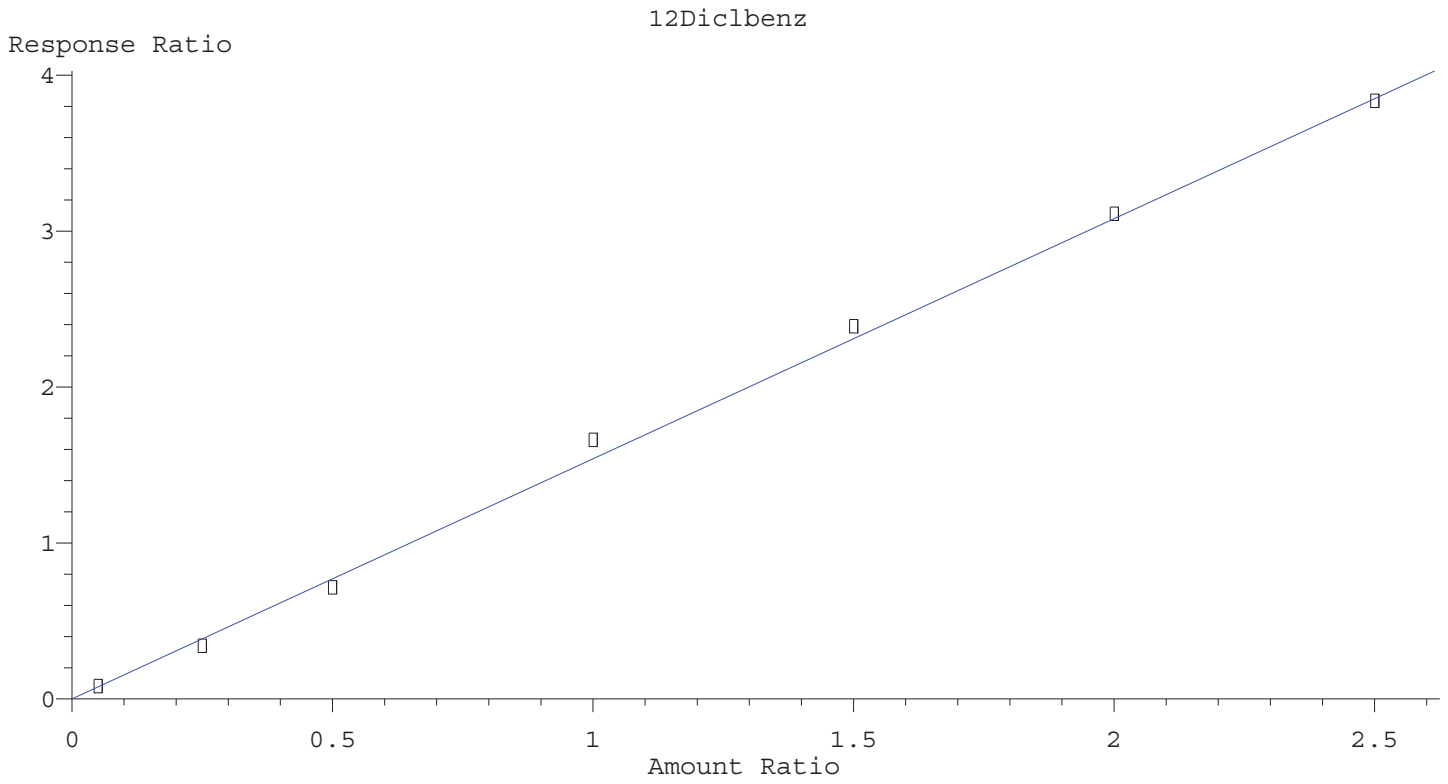
Resp Ratio = 1.333e+000 * Amt
RF Rel Std Dev = 7.271% Curve Fit: Avg RF



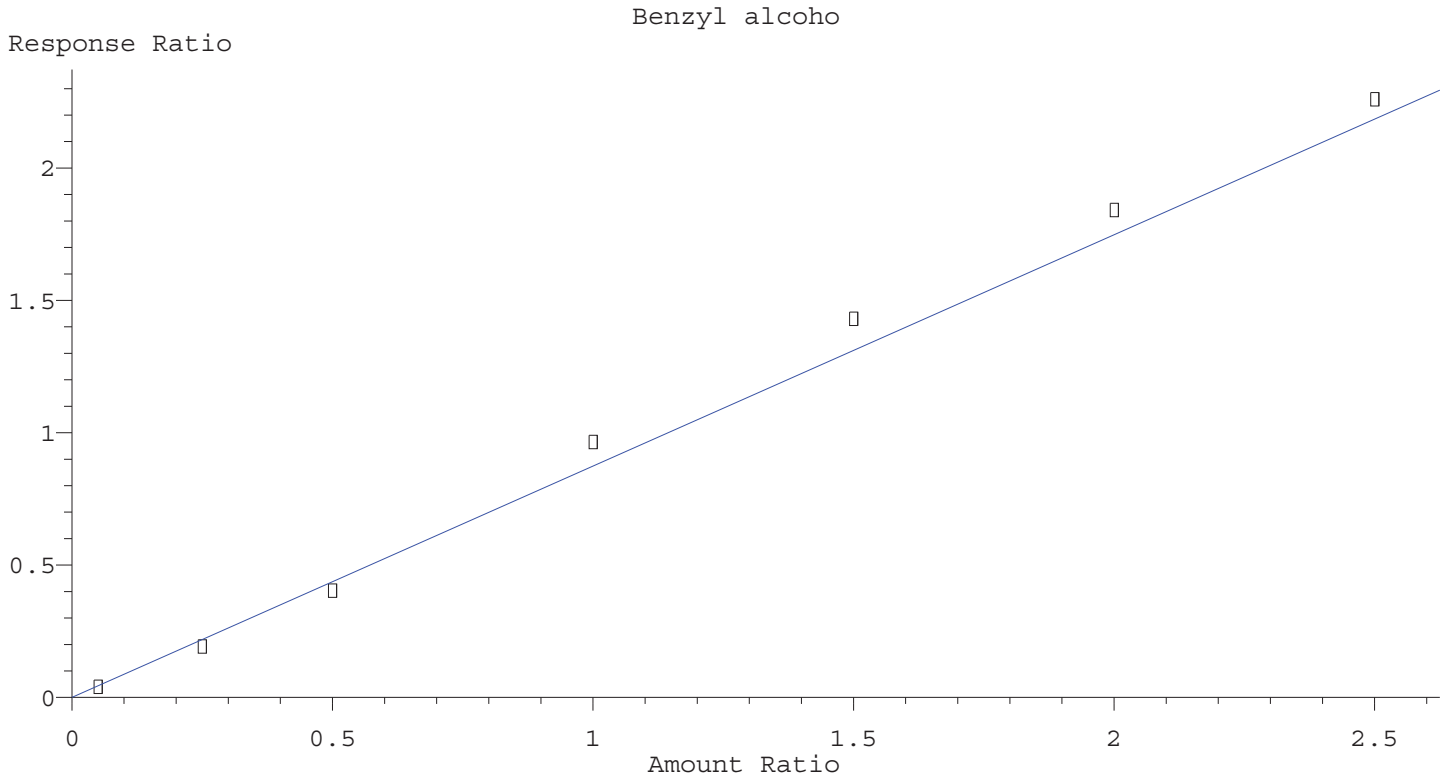
Resp Ratio = 1.638e+000 * Amt
RF Rel Std Dev = 6.864% Curve Fit: Avg RF



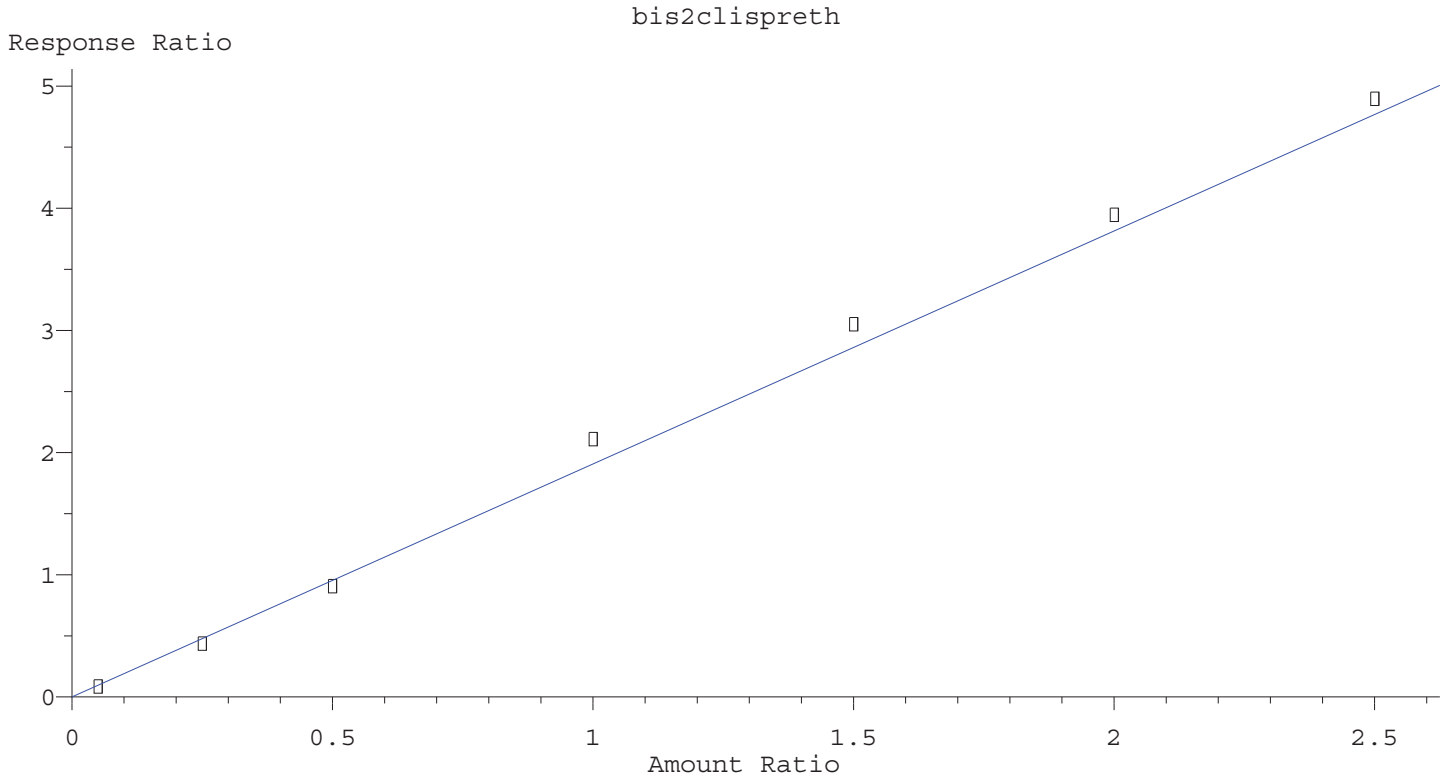
Resp Ratio = 1.587e+000 * Amt
RF Rel Std Dev = 8.028% Curve Fit: Avg RF



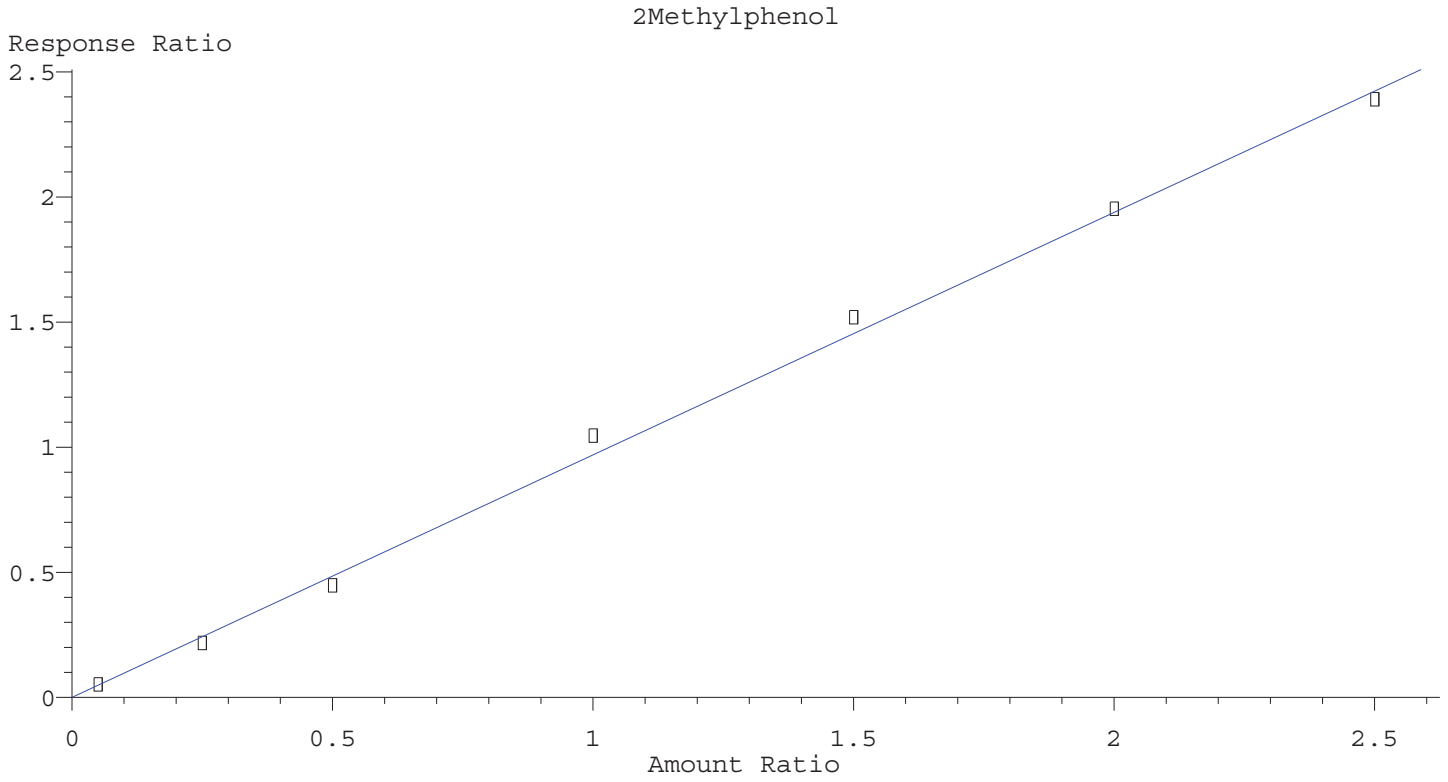
Resp Ratio = 1.540e+000 * Amt
RF Rel Std Dev = 7.108% Curve Fit: Avg RF



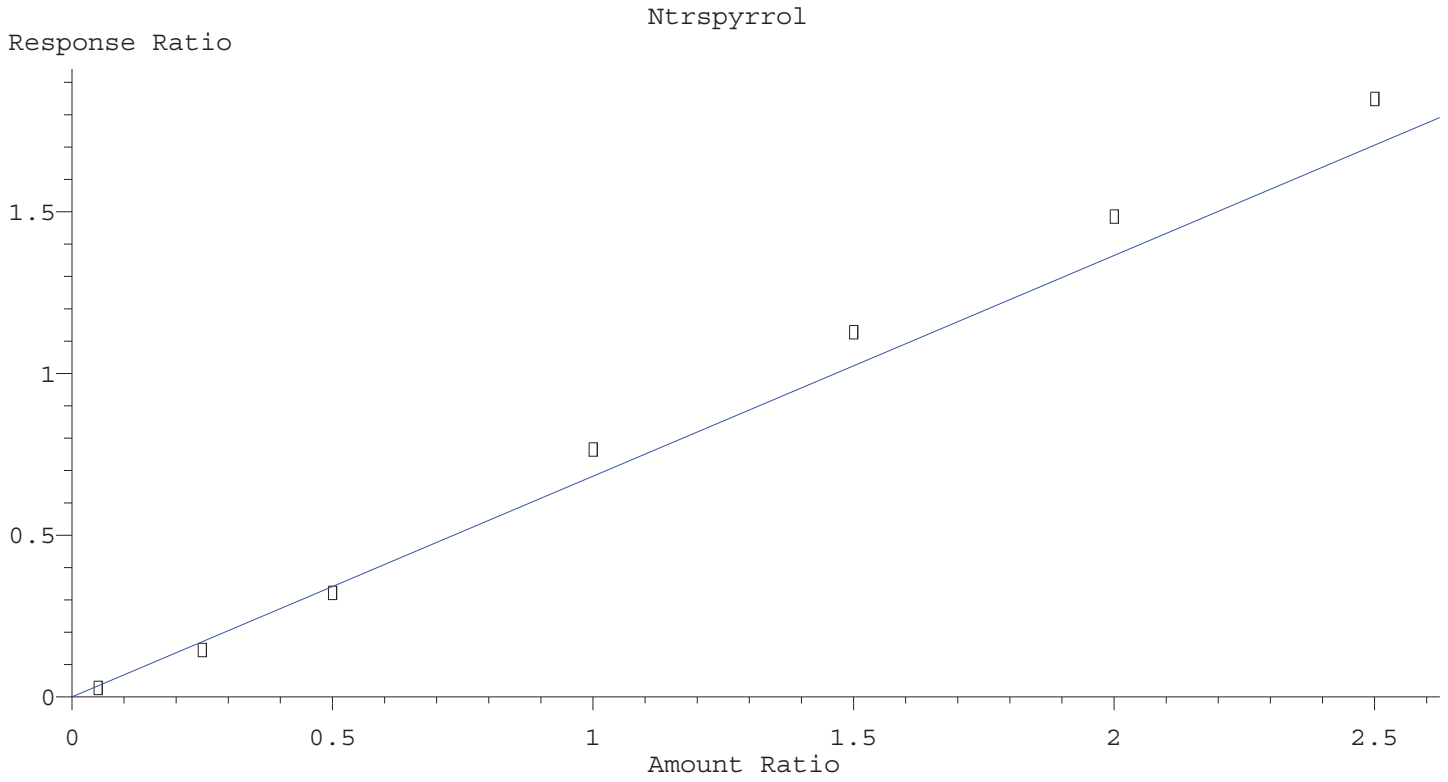
Resp Ratio = 8.737e-001 * Amt
RF Rel Std Dev = 9.223% Curve Fit: Avg RF



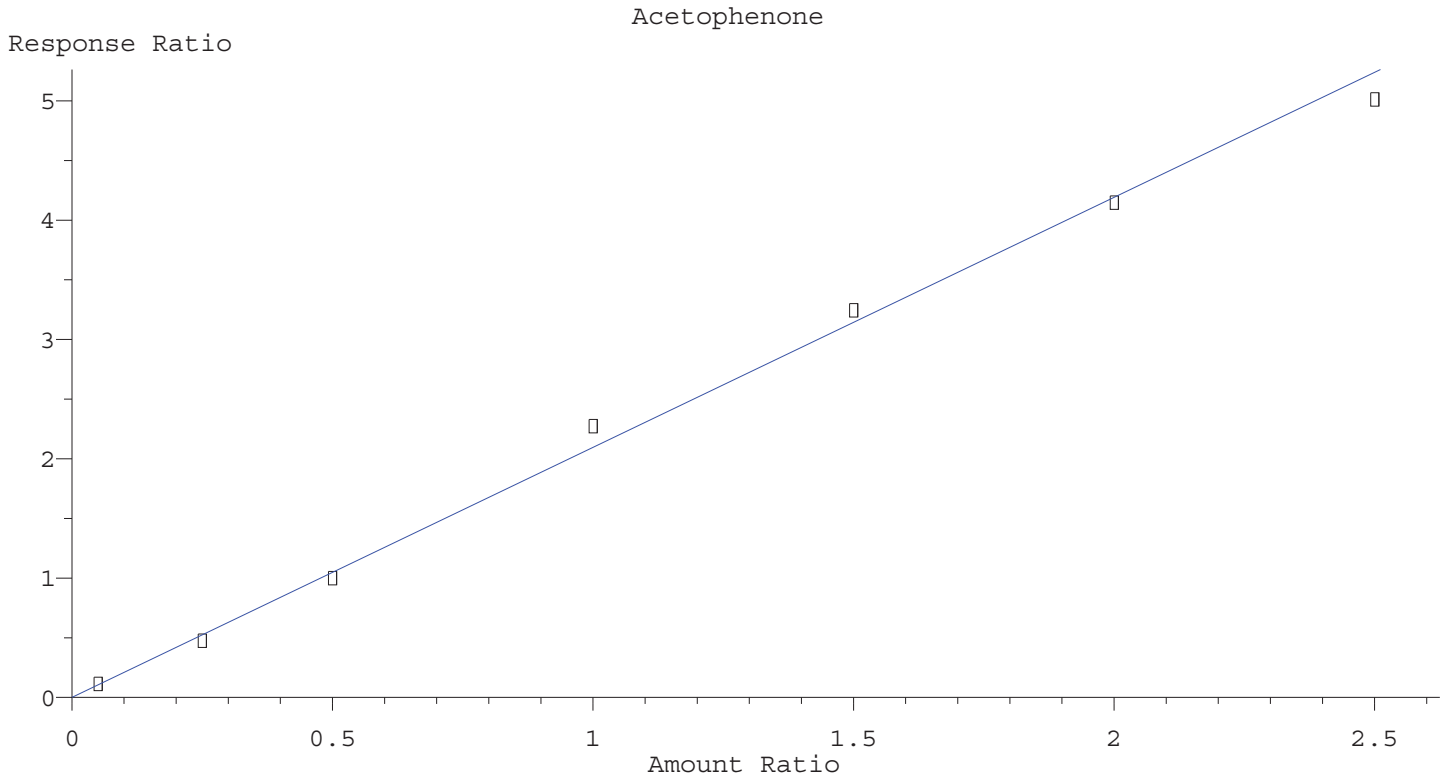
Resp Ratio = 1.907e+000 * Amt
RF Rel Std Dev = 7.907% Curve Fit: Avg RF



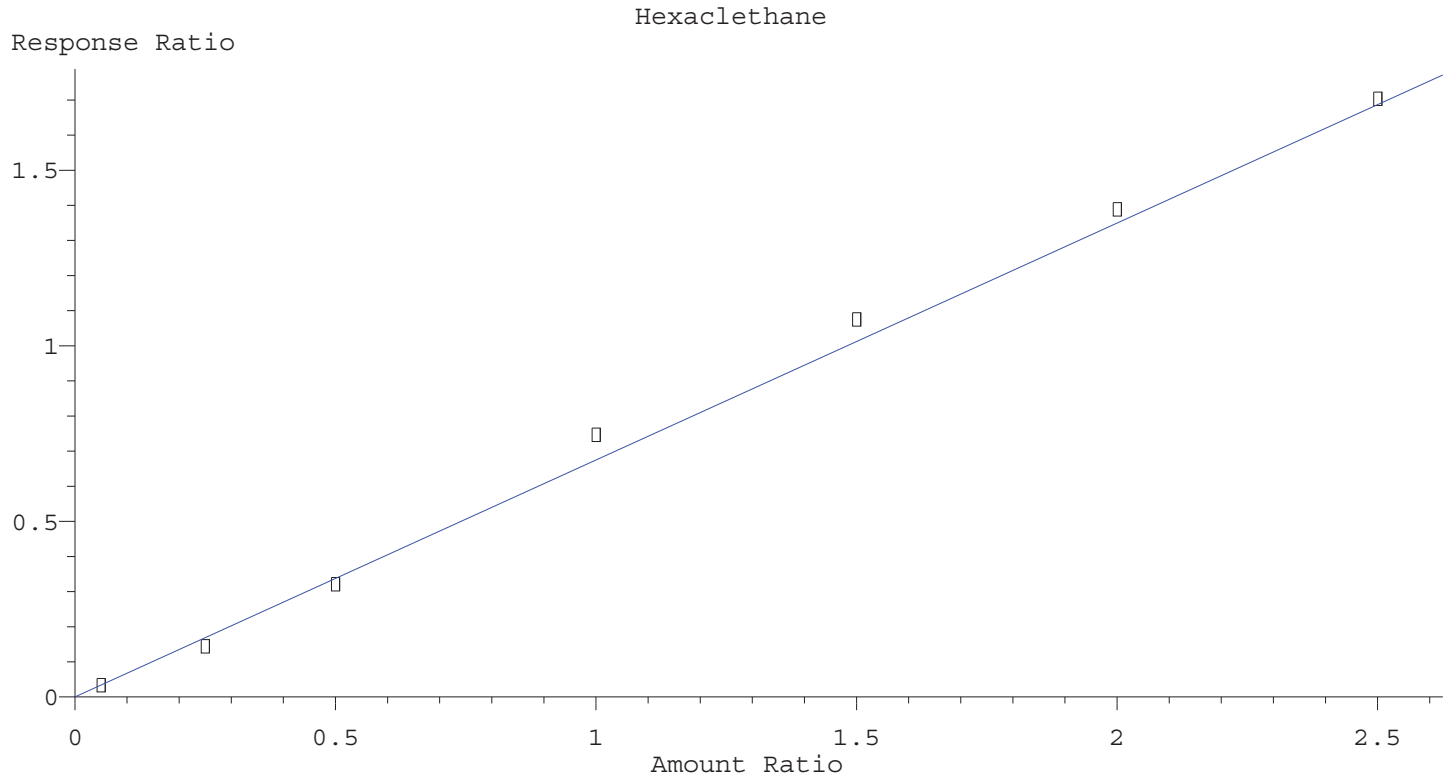
Resp Ratio = 9.695e-001 * Amt
RF Rel Std Dev = 6.986% Curve Fit: Avg RF



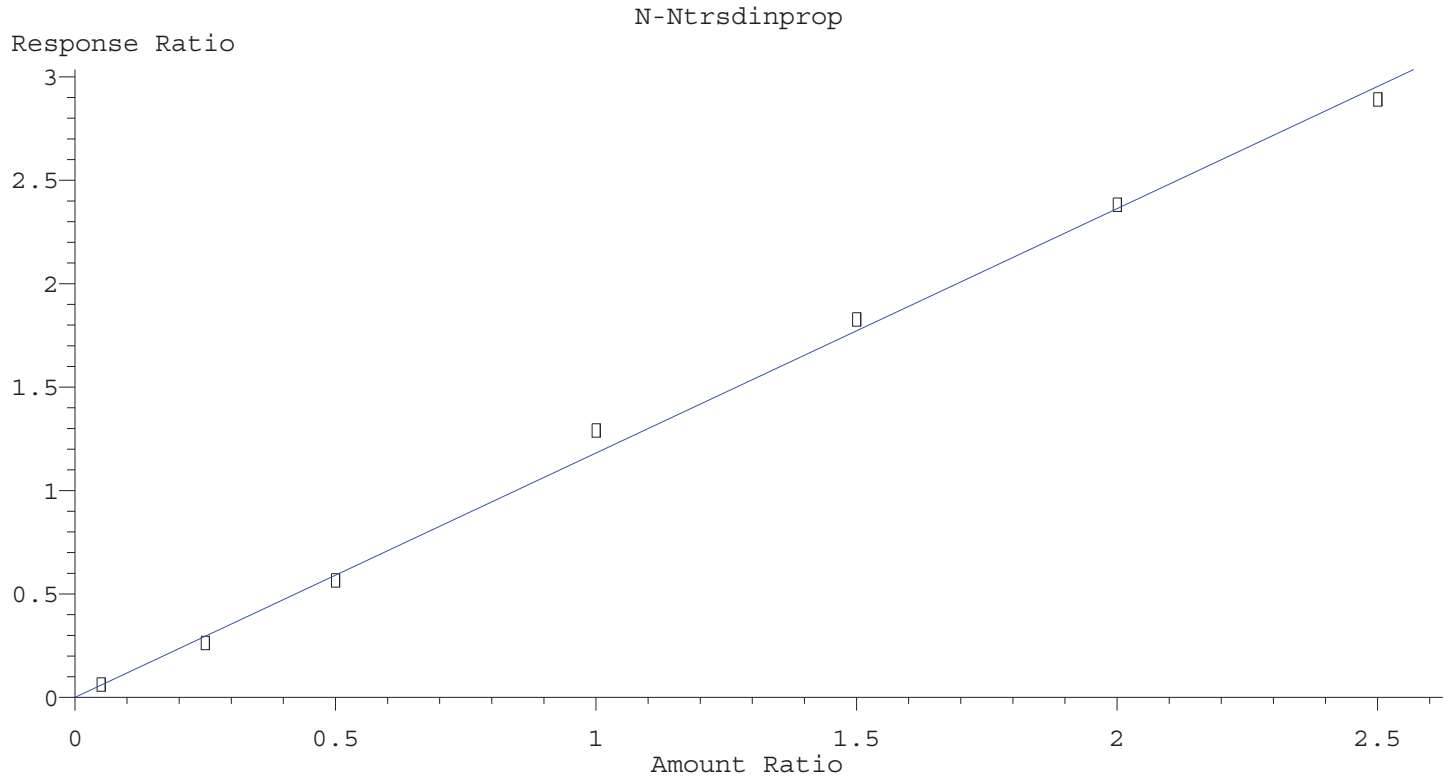
Resp Ratio = 6.824e-001 * Amt
RF Rel Std Dev = 12.885% Curve Fit: Avg RF



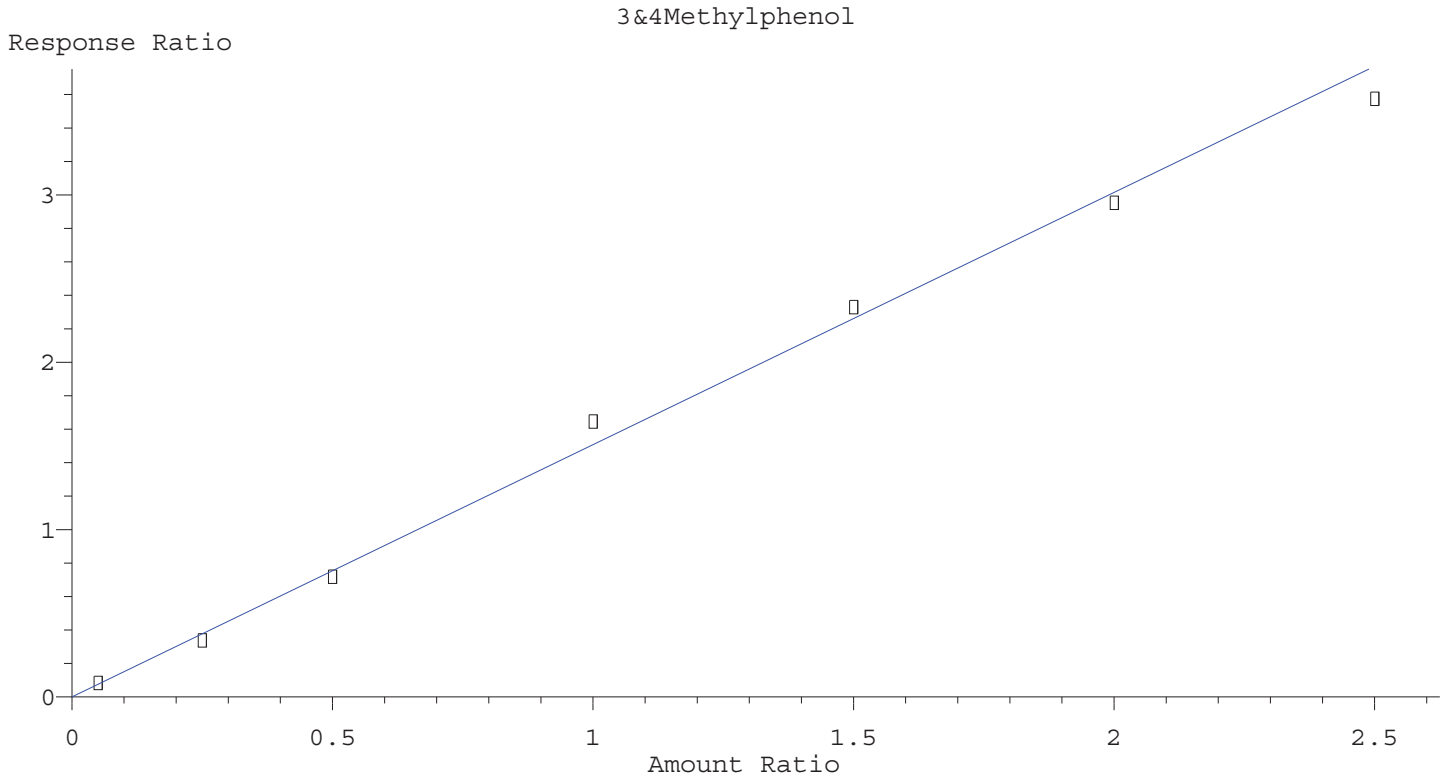
Resp Ratio = 2.096e+000 * Amt
RF Rel Std Dev = 6.756% Curve Fit: Avg RF



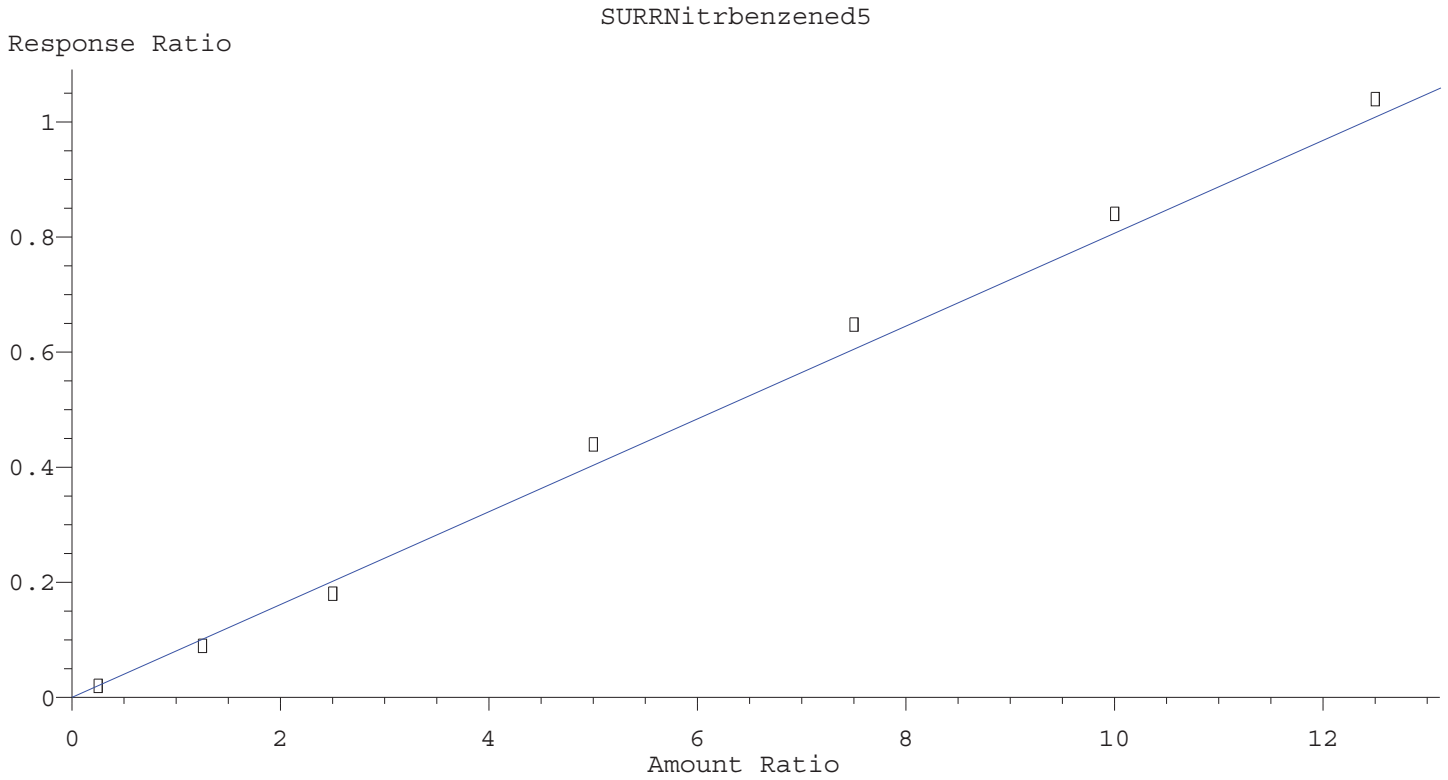
Resp Ratio = 6.746e-001 * Amt
RF Rel Std Dev = 8.169% Curve Fit: Avg RF



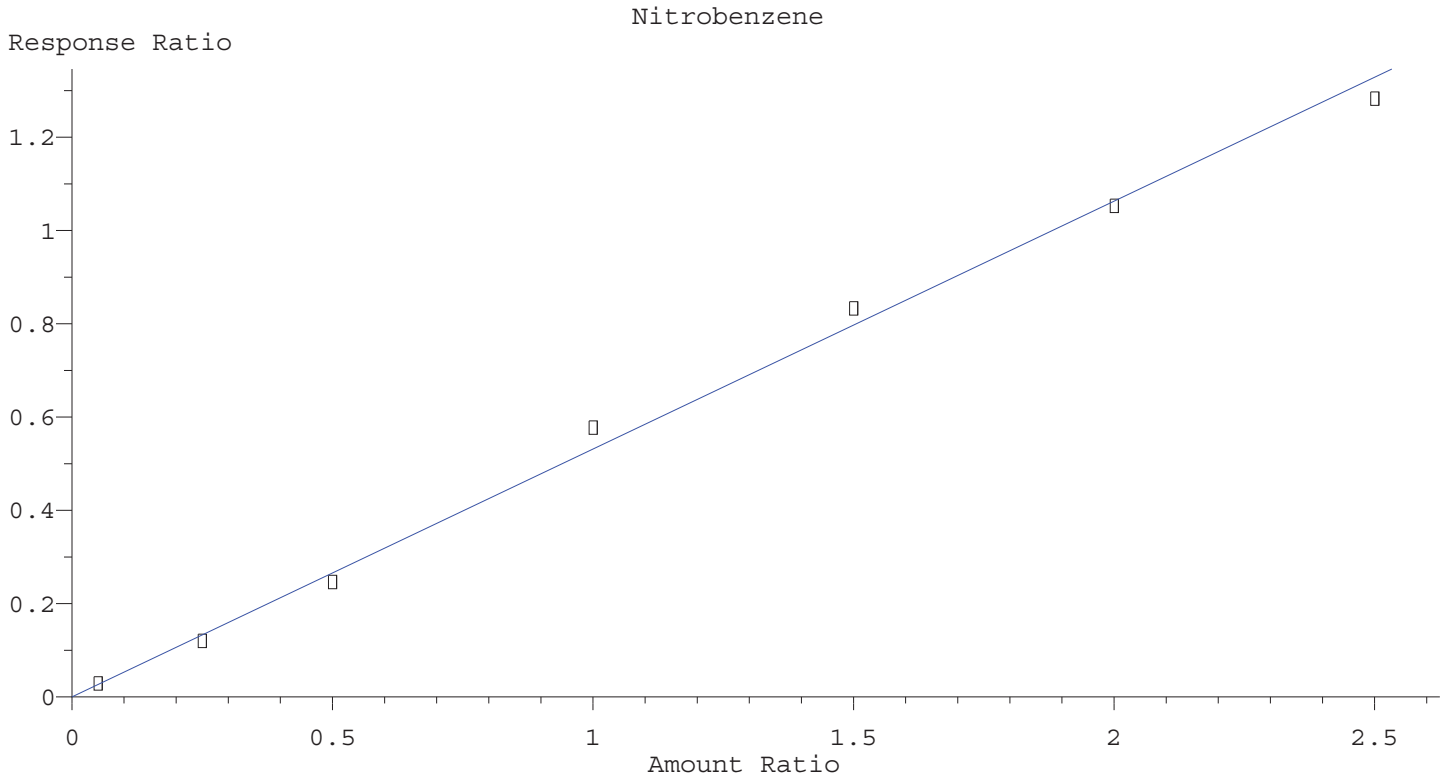
Resp Ratio = 1.182e+000 * Amt
RF Rel Std Dev = 6.585% Curve Fit: Avg RF



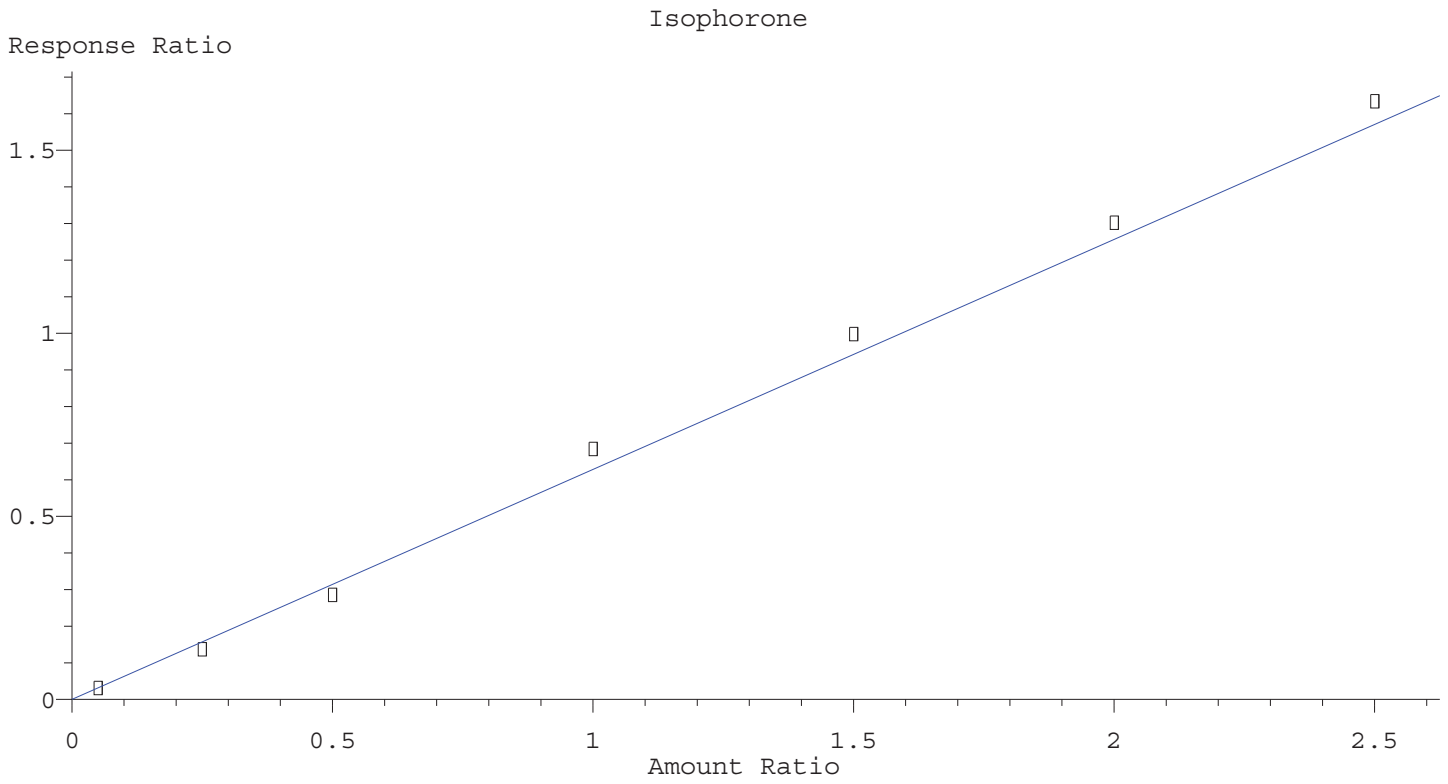
Resp Ratio = 1.508e+000 * Amt
RF Rel Std Dev = 7.816% Curve Fit: Avg RF



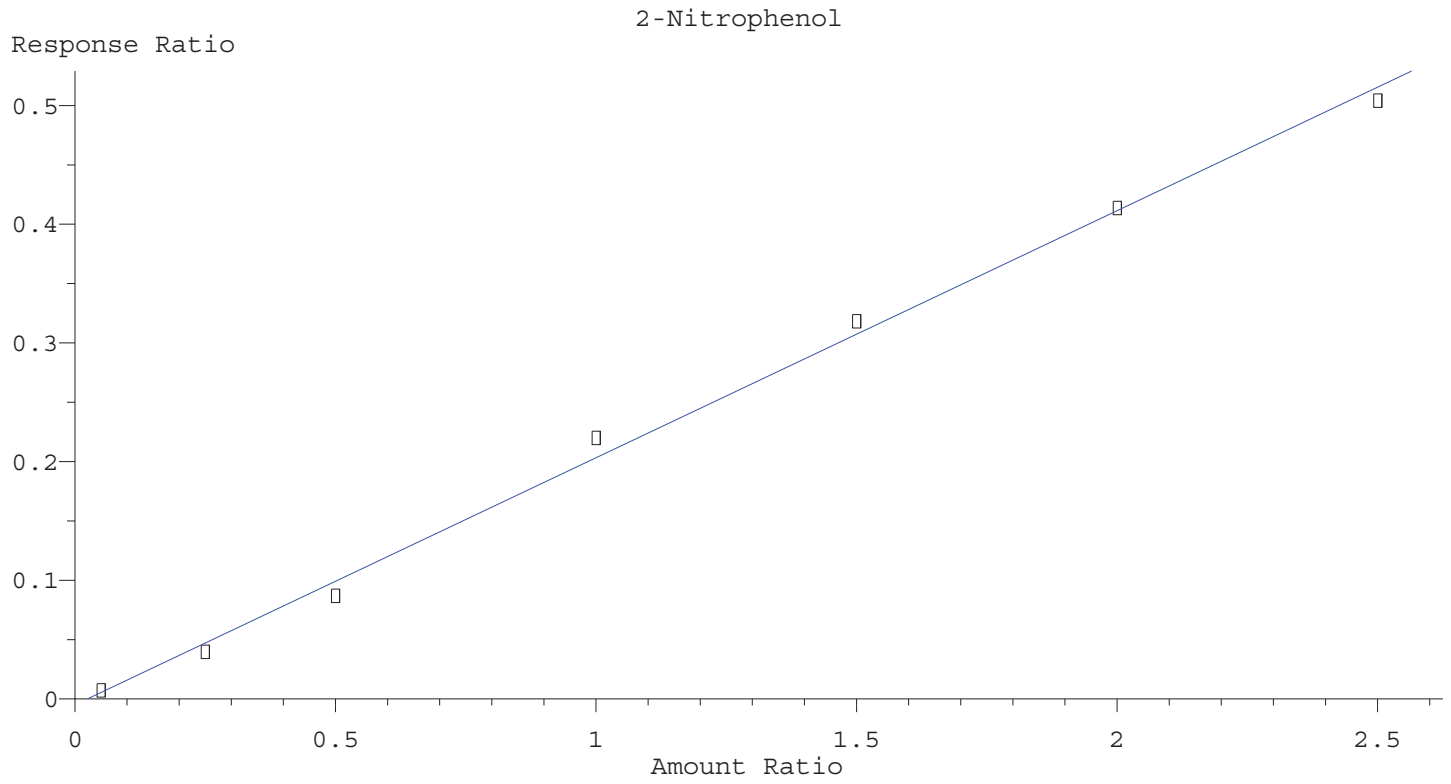
Resp Ratio = 8.072e-002 * Amt
RF Rel Std Dev = 8.147% Curve Fit: Avg RF



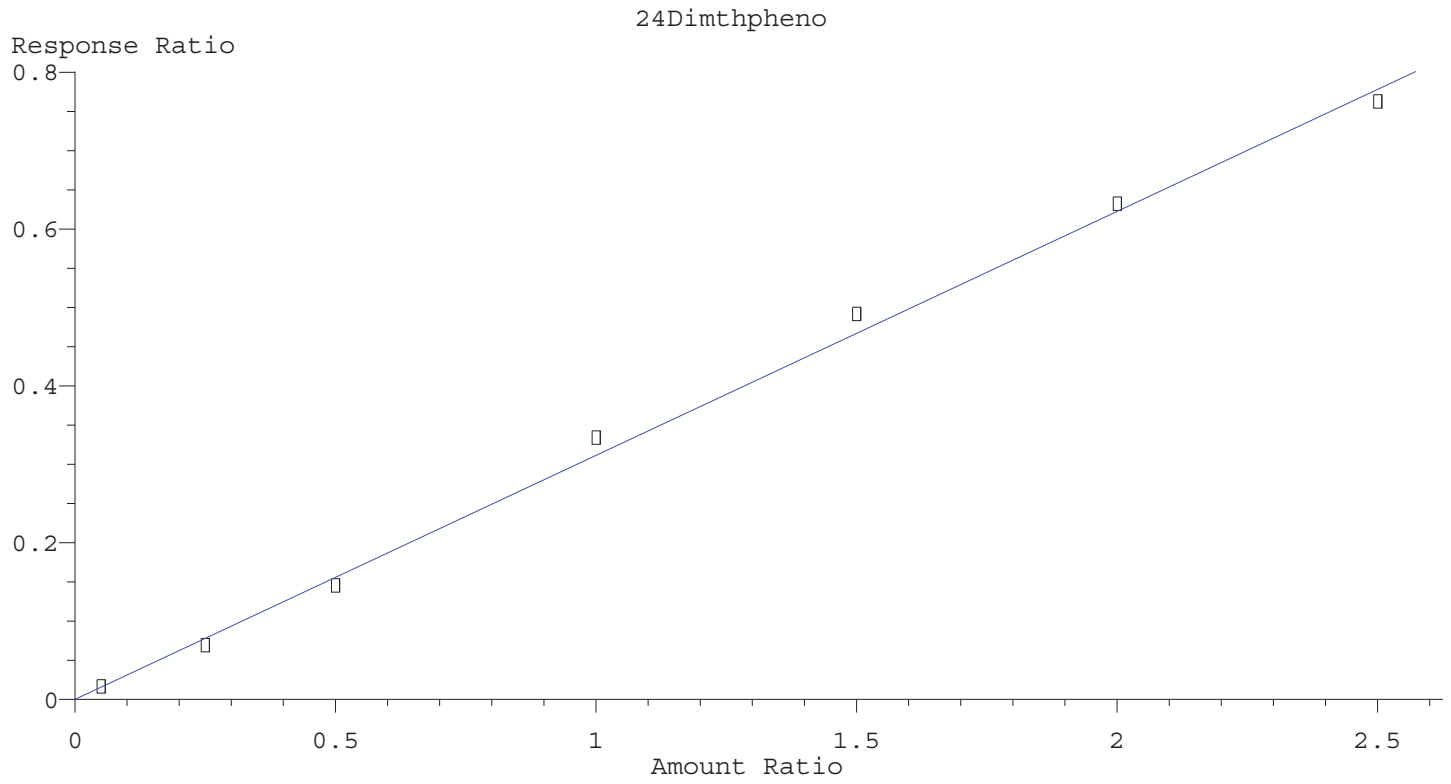
Resp Ratio = 5.318e-001 * Amt
RF Rel Std Dev = 7.434% Curve Fit: Avg RF



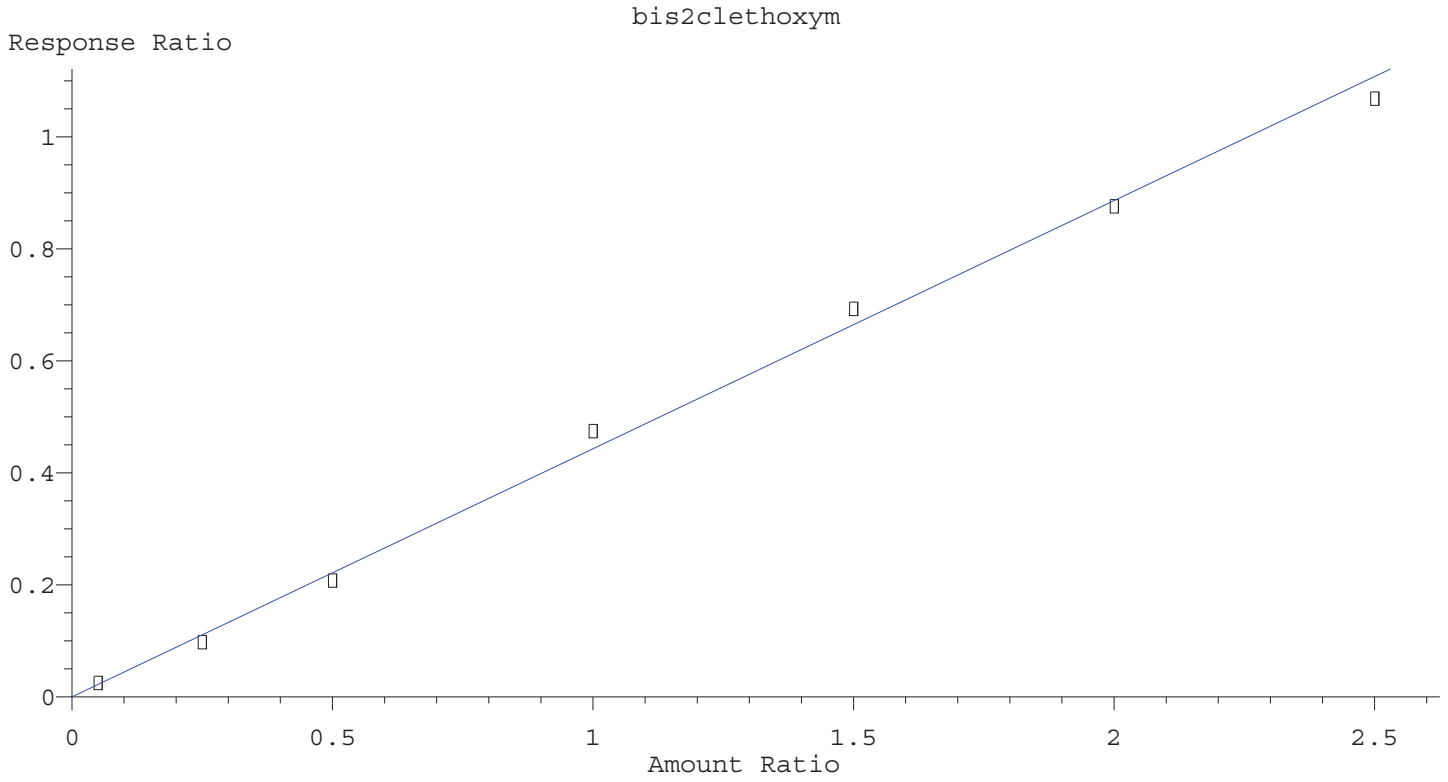
Resp Ratio = 6.281e-001 * Amt
RF Rel Std Dev = 8.092% Curve Fit: Avg RF



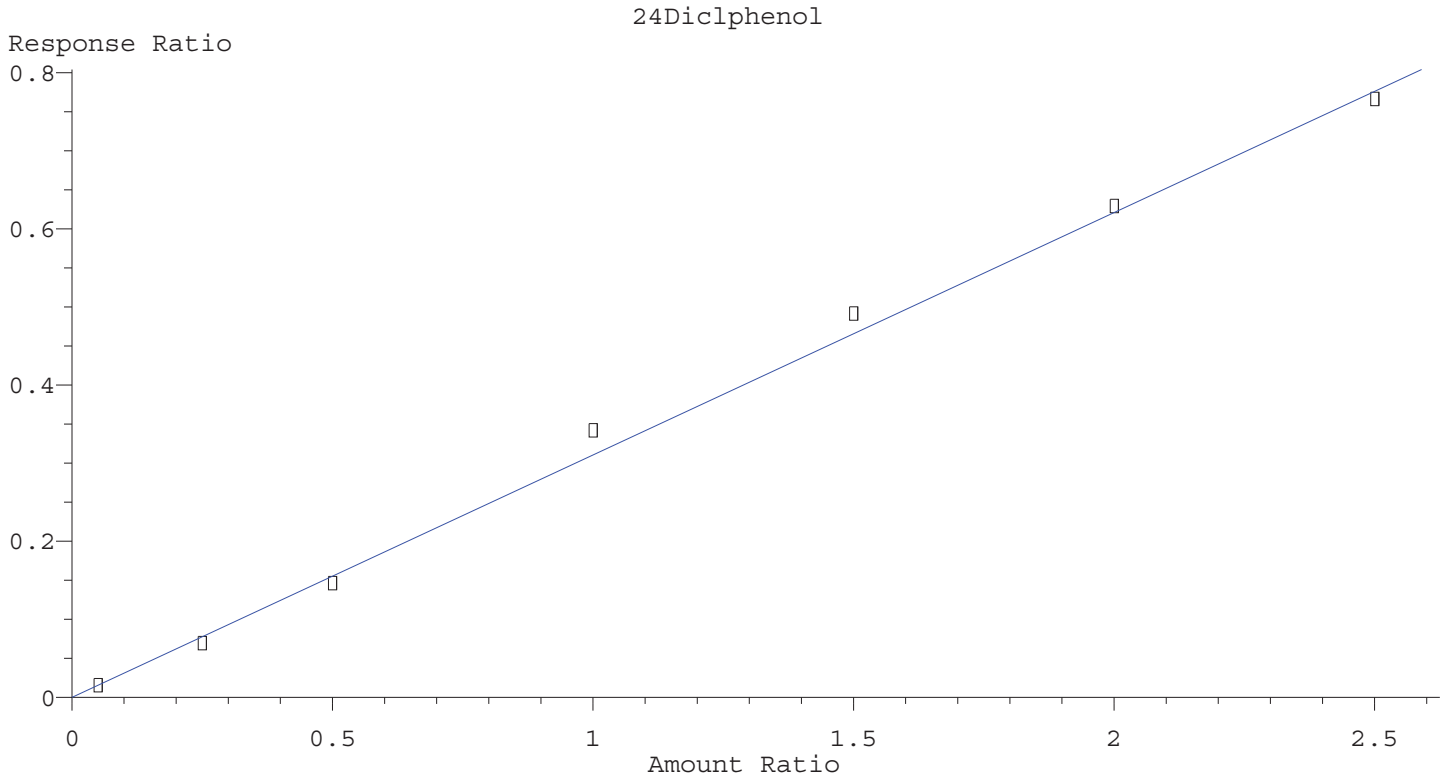
Resp Ratio = 2.083e-001 * Amt - 5.033e-003
Coef of Det (r^2) = 0.997 Curve Fit: Linear



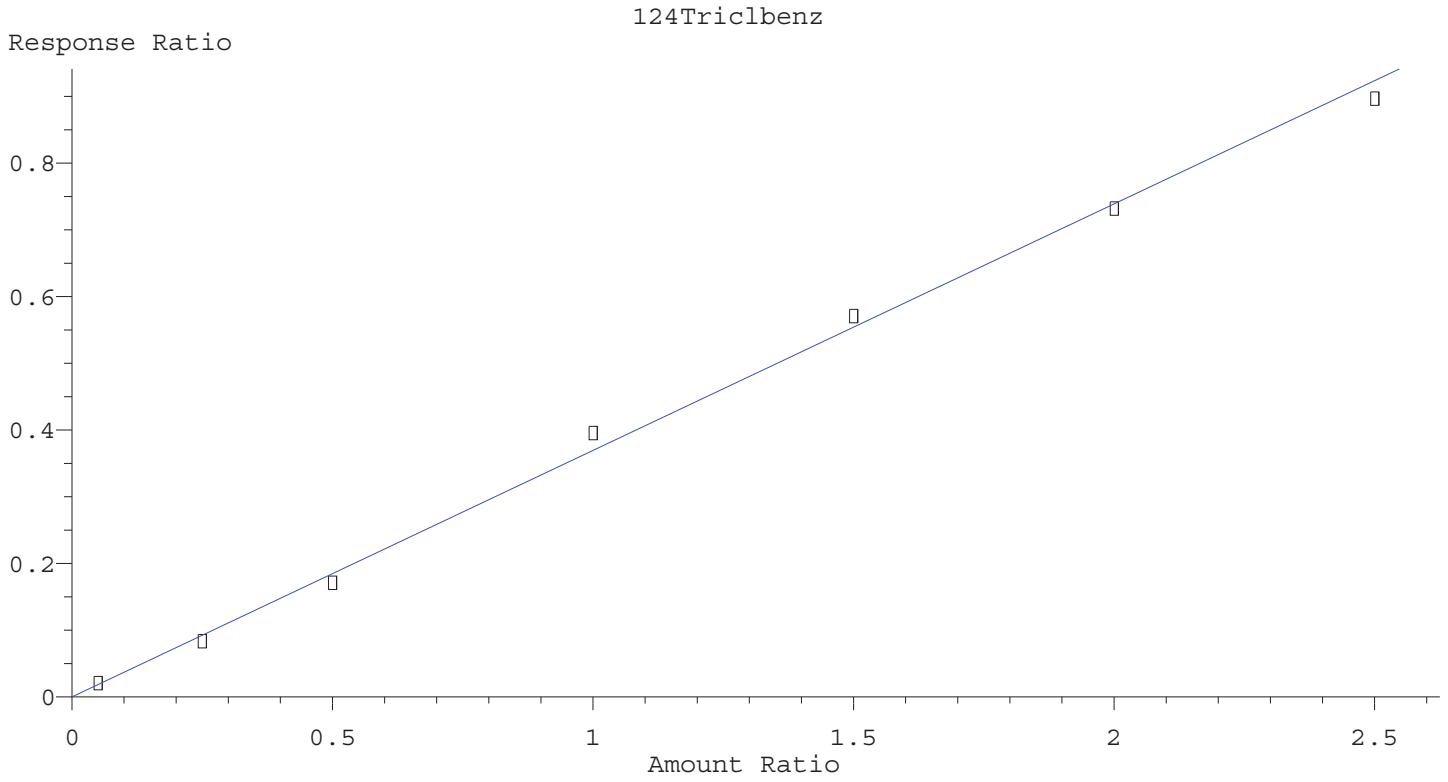
Resp Ratio = 3.113e-001 * Amt
RF Rel Std Dev = 6.915% Curve Fit: Avg RF



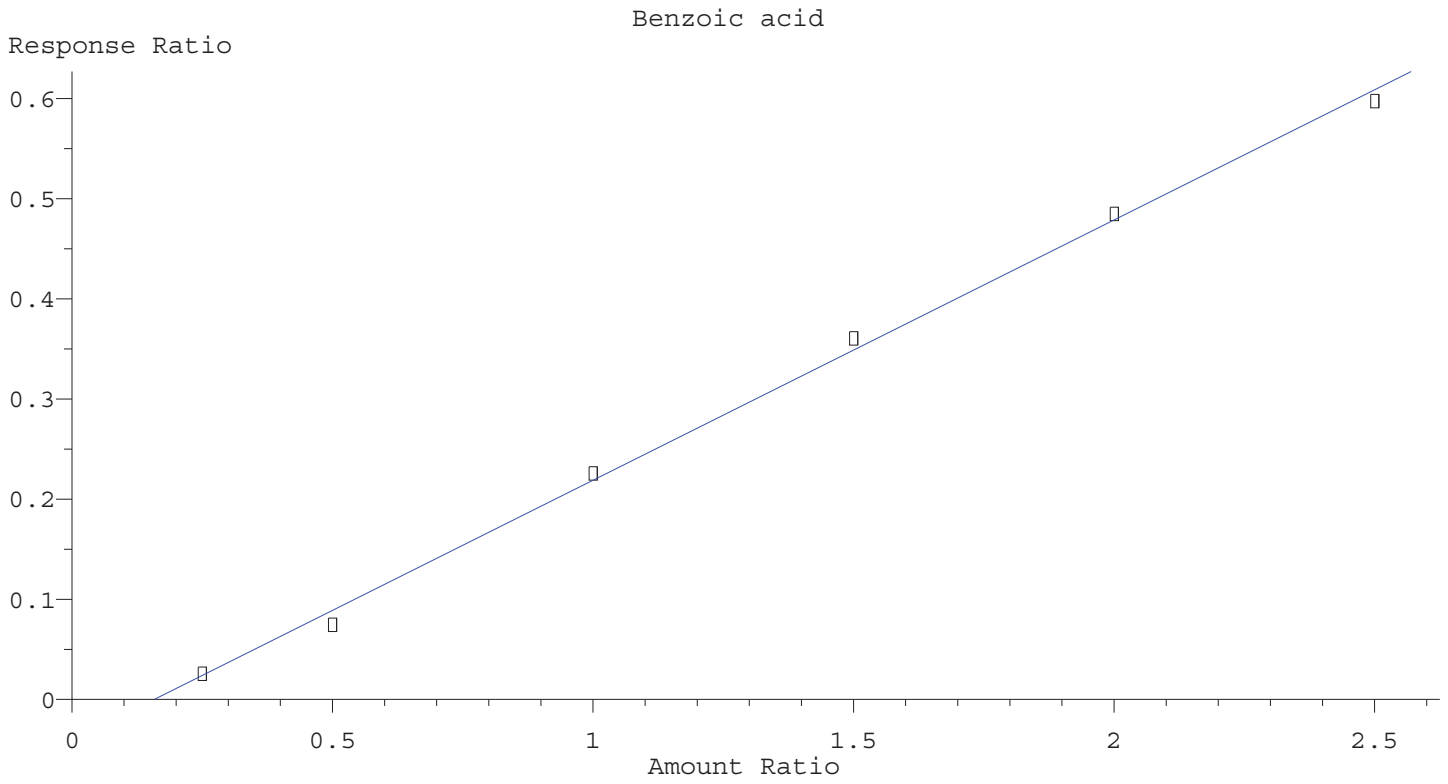
Resp Ratio = 4.433e-001 * Amt
RF Rel Std Dev = 8.081% Curve Fit: Avg RF



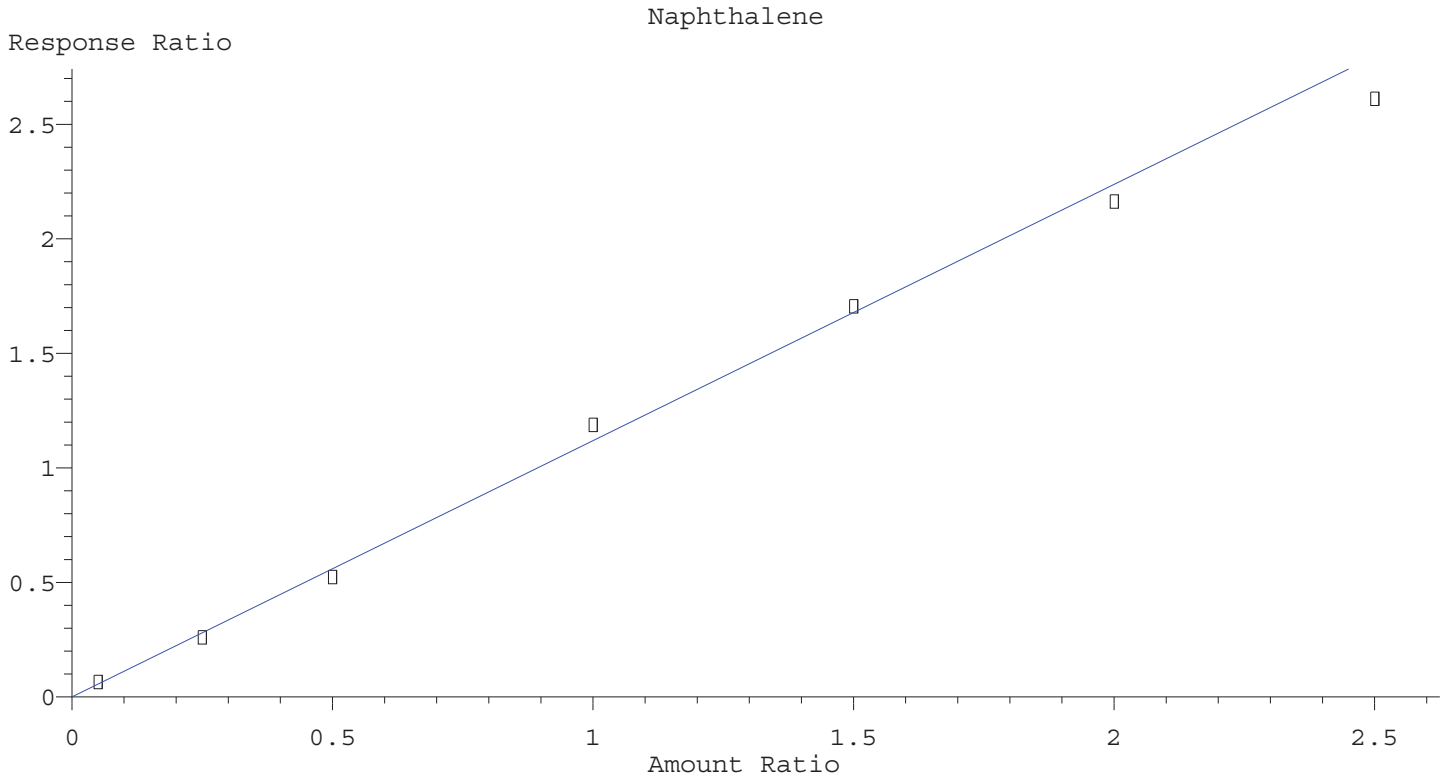
Resp Ratio = 3.106e-001 * Amt
RF Rel Std Dev = 6.874% Curve Fit: Avg RF



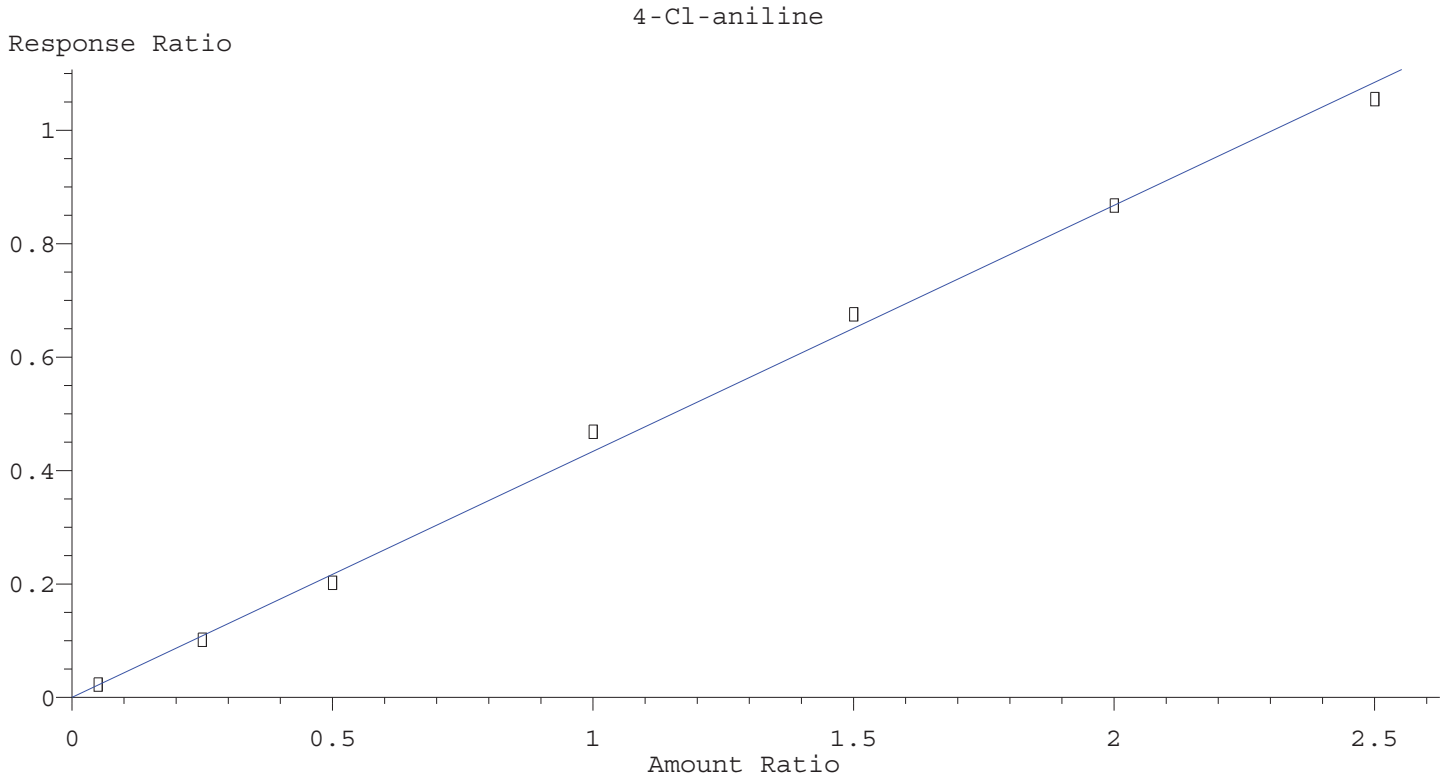
Resp Ratio = 3.696e-001 * Amt
RF Rel Std Dev = 7.551% Curve Fit: Avg RF



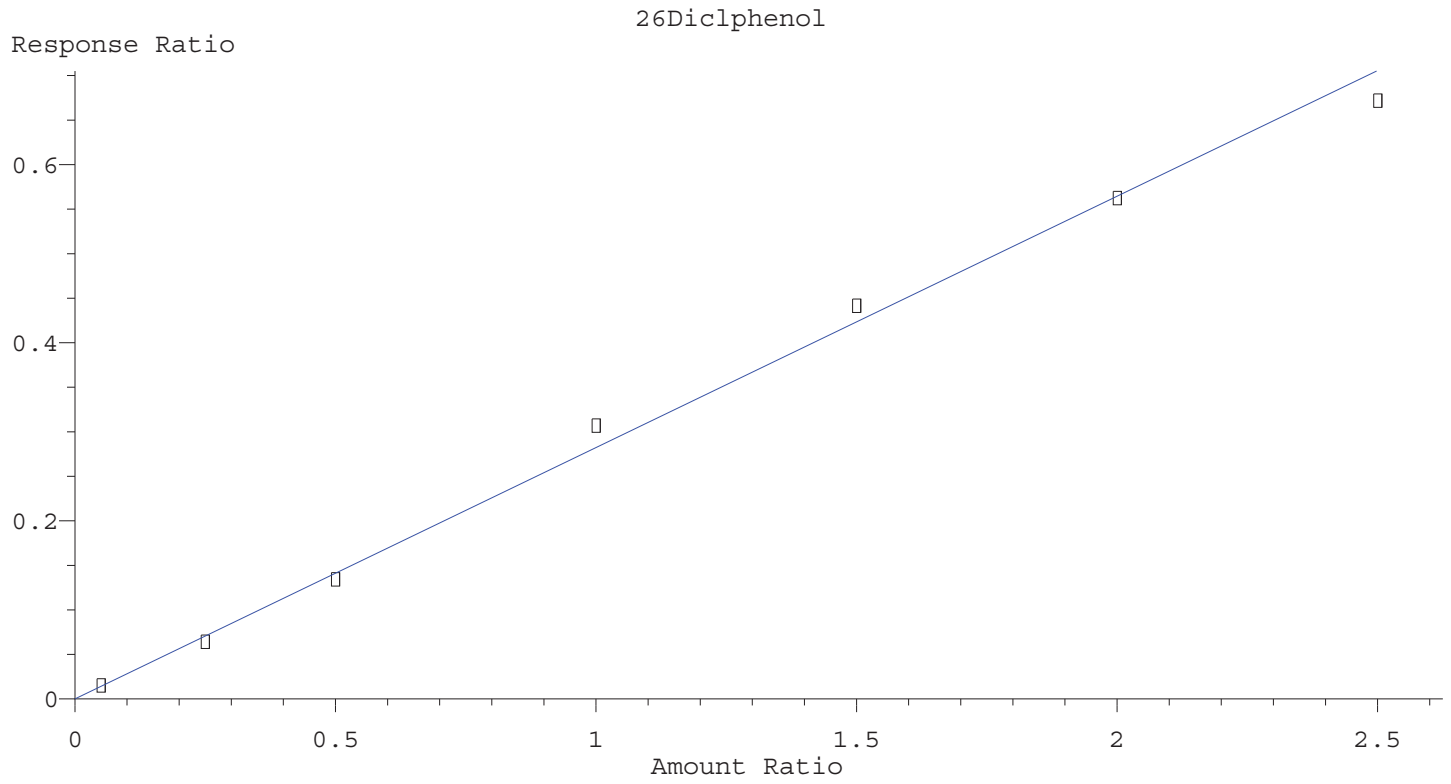
Resp Ratio = 2.601e-001 * Amt - 4.118e-002
Coef of Det (r^2) = 0.998 Curve Fit: Linear



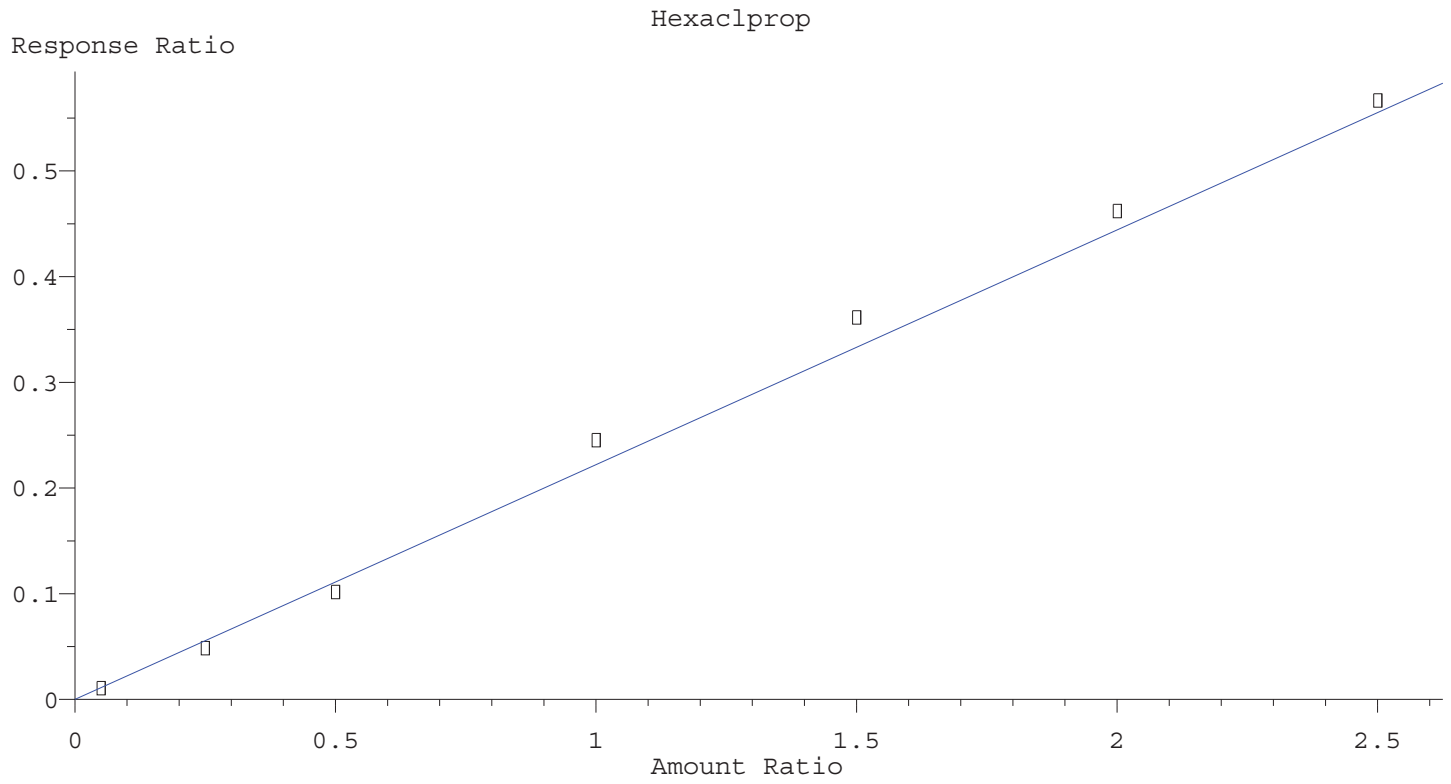
Resp Ratio = 1.119e+000 * Amt
RF Rel Std Dev = 8.501% Curve Fit: Avg RF



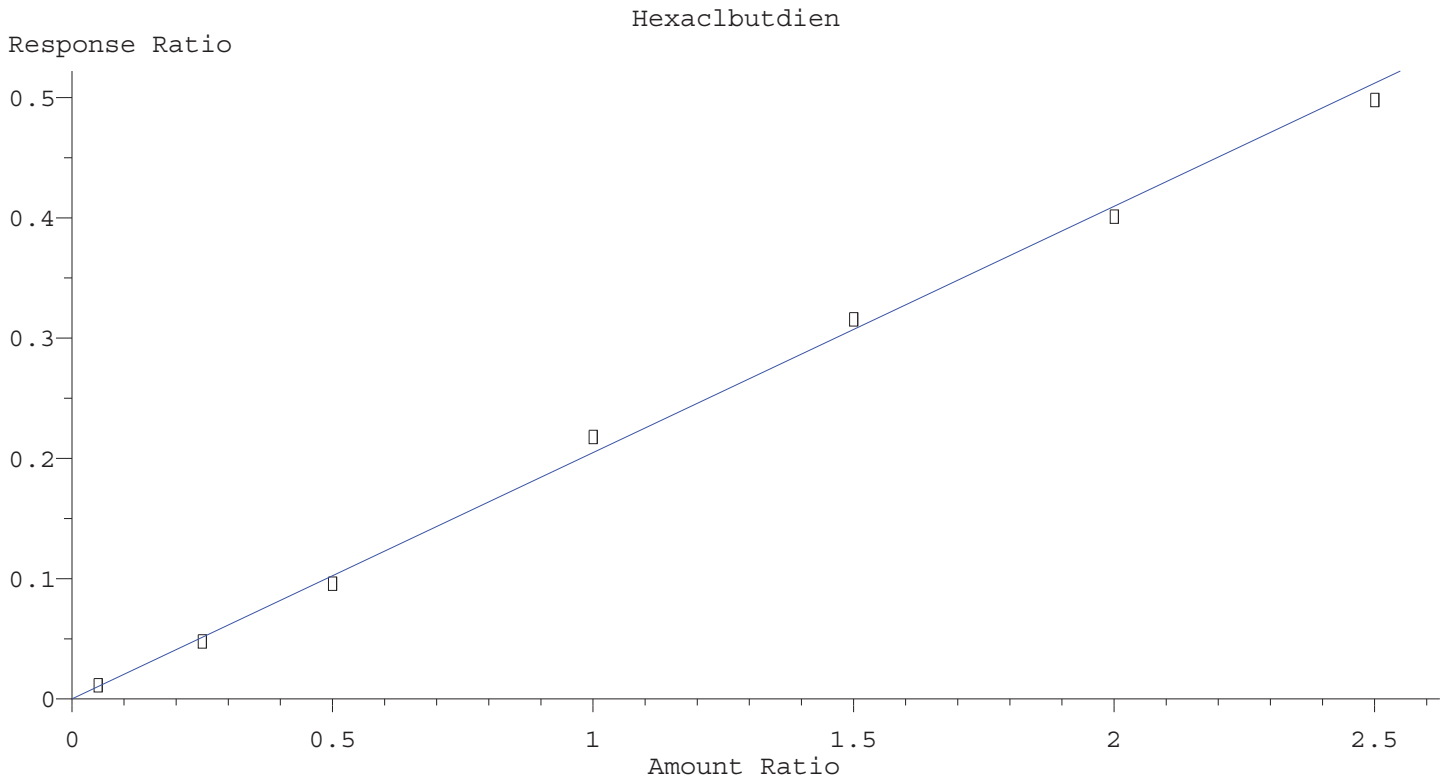
Resp Ratio = 4.339e-001 * Amt
RF Rel Std Dev = 5.675% Curve Fit: Avg RF



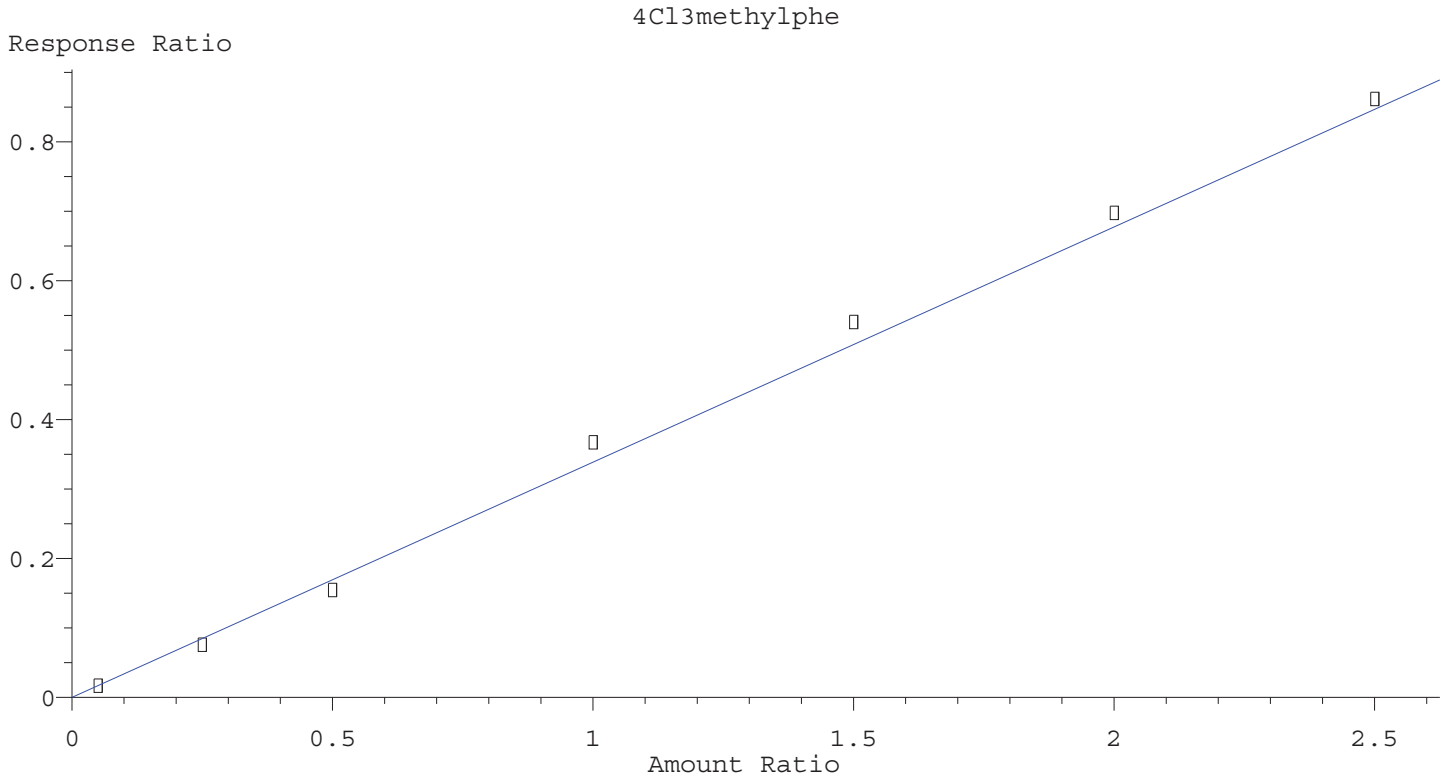
Resp Ratio = 2.824e-001 * Amt
RF Rel Std Dev = 6.612% Curve Fit: Avg RF



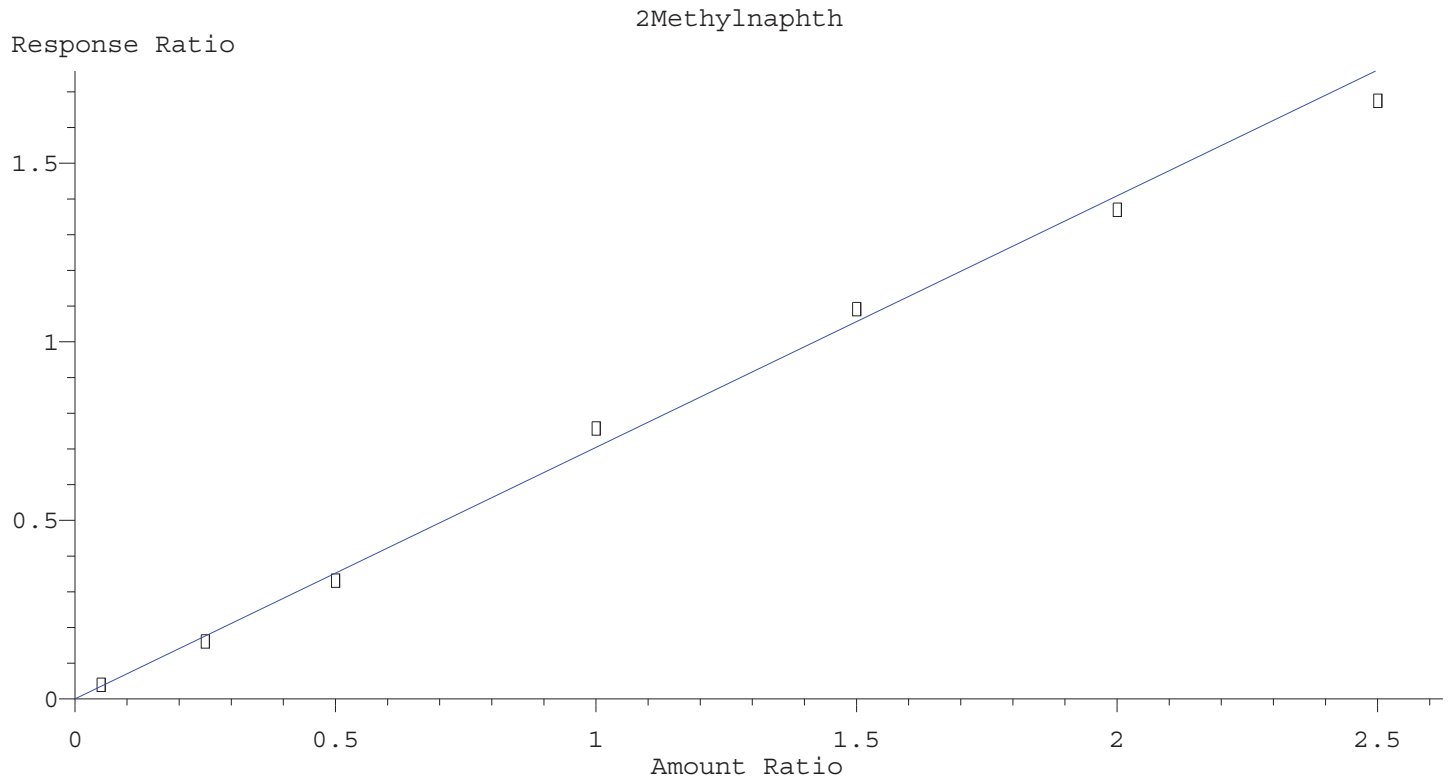
Resp Ratio = 2.220e-001 * Amt
RF Rel Std Dev = 8.697% Curve Fit: Avg RF



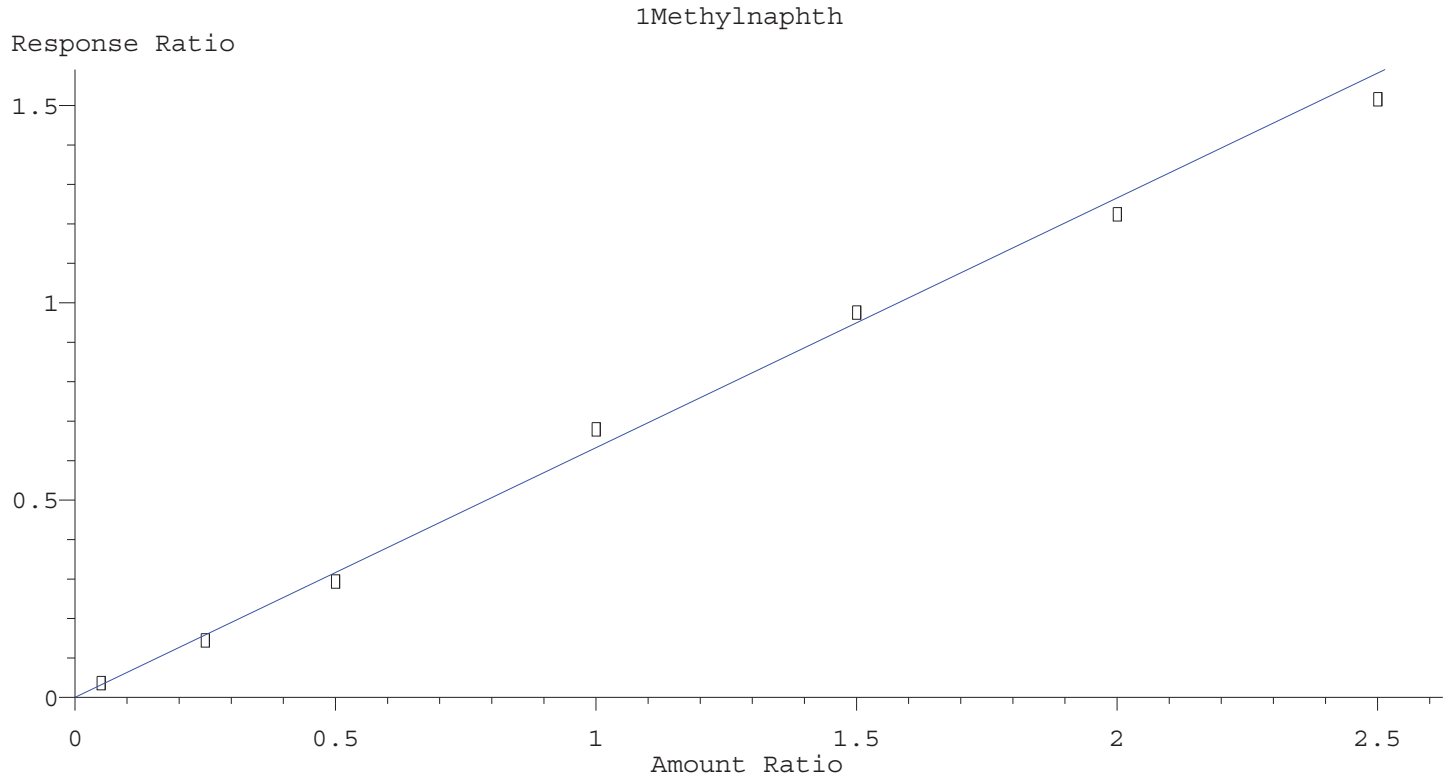
Resp Ratio = 2.052e-001 * Amt
RF Rel Std Dev = 6.397% Curve Fit: Avg RF



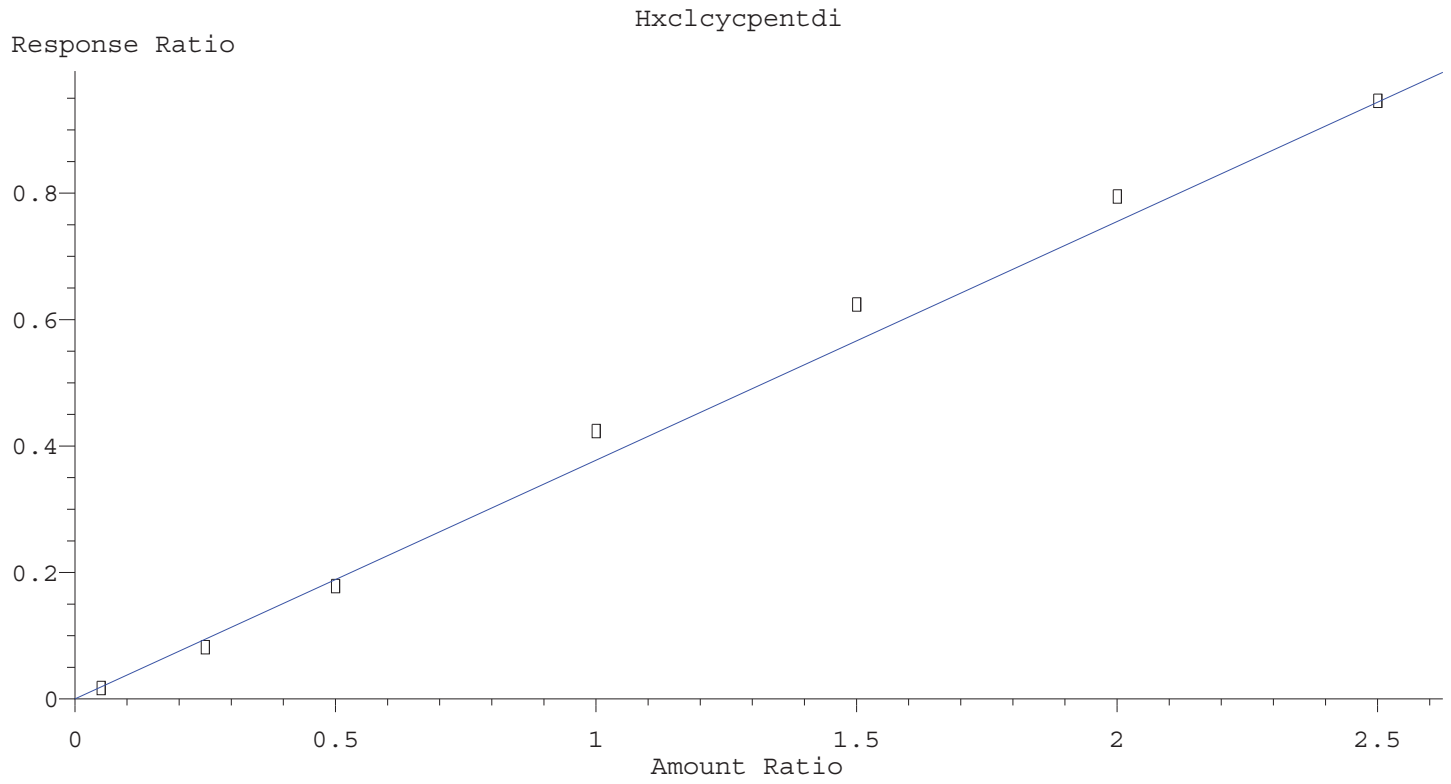
Resp Ratio = 3.386e-001 * Amt
RF Rel Std Dev = 7.208% Curve Fit: Avg RF



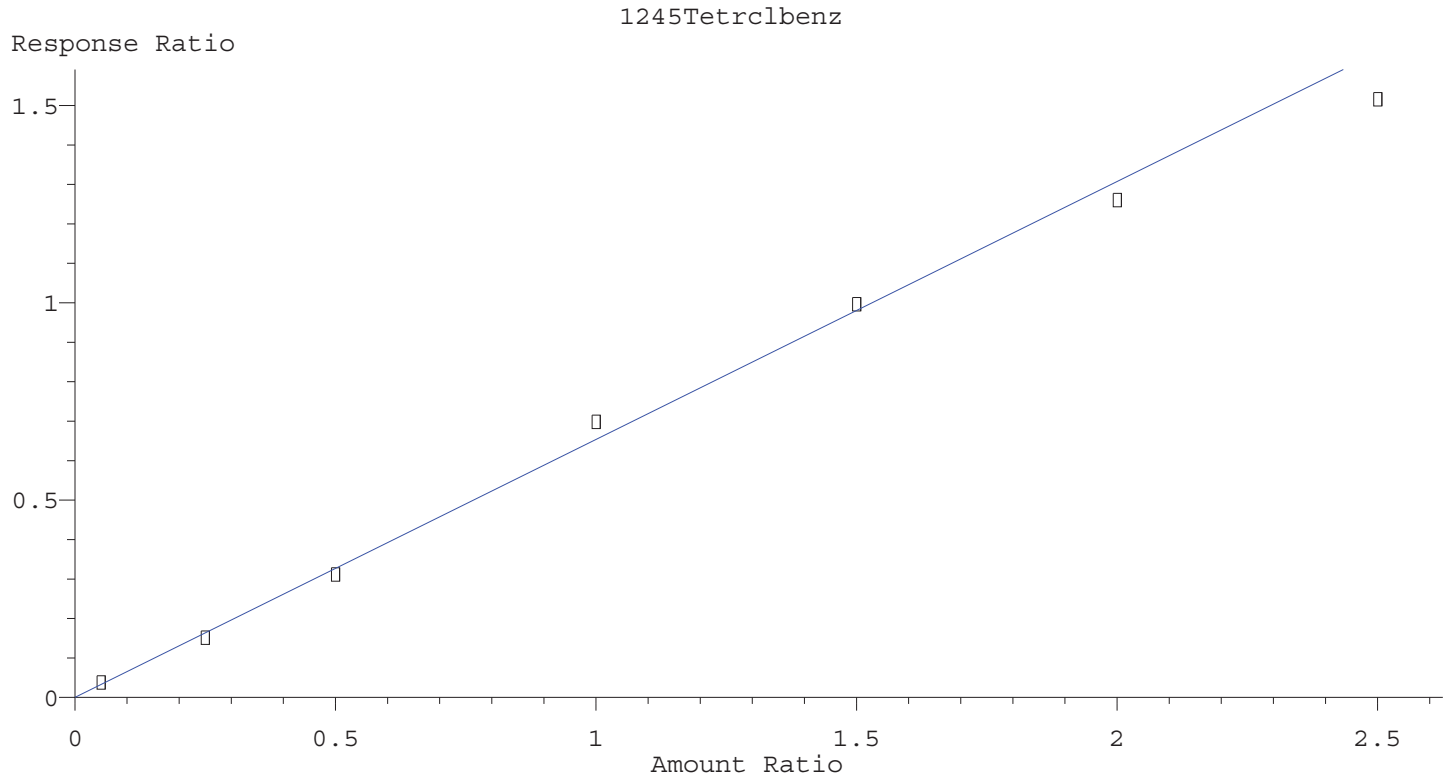
Resp Ratio = 7.044e-001 * Amt
RF Rel Std Dev = 7.592% Curve Fit: Avg RF



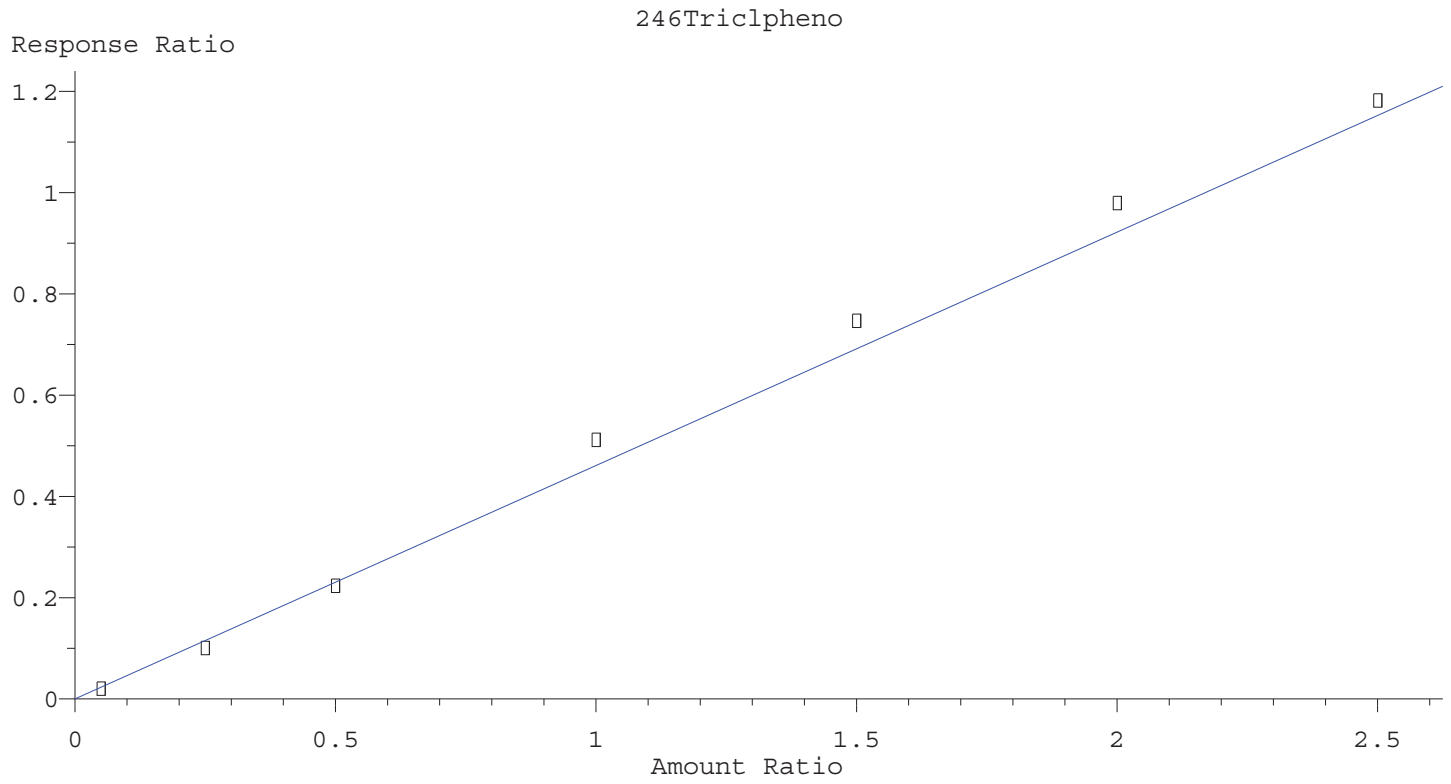
Resp Ratio = 6.331e-001 * Amt
RF Rel Std Dev = 8.277% Curve Fit: Avg RF



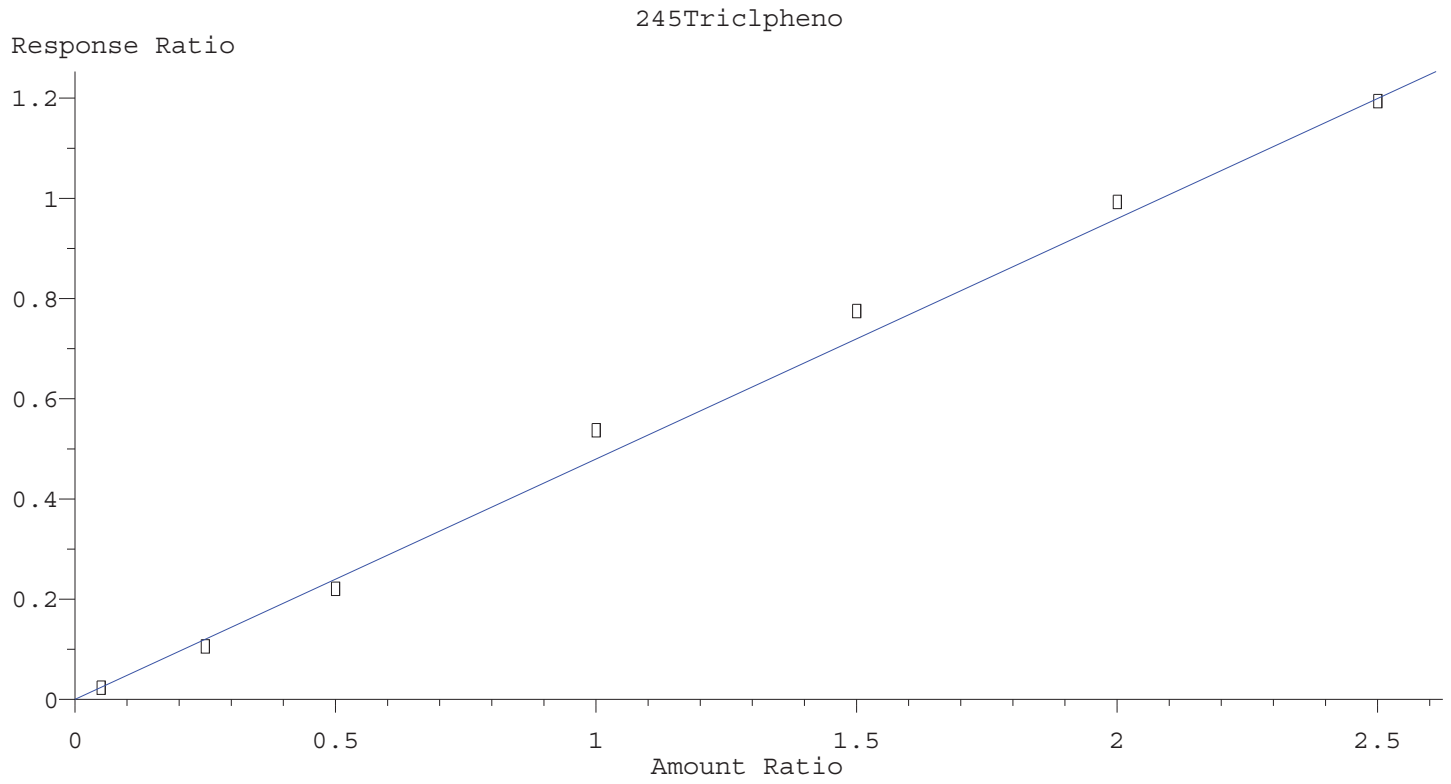
Resp Ratio = 3.776e-001 * Amt
RF Rel Std Dev = 9.719% Curve Fit: Avg RF



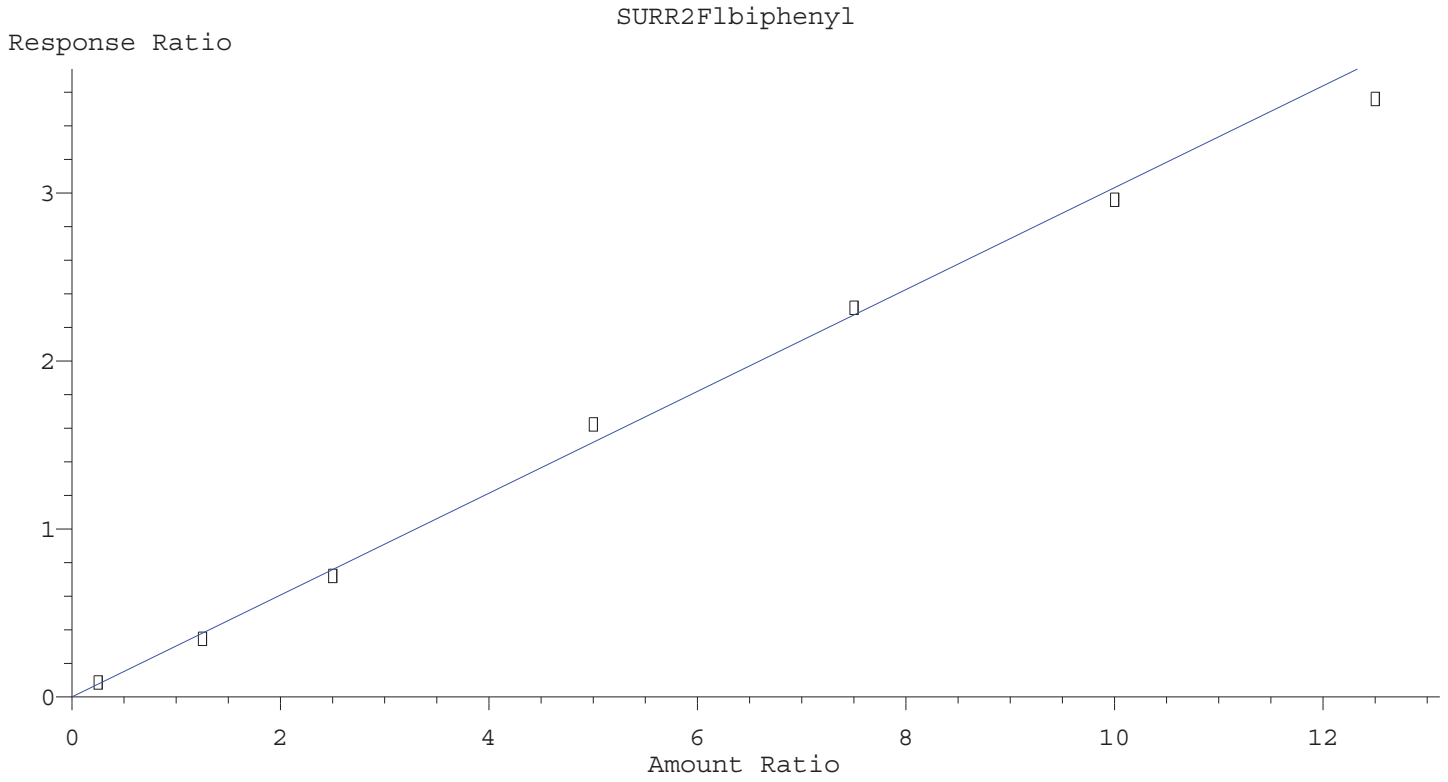
Resp Ratio = 6.539e-001 * Amt
RF Rel Std Dev = 8.355% Curve Fit: Avg RF



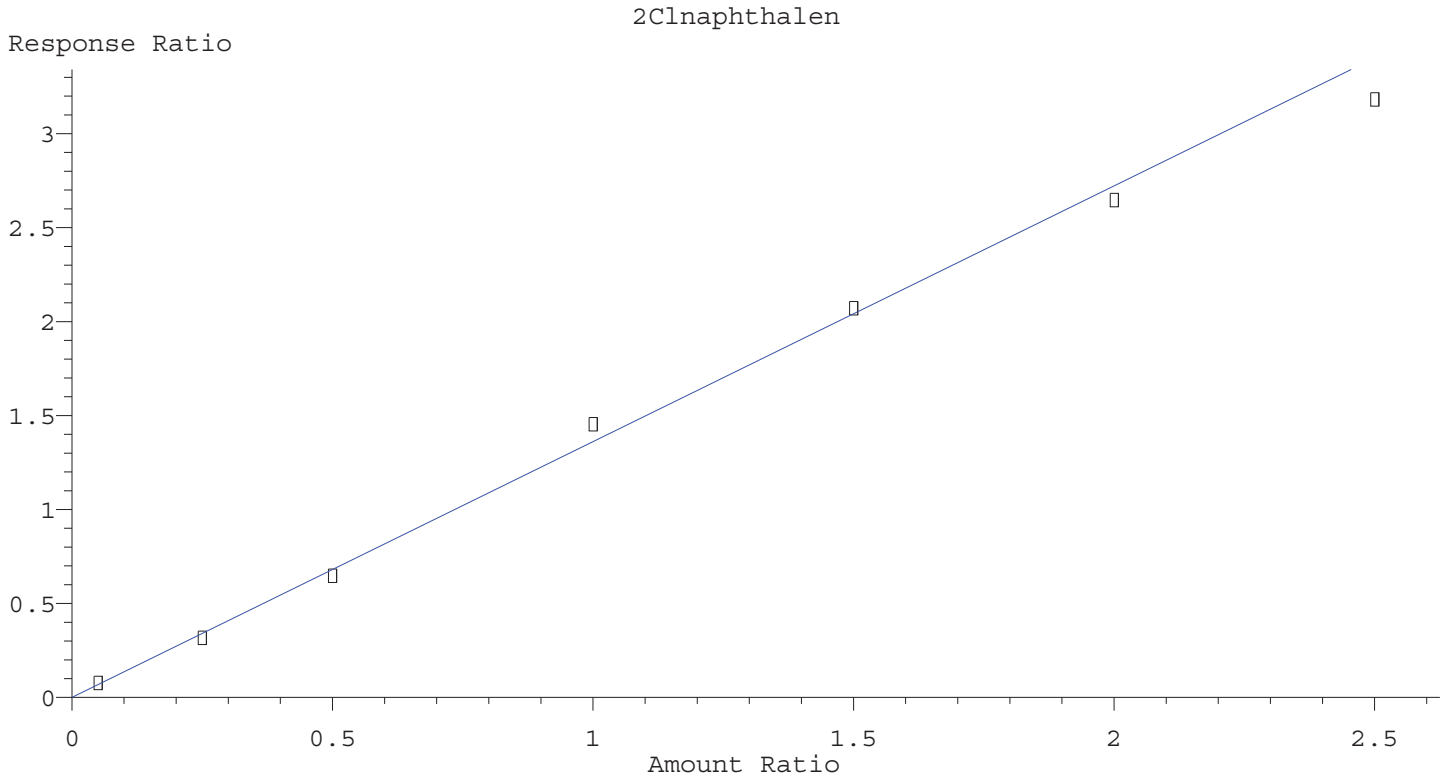
Resp Ratio = 4.608e-001 * Amt
RF Rel Std Dev = 9.578% Curve Fit: Avg RF



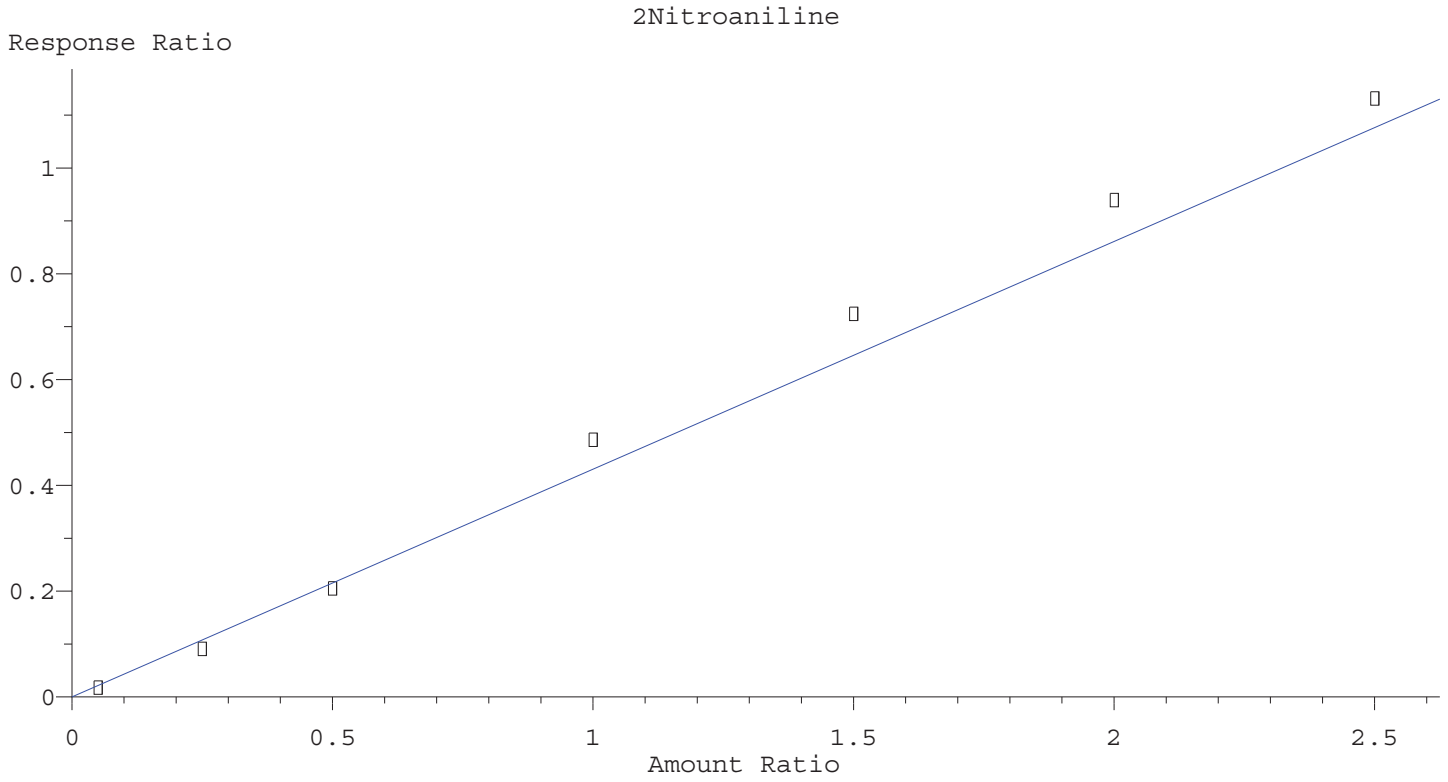
Resp Ratio = 4.800e-001 * Amt
RF Rel Std Dev = 8.377% Curve Fit: Avg RF



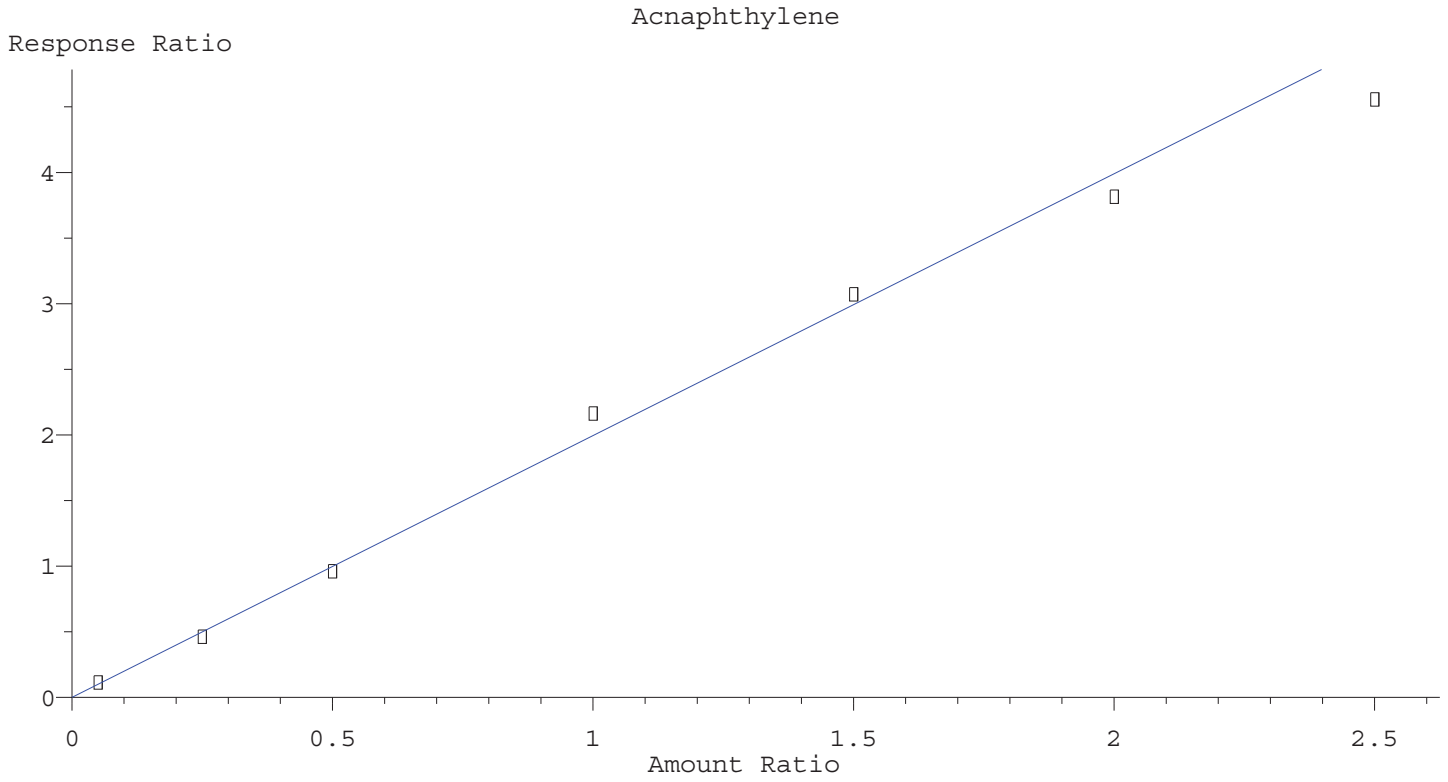
Resp Ratio = 3.033e-001 * Amt
RF Rel Std Dev = 7.868% Curve Fit: Avg RF



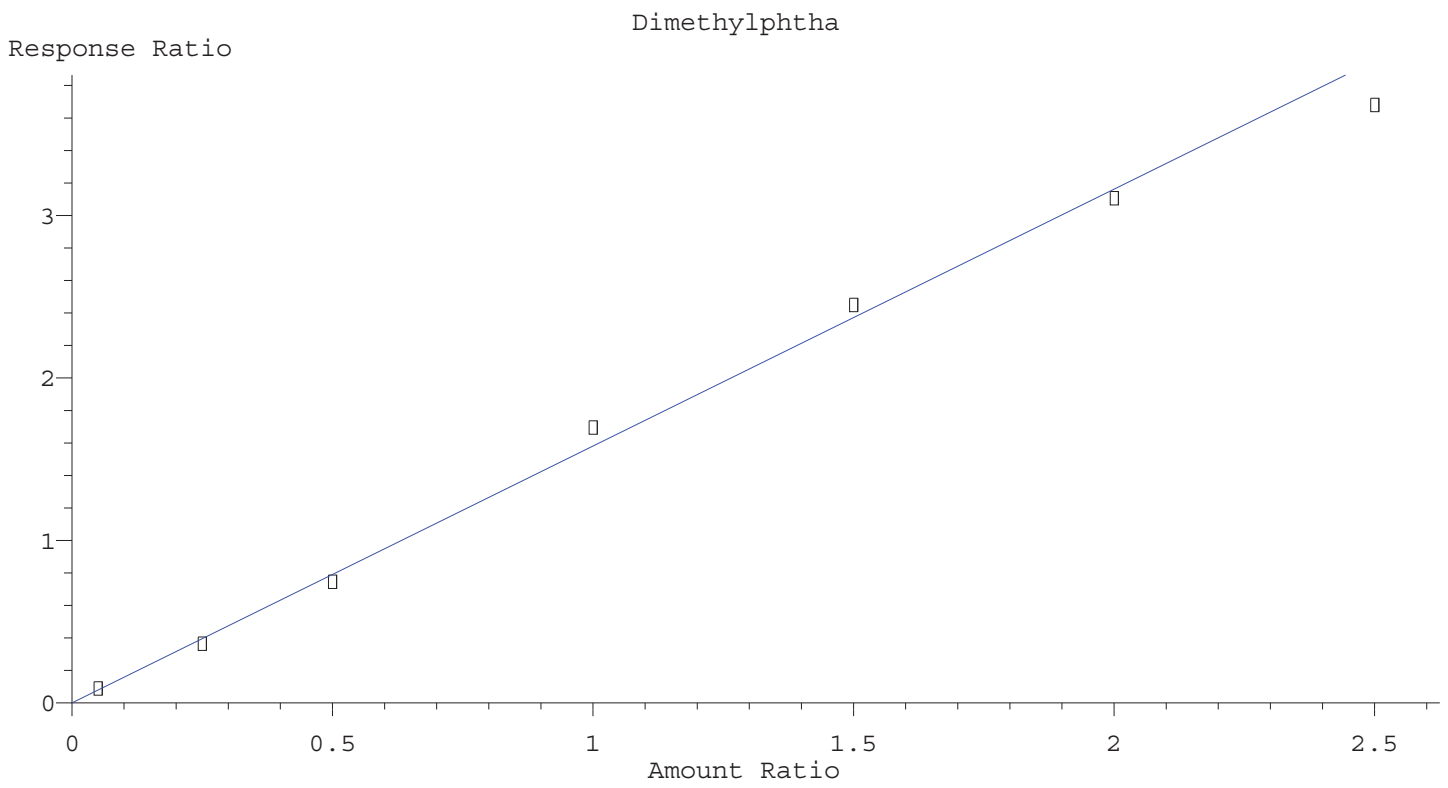
Resp Ratio = 1.361e+000 * Amt
RF Rel Std Dev = 7.499% Curve Fit: Avg RF



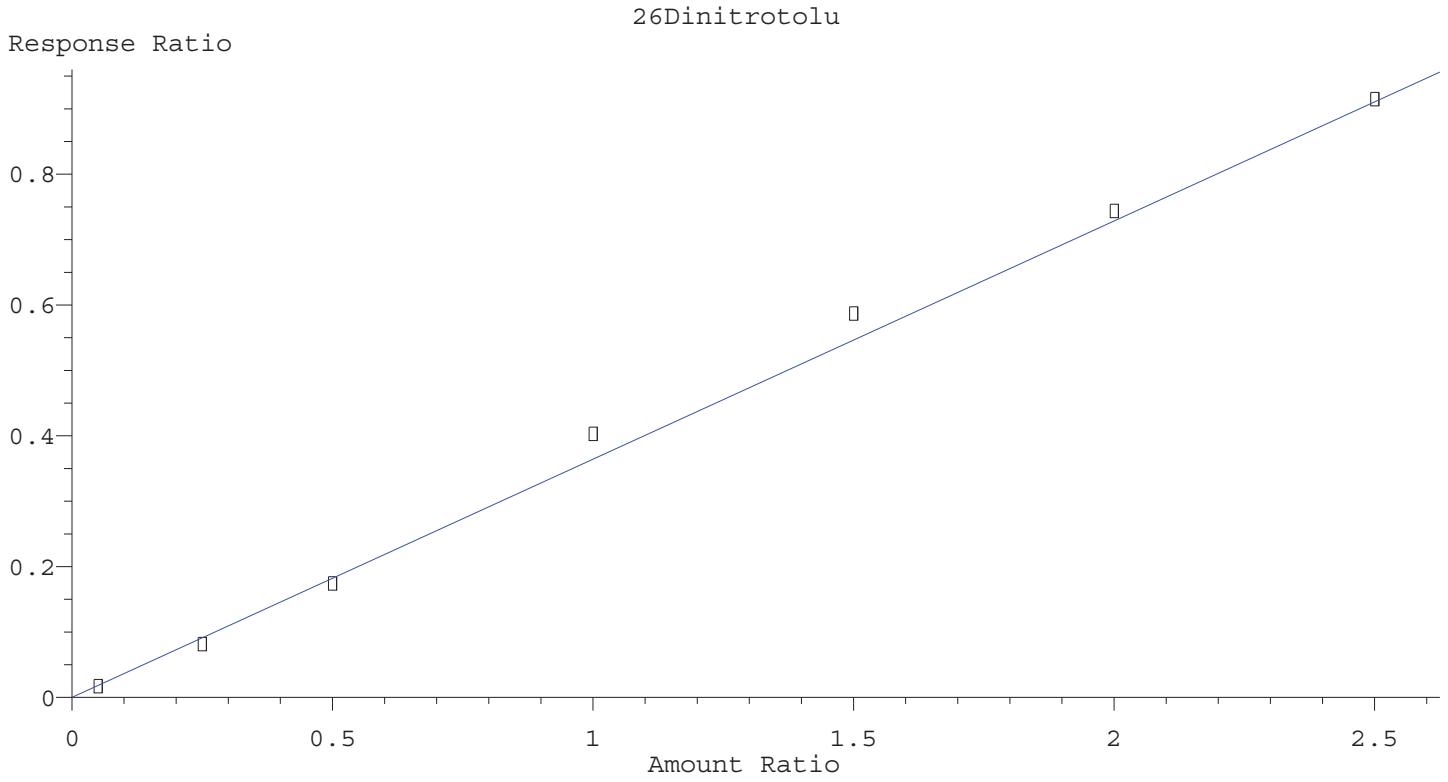
Resp Ratio = 4.304e-001 * Amt
RF Rel Std Dev = 13.266% Curve Fit: Avg RF



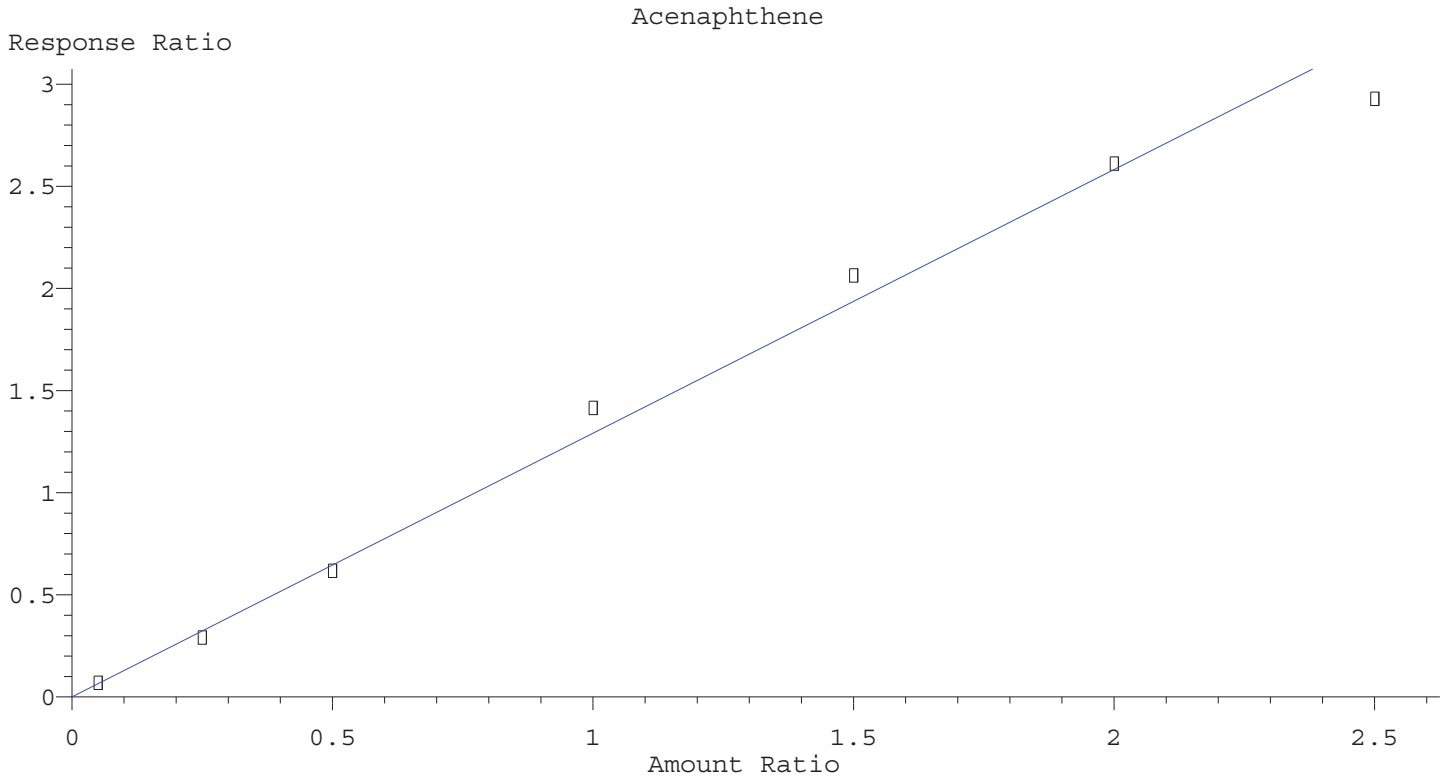
Resp Ratio = 1.995e+000 * Amt
RF Rel Std Dev = 8.273% Curve Fit: Avg RF



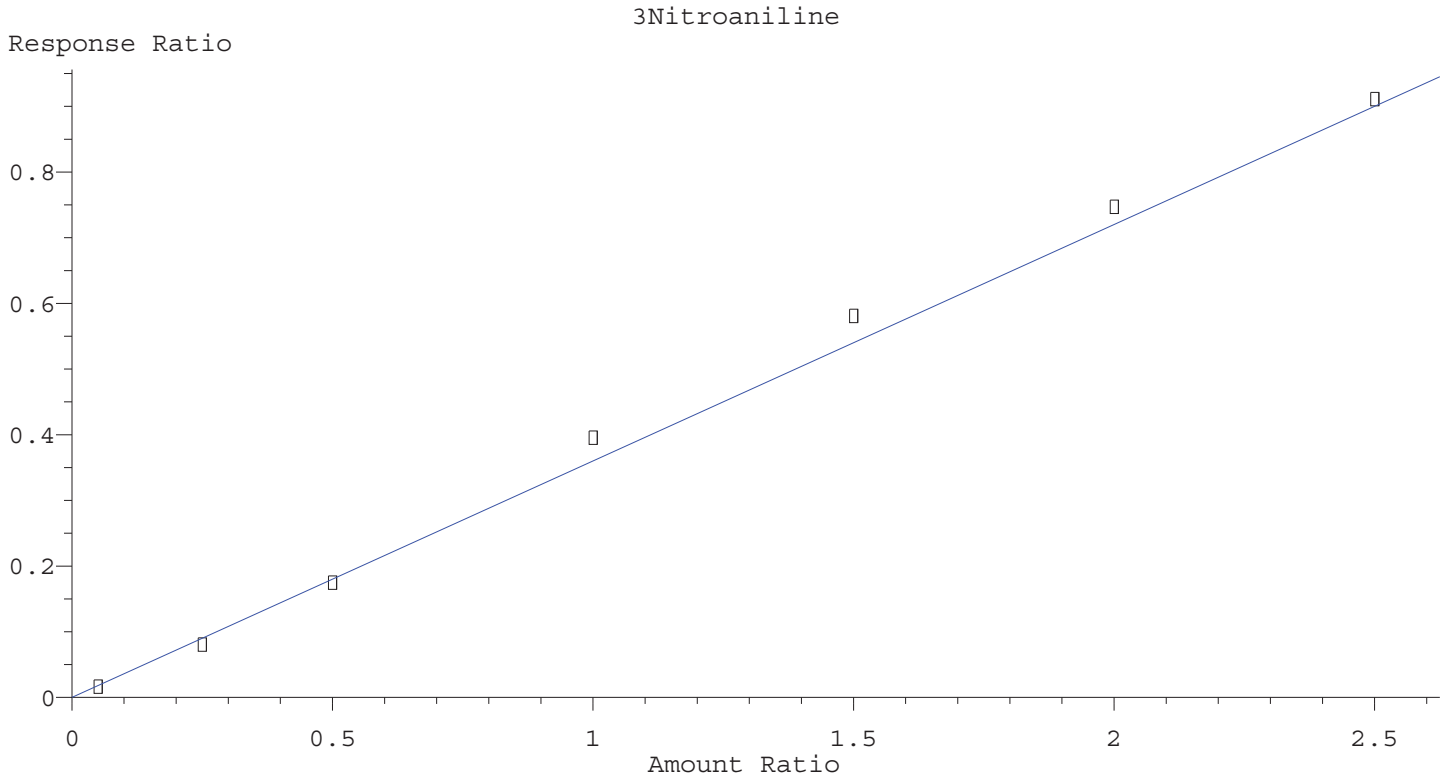
Resp Ratio = 1.581e+000 * Amt
RF Rel Std Dev = 7.546% Curve Fit: Avg RF



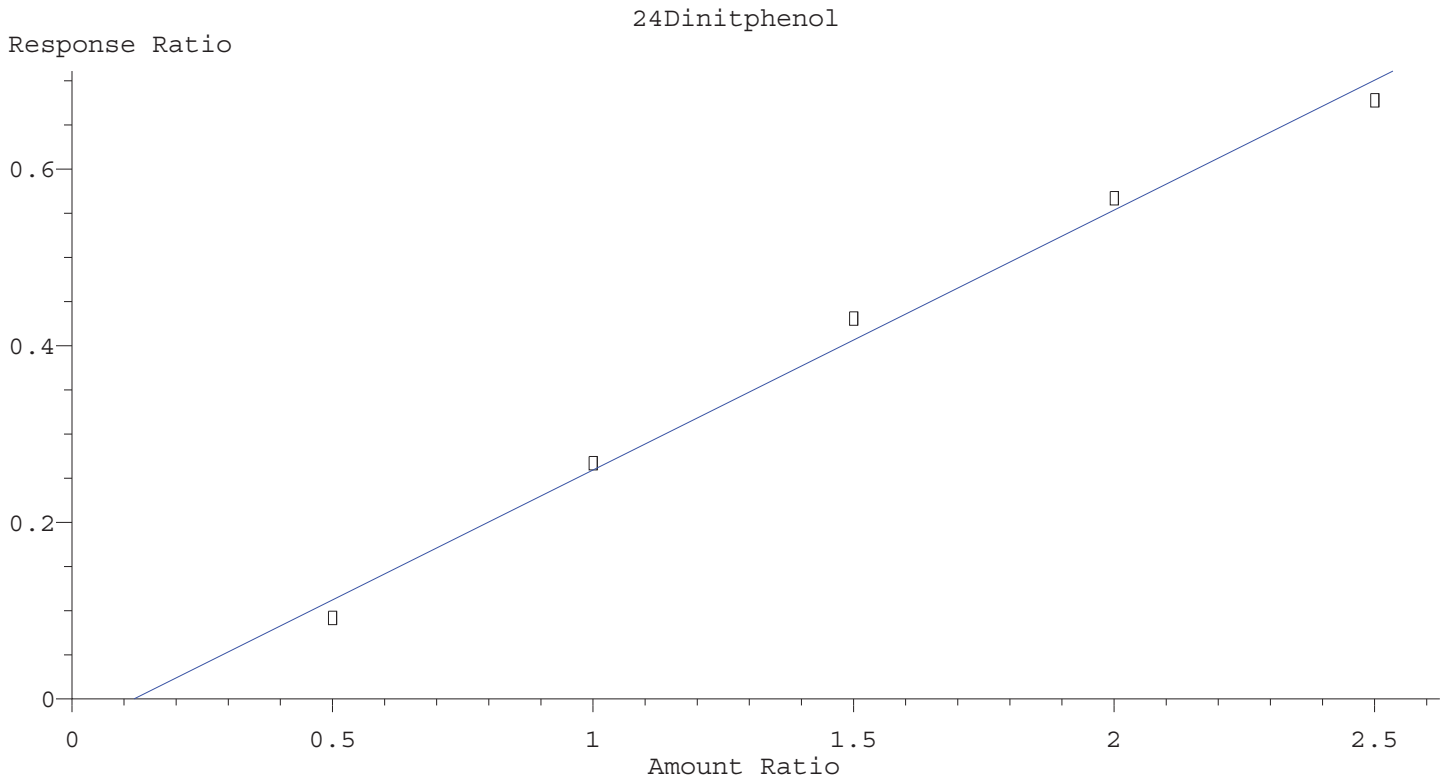
Resp Ratio = 3.644e-001 * Amt
RF Rel Std Dev = 7.460% Curve Fit: Avg RF



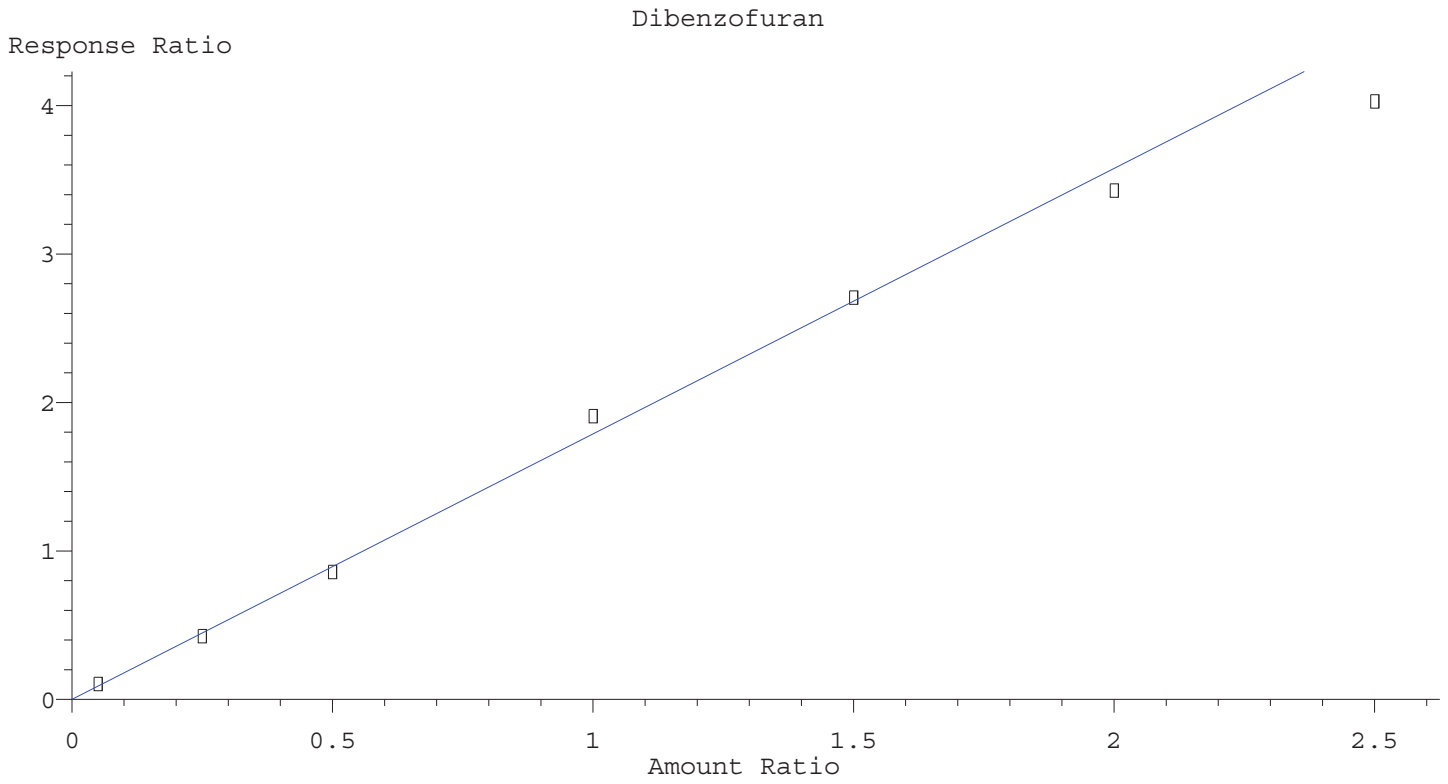
Resp Ratio = 1.291e+000 * Amt
RF Rel Std Dev = 7.963% Curve Fit: Avg RF



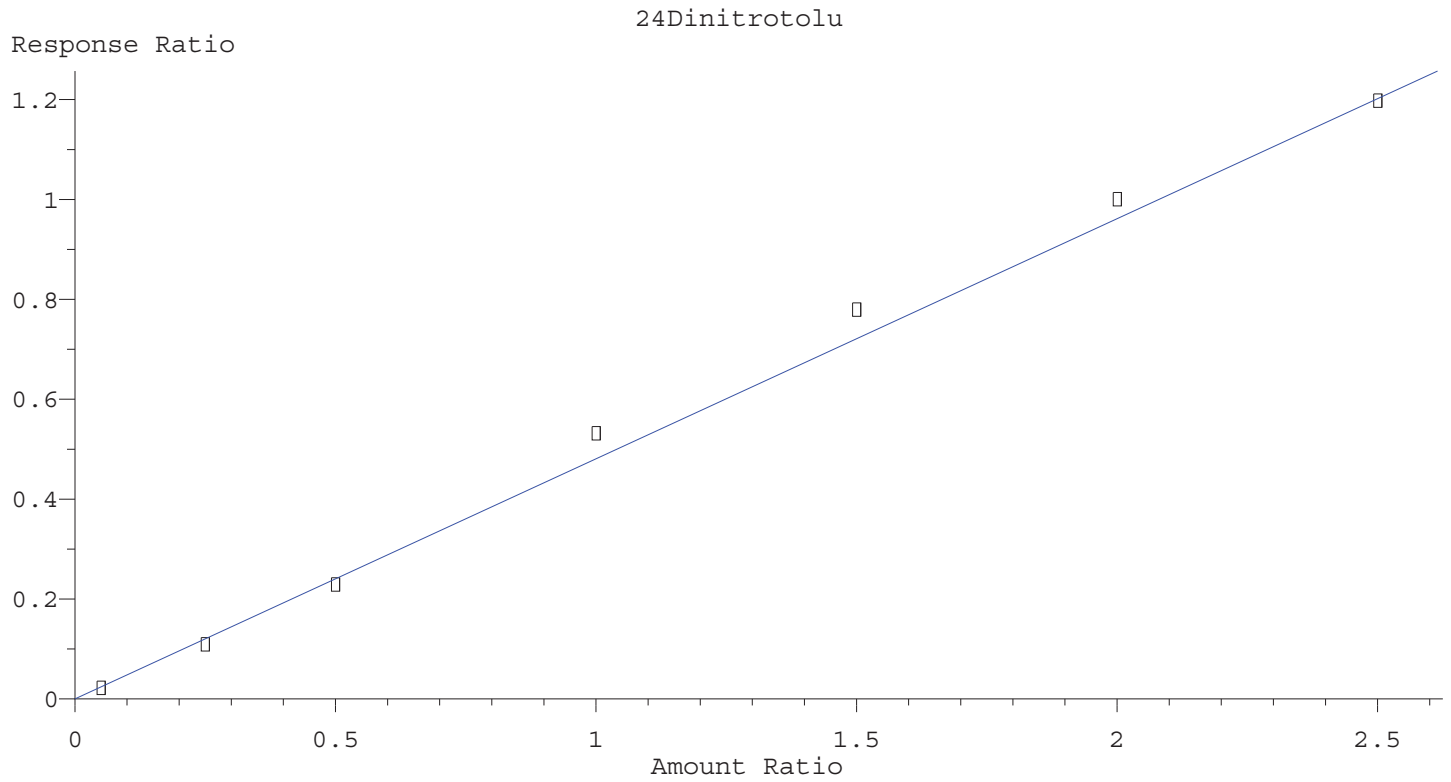
Resp Ratio = 3.600e-001 * Amt
RF Rel Std Dev = 7.872% Curve Fit: Avg RF



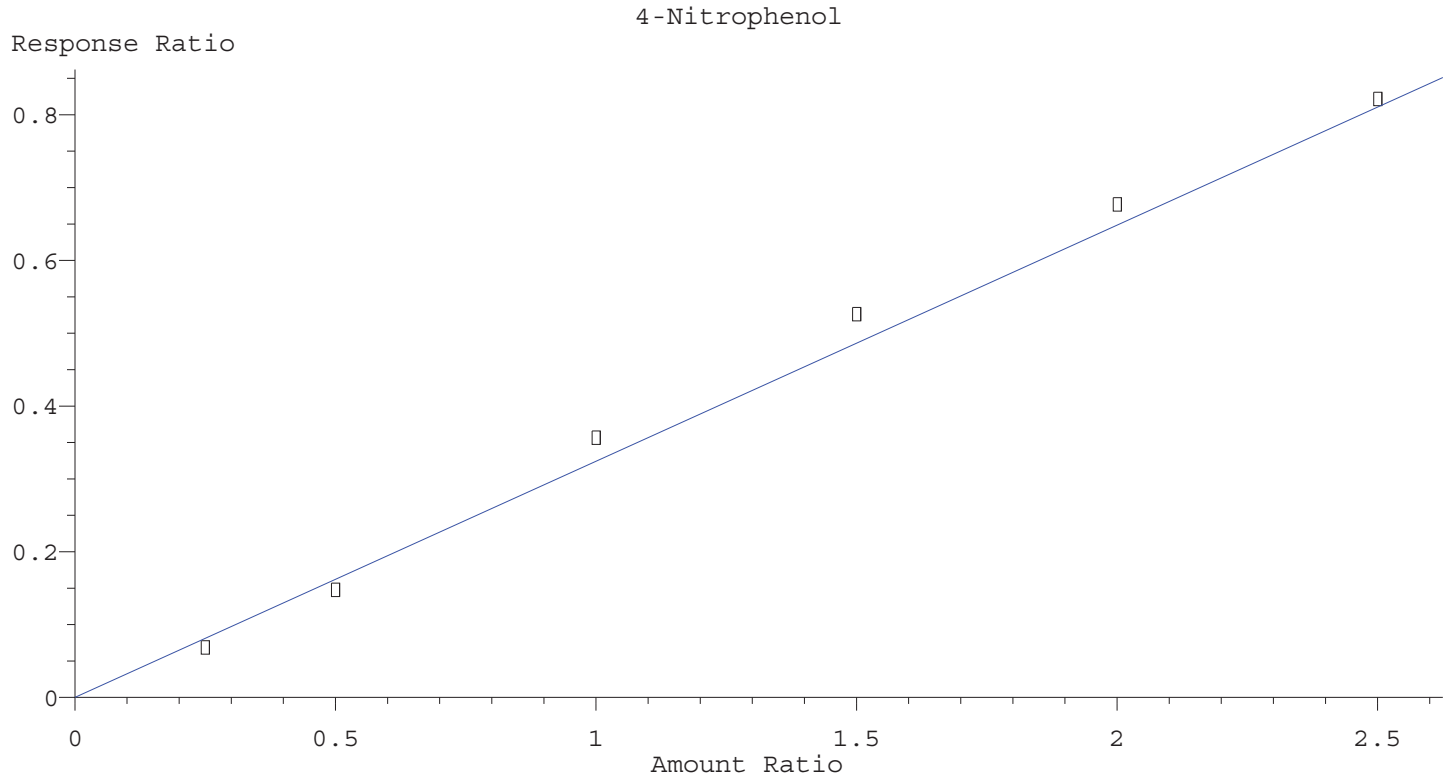
Resp Ratio = 2.945e-001 * Amt - 3.495e-002
Coef of Det (r^2) = 0.992 Curve Fit: Linear



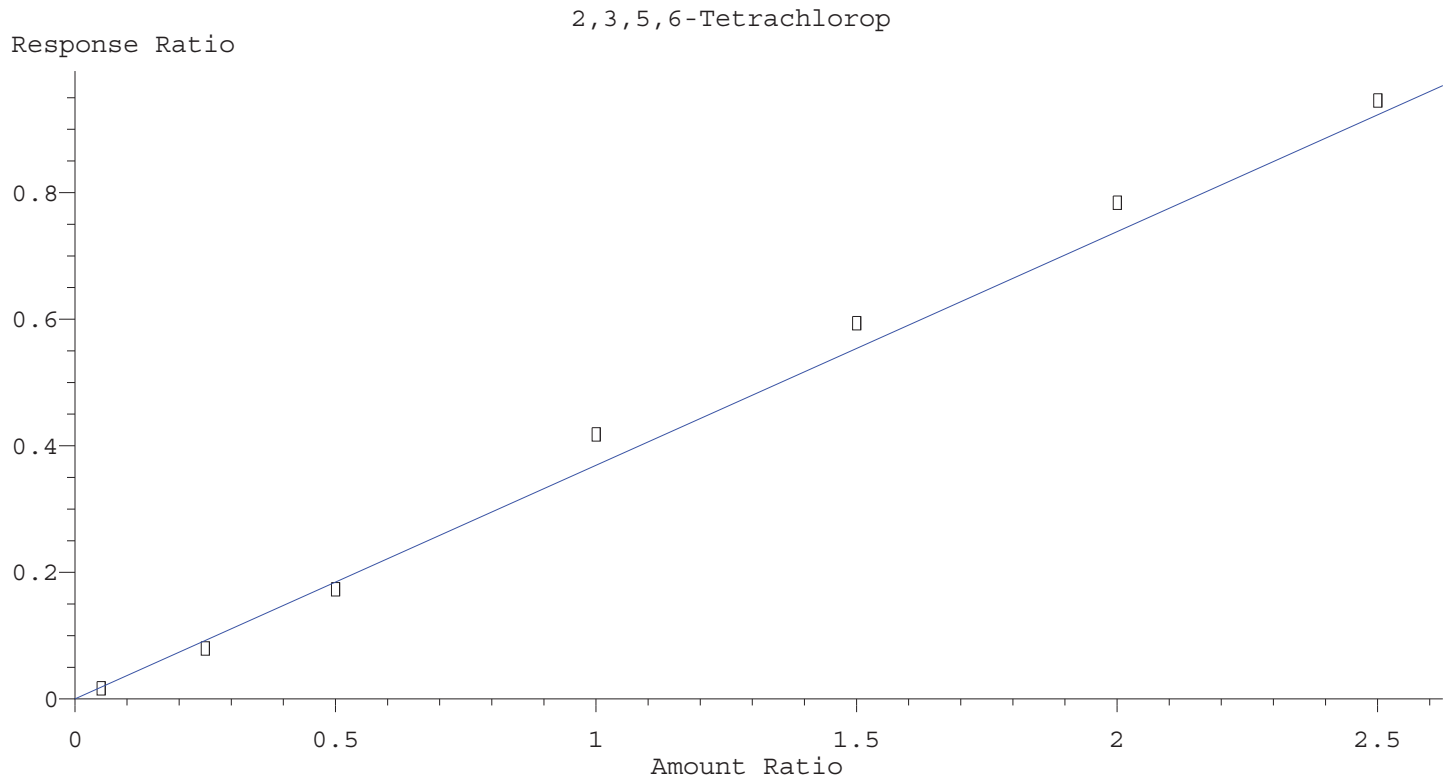
Resp Ratio = 1.788e+000 * Amt
RF Rel Std Dev = 8.547% Curve Fit: Avg RF



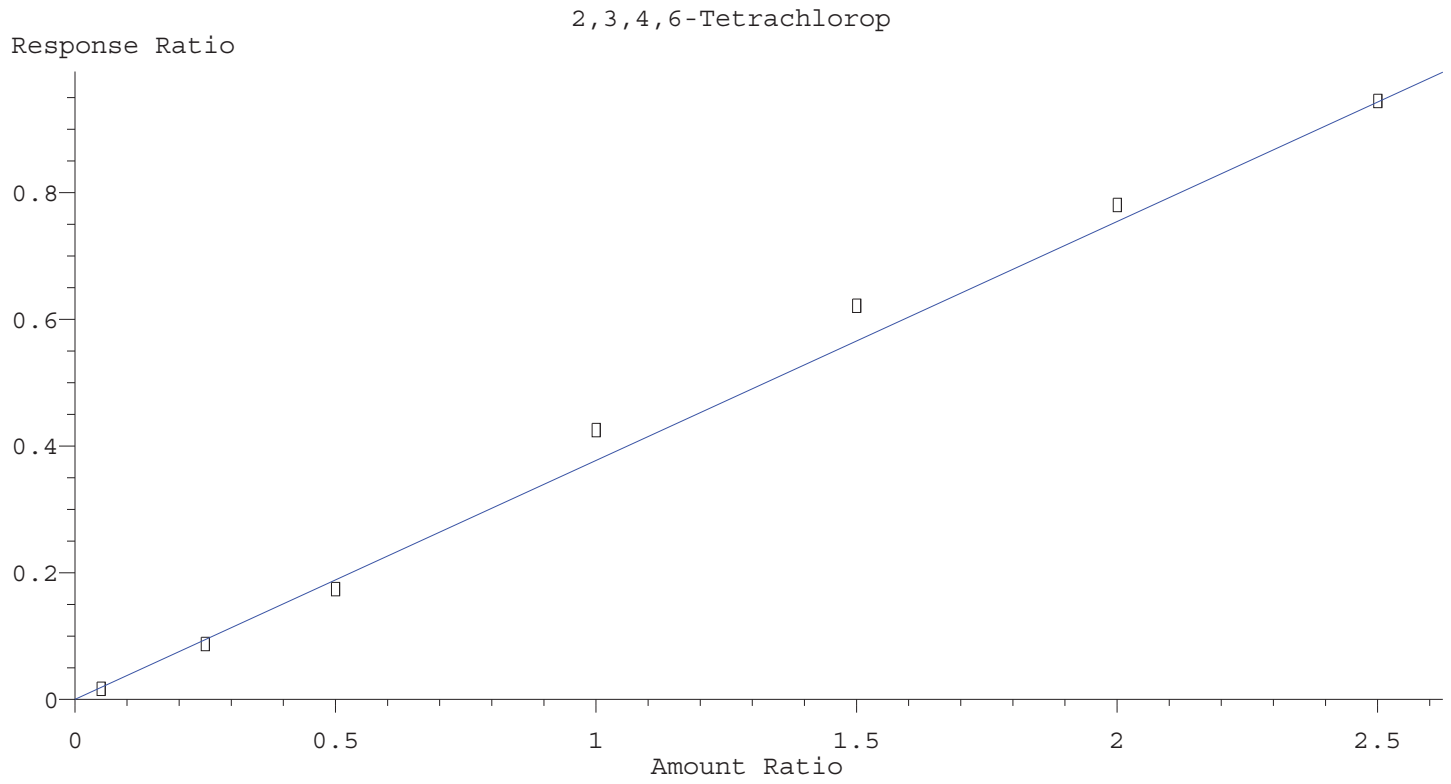
Resp Ratio = 4.810e-001 * Amt
RF Rel Std Dev = 7.802% Curve Fit: Avg RF



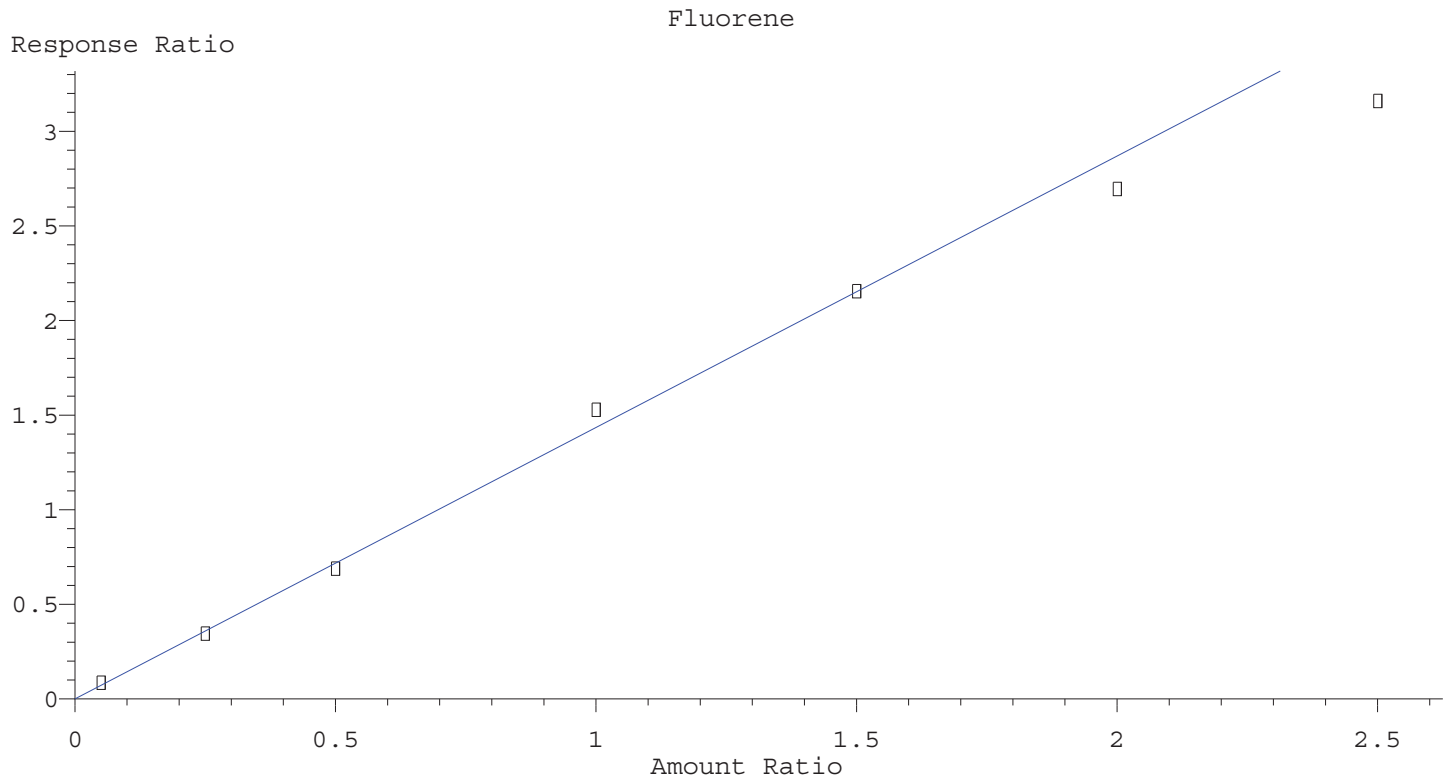
Resp Ratio = 3.241e-001 * Amt
RF Rel Std Dev = 10.022% Curve Fit: Avg RF



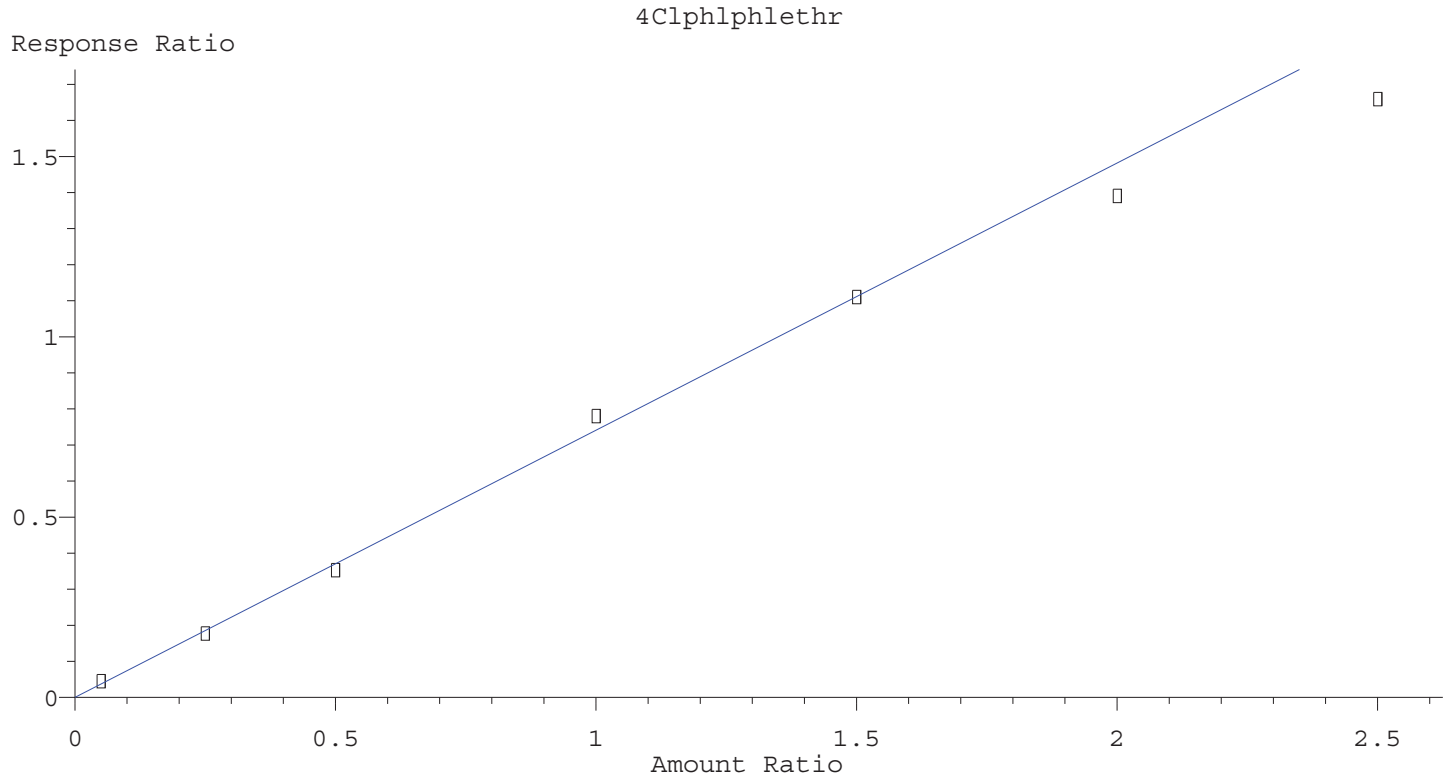
Resp Ratio = 3.691e-001 * Amt
RF Rel Std Dev = 9.855% Curve Fit: Avg RF



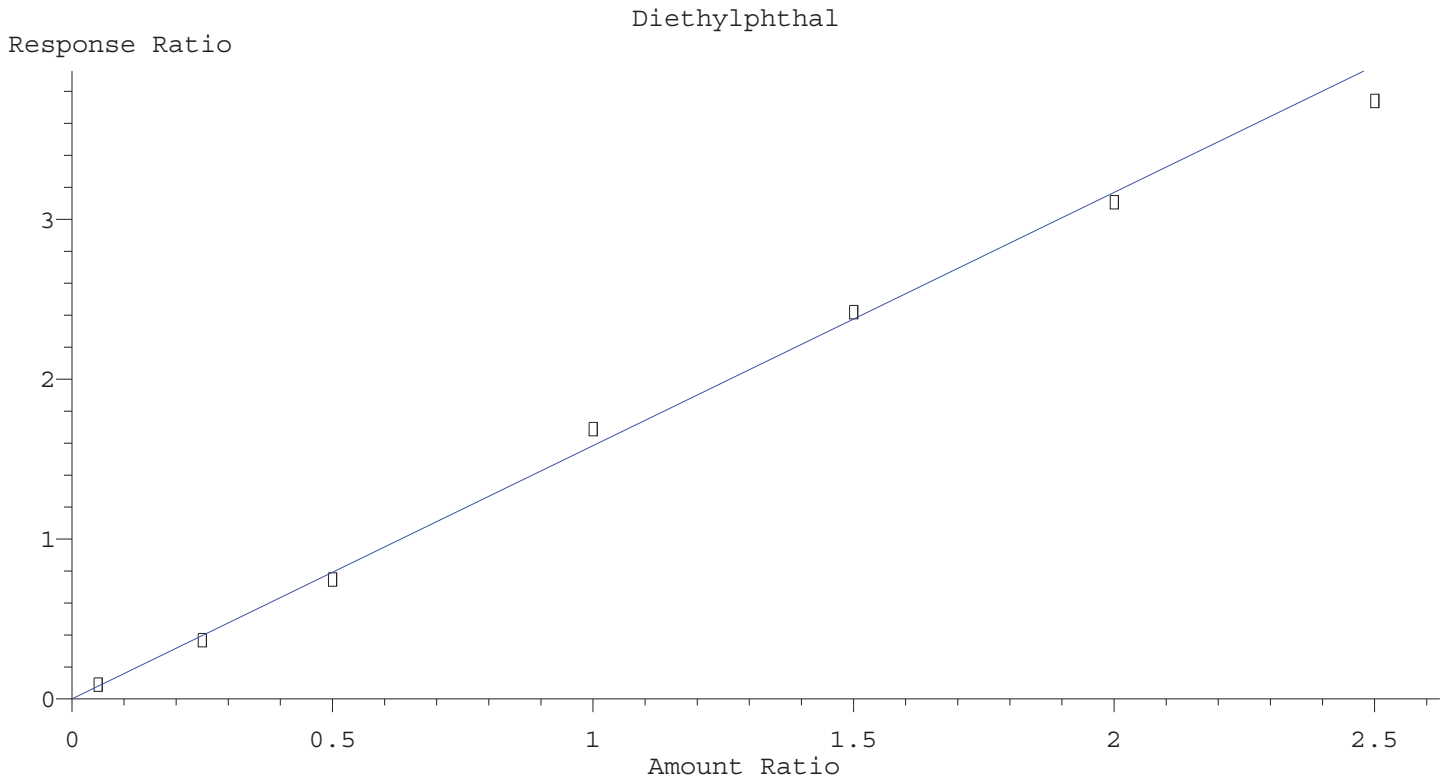
Resp Ratio = 3.771e-001 * Amt
RF Rel Std Dev = 9.225% Curve Fit: Avg RF



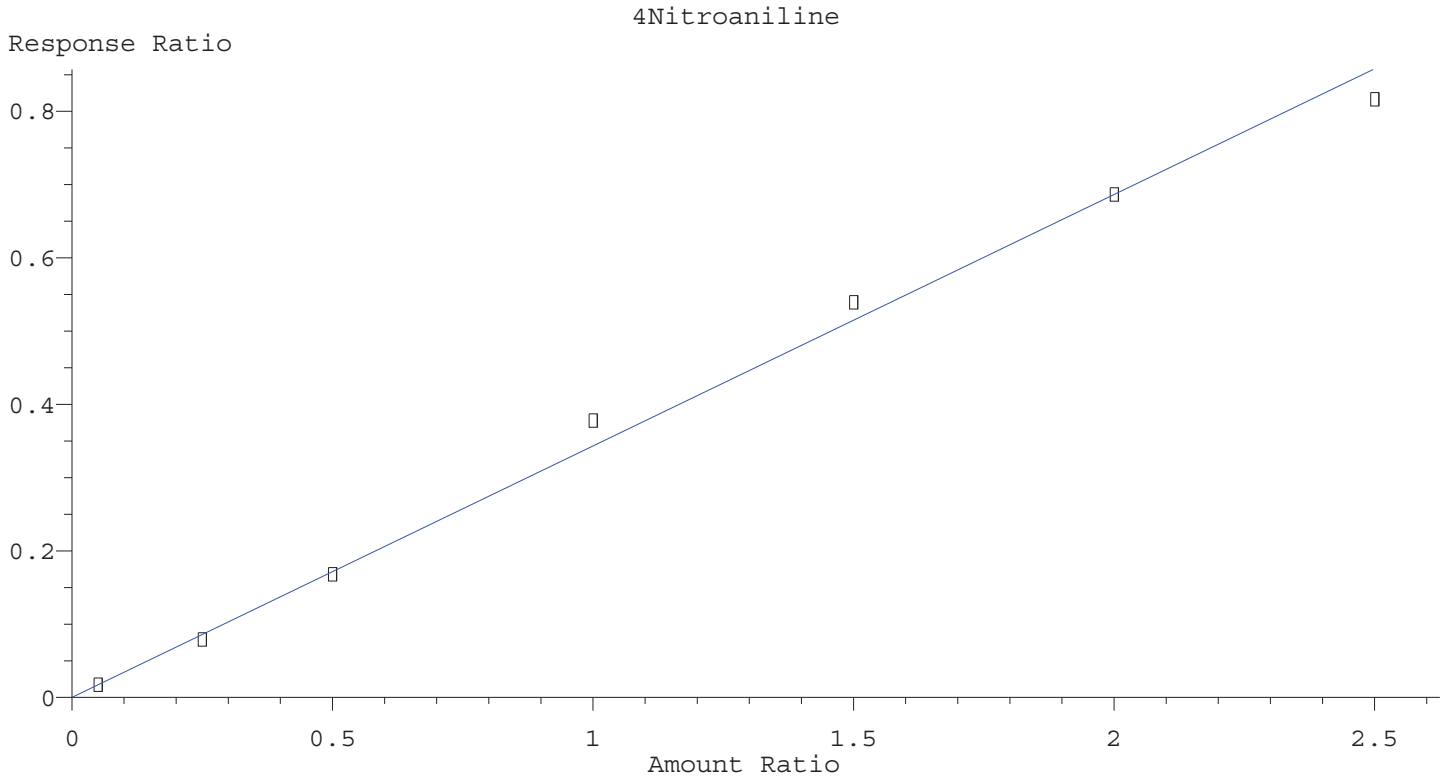
Resp Ratio = 1.435e+000 * Amt
RF Rel Std Dev = 10.188% Curve Fit: Avg RF



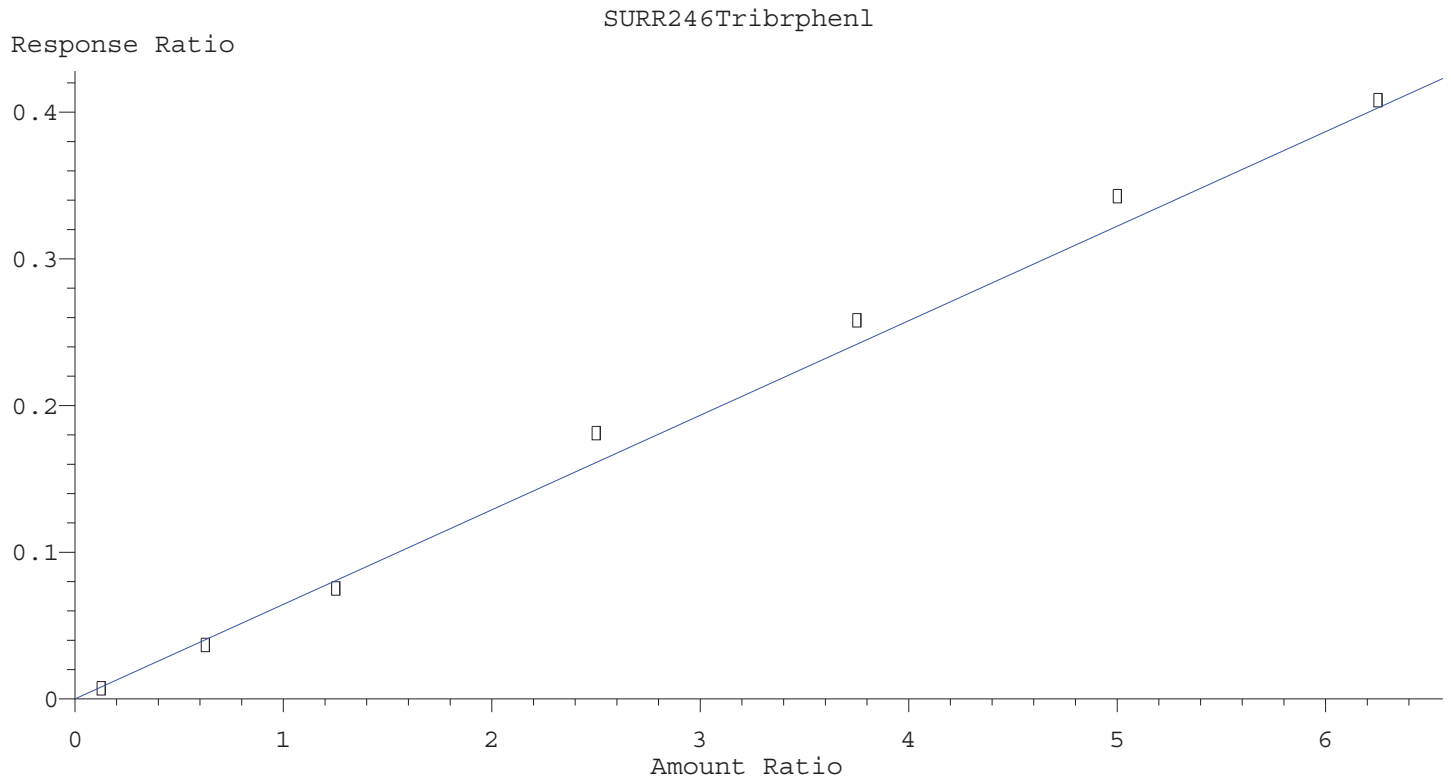
Resp Ratio = 7.412e-001 * Amt
RF Rel Std Dev = 10.484% Curve Fit: Avg RF



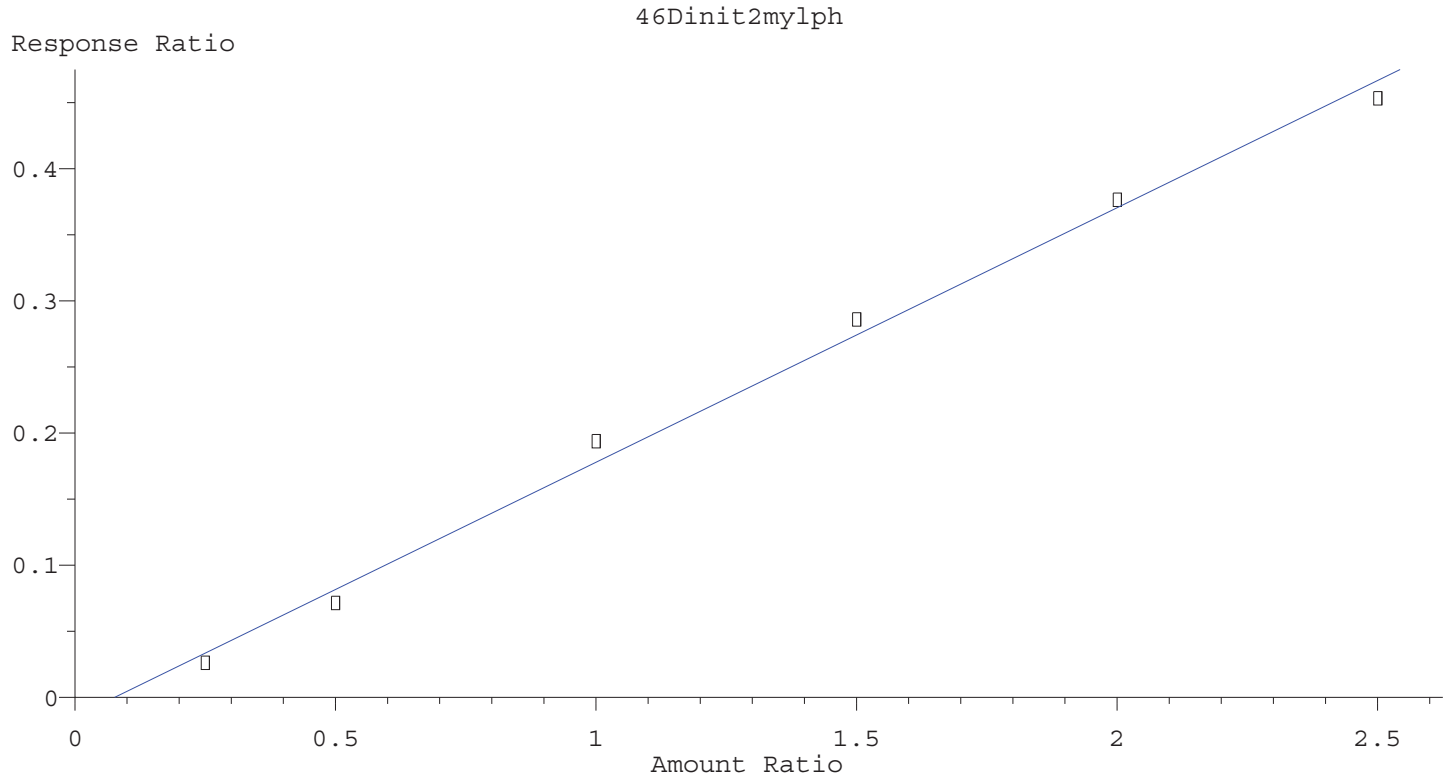
Resp Ratio = 1.584e+000 * Amt
RF Rel Std Dev = 7.202% Curve Fit: Avg RF



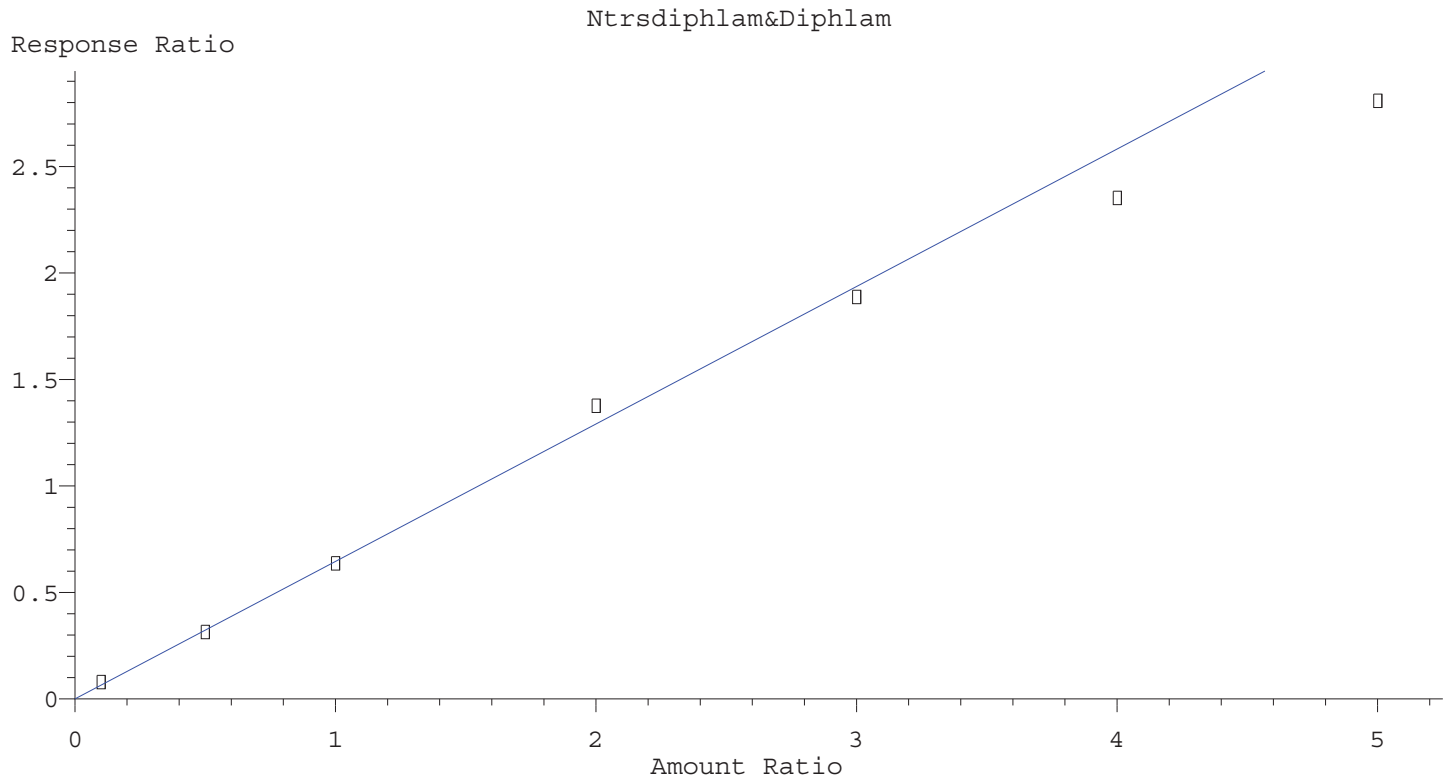
Resp Ratio = 3.432e-001 * Amt
RF Rel Std Dev = 5.977% Curve Fit: Avg RF



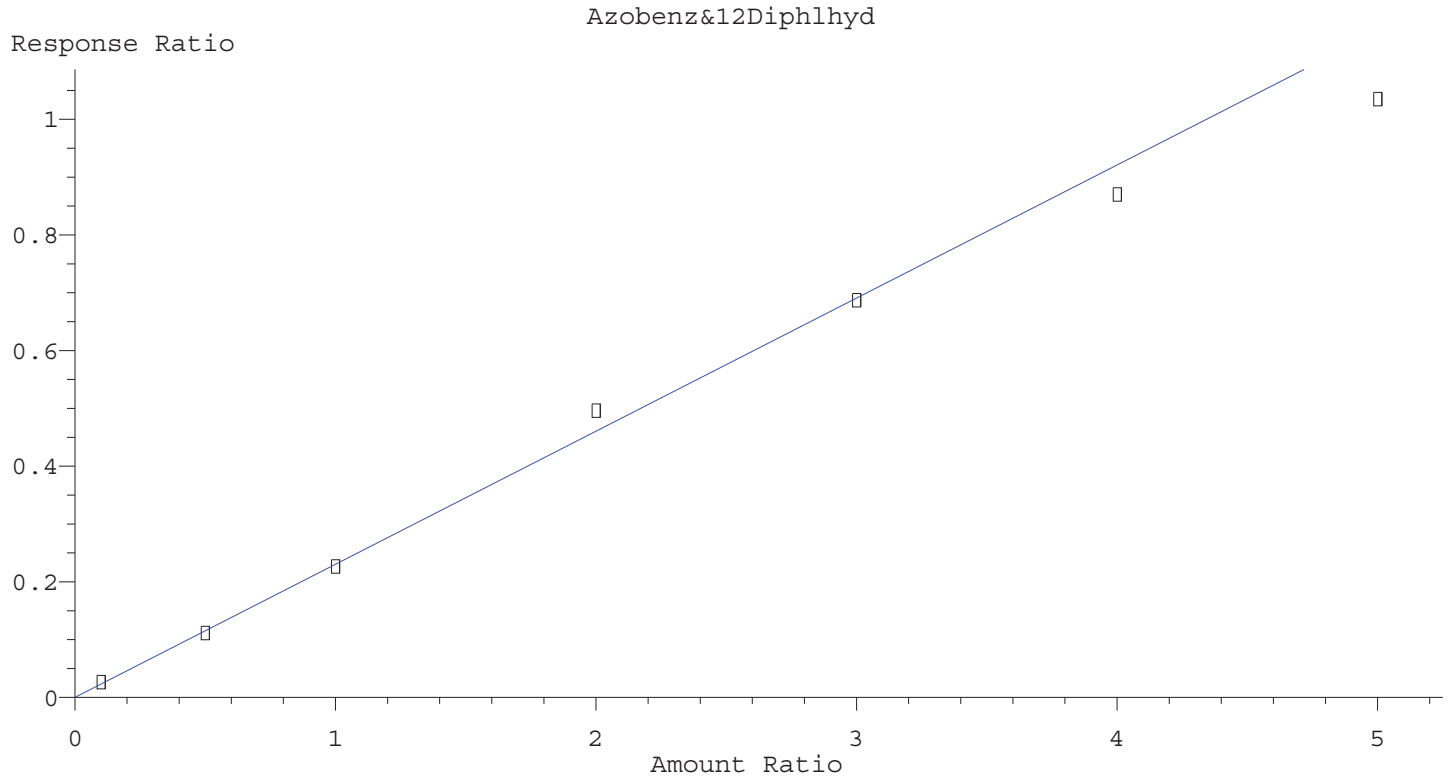
Resp Ratio = 6.449e-002 * Amt
RF Rel Std Dev = 8.994% Curve Fit: Avg RF



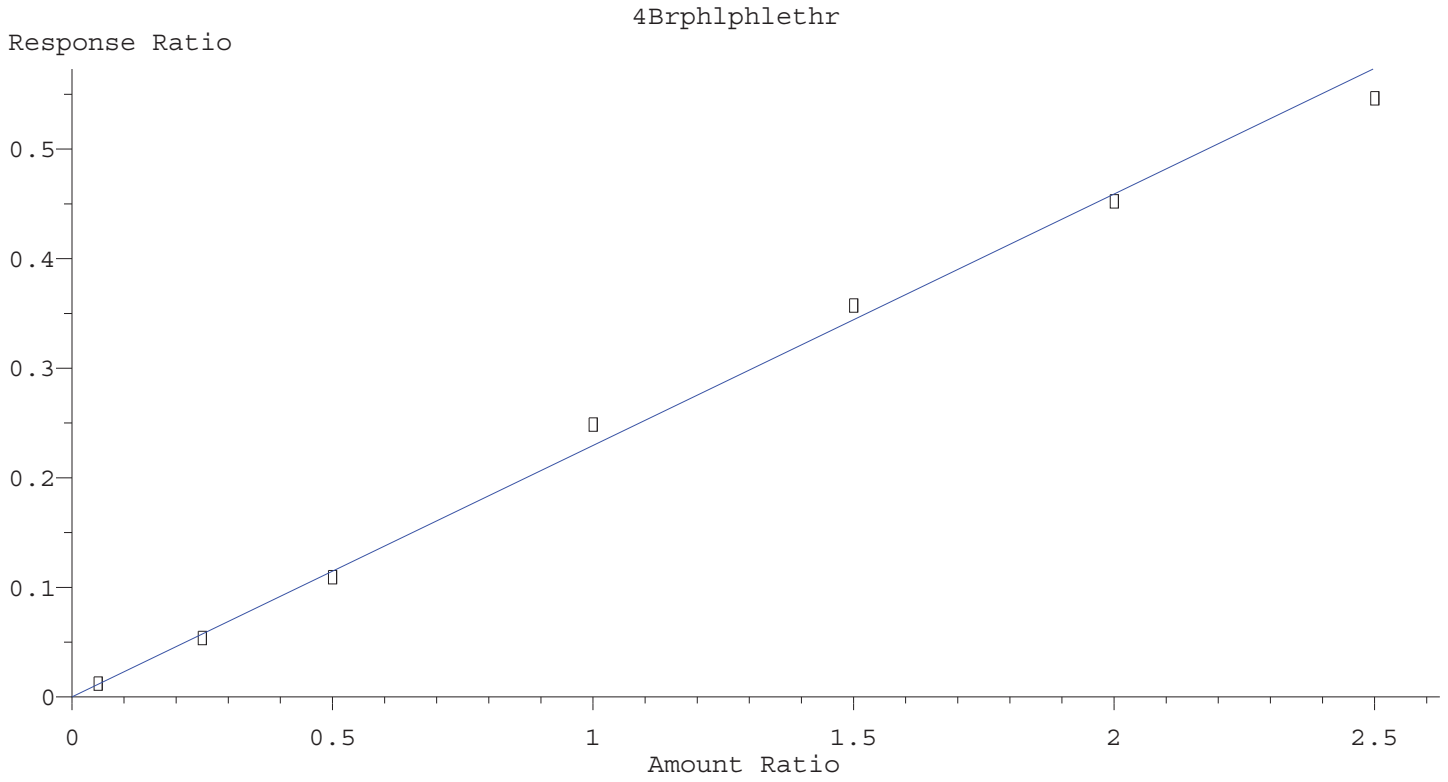
Resp Ratio = 1.929e-001 * Amt - 1.472e-002
Coef of Det (r^2) = 0.995 Curve Fit: Linear



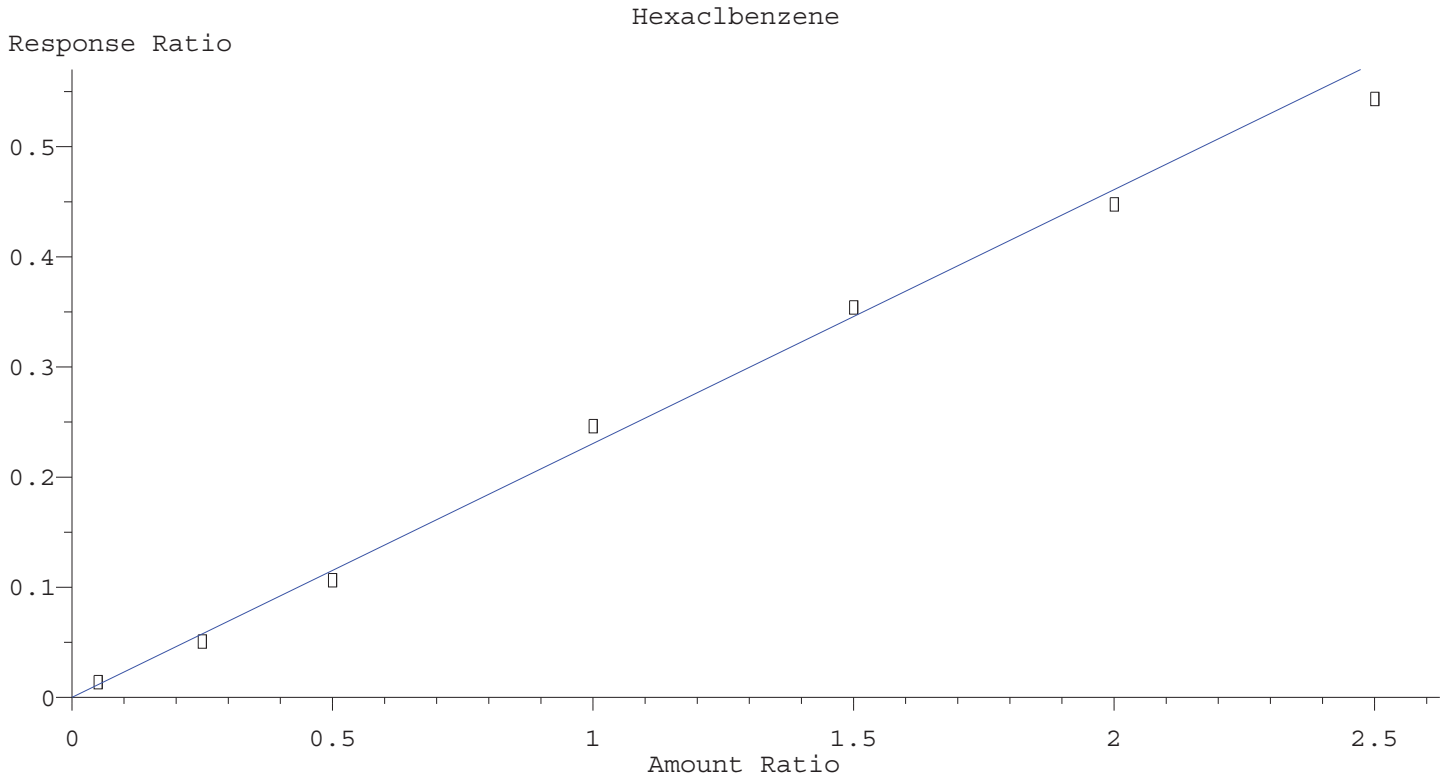
Resp Ratio = 6.455e-001 * Amt
RF Rel Std Dev = 11.510% Curve Fit: Avg RF



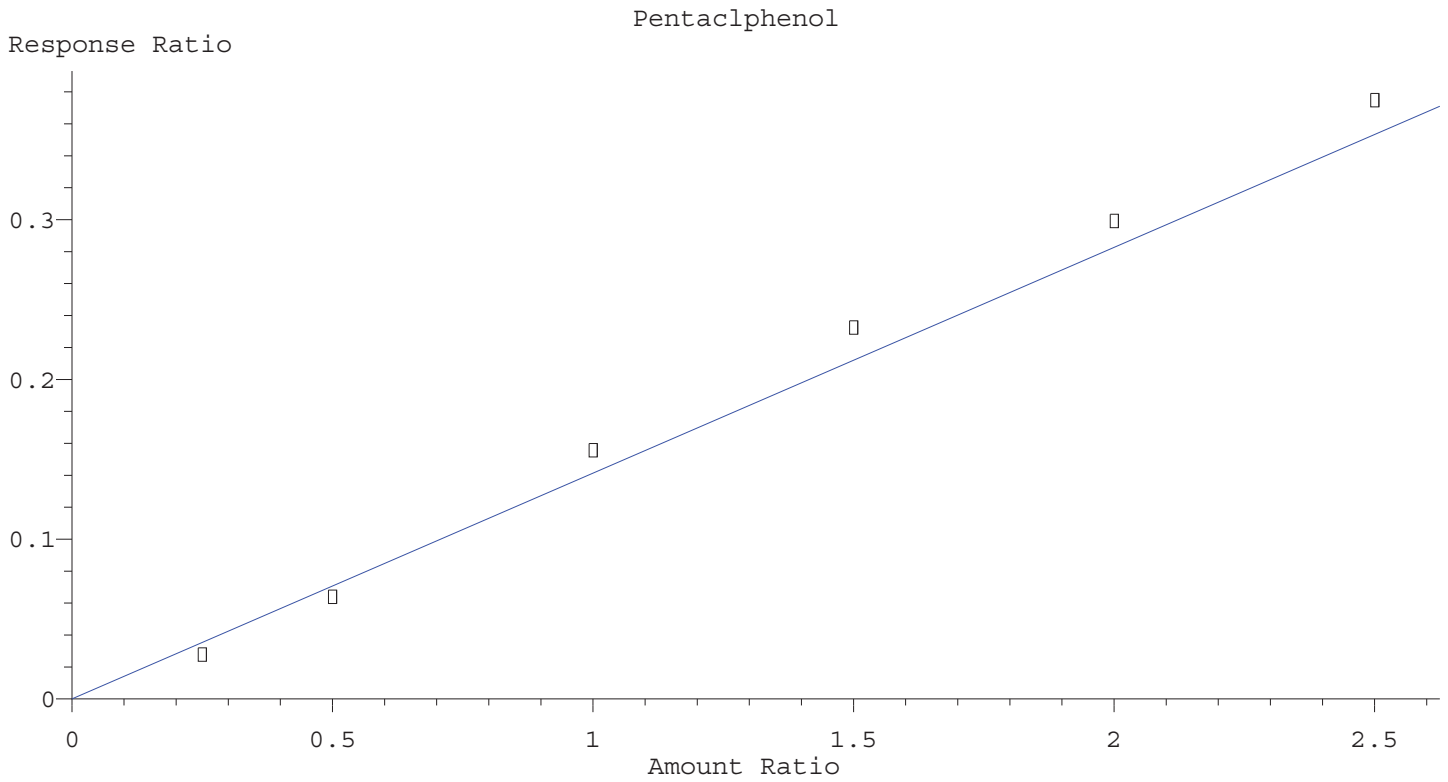
Resp Ratio = 2.304e-001 * Amt
RF Rel Std Dev = 8.146% Curve Fit: Avg RF



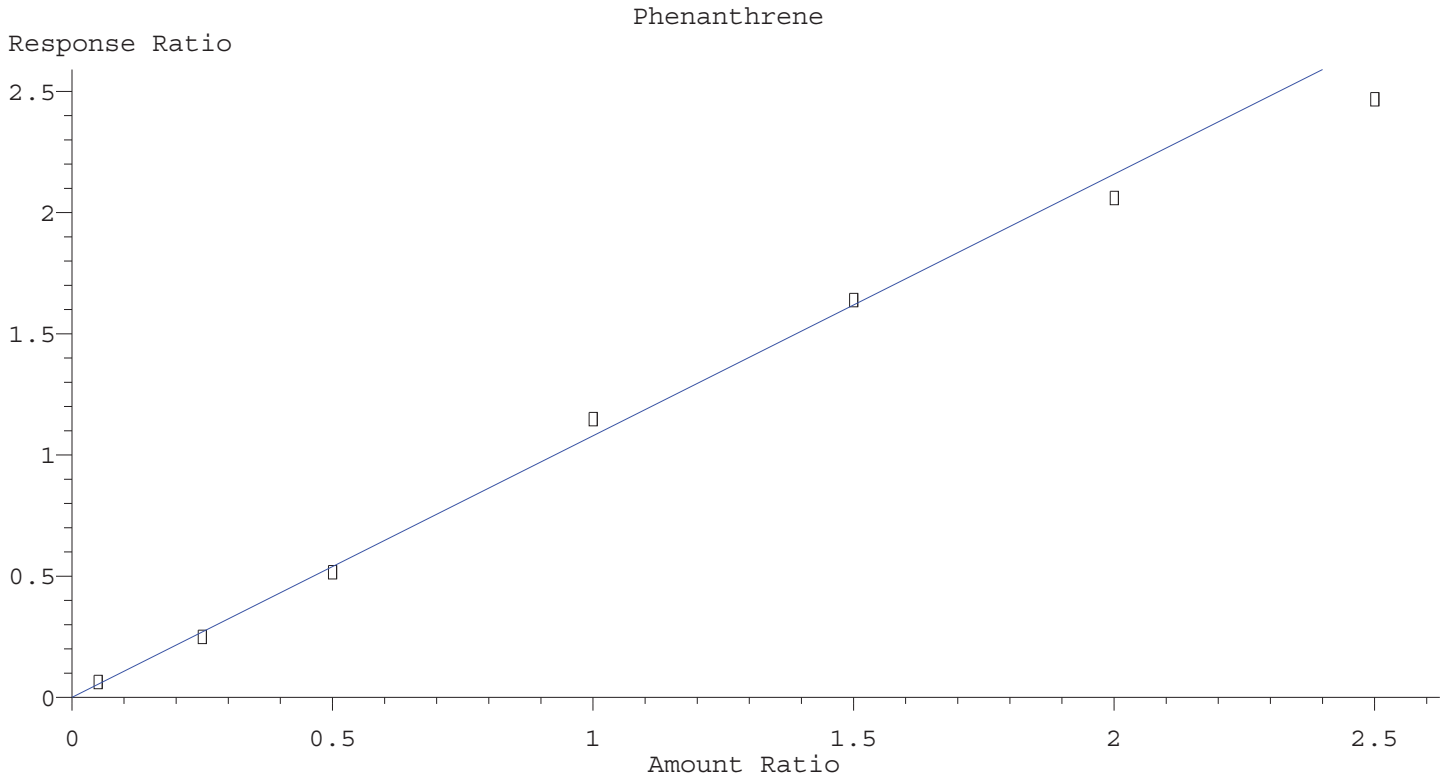
Resp Ratio = 2.297e-001 * Amt
RF Rel Std Dev = 5.902% Curve Fit: Avg RF



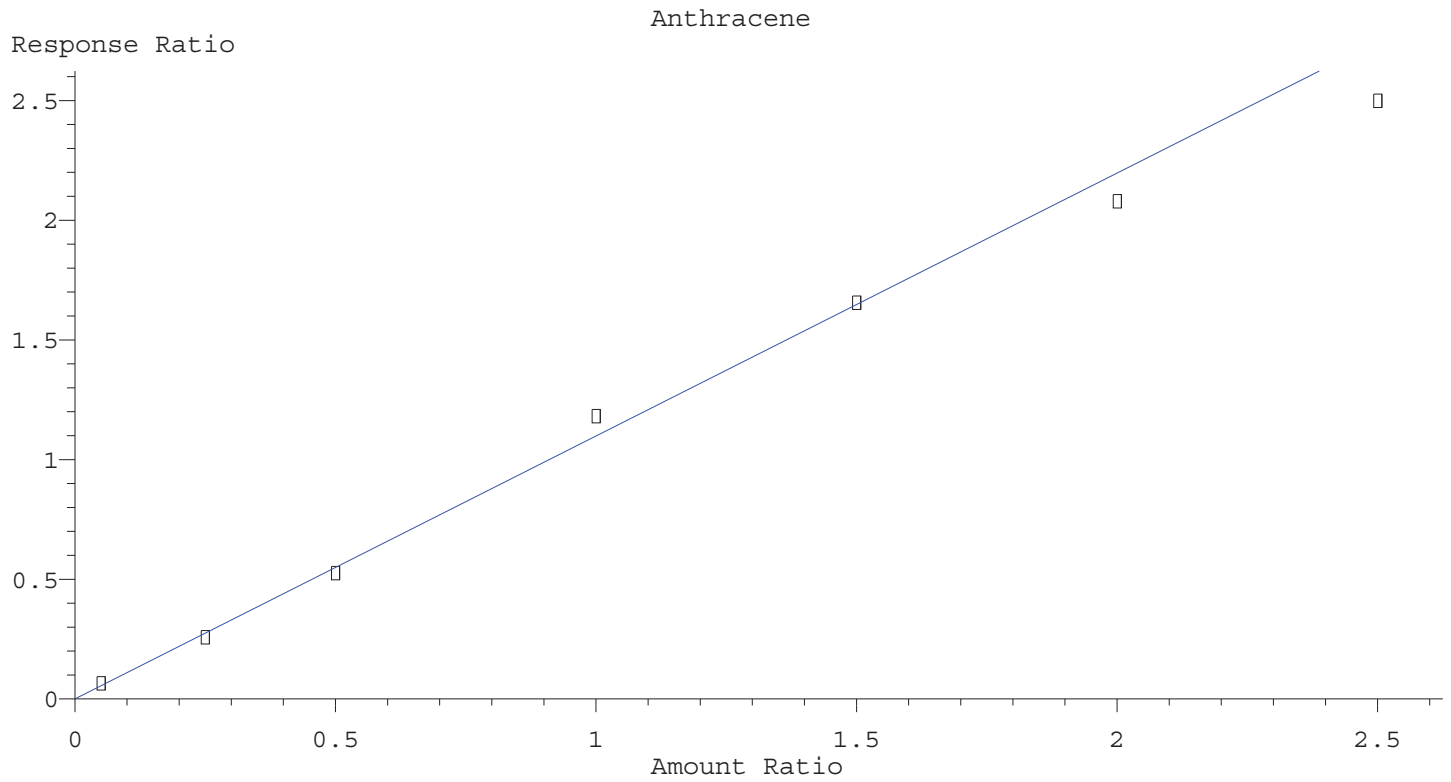
Resp Ratio = 2.306e-001 * Amt
RF Rel Std Dev = 10.613% Curve Fit: Avg RF



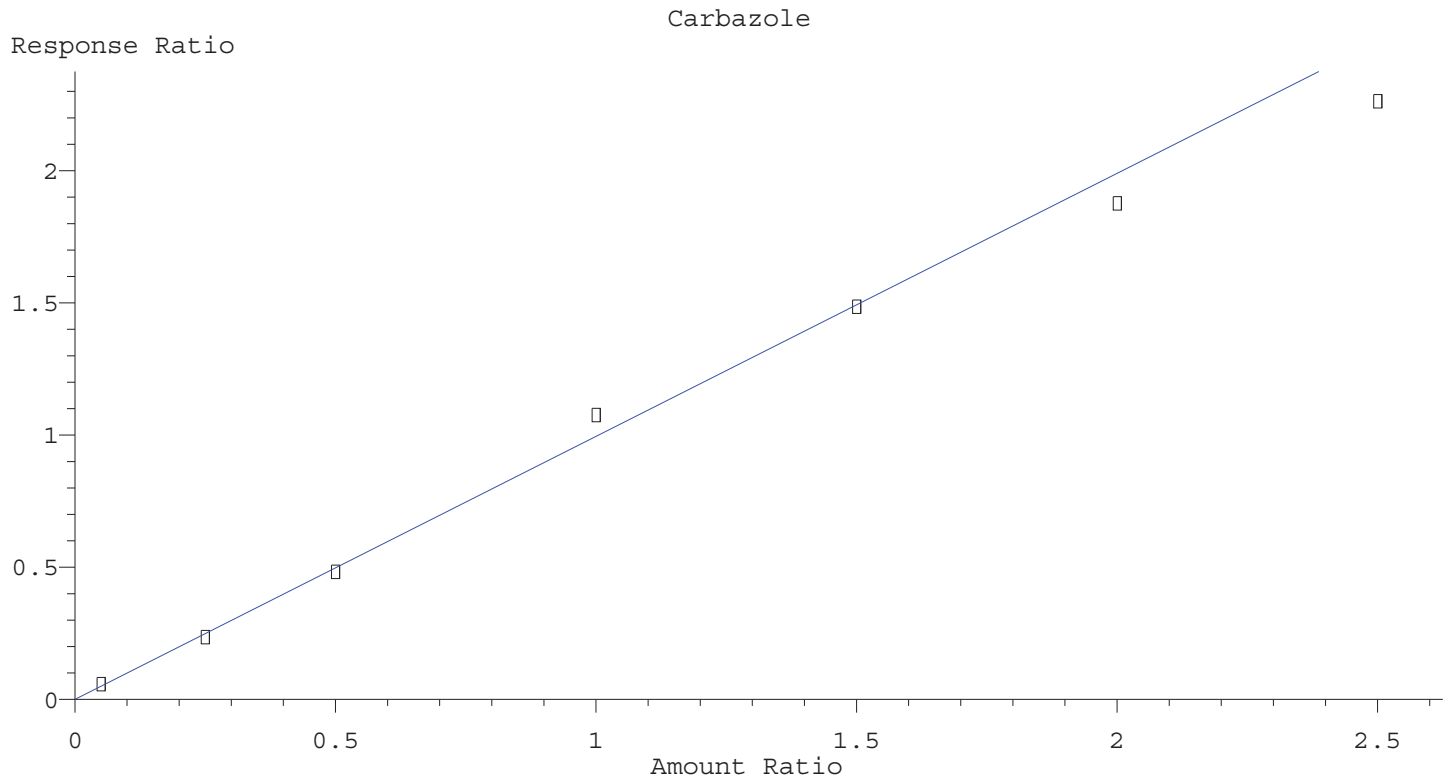
Resp Ratio = 1.415e-001 * Amt
RF Rel Std Dev = 12.749% Curve Fit: Avg RF



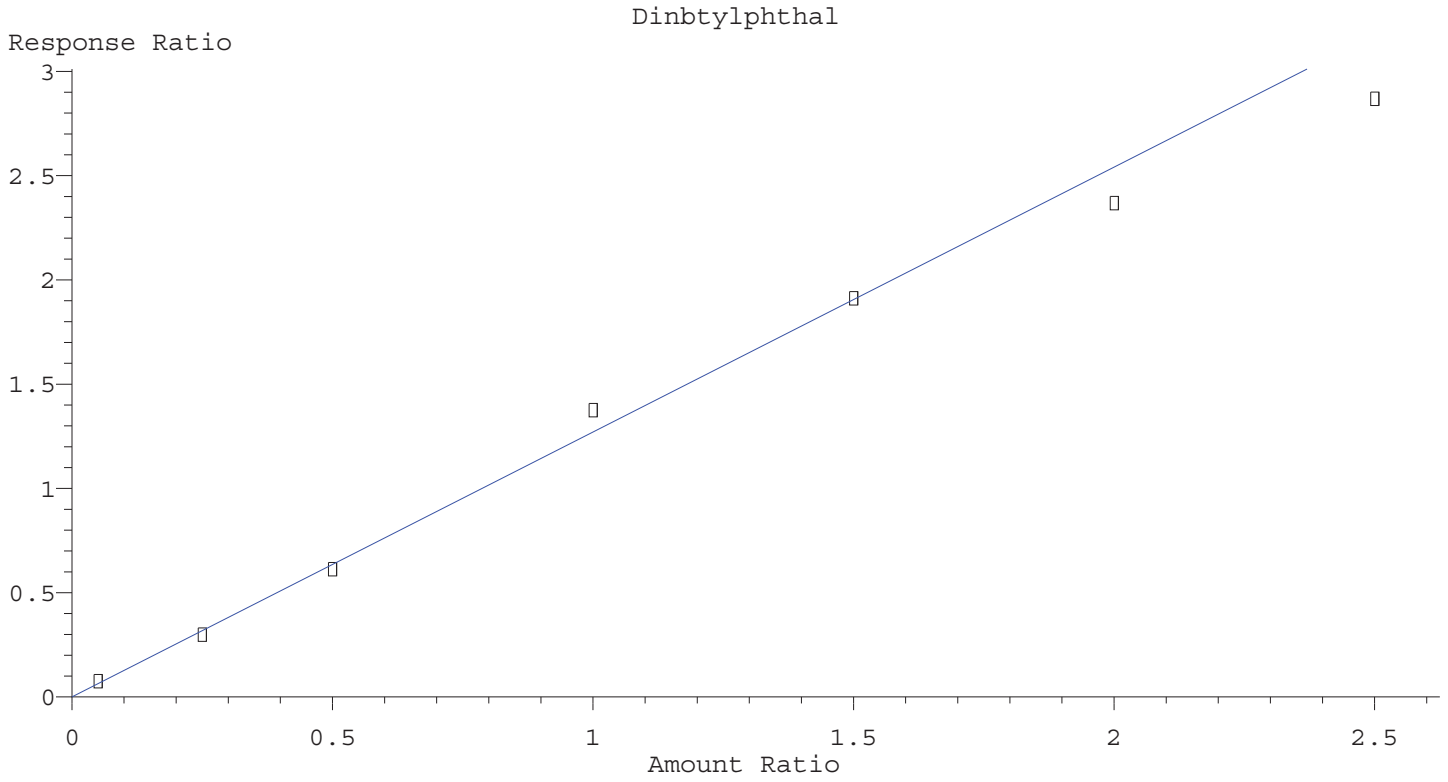
Resp Ratio = 1.080e+000 * Amt
RF Rel Std Dev = 9.307% Curve Fit: Avg RF



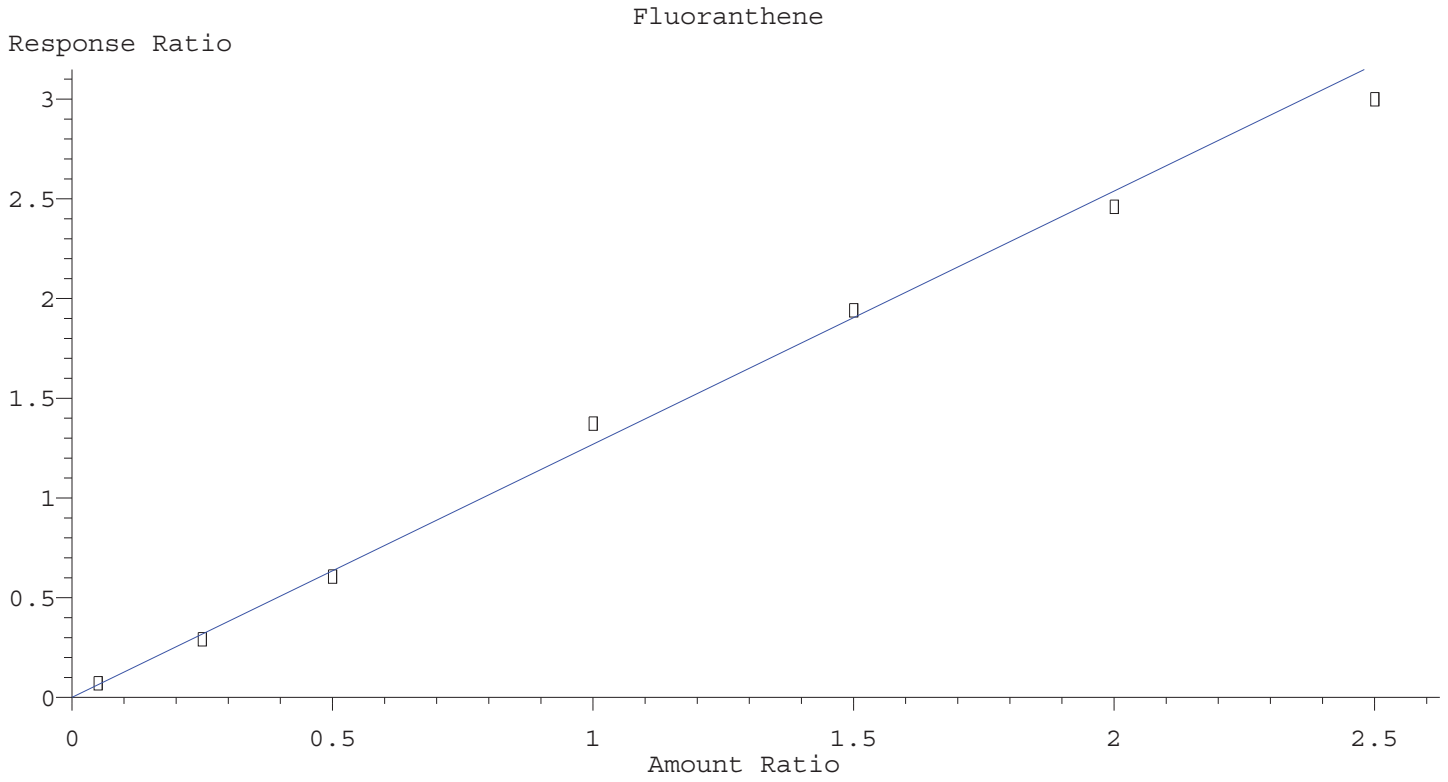
Resp Ratio = 1.099e+000 * Amt
RF Rel Std Dev = 9.404% Curve Fit: Avg RF



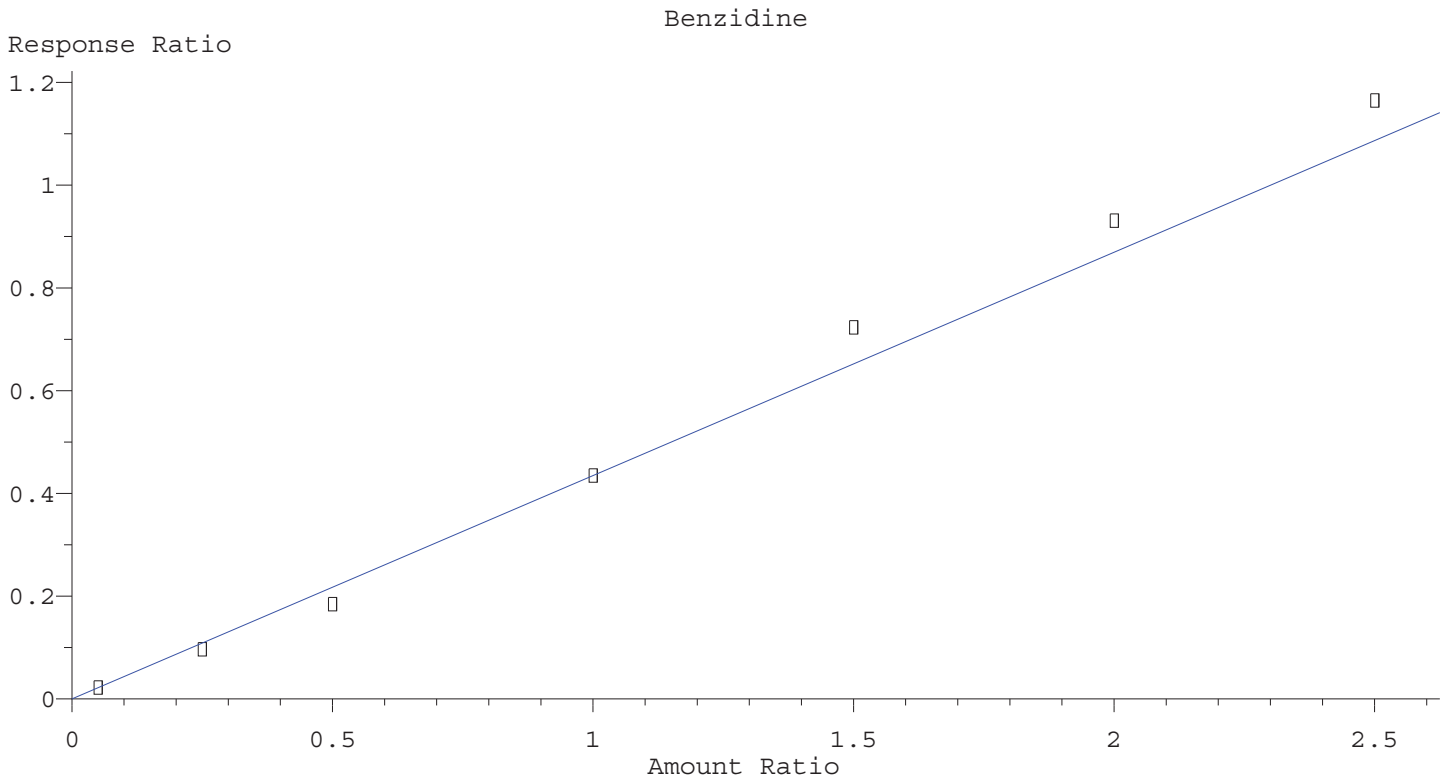
Resp Ratio = 9.949e-001 * Amt
RF Rel Std Dev = 8.772% Curve Fit: Avg RF



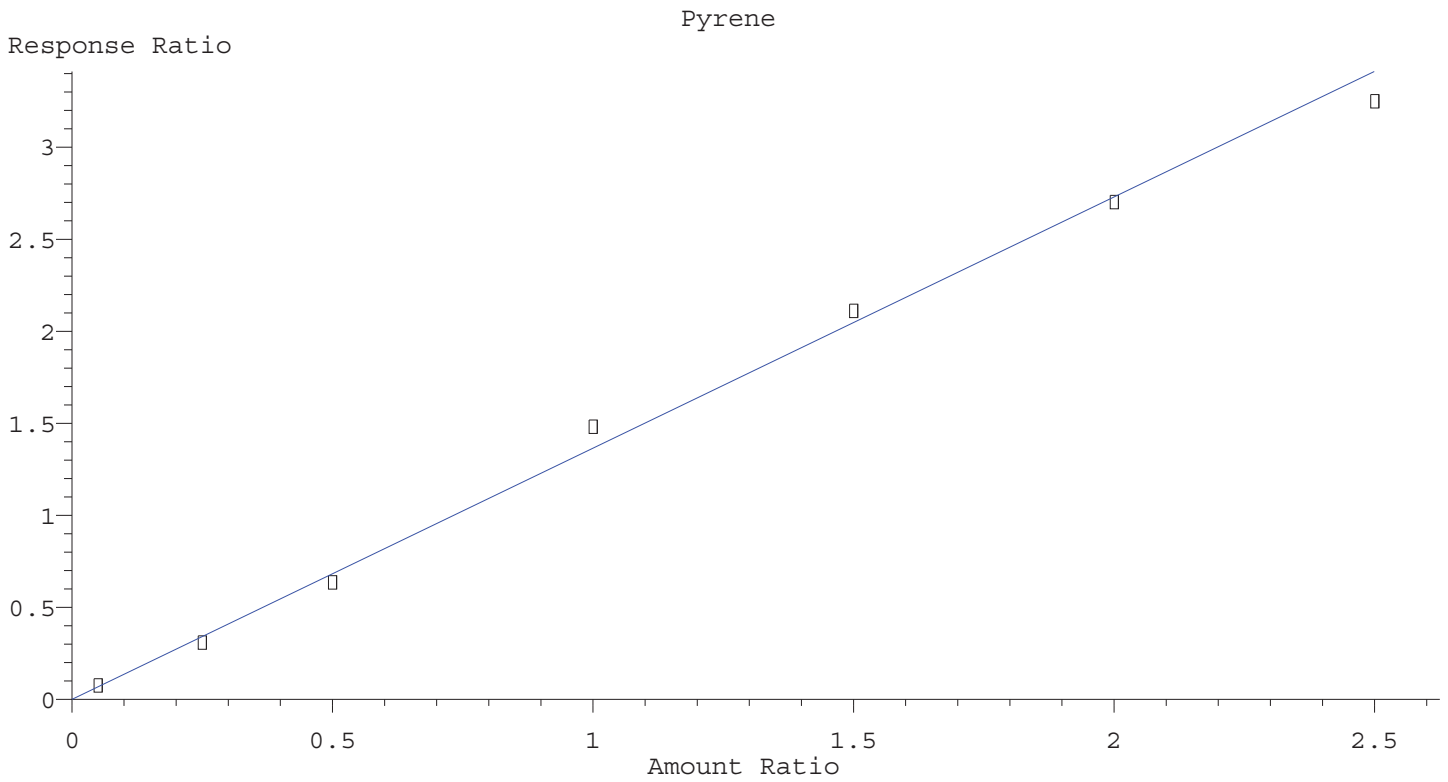
Resp Ratio = 1.271e+000 * Amt
RF Rel Std Dev = 9.799% Curve Fit: Avg RF



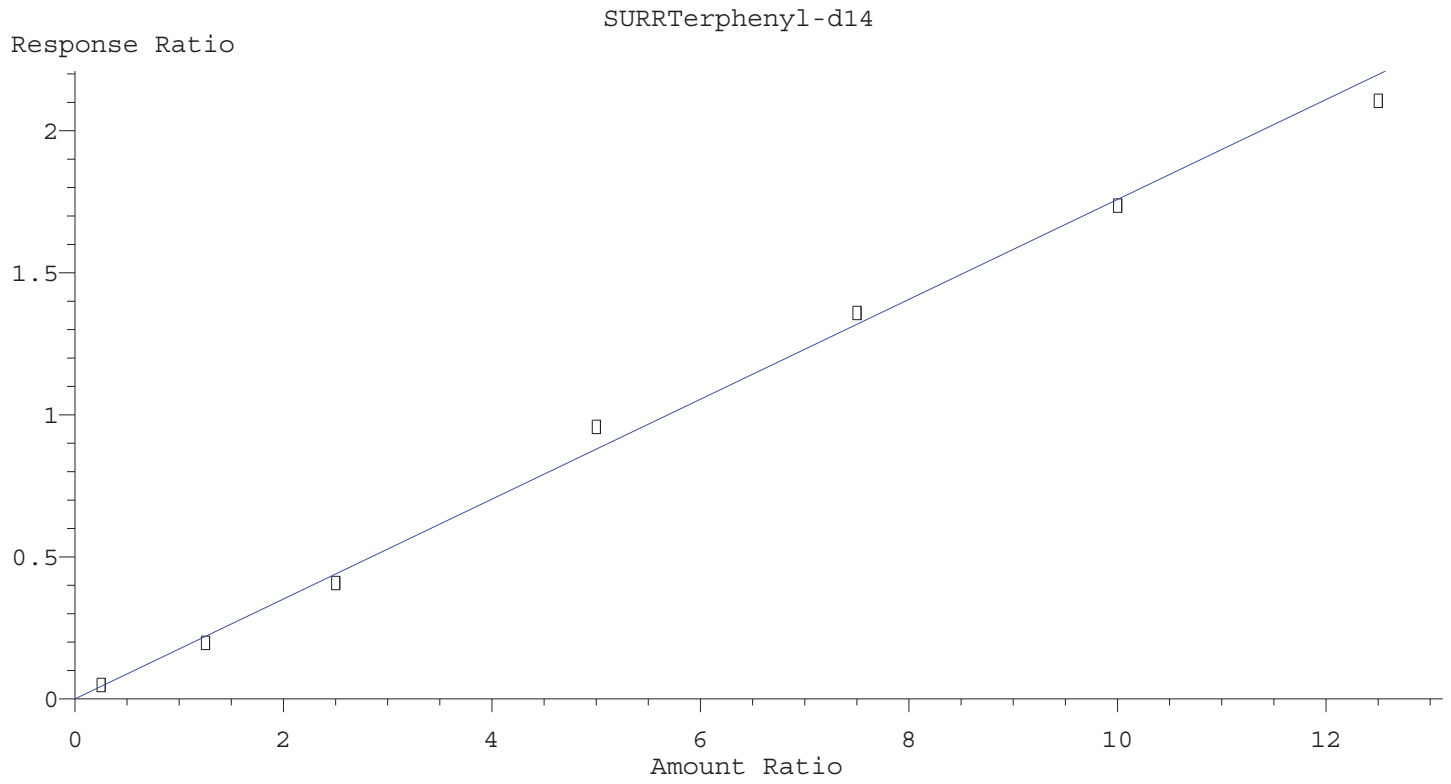
Resp Ratio = 1.270e+000 * Amt
RF Rel Std Dev = 7.399% Curve Fit: Avg RF



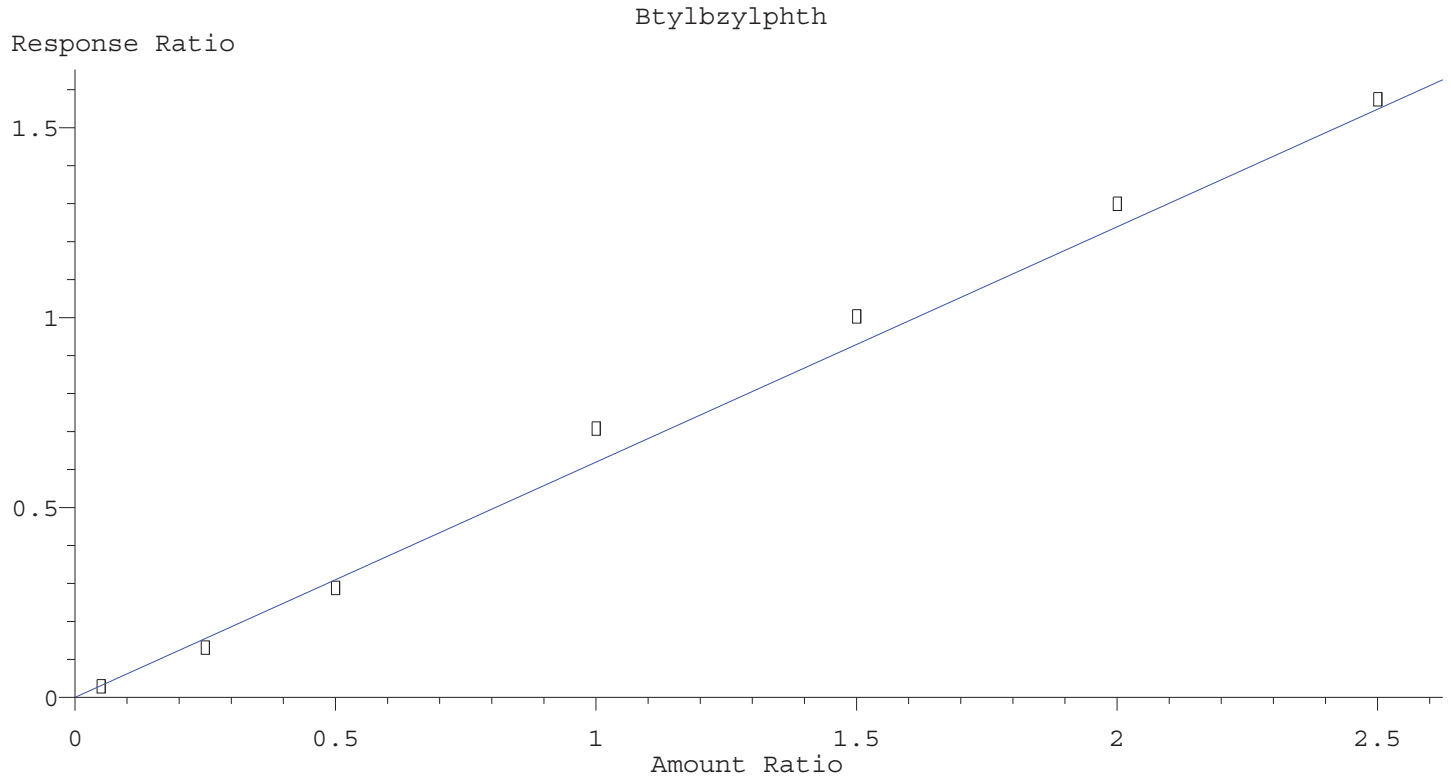
Resp Ratio = 4.348e-001 * Amt
RF Rel Std Dev = 9.802% Curve Fit: Avg RF



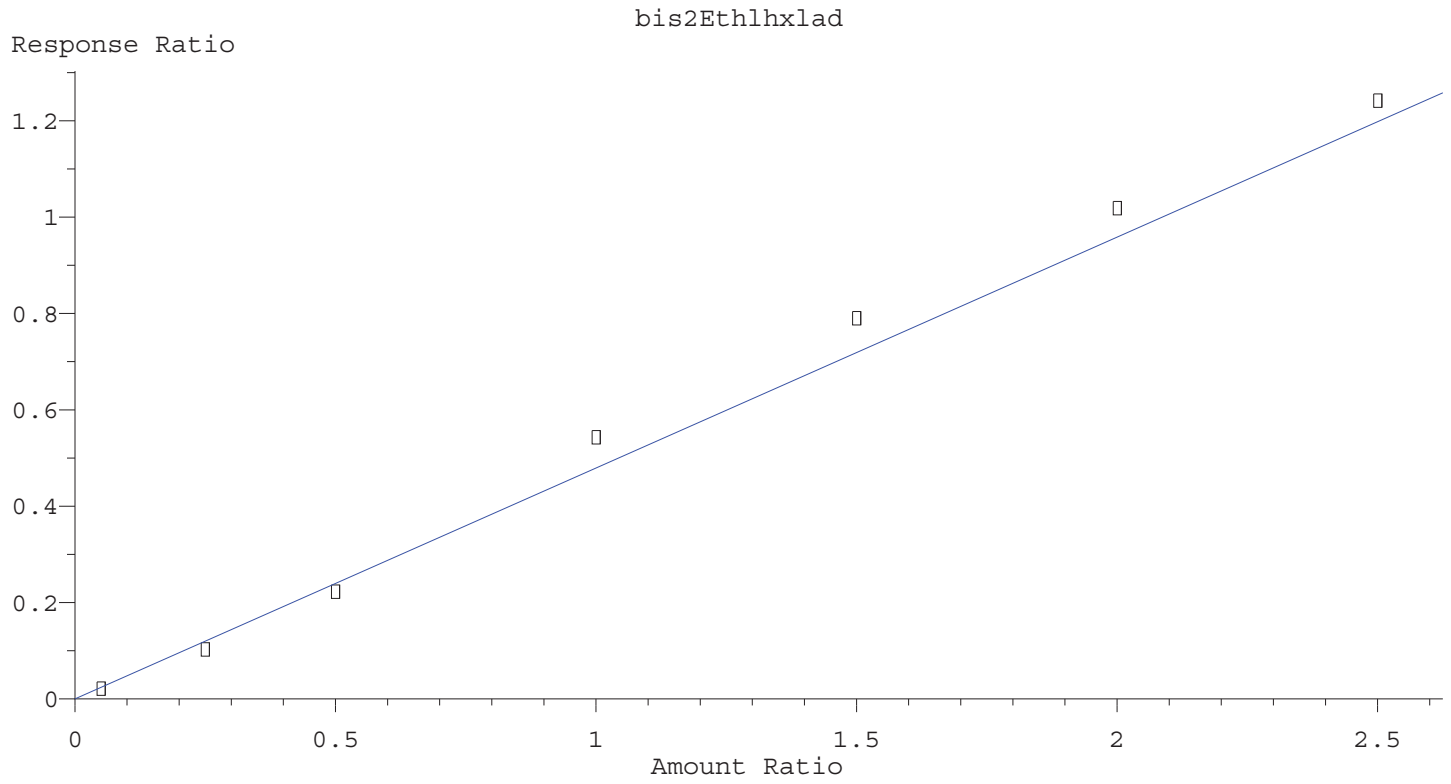
Resp Ratio = 1.365e+000 * Amt
RF Rel Std Dev = 7.734% Curve Fit: Avg RF



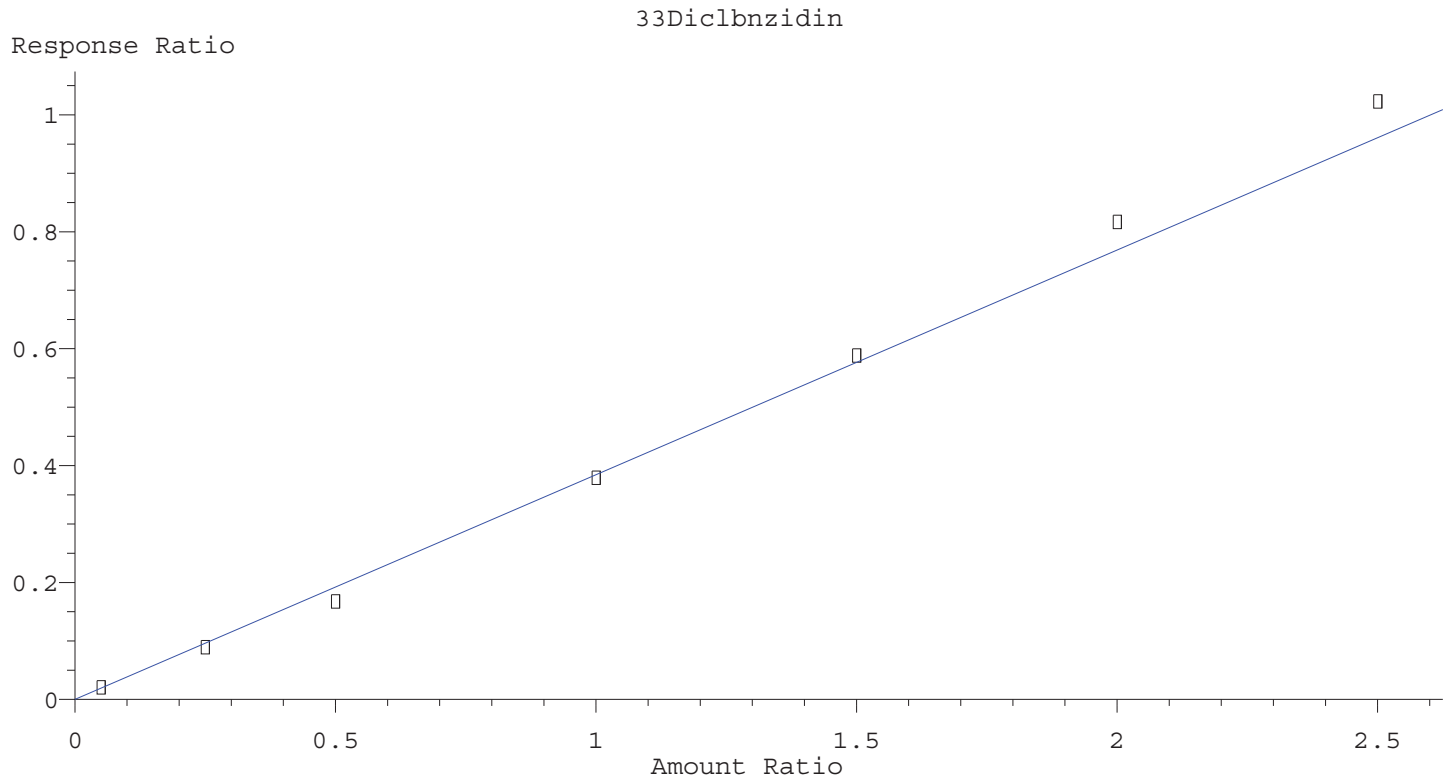
Resp Ratio = 1.759e-001 * Amt
RF Rel Std Dev = 8.084% Curve Fit: Avg RF



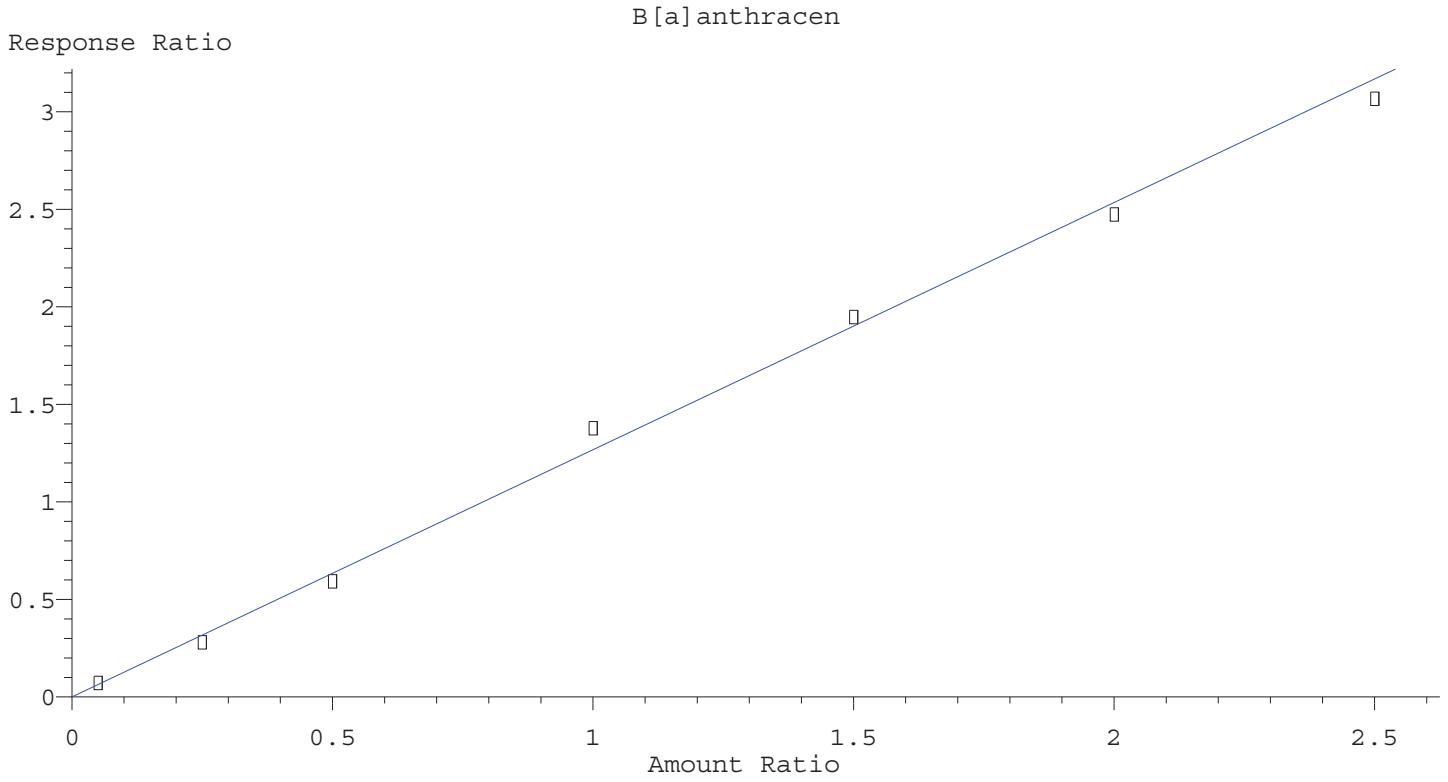
Resp Ratio = 6.193e-001 * Amt
RF Rel Std Dev = 10.190% Curve Fit: Avg RF



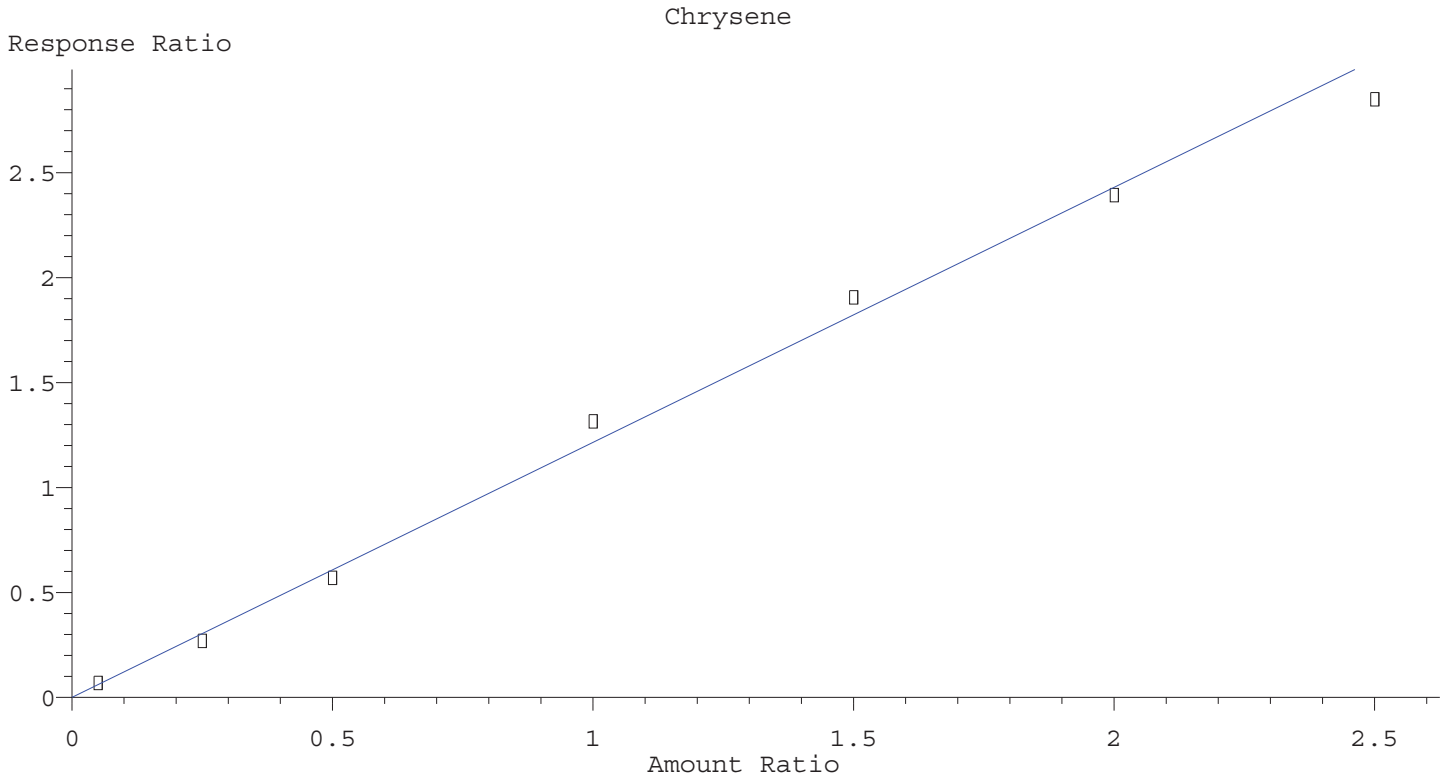
Resp Ratio = 4.793e-001 * Amt
RF Rel Std Dev = 10.911% Curve Fit: Avg RF



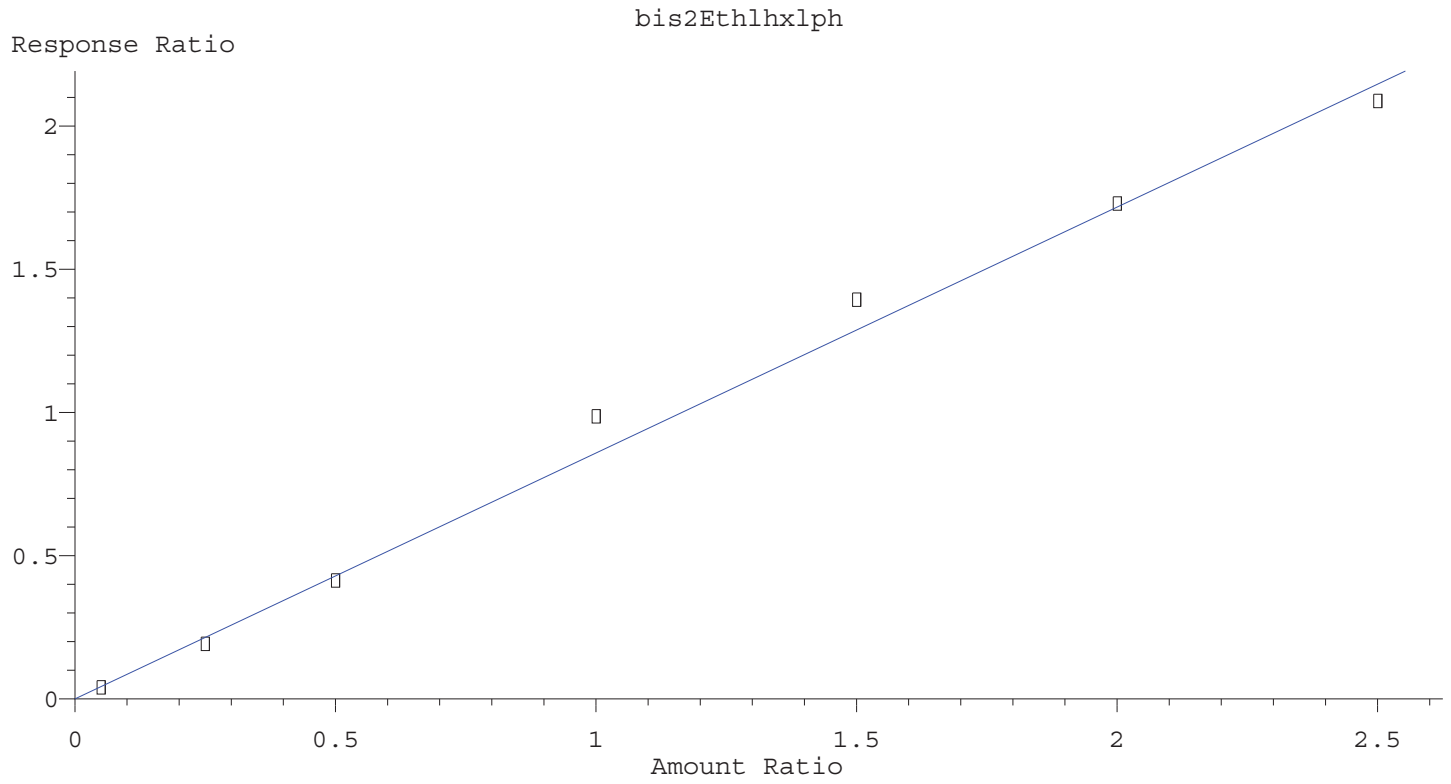
Resp Ratio = 3.844e-001 * Amt
RF Rel Std Dev = 7.604% Curve Fit: Avg RF



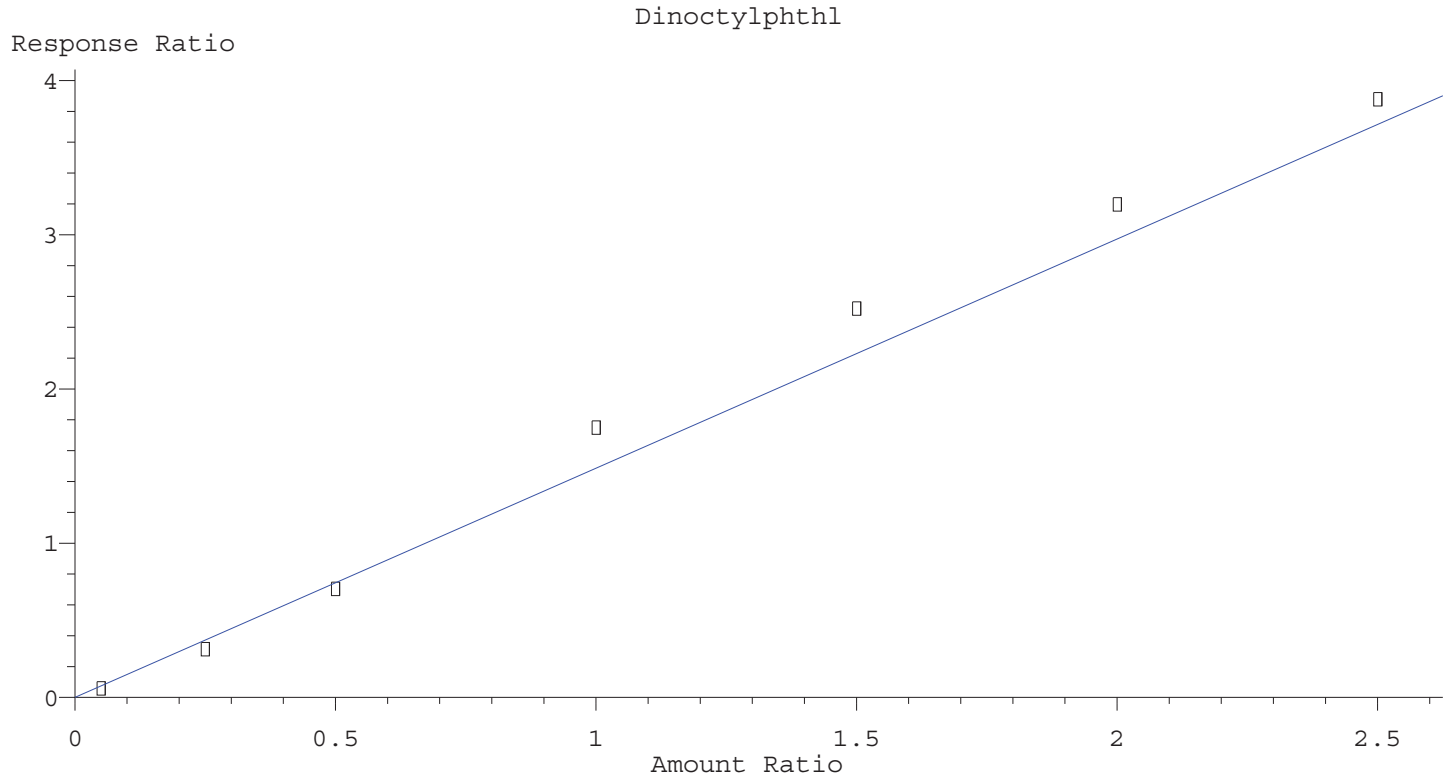
Resp Ratio = 1.267e+000 * Amt
RF Rel Std Dev = 8.632% Curve Fit: Avg RF



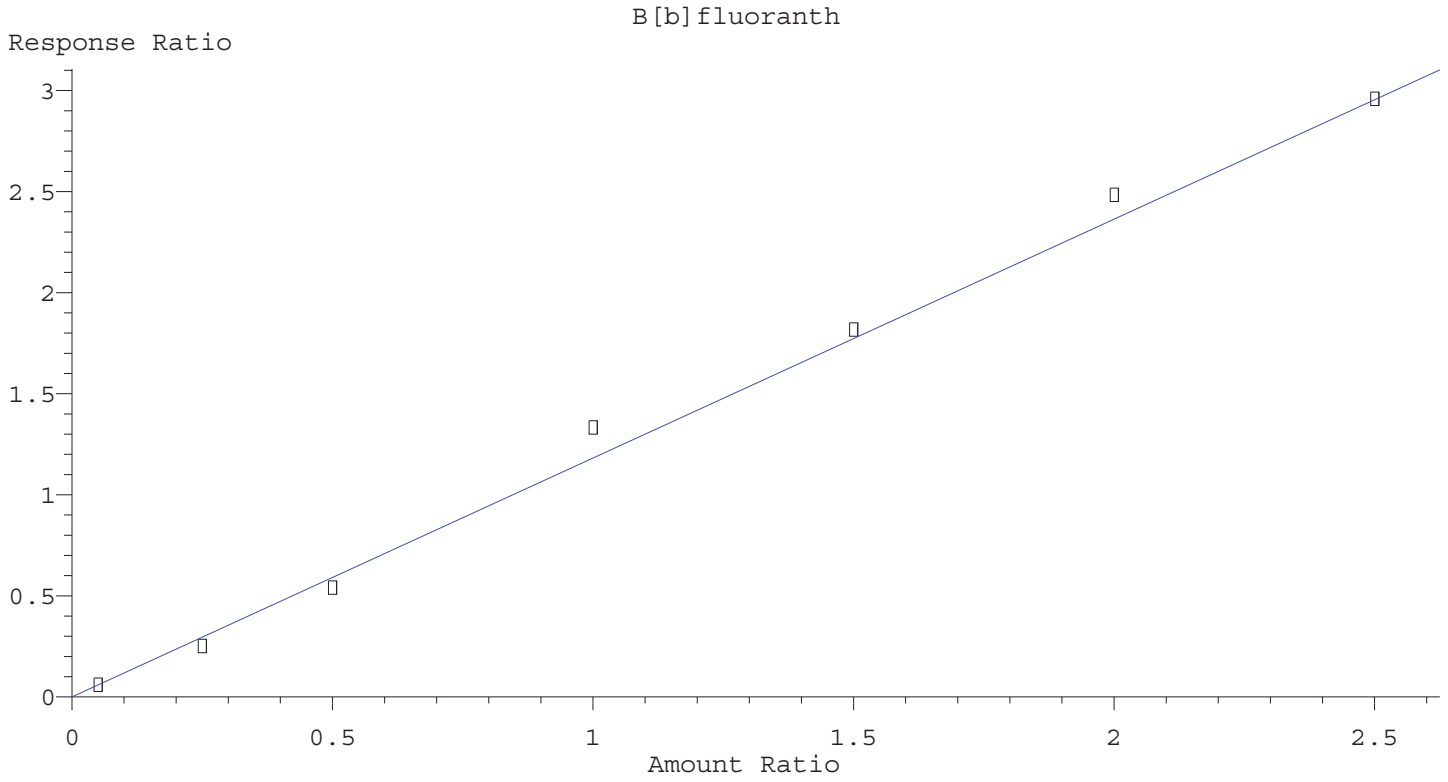
Resp Ratio = 1.215e+000 * Amt
RF Rel Std Dev = 8.802% Curve Fit: Avg RF



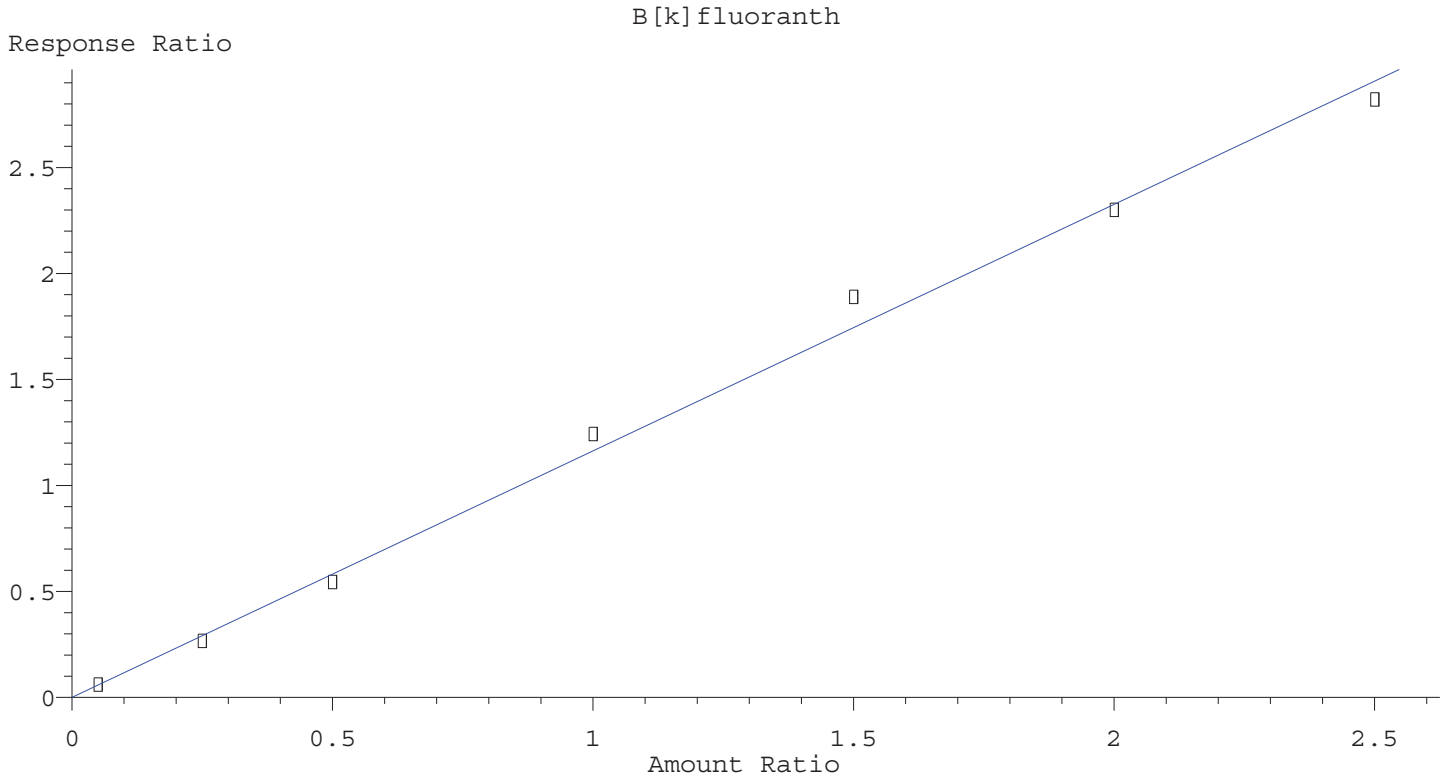
Resp Ratio = 8.587e-001 * Amt
RF Rel Std Dev = 8.841% Curve Fit: Avg RF



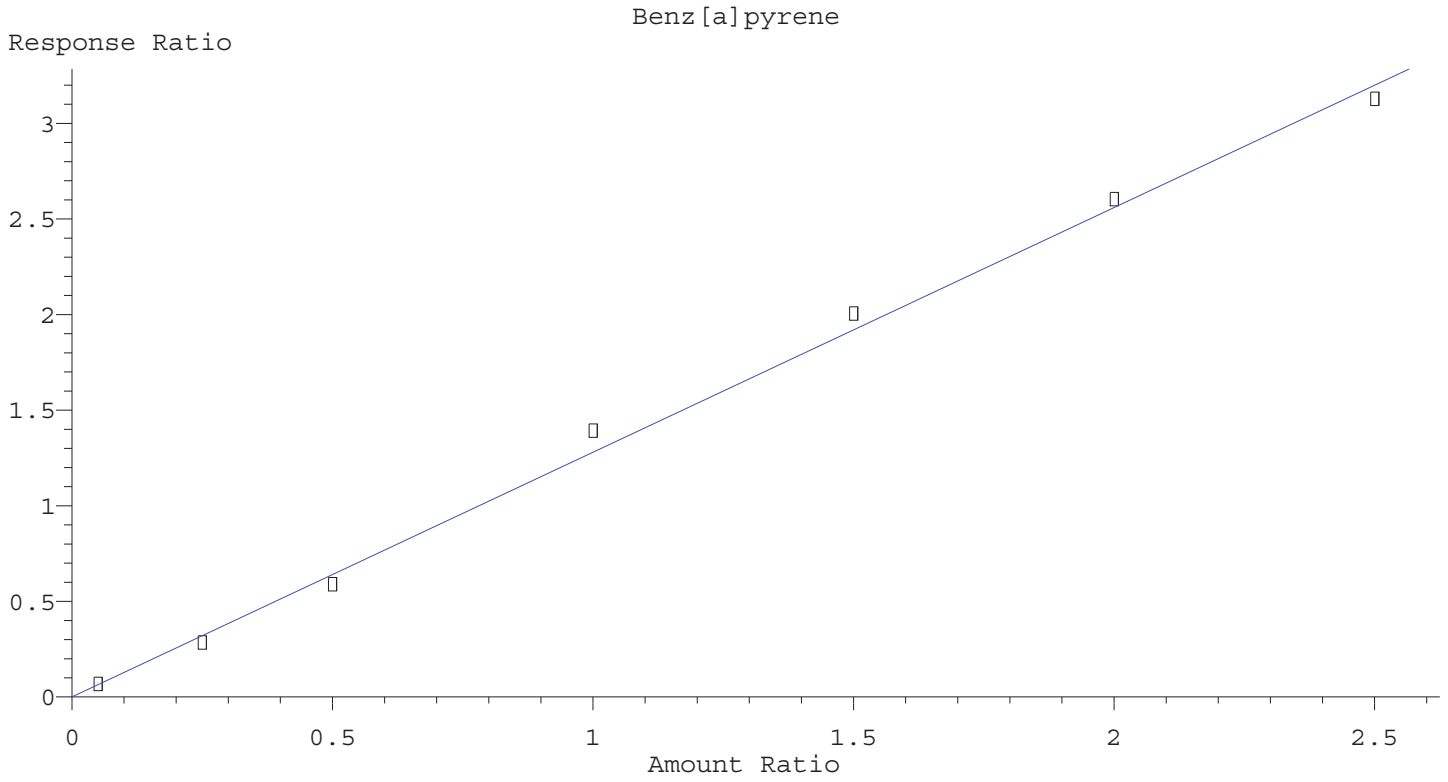
Resp Ratio = 1.486e+000 * Amt
RF Rel Std Dev = 14.703% Curve Fit: Avg RF



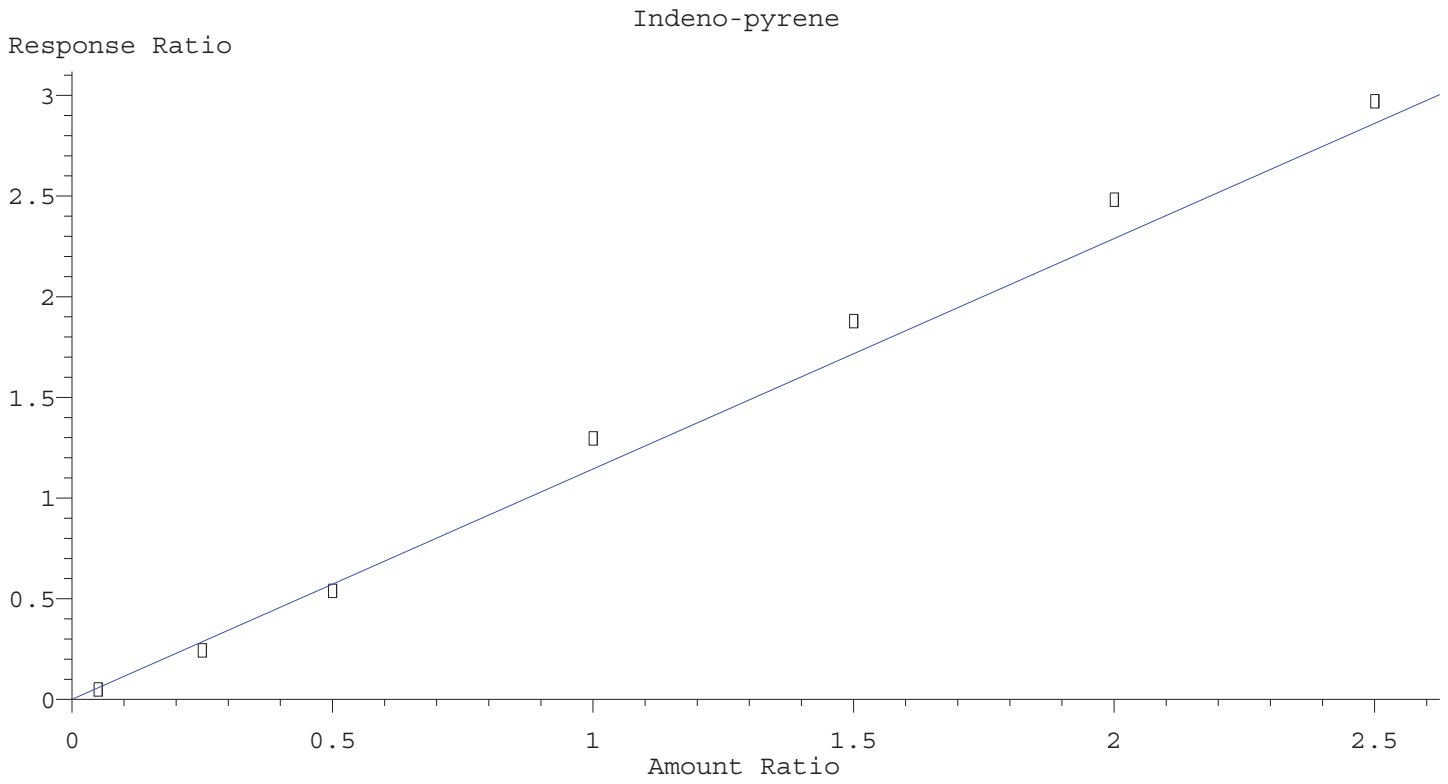
Resp Ratio = 1.182e+000 * Amt
RF Rel Std Dev = 9.033% Curve Fit: Avg RF



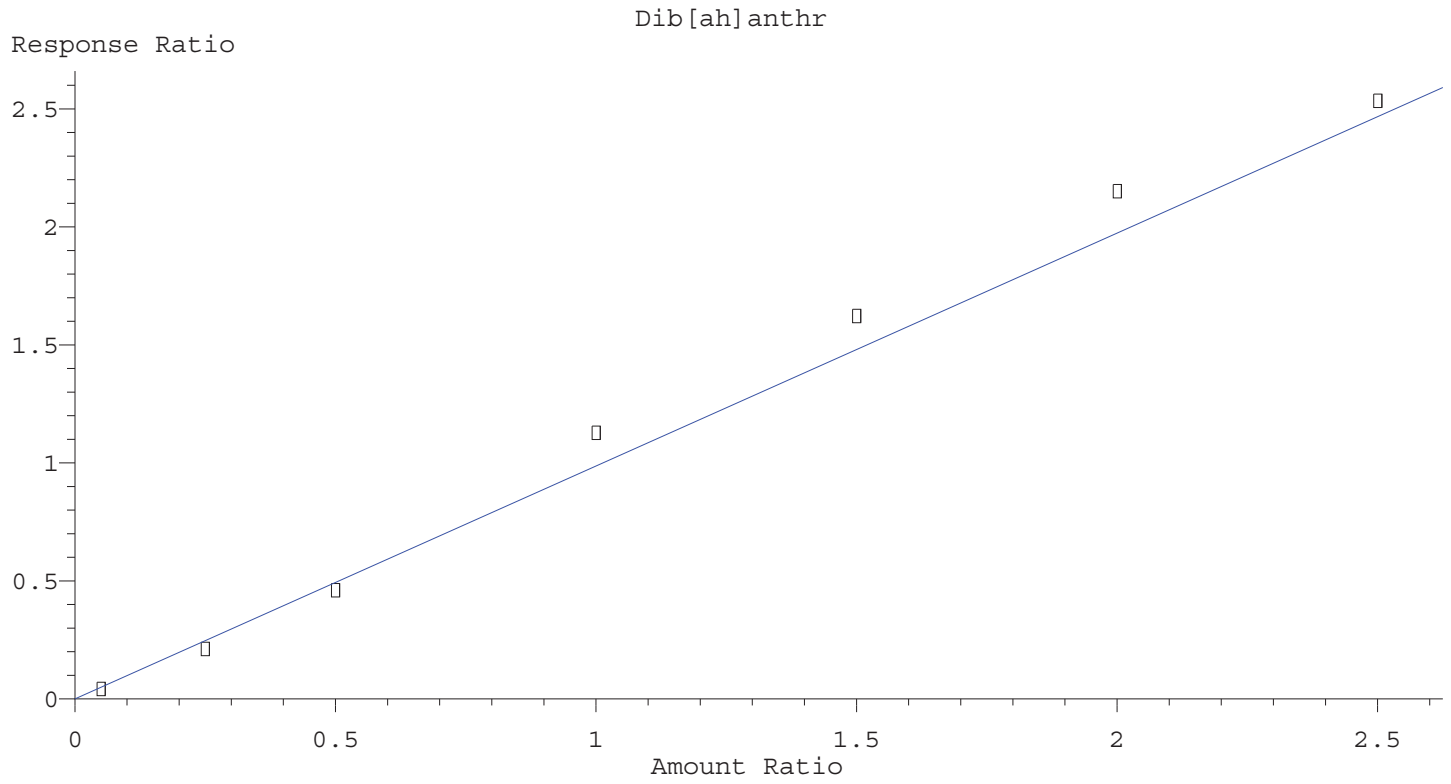
Resp Ratio = 1.163e+000 * Amt
RF Rel Std Dev = 6.428% Curve Fit: Avg RF



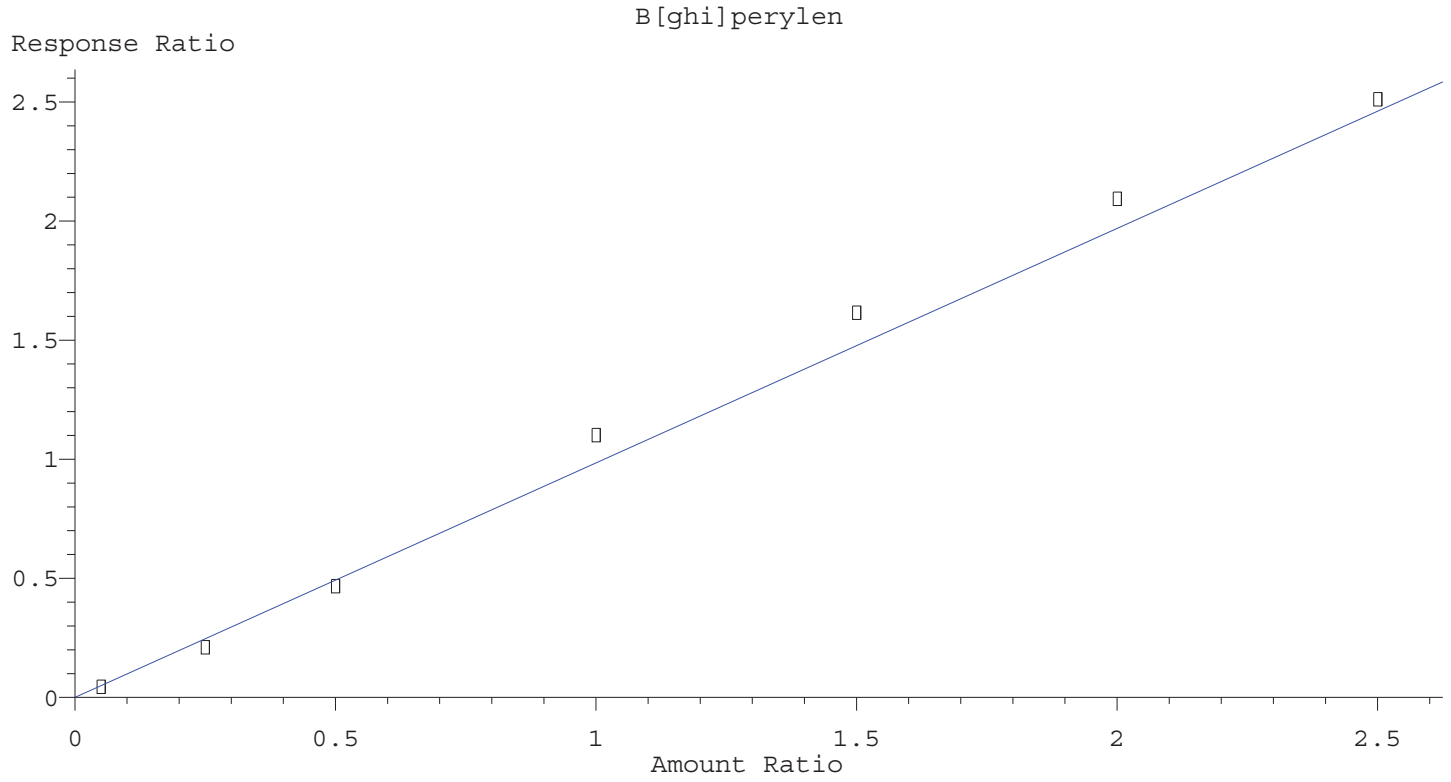
Resp Ratio = 1.280e+000 * Amt
RF Rel Std Dev = 7.471% Curve Fit: Avg RF



Resp Ratio = 1.144e+000 * Amt
RF Rel Std Dev = 11.614% Curve Fit: Avg RF



Resp Ratio = 9.867e-001 * Amt
RF Rel Std Dev = 11.883% Curve Fit: Avg RF



Resp Ratio = 9.845e-001 * Amt
RF Rel Std Dev = 10.042% Curve Fit: Avg RF

Quantitation Report (QT Reviewed)

Data File : C:\INSTARCH\DATA\2S092418\2IB02.D Vial: 99
Acq On : 24 Sep 2018 13:24 Operator: RPN
Sample : InstrumentBlank Inst : SVMS2
Misc : 500ul+5ul IS S3900D Multiplr: 1.00
Integrator: RTE
Quant Time: Sep 26 15:42:44 2018

Quant Method : C:\INSTARCH\METHOD\2S092418.M
Quant Title : Method for 8270 Analysis
QLast Update : Mon Sep 24 16:53:25 2018
Response via : Initial Calibration
DataAcq Meth:2S092418.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 14Diclbenzd4	4.763	152	74360	20.00	ug/mL	0.00
21) Naphthalened8	6.360	136	301550	20.00	ug/mL	0.00
39) Acenaphthened10	7.820	164	157094	20.00	ug/mL	0.00
63) Phenanthrd10	8.655	188	248271	20.00	ug/mL	0.00
75) Chrysene-d12	10.142	240	248948	20.00	ug/mL	0.00
86) Perylene-d12	11.164	264	241321	20.00	ug/mL	0.00
System Monitoring Compounds						
4) SURR2Flphenol	0.000	112	0	0.00	%REC	
Spiked Amount 100.000			Recovery	=	0.00%	
7) SURRPhenol-d5	0.000	99	0	0.00	%REC	
Spiked Amount 100.000			Recovery	=	0.00%	
22) SURRNitrbenzened5	0.000	82	0	0.00	%REC	
Spiked Amount 100.000			Recovery	=	0.00%	
44) SURR2Flbiphenyl	0.000	172	0	0.00	%REC	
Spiked Amount 100.000			Recovery	=	0.00%	
62) SURR246Tribrphenl	0.000	330	0	0.00	%REC	
Spiked Amount 100.000			Recovery	=	0.00%	
78) SURRTerphenyl-d14	0.000	244	0	0.00	%REC	
Spiked Amount 100.000			Recovery	=	0.00%	
Target Compounds						Qvalue
55) 4-Nitrophenol	7.823	65	830	0.3261	ug/mL#	19

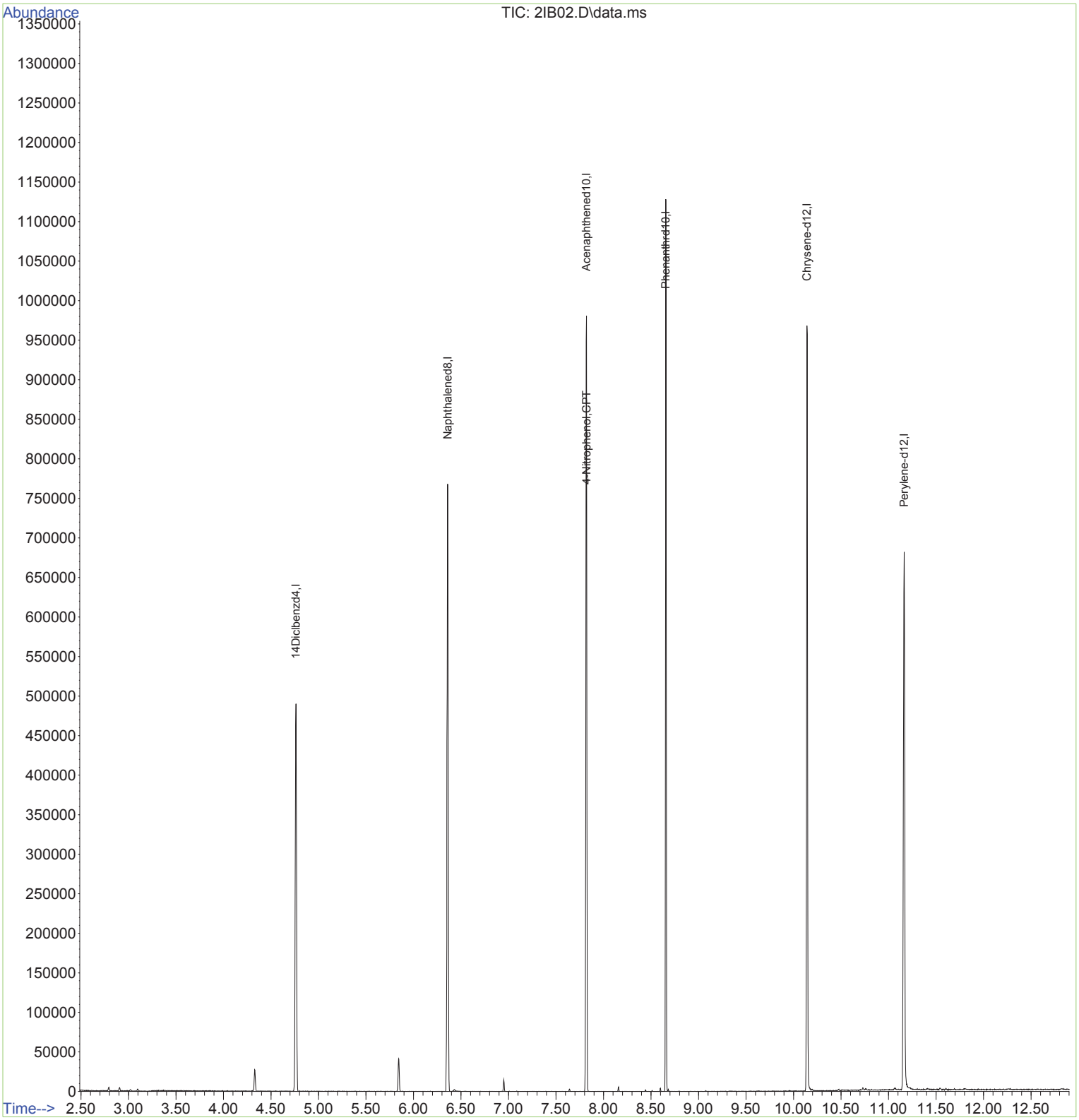
(#) = qualifier out of range (m) = manual integration (+) = signals summed

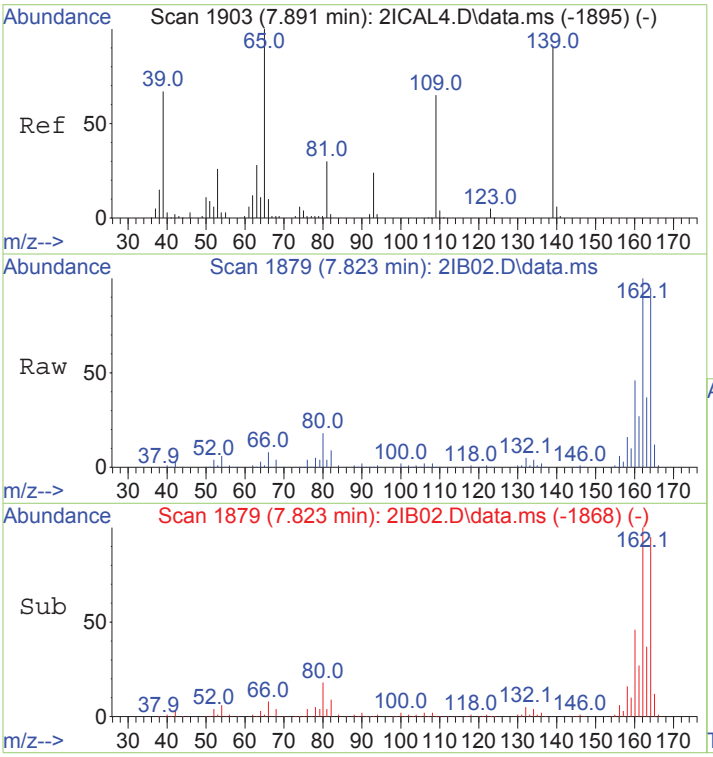
Quantitation Report (QT Reviewed)

Data File : C:\INSTARCH\DATA\2S092418\2IB02.D
Acq On : 24 Sep 2018 13:24
Sample : InstrumentBlank
Misc : 500ul+5ul IS S3900D
Integrator: RTE
Quant Time: Sep 26 15:42:44 2018

Vial: 99
Operator: RPN
Inst : SVMS2
Multiplr: 1.00

Quant Method : C:\INSTARCH\METHOD\2S092418.M
Quant Title : Method for 8270 Analysis
QLast Update : Mon Sep 24 16:53:25 2018
Response via : Initial Calibration
DataAcq Meth:2S092418.M

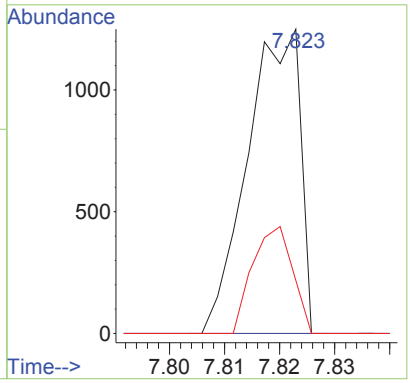




#55
4-Nitrophenol
Concen: 0.33 ug/mL
RT: 7.823 min Scan# 1879
Delta R.T. -0.068 min
Lab File: 2IB02.D
Acq: 24 Sep 2018 13:24

Tgt Ion: 65 Resp: 830

Ion	Ratio	Lower	Upper
65	100		
139	0.0	60.8	120.8#
109	17.4	34.6	94.6#



Quantitation Report (QT Reviewed)

Data File : C:\INSTARCH\DATA\2S092418\2ICAL7.D Vial: 2
Acq On : 24 Sep 2018 13:45 Operator: RPN
Sample : ICAL 50ug/mL SVMS8104 Inst : SVMS2
Misc : 500ul+5ul IS S3916B Multiplr: 1.00
Integrator: RTE
Quant Time: Sep 24 16:50:11 2018

Quant Method : C:\INSTARCH\METHOD\2S092418.M
Quant Title : Method for 8270 Analysis
QLast Update : Mon Sep 24 16:11:58 2018
Response via : Initial Calibration
DataAcq Meth:2S092418.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 14Diclbenzd4	4.766	152	41994	20.00	ug/mL	0.00
21) Naphthalened8	6.368	136	176123	20.00	ug/mL	0.00
39) Acenaphthened10	7.829	164	92512	20.00	ug/mL	0.00
63) Phenanthrd10	8.661	188	143009	20.00	ug/mL	0.00
75) Chrysene-d12	10.145	240	135722	20.00	ug/mL	0.00
86) Perylene-d12	11.159	264	138712	20.00	ug/mL	0.00
System Monitoring Compounds						
4) SURR2Flphenol	3.456	112	148492	128.13	%REC	0.00
Spiked Amount 100.000			Recovery = 128.13%			
7) SURRPhenol-d5	4.311	99	180321	128.59	%REC	0.00
Spiked Amount 100.000			Recovery = 128.59%			
22) SURRNitrbenzened5	5.493	82	183108	257.59	%REC	0.00
Spiked Amount 100.000			Recovery = 257.59%			
44) SURR2Flbiphenyl	7.346	172	329356	234.79	%REC	0.00
Spiked Amount 100.000			Recovery = 234.79%			
62) SURR246Tribrphenl	8.329	330	37761	126.59	%REC	0.00
Spiked Amount 100.000			Recovery = 126.59%			
78) SURRTerphenyl-d14	9.468	244	285748	239.43	%REC	0.00
Spiked Amount 100.000			Recovery = 239.43%			
Target Compounds						Qvalue
2) Ntrsdimeth	2.620	74	100613	53.6617	ug/mL	97
3) Pyridine	2.646	79	181985	52.6646	ug/mL	98
5) Aniline	4.385	93	216649	51.2094	ug/mL	99
6) bis2Clethletr	4.450	93	149358	51.1643	ug/mL	99
8) Phenol	4.328	94	166198	50.4011	ug/mL	99
9) 2-Cl-phenol	4.516	128	142141	50.7772	ug/mL	100
10) 13Diclbenz	4.700	146	171594	49.8885	ug/mL	98
11) 14Diclbenz	4.786	146	165295	49.6155	ug/mL	99
12) 12Diclbenz	4.973	146	161051	49.8040	ug/mL	99
13) Benzyl alcoho	4.928	108	94894	51.7245	ug/mL	96
14) bis2clispreth	5.107	45	205554	60.4963	ug/mL	99
15) 2Methylphenol	5.058	107	100373	49.3072	ug/mL	98
16) Ntrspyrrol	5.254	100	77634	54.1790	ug/mL	97
17) Acetophenone	5.286	105	210464	47.8259	ug/mL	87
18) Hexaclethane	5.433	117	71535	50.5047	ug/mL	99
19) N-Ntrsdinprop	5.300	70	121388	48.9272	ug/mL	97
20) 3&4Methylphenol	5.286	107	150077	47.4068	ug/mL#	81
23) Nitrobenzene	5.286	77	225913	48.2399	ug/mL	100
24) Isophorone	5.851	82	287759	52.0261	ug/mL	99
25) 2-Nitrophenol	5.934	139	88786	48.8860	ug/mL	97
26) 24Dimthpheno	5.999	122	134365	49.0135	ug/mL	99
27) bis2clethoxym	6.118	93	188131	48.1956	ug/mL	99
28) 24Diclphenol	6.215	162	134952	49.3425	ug/mL	96
29) 124Triclbenz	6.311	180	157899	48.5141	ug/mL	97
30) Benzoic acid	6.167	122	105214	49.1071	ug/mL	99
31) Naphthalene	6.391	128	459810	46.6752	ug/mL	99
32) 4-Cl-aniline	6.454	127	185782	48.6185	ug/mL	99
33) 26Diclphenol	6.462	162	118302	47.5731	ug/mL	99
34) Hexaclprop	6.488	213	99796	51.0552	ug/mL	98
35) Hexaclbutdien	6.533	225	87703	48.5462	ug/mL	99
36) 4Cl3methylphe	6.922	107	151766	50.9050	ug/mL	98
37) 2Methylnaphth	7.047	142	294925	47.5480	ug/mL	99
38) 1Methylnaphth	7.130	141	266961	47.8808	ug/mL	100
40) Hxclcycpentdi	7.184	237	87508	50.0970	ug/mL	98

Quantitation Report (QT Reviewed)

Data File : C:\INSTARCH\DATA\2S092418\2ICAL7.D Vial: 2
Acq On : 24 Sep 2018 13:45 Operator: RPN
Sample : ICAL 50ug/mL SVMS8104 Inst : SVMS2
Misc : 500ul+5ul IS S3916B Multiplr: 1.00
Integrator: RTE
Quant Time: Sep 24 16:50:11 2018

Quant Method : C:\INSTARCH\METHOD\2S092418.M
Quant Title : Method for 8270 Analysis
QLast Update : Mon Sep 24 16:11:58 2018
Response via : Initial Calibration
DataAcq Meth:2S092418.M

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
41) 1245Tetrclbenz	7.187	216	140208	46.3569 ug/mL	99
42) 246Triclpheno	7.278	196	109328	51.2932 ug/mL	98
43) 245Triclpheno	7.300	196	110452	49.7450 ug/mL	94
45) 2Clnaphthalen	7.434	162	294373	46.7667 ug/mL	99
46) 2Nitroaniline	7.508	65	104658	52.5724 ug/mL	99
47) Acnaphthylene	7.732	152	421513	45.6691 ug/mL	98
48) Dimethylphtha	7.650	163	340455	46.5614 ug/mL	99
49) 26Dinitrotolu	7.687	165	84617	50.2059 ug/mL	98
50) Acenaphthene	7.854	154	270919	45.3547 ug/mL	99
51) 3Nitroaniline	7.800	138	84265	50.6093 ug/mL	99
52) 24Dinitphenol	7.869	184	62709	48.4057 ug/mL	88
53) Dibenzofuran	7.968	168	372628	45.0487 ug/mL	99
54) 24Dinitrotolu	7.957	165	110802	49.8029 ug/mL	97
55) 4-Nitrophenol	7.906	65	76007	50.7067 ug/mL	99
56) 2,3,5,6-Tetrachlorop	8.016	232	87474	51.2396 ug/mL	96
57) 2,3,4,6-Tetrachlorop	8.045	232	87383	50.0942 ug/mL	98
58) Fluorene	8.190	166	292358	44.0512 ug/mL	98
59) 4Clphlphlethr	8.181	204	153450	44.7561 ug/mL	98
60) Diethylphthal	8.113	149	346025	47.2236 ug/mL	99
61) 4Nitroaniline	8.204	138	75519	47.5703 ug/mL	91
64) 46Dinit2mylph	8.218	198	64808	48.5053 ug/mL	97
65) Ntrsdiphlam&Diphlam	8.258	169	401561	86.9947 ug/mL	98
66) Azobenz&12Diphlhyd	8.281	182	147995	89.8459 ug/mL	95
67) 4Brphlphlethr	8.443	248	78125	47.5711 ug/mL	99
68) Hexaclbenzene	8.479	284	77686	47.1057 ug/mL	99
69) Pentaclphenol	8.568	266	53598	52.9711 ug/mL	98
70) Phenanthrene	8.673	178	352853	45.7087 ug/mL	98
71) Anthracene	8.698	178	357344	45.4768 ug/mL	99
72) Carbazole	8.766	167	323505	45.4748 ug/mL	99
73) Dinbtylphthal	8.909	149	410171	45.1336 ug/mL	99
74) Fluoranthene	9.272	202	428865	47.2431 ug/mL	97
76) Benzidine	9.326	184	158065	53.5752 ug/mL	99
77) Pyrene	9.403	202	440963	47.6056 ug/mL	98
79) Btylbzylphth	9.750	149	213730	50.8621 ug/mL	95
80) bis2Ethlhxlad	9.781	129	168486	51.8047 ug/mL	99
81) 33Diclbnzidin	10.102	252	138831	53.2322 ug/mL	99
82) B[a]anthracen	10.136	228	416172	48.3938 ug/mL	98
83) Chrysene	10.164	228	386740	46.8967 ug/mL	98
84) bis2Ethlhxlph	10.110	149	283347	48.6348 ug/mL	99
85) Dinoctylphthl	10.540	149	526316	52.1920 ug/mL	99
87) B[b]fluoranth	10.866	252	410447	50.0825 ug/mL	99
88) B[k]fluoranth	10.889	252	391307	48.5211 ug/mL	99
89) Benz[a]pyrene	11.122	252	433954	48.8804 ug/mL	98
90) Indeno-pyrene	12.134	276	411966	51.9020 ug/mL	98
91) Dib[ah]anthr	12.145	278	351446	51.3563 ug/mL	97
92) B[ghi]perylen	12.421	276	348267	51.0041 ug/mL	98

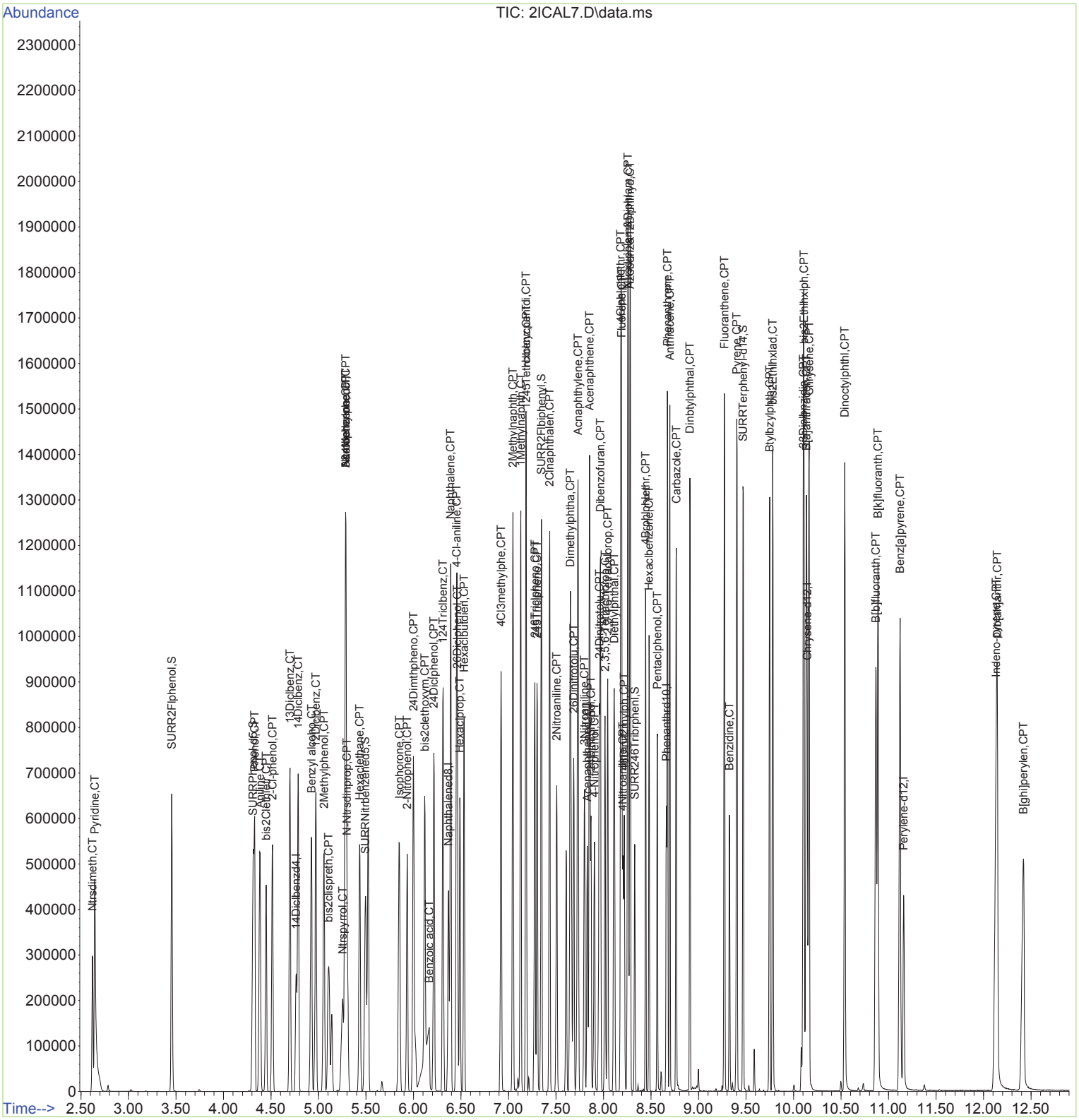
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\INSTARCH\DATA\2S092418\2ICAL7.D
Acq On : 24 Sep 2018 13:45
Sample : ICAL 50ug/mL SVMS8104
Misc : 500ul+5ul IS S3916B
Integrator: RTE
Quant Time: Sep 24 16:50:11 2018

Vial: 2
Operator: RPN
Inst : SVMS2
Multiplr: 1.00

Quant Method : C:\INSTARCH\METHOD\2S092418.M
Quant Title : Method for 8270 Analysis
QLast Update : Mon Sep 24 16:11:58 2018
Response via : Initial Calibration
DataAcq Meth:2S092418.M



Quantitation Report (QT Reviewed)

Data File : C:\INSTARCH\DATA\2S092418\2ICAL6.D Vial: 3
Acq On : 24 Sep 2018 14:05 Operator: RPN
Sample : ICAL 40ug/mL SVMS8103 Inst : SVMS2
Misc : 500ul+5ul IS S3916B Multiplr: 1.00
Integrator: RTE
Quant Time: Sep 24 16:50:07 2018

Quant Method : C:\INSTARCH\METHOD\2S092418.M
Quant Title : Method for 8270 Analysis
QLast Update : Mon Sep 24 16:11:58 2018
Response via : Initial Calibration
DataAcq Meth:2S092418.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 14Diclbenzd4	4.766	152	42722	20.00	ug/mL	0.00
21) Naphthalened8	6.365	136	180737	20.00	ug/mL	0.00
39) Acenaphthened10	7.826	164	94138	20.00	ug/mL	0.00
63) Phenanthrd10	8.658	188	147774	20.00	ug/mL	0.00
75) Chrysene-d12	10.145	240	139481	20.00	ug/mL	0.00
86) Perylene-d12	11.162	264	139600	20.00	ug/mL	0.00
System Monitoring Compounds						
4) SURR2Flphenol	3.456	112	121650	103.18	%REC	0.00
Spiked Amount 100.000			Recovery = 103.18%			
7) SURRPhenol-d5	4.308	99	149042	104.47	%REC	0.00
Spiked Amount 100.000			Recovery = 104.47%			
22) SURRNitrbenzened5	5.490	82	151877	208.20	%REC	0.00
Spiked Amount 100.000			Recovery = 208.20%			
44) SURR2Flbiphenyl	7.343	172	278619	195.19	%REC	0.00
Spiked Amount 100.000			Recovery = 195.19%			
62) SURR246Tribrphenl	8.326	330	32263	106.29	%REC	0.00
Spiked Amount 100.000			Recovery = 106.29%			
78) SURRTerphenyl-d14	9.468	244	242162	197.44	%REC	0.00
Spiked Amount 100.000			Recovery = 197.44%			
Target Compounds						Qvalue
2) Ntrsdimeth	2.623	74	81869	42.9205	ug/mL	99
3) Pyridine	2.646	79	145594	41.4154	ug/mL	99
5) Aniline	4.382	93	178415	41.4534	ug/mL	100
6) bis2Clethletr	4.447	93	121087	40.7729	ug/mL	98
8) Phenol	4.325	94	137788	41.0734	ug/mL	98
9) 2-Cl-phenol	4.513	128	117256	41.1737	ug/mL	97
10) 13Diclbenz	4.697	146	140570	40.1723	ug/mL	96
11) 14Diclbenz	4.786	146	136260	40.2033	ug/mL	100
12) 12Diclbenz	4.970	146	132884	40.3933	ug/mL	99
13) Benzyl alcoho	4.925	108	78657	42.1435	ug/mL	98
14) bis2clispreth	5.107	45	168600	48.7748	ug/mL	99
15) 2Methylphenol	5.056	107	83417	40.2795	ug/mL	98
16) Ntrspyrrol	5.249	100	63437	43.5168	ug/mL	98
17) Acetophenone	5.283	105	177145	39.5686	ug/mL	87
18) Hexaclethane	5.433	117	59309	41.1595	ug/mL	98
19) N-Ntrsdinprop	5.294	70	101739	40.3086	ug/mL	98
20) 3&4Methylphenol	5.280	107	126159	39.1724	ug/mL#	85
23) Nitrobenzene	5.283	77	190279	39.5936	ug/mL	100
24) Isophorone	5.845	82	235323	41.4597	ug/mL	100
25) 2-Nitrophenol	5.931	139	74763	40.2007	ug/mL	99
26) 24Dimthpheno	5.996	122	114300	40.6298	ug/mL	99
27) bis2clethoxym	6.115	93	158297	39.5174	ug/mL	100
28) 24Diclphenol	6.212	162	113740	40.5251	ug/mL	98
29) 124Triclbenz	6.309	180	132287	39.6073	ug/mL	99
30) Benzoic acid	6.149	122	87611	40.4445	ug/mL	96
31) Naphthalene	6.388	128	390837	38.6610	ug/mL	99
32) 4-Cl-aniline	6.451	127	156721	39.9663	ug/mL	98
33) 26Diclphenol	6.459	162	101626	39.8238	ug/mL	98
34) Hexaclprop	6.488	213	83504	41.6296	ug/mL	97
35) Hexaclbutdien	6.530	225	72465	39.0875	ug/mL	99
36) 4Cl3methylphe	6.920	107	126087	41.2121	ug/mL	97
37) 2Methylnaphth	7.045	142	247562	38.8932	ug/mL	98
38) 1Methylnaphth	7.127	141	221220	38.6640	ug/mL	100
40) Hxclcycpentdi	7.181	237	74810	42.0879	ug/mL	99

Quantitation Report (QT Reviewed)

Data File : C:\INSTARCH\DATA\2S092418\2ICAL6.D Vial: 3
Acq On : 24 Sep 2018 14:05 Operator: RPN
Sample : ICAL 40ug/mL SVMS8103 Inst : SVMS2
Misc : 500ul+5ul IS S3916B Multiplr: 1.00
Integrator: RTE
Quant Time: Sep 24 16:50:07 2018

Quant Method : C:\INSTARCH\METHOD\2S092418.M
Quant Title : Method for 8270 Analysis
QLast Update : Mon Sep 24 16:11:58 2018
Response via : Initial Calibration
DataAcq Meth:2S092418.M

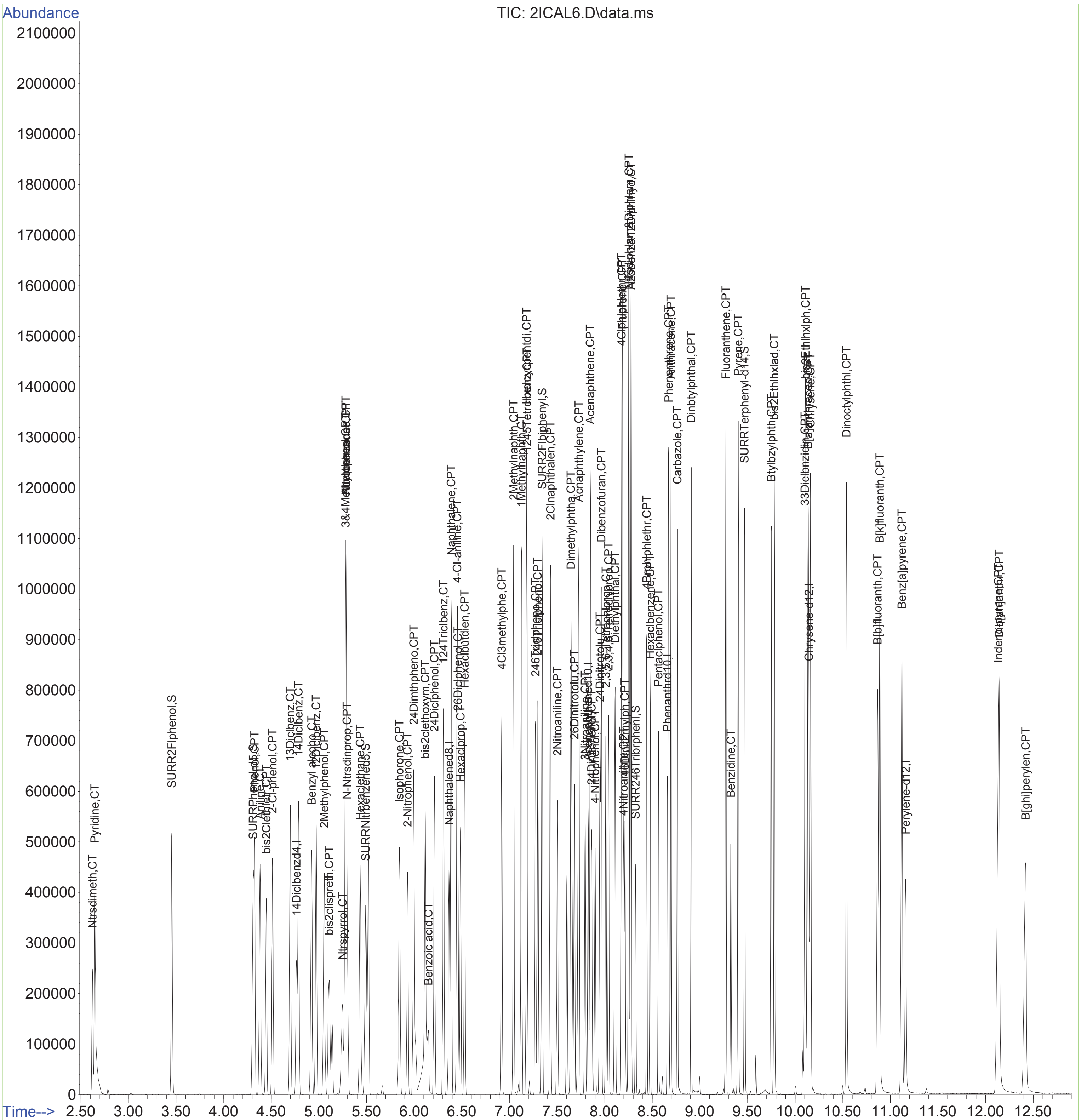
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
41) 1245Tetrclbenz	7.184	216	118635	38.5468 ug/mL	99
42) 246Triclpheno	7.275	196	92177	42.4996 ug/mL	97
43) 245Triclpheno	7.297	196	93447	41.3594 ug/mL	96
45) 2Clnaphthalen	7.431	162	249127	38.8949 ug/mL	100
46) 2Nitroaniline	7.505	65	88420	43.6485 ug/mL	97
47) Acnaphthylene	7.729	152	359156	38.2408 ug/mL	98
48) Dimethylphtha	7.647	163	292377	39.2955 ug/mL	99
49) 26Dinitrotolu	7.684	165	70022	40.8286 ug/mL	98
50) Acenaphthene	7.849	154	245775	40.4347 ug/mL	97
51) 3Nitroaniline	7.795	138	70316	41.5022 ug/mL	99
52) 24Dinitphenol	7.863	184	53375	40.8773 ug/mL	90
53) Dibenzofuran	7.965	168	322624	38.3298 ug/mL	100
54) 24Dinitrotolu	7.951	165	94169	41.5956 ug/mL	98
55) 4-Nitrophenol	7.900	65	63704	41.7649 ug/mL	95
56) 2,3,5,6-Tetrachlorop	8.013	232	73806	42.4866 ug/mL	97
57) 2,3,4,6-Tetrachlorop	8.042	232	73461	41.3857 ug/mL	98
58) Fluorene	8.187	166	253685	37.5639 ug/mL	99
59) 4Clphlphlethr	8.178	204	130889	37.5165 ug/mL	98
60) Diethylphthal	8.110	149	292410	39.2172 ug/mL	98
61) 4Nitroaniline	8.198	138	64628	40.0068 ug/mL	93
64) 46Dinit2mylph	8.212	198	55629	40.5510 ug/mL	98
65) Ntrsdiphlam&Diphlam	8.255	169	347571	72.8702 ug/mL	99
66) Azobenz&12Diphlhyd	8.278	182	128553	75.5264 ug/mL	96
67) 4Brphlphlethr	8.443	248	66834	39.3837 ug/mL	94
68) Hexaclbenzene	8.479	284	66132	38.8068 ug/mL	93
69) Pentaclphenol	8.565	266	44207	42.2812 ug/mL	99
70) Phenanthrene	8.673	178	304447	38.1665 ug/mL	98
71) Anthracene	8.695	178	307186	37.8330 ug/mL	99
72) Carbazole	8.764	167	277240	37.7147 ug/mL	99
73) Dinbtylphthal	8.909	149	349913	37.2615 ug/mL	99
74) Fluoranthene	9.272	202	363467	38.7479 ug/mL	98
76) Benzidine	9.326	184	129848	42.8251 ug/mL	99
77) Pyrene	9.403	202	376840	39.5866 ug/mL	98
79) Btylbzylphth	9.750	149	181268	41.9744 ug/mL	97
80) bis2Ethlhxlad	9.781	129	142067	42.5044 ug/mL	100
81) 33Diclbnzidin	10.102	252	113908	42.4989 ug/mL	99
82) B[a]anthracen	10.136	228	344950	39.0309 ug/mL	99
83) Chrysene	10.162	228	333736	39.3787 ug/mL	99
84) bis2Ethlhxlph	10.110	149	241217	40.2876 ug/mL	99
85) Dinoctylphthl	10.540	149	445832	43.0194 ug/mL	99
87) B[b]fluoranth	10.866	252	346787	42.0456 ug/mL	99
88) B[k]fluoranth	10.889	252	321050	39.5562 ug/mL	99
89) Benz[a]pyrene	11.122	252	363449	40.6783 ug/mL	99
90) Indeno-pyrene	12.134	276	346453	43.3706 ug/mL	96
91) Dib[ah]anthr	12.142	278	300292	43.6021 ug/mL	98
92) B[ghi]perylen	12.421	276	292173	42.5169 ug/mL	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\INSTARCH\DATA\2S092418\2ICAL6.D Vial: 3
Acq On : 24 Sep 2018 14:05 Operator: RPN
Sample : ICAL 40ug/mL SVMS8103 Inst : SVMS2
Misc : 500ul+5ul IS S3916B Multiplr: 1.00
Integrator: RTE
Quant Time: Sep 24 16:50:07 2018

Quant Method : C:\INSTARCH\METHOD\2S092418.M
Quant Title : Method for 8270 Analysis
QLast Update : Mon Sep 24 16:11:58 2018
Response via : Initial Calibration
DataAcq Meth:2S092418.M



Quantitation Report (QT Reviewed)

Data File : C:\INSTARCH\DATA\2S092418\2ICAL5.D Vial: 4
Acq On : 24 Sep 2018 14:25 Operator: RPN
Sample : ICAL 30ug/mL SVMS8102 Inst : SVMS2
Misc : 500ul+5ul IS S3916B Multiplr: 1.00
Integrator: RTE
Quant Time: Sep 24 16:50:03 2018

Quant Method : C:\INSTARCH\METHOD\2S092418.M
Quant Title : Method for 8270 Analysis
QLast Update : Mon Sep 24 16:11:58 2018
Response via : Initial Calibration
DataAcq Meth:2S092418.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 14Diclbenzd4	4.763	152	43070	20.00	ug/mL	0.00
21) Naphthalened8	6.363	136	180086	20.00	ug/mL	0.00
39) Acenaphthened10	7.823	164	93960	20.00	ug/mL	0.00
63) Phenanthrd10	8.659	188	147992	20.00	ug/mL	0.00
75) Chrysene-d12	10.145	240	141252	20.00	ug/mL	0.00
86) Perylene-d12	11.162	264	142345	20.00	ug/mL	0.00
System Monitoring Compounds						
4) SURR2Flphenol	3.453	112	93876	78.98	%REC	0.00
Spiked Amount 100.000			Recovery = 78.98%			
7) SURRPhenol-d5	4.305	99	113304	78.78	%REC	0.00
Spiked Amount 100.000			Recovery = 78.78%			
22) SURRNitrbenzened5	5.487	82	116660	160.50	%REC	0.00
Spiked Amount 100.000			Recovery = 160.50%			
44) SURR2Flbiphenyl	7.340	172	217710	152.81	%REC	0.00
Spiked Amount 100.000			Recovery = 152.81%			
62) SURR246Tribrphenl	8.323	330	24246	80.03	%REC	0.00
Spiked Amount 100.000			Recovery = 80.03%			
78) SURRTerphenyl-d14	9.468	244	191859	154.47	%REC	0.00
Spiked Amount 100.000			Recovery = 154.47%			
Target Compounds						Qvalue
2) Ntrsdimeth	2.620	74	63412	32.9757	ug/mL	99
3) Pyridine	2.646	79	112735	31.8093	ug/mL	99
5) Aniline	4.379	93	136523	31.4638	ug/mL	100
6) bis2Clethletr	4.445	93	93555	31.2477	ug/mL	97
8) Phenol	4.322	94	105193	31.1038	ug/mL	99
9) 2-Cl-phenol	4.513	128	90576	31.5482	ug/mL	100
10) 13Diclbenz	4.698	146	109934	31.1633	ug/mL	98
11) 14Diclbenz	4.783	146	106099	31.0514	ug/mL	98
12) 12Diclbenz	4.970	146	102923	31.0331	ug/mL	98
13) Benzyl alcoho	4.922	108	61605	32.7406	ug/mL	98
14) bis2clispreth	5.107	45	131372	37.6979	ug/mL	99
15) 2Methylphenol	5.056	107	65431	31.3393	ug/mL	98
16) Ntrspyrrol	5.243	100	48556	33.0395	ug/mL	100
17) Acetophenone	5.280	105	139685	30.9491	ug/mL	92
18) Hexaclethane	5.431	117	46288	31.8636	ug/mL	96
19) N-Ntrsdinprop	5.291	70	78693	30.9260	ug/mL	98
20) 3&4Methylphenol	5.274	107	100308	30.8940	ug/mL	90
23) Nitrobenzene	5.280	77	150005	31.3261	ug/mL	98
24) Isophorone	5.840	82	179650	31.7655	ug/mL	99
25) 2-Nitrophenol	5.931	139	57296	31.0315	ug/mL	98
26) 24Dimthpheno	5.993	122	88571	31.5978	ug/mL	95
27) bis2clethoxym	6.113	93	124778	31.2623	ug/mL	98
28) 24Diclphenol	6.209	162	88501	31.6465	ug/mL	100
29) 124Triclbenz	6.306	180	102770	30.8810	ug/mL	98
30) Benzoic acid	6.127	122	64926	30.8922	ug/mL	98
31) Naphthalene	6.385	128	307093	30.4869	ug/mL	99
32) 4-Cl-aniline	6.448	127	121633	31.1305	ug/mL	98
33) 26Diclphenol	6.454	162	79503	31.2672	ug/mL	97
34) Hexaclprop	6.485	213	65063	32.5534	ug/mL	97
35) Hexaclbutdien	6.527	225	56822	30.7605	ug/mL	98
36) 4Cl3methylphe	6.917	107	97328	31.9271	ug/mL	100
37) 2Methylnaphth	7.042	142	196530	30.9874	ug/mL	99
38) 1Methylnaphth	7.121	141	175569	30.7962	ug/mL	99
40) Hxclcycpentdi	7.178	237	58623	33.0436	ug/mL	96

Quantitation Report (QT Reviewed)

Data File : C:\INSTARCH\DATA\2S092418\2ICAL5.D Vial: 4
Acq On : 24 Sep 2018 14:25 Operator: RPN
Sample : ICAL 30ug/mL SVMS8102 Inst : SVMS2
Misc : 500ul+5ul IS S3916B Multiplr: 1.00
Integrator: RTE
Quant Time: Sep 24 16:50:03 2018

Quant Method : C:\INSTARCH\METHOD\2S092418.M
Quant Title : Method for 8270 Analysis
QLast Update : Mon Sep 24 16:11:58 2018
Response via : Initial Calibration
DataAcq Meth:2S092418.M

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
41) 1245Tetrclbenz	7.181	216	93595	30.4684 ug/mL	99
42) 246Triclpheno	7.272	196	70151	32.4054 ug/mL	97
43) 245Triclpheno	7.295	196	72804	32.2839 ug/mL	96
45) 2Clnaphthalen	7.425	162	194525	30.4277 ug/mL	99
46) 2Nitroaniline	7.502	65	68051	33.6570 ug/mL	97
47) Acnaphthylene	7.726	152	288520	30.7781 ug/mL	99
48) Dimethylphtha	7.641	163	230128	30.9878 ug/mL	99
49) 26Dinitrotolu	7.678	165	55152	32.2191 ug/mL	98
50) Acenaphthene	7.846	154	193848	31.9521 ug/mL	99
51) 3Nitroaniline	7.792	138	54584	32.2778 ug/mL	99
52) 24Dinitphenol	7.860	184	40469	31.6224 ug/mL	91
53) Dibenzofuran	7.960	168	254322	30.2723 ug/mL	99
54) 24Dinitrotolu	7.945	165	73218	32.4026 ug/mL	97
55) 4-Nitrophenol	7.894	65	49440	32.4747 ug/mL	99
56) 2,3,5,6-Tetrachlorop	8.011	232	55764	32.1615 ug/mL	97
57) 2,3,4,6-Tetrachlorop	8.036	232	58381	32.9524 ug/mL	98
58) Fluorene	8.184	166	202426	30.0306 ug/mL	100
59) 4Clphlphlethr	8.175	204	104319	29.9574 ug/mL	98
60) Diethylphthal	8.104	149	227317	30.5449 ug/mL	99
61) 4Nitroaniline	8.193	138	50659	31.4189 ug/mL	97
64) 46Dinit2mylph	8.207	198	42313	31.1657 ug/mL	100
65) Ntrsdiphlam&Diphlam	8.249	169	279237	58.4574 ug/mL	98
66) Azobenz&12Diphlhyd	8.275	182	101650	59.6326 ug/mL	99
67) 4Brphlphlethr	8.440	248	52863	31.1050 ug/mL	96
68) Hexaclbenzene	8.477	284	52391	30.6982 ug/mL	95
69) Pentaclphenol	8.562	266	34395	32.8482 ug/mL	98
70) Phenanthrene	8.670	178	242579	30.3657 ug/mL	99
71) Anthracene	8.695	178	244933	30.1215 ug/mL	100
72) Carbazole	8.764	167	219771	29.8528 ug/mL	100
73) Dinbtylphthal	8.909	149	282829	30.0735 ug/mL	99
74) Fluoranthene	9.272	202	287170	30.5690 ug/mL	99
76) Benzidine	9.326	184	102133	33.2621 ug/mL	99
77) Pyrene	9.403	202	298137	30.9263 ug/mL	100
79) Btylbzylphth	9.750	149	141671	32.3940 ug/mL	98
80) bis2Ethlhxlad	9.781	129	111582	32.9652 ug/mL	100
81) 33Diclbnzidin	10.102	252	83087	30.6110 ug/mL	99
82) B[a]anthracen	10.136	228	275120	30.7394 ug/mL	99
83) Chrysene	10.162	228	269210	31.3668 ug/mL	99
84) bis2Ethlhxlph	10.110	149	196859	32.4668 ug/mL	99
85) Dinoctylphthl	10.540	149	356040	33.9244 ug/mL	100
87) B[b]fluoranth	10.866	252	258736	30.7651 ug/mL	98
88) B[k]fluoranth	10.889	252	268931	32.4957 ug/mL	99
89) Benz[a]pyrene	11.119	252	285379	31.3245 ug/mL	99
90) Indeno-pyrene	12.128	276	267409	32.8300 ug/mL	98
91) Dib[ah]anthr	12.139	278	230946	32.8865 ug/mL	98
92) B[ghi]perylen	12.415	276	229912	32.8115 ug/mL	99

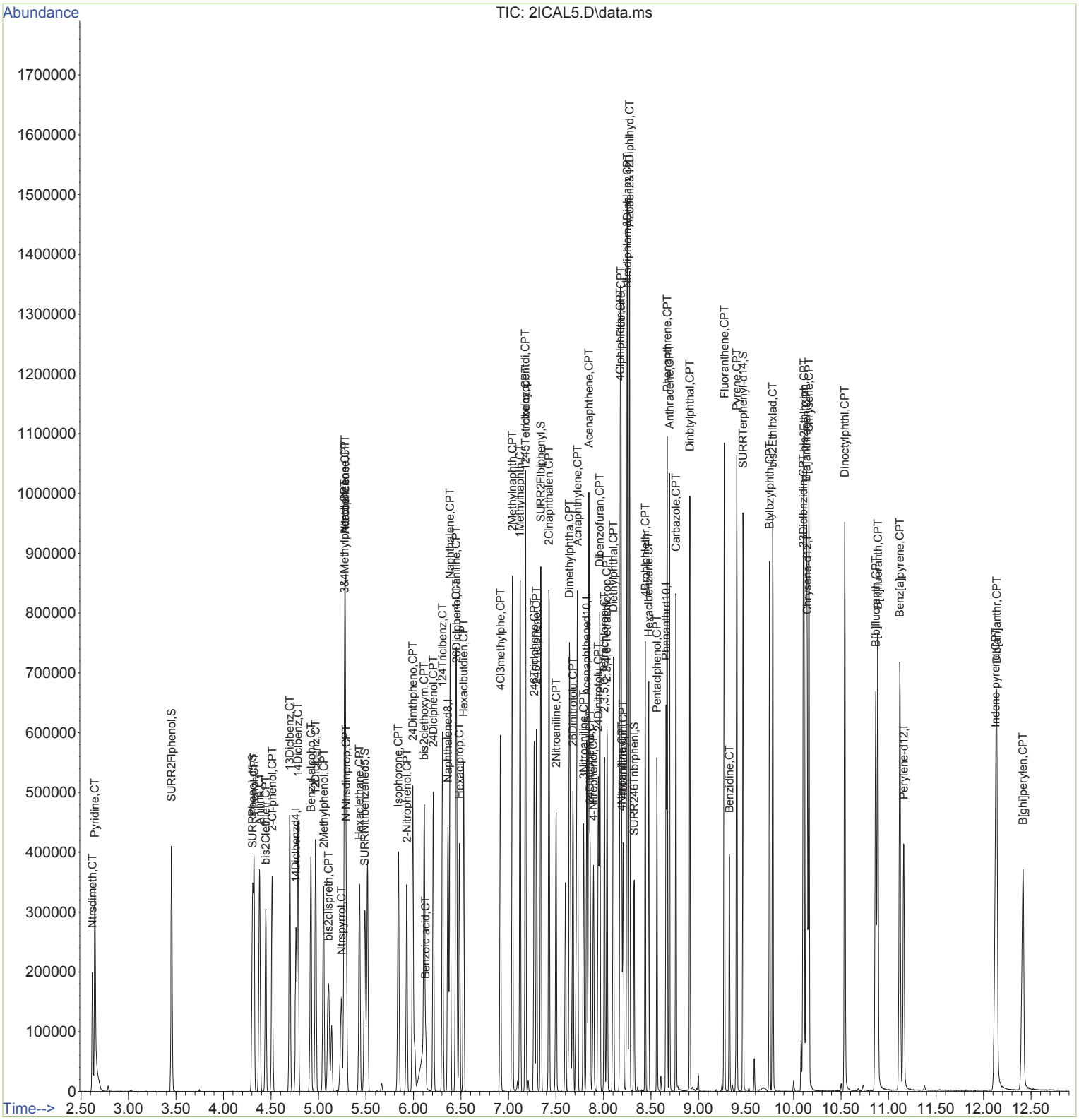
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\INSTARCH\DATA\2S092418\2ICAL5.D
Acq On : 24 Sep 2018 14:25
Sample : ICAL 30ug/mL SVMS8102
Misc : 500ul+5ul IS S3916B
Integrator: RTE
Quant Time: Sep 24 16:50:03 2018

Vial: 4
Operator: RPN
Inst : SVMS2
Multiplr: 1.00

Quant Method : C:\INSTARCH\METHOD\2S092418.M
Quant Title : Method for 8270 Analysis
QLast Update : Mon Sep 24 16:11:58 2018
Response via : Initial Calibration
DataAcq Meth:2S092418.M



Quantitation Report (QT Reviewed)

Data File : C:\INSTARCH\DATA\2S092418\2ICAL4.D Vial: 5
Acq On : 24 Sep 2018 14:46 Operator: RPN
Sample : ICAL 20ug/mL SVMS8101 Inst : SVMS2
Misc : 500ul+5ul IS S3916B Multiplr: 1.00
Integrator: RTE
Quant Time: Sep 24 16:49:59 2018

Quant Method : C:\INSTARCH\METHOD\2S092418.M
Quant Title : Method for 8270 Analysis
QLast Update : Mon Sep 24 16:11:58 2018
Response via : Initial Calibration
DataAcq Meth:2S092418.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 14Diclbenzd4	4.763	152	42449	20.00	ug/mL	0.00
21) Naphthalened8	6.360	136	179033	20.00	ug/mL	0.00
39) Acenaphthened10	7.820	164	94528	20.00	ug/mL	0.00
63) Phenanthrd10	8.658	188	148817	20.00	ug/mL	0.00
75) Chrysene-d12	10.144	240	142234	20.00	ug/mL	0.00
86) Perylene-d12	11.162	264	140596	20.00	ug/mL	0.00
System Monitoring Compounds						
4) SURR2Flphenol	3.453	112	63498	54.20	%REC	0.00
Spiked Amount 100.000			Recovery = 54.20%			
7) SURRPhenol-d5	4.302	99	77064	54.37	%REC	0.00
Spiked Amount 100.000			Recovery = 54.37%			
22) SURRNitrbenzened5	5.484	82	78716	108.93	%REC	0.00
Spiked Amount 100.000			Recovery = 108.93%			
44) SURR2Flbiphenyl	7.337	172	153316	106.97	%REC	0.00
Spiked Amount 100.000			Recovery = 106.97%			
62) SURR246Tribrphenl	8.320	330	17122	56.18	%REC	0.00
Spiked Amount 100.000			Recovery = 56.18%			
78) SURRTerphenyl-d14	9.471	244	136153	108.86	%REC	0.00
Spiked Amount 100.000			Recovery = 108.86%			
Target Compounds						Qvalue
2) Ntrsdimeth	2.620	74	41690	21.9969	ug/mL	100
3) Pyridine	2.646	79	74595	21.3556	ug/mL	100
5) Aniline	4.376	93	92279	21.5782	ug/mL	100
6) bis2Clethletr	4.444	93	64075	21.7143	ug/mL	100
8) Phenol	4.319	94	70976	21.2934	ug/mL	100
9) 2-Cl-phenol	4.513	128	61412	21.7031	ug/mL	100
10) 13Diclbenz	4.697	146	74422	21.4052	ug/mL	100
11) 14Diclbenz	4.783	146	72116	21.4146	ug/mL	100
12) 12Diclbenz	4.970	146	70491	21.5652	ug/mL	100
13) Benzyl alcoho	4.916	108	40941	22.0768	ug/mL	100
14) bis2clispreth	5.104	45	89583	26.0824	ug/mL	99
15) 2Methylphenol	5.050	107	44402	21.5782	ug/mL	100
16) Ntrspyrrol	5.234	100	32456	22.4075	ug/mL	100
17) Acetophenone	5.277	105	96509	21.6957	ug/mL	100
18) Hexaclethane	5.430	117	31684	22.1296	ug/mL	100
19) N-Ntrsdinprop	5.286	70	54752	21.8320	ug/mL	100
20) 3&4Methylphenol	5.268	107	69870	21.8342	ug/mL	100
23) Nitrobenzene	5.274	77	103328	21.7053	ug/mL	100
24) Isophorone	5.837	82	122475	21.7833	ug/mL	100
25) 2-Nitrophenol	5.925	139	39365	21.5948	ug/mL	100
26) 24Dimthpheno	5.990	122	59778	21.4513	ug/mL	100
27) bis2clethoxym	6.110	93	84951	21.4091	ug/mL	100
28) 24Diclphenol	6.206	162	61235	22.0254	ug/mL	100
29) 124Triclbenz	6.303	180	70810	21.4026	ug/mL	100
30) Benzoic acid	6.104	122	40407	20.5234	ug/mL	100
31) Naphthalene	6.382	128	212584	21.2286	ug/mL	100
32) 4-Cl-aniline	6.442	127	83854	21.5876	ug/mL	100
33) 26Diclphenol	6.451	162	54933	21.7313	ug/mL	100
34) Hexaclprop	6.482	213	43904	22.0960	ug/mL	100
35) Hexaclbutdien	6.524	225	38990	21.2313	ug/mL	100
36) 4Cl3methylphe	6.914	107	65750	21.6952	ug/mL	100
37) 2Methylnaphth	7.039	142	135574	21.5021	ug/mL	100
38) 1Methylnaphth	7.121	141	121576	21.4509	ug/mL	100
40) Hxclcycpentdi	7.175	237	40051	22.4396	ug/mL	100

Quantitation Report (QT Reviewed)

Data File : C:\INSTARCH\DATA\2S092418\2ICAL4.D Vial: 5
Acq On : 24 Sep 2018 14:46 Operator: RPN
Sample : ICAL 20ug/mL SVMS8101 Inst : SVMS2
Misc : 500ul+5ul IS S3916B Multiplr: 1.00
Integrator: RTE
Quant Time: Sep 24 16:49:59 2018

Quant Method : C:\INSTARCH\METHOD\2S092418.M
Quant Title : Method for 8270 Analysis
QLast Update : Mon Sep 24 16:11:58 2018
Response via : Initial Calibration
DataAcq Meth:2S092418.M

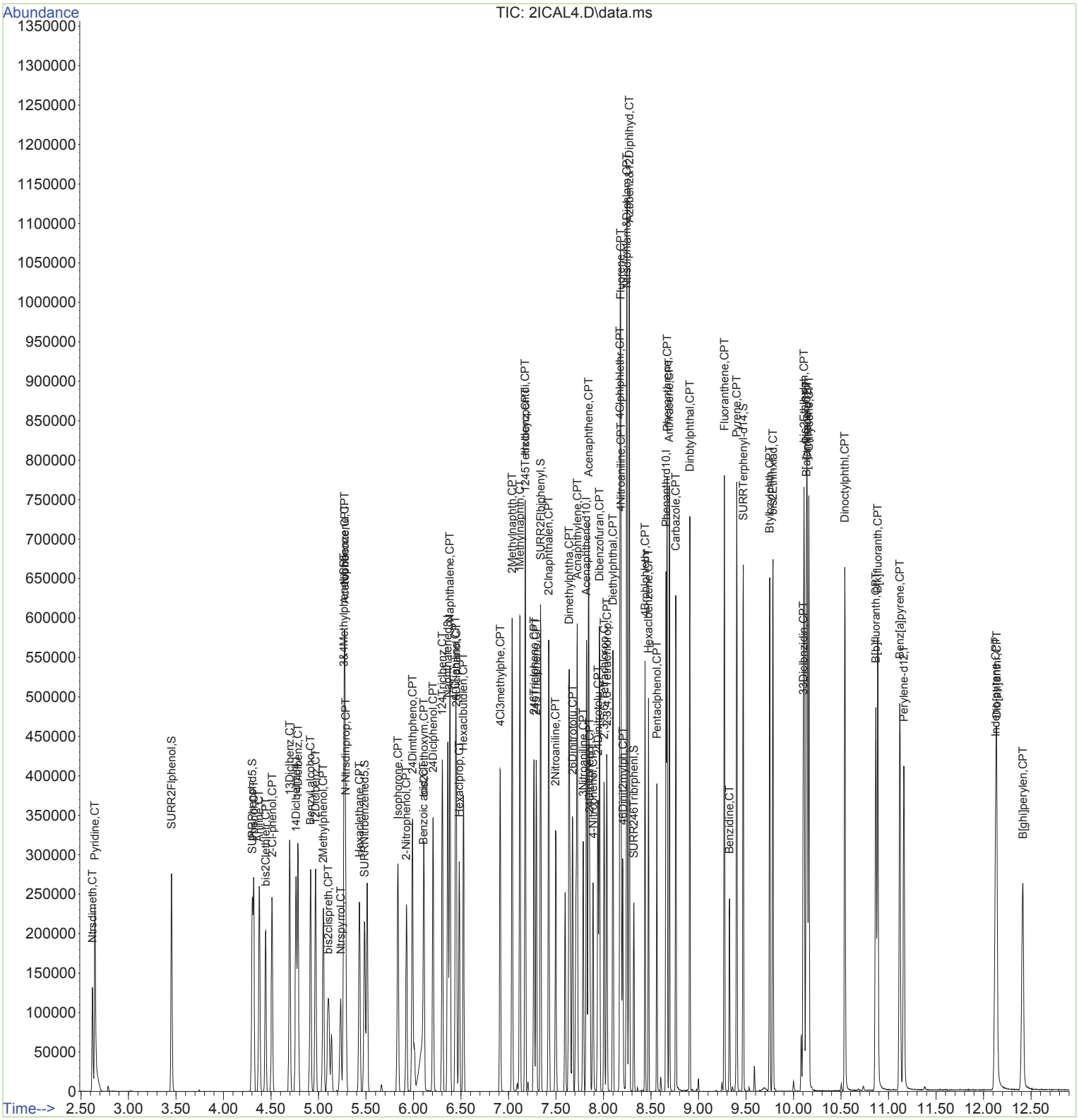
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
41) 1245Tetrclbenz	7.178	216	65990	21.3529 ug/mL	100
42) 246Triclpheno	7.269	196	48362	22.2060 ug/mL	100
43) 245Triclpheno	7.292	196	50756	22.3718 ug/mL	100
45) 2Clnaphthalen	7.422	162	137363	21.3573 ug/mL	100
46) 2Nitroaniline	7.496	65	45952	22.5906 ug/mL	100
47) Acnaphthylene	7.723	152	204486	21.6826 ug/mL	100
48) Dimethylphtha	7.638	163	160196	21.4415 ug/mL	100
49) 26Dinitrotolu	7.675	165	38091	22.1186 ug/mL	100
50) Acenaphthene	7.843	154	133722	21.9090 ug/mL	100
51) 3Nitroaniline	7.786	138	37386	21.9751 ug/mL	100
52) 24Dinitphenol	7.854	184	25232	20.5004 ug/mL	100
53) Dibenzofuran	7.956	168	180293	21.3316 ug/mL	100
54) 24Dinitrotolu	7.942	165	50254	22.1062 ug/mL	100
55) 4-Nitrophenol	7.891	65	33711	22.0100 ug/mL	100
56) 2,3,5,6-Tetrachlorop	8.008	232	39510	22.6502 ug/mL	100
57) 2,3,4,6-Tetrachlorop	8.036	232	40190	22.5484 ug/mL	100
58) Fluorene	8.181	166	144403	21.2940 ug/mL	100
59) 4Clphlphlethr	8.172	204	73718	21.0425 ug/mL	100
60) Diethylphthal	8.099	149	159454	21.2973 ug/mL	100
61) 4Nitroaniline	8.184	138	35710	22.0144 ug/mL	100
64) 46Dinit2mylph	8.204	198	28838	21.6145 ug/mL	100
65) Ntrsdiphlam&Diphlam	8.246	169	204834	42.6436 ug/mL	100
66) Azobenz&12Diphlhyd	8.272	182	73803	43.0562 ug/mL	100
67) 4Brphlphlethr	8.437	248	36978	21.6375 ug/mL	100
68) Hexaclbenzene	8.474	284	36643	21.3517 ug/mL	100
69) Pentaclphenol	8.562	266	23167	22.0025 ug/mL	100
70) Phenanthrene	8.670	178	170808	21.2630 ug/mL	100
71) Anthracene	8.692	178	175739	21.4923 ug/mL	100
72) Carbazole	8.761	167	160034	21.6179 ug/mL	100
73) Dinbtylphthal	8.908	149	204644	21.6394 ug/mL	100
74) Fluoranthene	9.272	202	204258	21.6226 ug/mL	100
76) Benzidine	9.326	184	61824	19.9955 ug/mL	100
77) Pyrene	9.403	202	210667	21.7020 ug/mL	100
79) Btylbzylphth	9.749	149	100637	22.8525 ug/mL	100
80) bis2Ethlhxlad	9.784	129	77227	22.6580 ug/mL	100
81) 33Diclbnzidin	10.102	252	53926	19.7303 ug/mL	100
82) B[a]anthracen	10.136	228	195951	21.7426 ug/mL	100
83) Chrysene	10.161	228	187015	21.6395 ug/mL	100
84) bis2Ethlhxlph	10.110	149	140320	22.9824 ug/mL	100
85) Dinoctylphthl	10.539	149	248795	23.5422 ug/mL	100
87) B[b]fluoranth	10.866	252	187419	22.5623 ug/mL	100
88) B[k]fluoranth	10.886	252	174680	21.3696 ug/mL	100
89) Benz[a]pyrene	11.119	252	195821	21.7616 ug/mL	100
90) Indeno-pyrene	12.128	276	182266	22.6553 ug/mL	100
91) Dib[ah]anthr	12.139	278	158541	22.8569 ug/mL	100
92) B[ghi]perylen	12.415	276	154773	22.3629 ug/mL	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\INSTARCH\DATA\2S092418\2ICAL4.D Vial: 5
Acq On : 24 Sep 2018 14:46 Operator: RPN
Sample : ICAL 20ug/mL SVMS8101 Inst : SVMS2
Misc : 500ul+5ul IS S3916B Multiplr: 1.00
Integrator: RTE
Quant Time: Sep 24 16:49:59 2018

Quant Method : C:\INSTARCH\METHOD\2S092418.M
Quant Title : Method for 8270 Analysis
QLast Update : Mon Sep 24 16:11:58 2018
Response via : Initial Calibration
DataAcq Meth:2S092418.M



Quantitation Report (QT Reviewed)

Data File : C:\INSTARCH\DATA\2S092418\2ICAL3.D Vial: 6
Acq On : 24 Sep 2018 15:06 Operator: RPN
Sample : ICAL 10ug/mL SVMS8100 Inst : SVMS2
Misc : 500ul+5ul IS S3916B Multiplr: 1.00
Integrator: RTE
Quant Time: Sep 24 16:49:55 2018

Quant Method : C:\INSTARCH\METHOD\2S092418.M
Quant Title : Method for 8270 Analysis
QLast Update : Mon Sep 24 16:11:58 2018
Response via : Initial Calibration
DataAcq Meth:2S092418.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 14Diclbenzd4	4.763	152	42711	20.00	ug/mL	0.00
21) Naphthalened8	6.363	136	184570	20.00	ug/mL	0.00
39) Acenaphthened10	7.826	164	95937	20.00	ug/mL	0.00
63) Phenanthrd10	8.658	188	150809	20.00	ug/mL	0.00
75) Chrysene-d12	10.139	240	148606	20.00	ug/mL	0.00
86) Perylene-d12	11.156	264	145724	20.00	ug/mL	0.00
System Monitoring Compounds						
4) SURR2Flphenol	3.453	112	27485	23.32	%REC	0.00
Spiked Amount 100.000			Recovery = 23.32%			
7) SURRPhenol-d5	4.300	99	32835	23.02	%REC	0.00
Spiked Amount 100.000			Recovery = 23.02%			
22) SURRNitrbenzened5	5.482	82	33269	44.66	%REC	0.00
Spiked Amount 100.000			Recovery = 44.66%			
44) SURR2Flbiphenyl	7.343	172	69120	47.52	%REC	0.00
Spiked Amount 100.000			Recovery = 47.52%			
62) SURR246Tribrphenl	8.323	330	7219	23.34	%REC	0.00
Spiked Amount 100.000			Recovery = 23.34%			
78) SURRTerphenyl-d14	9.465	244	60576	46.36	%REC	0.00
Spiked Amount 100.000			Recovery = 46.36%			
Target Compounds						Qvalue
2) Ntrsdimeth	2.620	74	17373	9.1103	ug/mL	98
3) Pyridine	2.646	79	31868	9.0674	ug/mL	99
5) Aniline	4.373	93	39189	9.1076	ug/mL	99
6) bis2Clethletr	4.439	93	27518	9.2684	ug/mL	97
8) Phenol	4.314	94	31337	9.3437	ug/mL	98
9) 2-Cl-phenol	4.510	128	26070	9.1567	ug/mL	98
10) 13Diclbenz	4.697	146	32293	9.2311	ug/mL	99
11) 14Diclbenz	4.783	146	30986	9.1447	ug/mL	97
12) 12Diclbenz	4.967	146	30561	9.2921	ug/mL	98
13) Benzyl alcoho	4.913	108	17224	9.2308	ug/mL	98
14) bis2clispreth	5.101	45	38719	11.2040	ug/mL	97
15) 2Methylphenol	5.050	107	19112	9.2310	ug/mL	97
16) Ntrspyrrol	5.226	100	13730	9.4210	ug/mL	94
17) Acetophenone	5.271	105	42641	9.5271	ug/mL	95
18) Hexaclethane	5.431	117	13698	9.5086	ug/mL	98
19) N-Ntrsdinprop	5.277	70	24153	9.5718	ug/mL	97
20) 3&4Methylphenol	5.263	107	30666	9.5243	ug/mL	96
23) Nitrobenzene	5.269	77	45480	9.2670	ug/mL	98
24) Isophorone	5.834	82	52673	9.0873	ug/mL	100
25) 2-Nitrophenol	5.928	139	16022	8.8181	ug/mL	98
26) 24Dimthpheno	5.987	122	26835	9.3408	ug/mL	96
27) bis2clethoxym	6.110	93	38338	9.3720	ug/mL	98
28) 24Diclphenol	6.206	162	27016	9.4258	ug/mL	99
29) 124Triclbenz	6.306	180	31570	9.2559	ug/mL	98
30) Benzoic acid	6.070	122	13745	8.8940	ug/mL	97
31) Naphthalene	6.385	128	96533	9.3506	ug/mL	99
32) 4-Cl-aniline	6.445	127	37279	9.3093	ug/mL	98
33) 26Diclphenol	6.453	162	24785	9.5107	ug/mL	98
34) Hexaclprop	6.485	213	18750	9.1534	ug/mL	99
35) Hexaclbutdien	6.530	225	17679	9.3380	ug/mL	97
36) 4Cl3methylphe	6.914	107	28547	9.1369	ug/mL	98
37) 2Methylnaphth	7.042	142	61072	9.3955	ug/mL	97
38) 1Methylnaphth	7.124	141	54178	9.2724	ug/mL	99
40) Hxclcycpentdi	7.178	237	17123	9.4527	ug/mL	97

Quantitation Report (QT Reviewed)

Data File : C:\INSTARCH\DATA\2S092418\2ICAL3.D Vial: 6
Acq On : 24 Sep 2018 15:06 Operator: RPN
Sample : ICAL 10ug/mL SVMS8100 Inst : SVMS2
Misc : 500ul+5ul IS S3916B Multiplr: 1.00
Integrator: RTE
Quant Time: Sep 24 16:49:55 2018

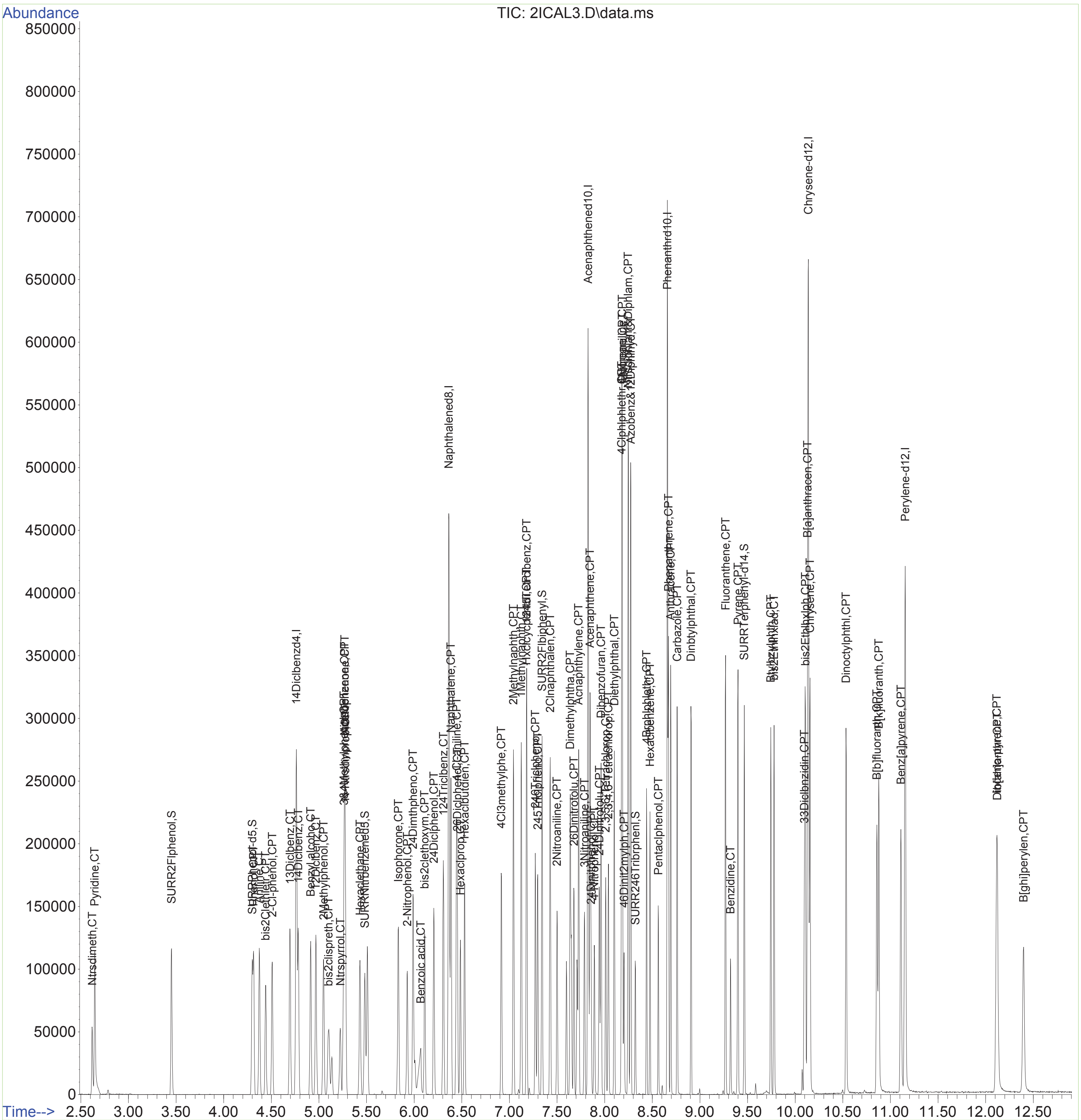
Quant Method : C:\INSTARCH\METHOD\2S092418.M
Quant Title : Method for 8270 Analysis
QLast Update : Mon Sep 24 16:11:58 2018
Response via : Initial Calibration
DataAcq Meth:2S092418.M

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
41) 1245Tetrclbenz	7.181	216	29860	9.5201 ug/mL	98
42) 246Triclpheno	7.272	196	21440	9.6999 ug/mL	98
43) 245Triclpheno	7.297	196	21166	9.1924 ug/mL	94
45) 2Clnaphthalen	7.428	162	62085	9.5112 ug/mL	98
46) 2Nitroaniline	7.499	65	19674	9.5299 ug/mL	99
47) Acnaphthylene	7.726	152	92195	9.6323 ug/mL	99
48) Dimethylphtha	7.638	163	71557	9.4369 ug/mL	98
49) 26Dinitrotolu	7.678	165	16712	9.5618 ug/mL	97
50) Acenaphthene	7.846	154	59213	9.5590 ug/mL	99
51) 3Nitroaniline	7.789	138	16765	9.7095 ug/mL	94
52) 24Dinitphenol	7.857	184	8788	8.5942 ug/mL	84
53) Dibenzofuran	7.962	168	82300	9.5944 ug/mL	100
54) 24Dinitrotolu	7.945	165	21976	9.5250 ug/mL	94
55) 4-Nitrophenol	7.891	65	14170	9.1158 ug/mL	99
56) 2,3,5,6-Tetrachlorop	8.011	232	16602	9.3778 ug/mL	97
57) 2,3,4,6-Tetrachlorop	8.039	232	16705	9.2346 ug/mL	95
58) Fluorene	8.184	166	66046	9.5962 ug/mL	99
59) 4Clphlphlethr	8.178	204	33826	9.5137 ug/mL	97
60) Diethylphthal	8.101	149	71599	9.4226 ug/mL	98
61) 4Nitroaniline	8.184	138	16118	9.7905 ug/mL	96
64) 46Dinit2mylph	8.204	198	10762	8.9235 ug/mL	98
65) Ntrsdiphlam&Diphlam	8.246	169	95936	19.7087 ug/mL	99
66) Azobenz&12Diphlhyd	8.275	182	34153	19.6615 ug/mL	99
67) 4Brphlphlethr	8.440	248	16468	9.5089 ug/mL	97
68) Hexaclbenzene	8.477	284	16044	9.2253 ug/mL	98
69) Pentaclphenol	8.565	266	9636	9.0307 ug/mL	94
70) Phenanthrene	8.670	178	77808	9.5580 ug/mL	100
71) Anthracene	8.693	178	79206	9.5587 ug/mL	97
72) Carbazole	8.761	167	72756	9.6983 ug/mL	100
73) Dinbtylphthal	8.906	149	92296	9.6306 ug/mL	99
74) Fluoranthene	9.269	202	91335	9.5409 ug/mL	100
76) Benzidine	9.320	184	27392	8.4794 ug/mL	100
77) Pyrene	9.400	202	94402	9.3079 ug/mL	98
79) Btylbzylphth	9.744	149	42810	9.3044 ug/mL	98
80) bis2Ethlhxlad	9.778	129	33061	9.2840 ug/mL	99
81) 33Diclbnzidin	10.096	252	24886	8.7148 ug/mL	97
82) B[a]anthracen	10.130	228	87988	9.3445 ug/mL	99
83) Chrysene	10.156	228	84567	9.3657 ug/mL	99
84) bis2Ethlhxlph	10.108	149	61464	9.6353 ug/mL	99
85) Dinoctylphthl	10.534	149	104476	9.4621 ug/mL	98
87) B[b]fluoranth	10.858	252	78824	9.1553 ug/mL	99
88) B[k]fluoranth	10.878	252	79349	9.3656 ug/mL	99
89) Benz[a]pyrene	11.111	252	85859	9.2058 ug/mL	99
90) Indeno-pyrene	12.116	276	78554	9.4205 ug/mL	99
91) Dib[ah]anthr	12.122	278	67025	9.3230 ug/mL	99
92) B[ghi]perylen	12.398	276	68044	9.4856 ug/mL	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data File : C:\INSTARCH\DATA\2S092418\2ICAL3.D Vial: 6
Acq On : 24 Sep 2018 15:06 Operator: RPN
Sample : ICAL 10ug/mL SVMS8100 Inst : SVMS2
Misc : 500ul+5ul IS S3916B Multiplr: 1.00
Integrator: RTE
Quant Time: Sep 24 16:49:55 2018

Quant Method : C:\INSTARCH\METHOD\2S092418.M
Quant Title : Method for 8270 Analysis
QLast Update : Mon Sep 24 16:11:58 2018
Response via : Initial Calibration
DataAcq Meth:2S092418.M



Quantitation Report (QT Reviewed)

Data File : C:\INSTARCH\DATA\2S092418\2ICAL2.D Vial: 7
Acq On : 24 Sep 2018 15:26 Operator: RPN
Sample : ICAL 5ug/mL SVMS8099 Inst : SVMS2
Misc : 500ul+5ul IS S3916B Multiplr: 1.00
Integrator: RTE
Quant Time: Sep 24 16:49:51 2018

Quant Method : C:\INSTARCH\METHOD\2S092418.M
Quant Title : Method for 8270 Analysis
QLast Update : Mon Sep 24 16:11:58 2018
Response via : Initial Calibration
DataAcq Meth:2S092418.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 14Diclbenzd4	4.763	152	42594	20.00	ug/mL	0.00
21) Naphthalened8	6.363	136	179218	20.00	ug/mL	0.00
39) Acenaphthened10	7.826	164	94779	20.00	ug/mL	0.00
63) Phenanthrd10	8.658	188	152419	20.00	ug/mL	0.00
75) Chrysene-d12	10.139	240	148740	20.00	ug/mL	0.00
86) Perylene-d12	11.153	264	140618	20.00	ug/mL	0.00
System Monitoring Compounds						
4) SURR2Flphenol	3.453	112	12734	10.83	%REC	0.00
Spiked Amount 100.000			Recovery = 10.83%			
7) SURRPhenol-d5	4.297	99	15138	10.64	%REC	0.00
Spiked Amount 100.000			Recovery = 10.64%			
22) SURRNitrbenzened5	5.479	82	16036	22.17	%REC	0.00
Spiked Amount 100.000			Recovery = 22.17%			
44) SURR2Flbiphenyl	7.343	172	32812	22.83	%REC	0.00
Spiked Amount 100.000			Recovery = 22.83%			
62) SURR246Tribrphenl	8.323	330	3481	11.39	%REC	0.00
Spiked Amount 100.000			Recovery = 11.39%			
78) SURRTerphenyl-d14	9.465	244	29353	22.44	%REC	0.00
Spiked Amount 100.000			Recovery = 22.44%			
Target Compounds						Qvalue
2) Ntrsdimeth	2.620	74	7891	4.1494	ug/mL	95
3) Pyridine	2.649	79	15218	4.3419	ug/mL	96
5) Aniline	4.374	93	18373	4.2817	ug/mL	100
6) bis2Clethletr	4.439	93	13060	4.4108	ug/mL	99
8) Phenol	4.311	94	14826	4.4328	ug/mL	98
9) 2-Cl-phenol	4.507	128	12561	4.4240	ug/mL	96
10) 13Diclbenz	4.695	146	15619	4.4770	ug/mL	91
11) 14Diclbenz	4.780	146	14862	4.3982	ug/mL	94
12) 12Diclbenz	4.967	146	14507	4.4230	ug/mL	96
13) Benzyl alcoho	4.911	108	8178	4.3948	ug/mL	88
14) bis2clispreth	5.101	45	18570	5.3883	ug/mL	96
15) 2Methylphenol	5.047	107	9251	4.4804	ug/mL	94
16) Ntrspyrrol	5.220	100	6172	4.2466	ug/mL	94
17) Acetophenone	5.269	105	20229	4.5321	ug/mL	97
18) Hexaclethane	5.431	117	6134	4.2697	ug/mL	97
19) N-Ntrsdinprop	5.274	70	11187	4.4456	ug/mL	94
20) 3&4Methylphenol	5.257	107	14361	4.4725	ug/mL#	82
23) Nitrobenzene	5.269	77	21491	4.5098	ug/mL	97
24) Isophorone	5.831	82	24521	4.3568	ug/mL	99
25) 2-Nitrophenol	5.925	139	7115	4.2951	ug/mL	95
26) 24Dimthpheno	5.987	122	12389	4.4412	ug/mL	96
27) bis2clethoxym	6.110	93	17535	4.4146	ug/mL	99
28) 24Diclphenol	6.206	162	12431	4.4667	ug/mL	95
29) 124Triclbenz	6.306	180	14950	4.5140	ug/mL	99
30) Benzoic acid	6.044	122	4595	5.1389	ug/mL	94
31) Naphthalene	6.385	128	46620	4.6507	ug/mL	98
32) 4-Cl-aniline	6.442	127	18198	4.6801	ug/mL	96
33) 26Diclphenol	6.451	162	11509	4.5482	ug/mL	99
34) Hexaclprop	6.485	213	8674	4.3609	ug/mL	98
35) Hexaclbutdien	6.530	225	8569	4.6613	ug/mL	98
36) 4Cl3methylphe	6.914	107	13568	4.4724	ug/mL	98
37) 2Methylnaphth	7.042	142	28815	4.5653	ug/mL	100
38) 1Methylnaphth	7.124	141	25853	4.5568	ug/mL	99
40) Hxclcycpentdi	7.181	237	7756	4.3340	ug/mL	97

Quantitation Report (QT Reviewed)

Data File : C:\INSTARCH\DATA\2S092418\2ICAL2.D Vial: 7
Acq On : 24 Sep 2018 15:26 Operator: RPN
Sample : ICAL 5ug/mL SVMS8099 Inst : SVMS2
Misc : 500ul+5ul IS S3916B Multiplr: 1.00
Integrator: RTE
Quant Time: Sep 24 16:49:51 2018

Quant Method : C:\INSTARCH\METHOD\2S092418.M
Quant Title : Method for 8270 Analysis
QLast Update : Mon Sep 24 16:11:58 2018
Response via : Initial Calibration
DataAcq Meth:2S092418.M

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
41) 1245Tetrclbenz	7.181	216	14320	4.6214 ug/mL	98
42) 246Triclpheno	7.272	196	9534	4.3661 ug/mL	97
43) 245Triclpheno	7.297	196	10032	4.4101 ug/mL	94
45) 2Clnaphthalen	7.428	162	29983	4.6494 ug/mL	100
46) 2Nitroaniline	7.499	65	8595	4.2142 ug/mL	94
47) Acnaphthylene	7.726	152	43803	4.6323 ug/mL	99
48) Dimethylphtha	7.636	163	34514	4.6073 ug/mL	99
49) 26Dinitrotolu	7.675	165	7712	4.4663 ug/mL	98
50) Acenaphthene	7.846	154	27567	4.5046 ug/mL	98
51) 3Nitroaniline	7.786	138	7616	4.4647 ug/mL	97
52) 24Dinitphenol	7.857	184	3015	4.5338 ug/mL	83
53) Dibenzofuran	7.962	168	40317	4.7575 ug/mL	99
54) 24Dinitrotolu	7.942	165	10351	4.5412 ug/mL	99
55) 4-Nitrophenol	7.891	65	6505	4.2359 ug/mL	99
56) 2,3,5,6-Tetrachlorop	8.011	232	7559	4.3219 ug/mL	91
57) 2,3,4,6-Tetrachlorop	8.039	232	8285	4.6360 ug/mL	97
58) Fluorene	8.184	166	32699	4.8091 ug/mL	99
59) 4Clphlphlethr	8.178	204	16775	4.7757 ug/mL	96
60) Diethylphthal	8.099	149	34855	4.6430 ug/mL	98
61) 4Nitroaniline	8.184	138	7489	4.6046 ug/mL	93
64) 46Dinit2mylph	8.201	198	3991	4.2400 ug/mL	97
65) Ntrsdiphlam&Diphlam	8.246	169	47858	9.7279 ug/mL	99
66) Azobenz&12Diphlhyd	8.272	182	16960	9.6605 ug/mL	93
67) 4Brphlphlethr	8.440	248	8180	4.6734 ug/mL	97
68) Hexaclbenzene	8.477	284	7733	4.3995 ug/mL	96
69) Pentaclphenol	8.565	266	4235	3.9271 ug/mL	96
70) Phenanthrene	8.670	178	38054	4.6252 ug/mL	99
71) Anthracene	8.693	178	39194	4.6800 ug/mL	99
72) Carbazole	8.761	167	35859	4.7295 ug/mL	100
73) Dinbtylphthal	8.906	149	45527	4.7003 ug/mL	99
74) Fluoranthene	9.269	202	44409	4.5900 ug/mL	99
76) Benzidine	9.320	184	14365	4.4428 ug/mL	97
77) Pyrene	9.400	202	45944	4.5259 ug/mL	99
79) Btylbzylphth	9.744	149	19458	4.2252 ug/mL	100
80) bis2Ethlhxlad	9.778	129	15260	4.2814 ug/mL	98
81) 33Diclbnzidin	10.096	252	13275	4.6446 ug/mL	97
82) B[a]anthracen	10.130	228	41563	4.4101 ug/mL	96
83) Chrysene	10.153	228	40031	4.4294 ug/mL	98
84) bis2Ethlhxlph	10.108	149	28551	4.4717 ug/mL	98
85) Dinoctylphthl	10.534	149	46429	4.2012 ug/mL	100
87) B[b]fluoranth	10.858	252	35445	4.2664 ug/mL	99
88) B[k]fluoranth	10.875	252	37482	4.5847 ug/mL	99
89) Benz[a]pyrene	11.108	252	39964	4.4405 ug/mL	99
90) Indeno-pyrene	12.114	276	34233	4.2544 ug/mL	96
91) Dib[ah]anthr	12.122	278	29738	4.2867 ug/mL	98
92) B[ghi]perylen	12.392	276	29576	4.2727 ug/mL	96

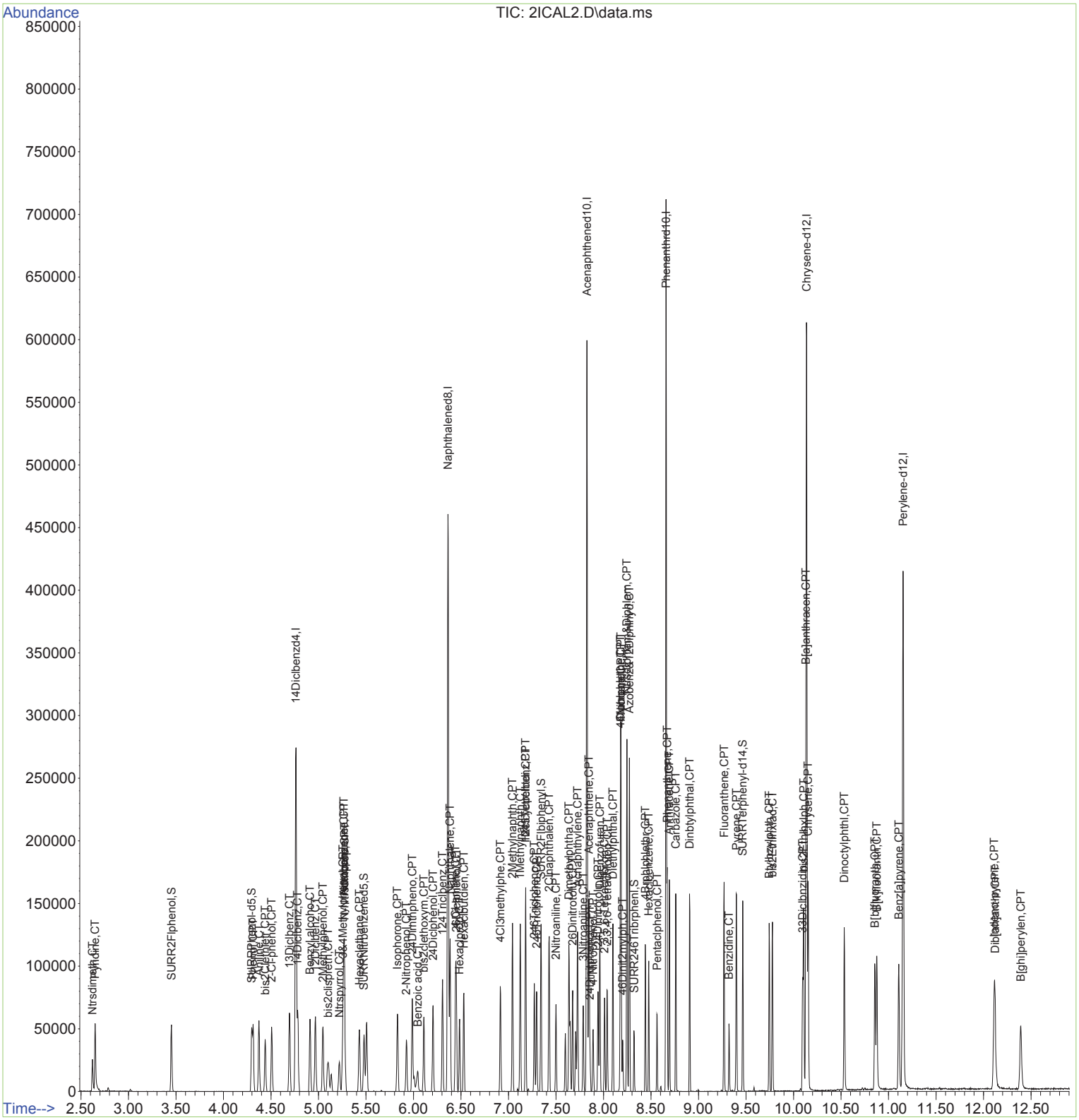
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\INSTARCH\DATA\2S092418\2ICAL2.D
Acq On : 24 Sep 2018 15:26
Sample : ICAL 5ug/mL SVMS8099
Misc : 500ul+5ul IS S3916B
Integrator: RTE
Quant Time: Sep 24 16:49:51 2018

Vial: 7
Operator: RPN
Inst : SVMS2
Multiplr: 1.00

Quant Method : C:\INSTARCH\METHOD\2S092418.M
Quant Title : Method for 8270 Analysis
QLast Update : Mon Sep 24 16:11:58 2018
Response via : Initial Calibration
DataAcq Meth:2S092418.M



Quantitation Report (QT Reviewed)

Data File : C:\INSTARCH\DATA\2S092418\2ICAL1.D Vial: 8
Acq On : 24 Sep 2018 15:47 Operator: RPN
Sample : ICAL 1ug/mL SVMS8098 Inst : SVMS2
Misc : 500ul+5ul IS S3916B Multiplr: 1.00
Integrator: RTE
Quant Time: Sep 24 16:51:55 2018

Quant Method : C:\INSTARCH\METHOD\2S092418.M
Quant Title : Method for 8270 Analysis
QLast Update : Mon Sep 24 16:11:58 2018
Response via : Initial Calibration
DataAcq Meth:2S092418.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 14Diclbenzd4	4.763	152	42843	20.00	ug/mL	0.00
21) Naphthalened8	6.360	136	180355	20.00	ug/mL	0.00
39) Acenaphthened10	7.817	164	94770	20.00	ug/mL	0.00
63) Phenanthrd10	8.656	188	153910	20.00	ug/mL	0.00
75) Chrysene-d12	10.142	240	151674	20.00	ug/mL	0.00
86) Perylene-d12	11.159	264	145688	20.00	ug/mL	0.00
System Monitoring Compounds						
4) SURR2Flphenol	3.453	112	2976	2.52	%REC	0.00
Spiked Amount 100.000			Recovery = 2.52%			
7) SURRPhenol-d5	4.297	99	3636	2.54	%REC	0.00
Spiked Amount 100.000			Recovery = 2.54%			
22) SURRNitrbenzened5	5.479	82	3601	4.95	%REC	0.00
Spiked Amount 100.000			Recovery = 4.95%			
44) SURR2Flbiphenyl	7.334	172	8140	5.66	%REC	0.00
Spiked Amount 100.000			Recovery = 5.66%			
62) SURR246Tribrphenl	8.315	330	679	2.22	%REC	0.00
Spiked Amount 100.000			Recovery = 2.22%			
78) SURRTerphenyl-d14	9.468	244	7422	5.56	%REC	0.00
Spiked Amount 100.000			Recovery = 5.56%			
Target Compounds						Qvalue
2) Ntrsdimeth	2.623	74	1748	0.9138	ug/mL	90
3) Pyridine	2.652	79	3554	1.0081	ug/mL	81
5) Aniline	4.373	93	4509	1.0447	ug/mL#	83
6) bis2Clethletr	4.439	93	3041	1.0211	ug/mL	93
8) Phenol	4.311	94	3508	1.0428	ug/mL	91
9) 2-Cl-phenol	4.507	128	2907	1.0179	ug/mL	92
10) 13Diclbenz	4.695	146	3756	1.0704	ug/mL	90
11) 14Diclbenz	4.783	146	3748	1.1027	ug/mL	95
12) 12Diclbenz	4.970	146	3522	1.0676	ug/mL	96
13) Benzyl alcoho	4.910	108	1712	0.9147	ug/mL	93
14) bis2clispreth	5.098	45	3675	1.0601	ug/mL	92
15) 2Methylphenol	5.044	107	2210	1.0641	ug/mL	95
16) Ntrspyrrol	5.217	100	1192	0.8154	ug/mL	96
17) Acetophenone	5.269	105	4843	1.0787	ug/mL	87
18) Hexaclethane	5.425	117	1427	0.9875	ug/mL	86
19) N-Ntrsdinprop	5.271	70	2645	1.0450	ug/mL	78
20) 3&4Methylphenol	5.254	107	3566	1.1041	ug/mL#	67
23) Nitrobenzene	5.266	77	5214	1.0872	ug/mL	97
24) Isophorone	5.825	82	5635	0.9949	ug/mL	96
25) 2-Nitrophenol	5.922	139	1297	1.1738	ug/mL	94
26) 24Dimthpheno	5.985	122	2964	1.0558	ug/mL	94
27) bis2clethoxym	6.104	93	4459	1.1155	ug/mL	91
28) 24Diclphenol	6.200	162	2823	1.0080	ug/mL	97
29) 124Triclbenz	6.303	180	3705	1.1116	ug/mL	94
31) Naphthalene	6.380	128	11673	1.1571	ug/mL	98
32) 4-Cl-aniline	6.439	127	4087	1.0445	ug/mL	91
33) 26Diclphenol	6.445	162	2708	1.0634	ug/mL	99
34) Hexaclprop	6.479	213	1923	0.9607	ug/mL	94
35) Hexaclbutdien	6.524	225	2033	1.0989	ug/mL	90
36) 4Cl3methylphe	6.908	107	3036	0.9944	ug/mL	92
37) 2Methylnaphth	7.036	142	7089	1.1161	ug/mL	99
38) 1Methylnaphth	7.118	141	6498	1.1381	ug/mL	94
40) Hxclcycpentdi	7.175	237	1629	0.9104	ug/mL	99
41) 1245Tetrclbenz	7.175	216	3562	1.1496	ug/mL	96

Quantitation Report (QT Reviewed)

Data File : C:\INSTARCH\DATA\2S092418\2ICAL1.D Vial: 8
Acq On : 24 Sep 2018 15:47 Operator: RPN
Sample : ICAL 1ug/mL SVMS8098 Inst : SVMS2
Misc : 500ul+5ul IS S3916B Multiplr: 1.00
Integrator: RTE
Quant Time: Sep 24 16:51:55 2018

Quant Method : C:\INSTARCH\METHOD\2S092418.M
Quant Title : Method for 8270 Analysis
QLast Update : Mon Sep 24 16:11:58 2018
Response via : Initial Calibration
DataAcq Meth:2S092418.M

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
42) 246Triclpheno	7.266	196	1917	0.8780 ug/mL	96
43) 245Triclpheno	7.292	196	2218	0.9751 ug/mL	97
45) 2Clnaphthalen	7.419	162	7281	1.1292 ug/mL	98
46) 2Nitroaniline	7.491	65	1652	0.8101 ug/mL	86
47) Acnaphthylene	7.721	152	10692	1.1308 ug/mL	99
48) Dimethylphtha	7.630	163	8361	1.1162 ug/mL	97
49) 26Dinitrotolu	7.667	165	1633	0.9458 ug/mL	88
50) Acenaphthene	7.840	154	6515	1.0647 ug/mL	87
51) 3Nitroaniline	7.777	138	1555	0.9117 ug/mL	97
52) 24Dinitphenol	7.851	184	286	2.5785 ug/mL#	42
53) Dibenzofuran	7.954	168	9780	1.1542 ug/mL	100
54) 24Dinitrotolu	7.937	165	2092	0.9179 ug/mL	99
55) 4-Nitrophenol	7.883	65	1041	0.6779 ug/mL	78
56) 2,3,5,6-Tetrachlorop	8.030	232	1585	0.9063 ug/mL	87
57) 2,3,4,6-Tetrachlorop	8.030	232	1585	0.8870 ug/mL	80
58) Fluorene	8.175	166	8109	1.1927 ug/mL	97
59) 4Clphlphlethr	8.172	204	4249	1.2098 ug/mL	95
60) Diethylphthal	8.090	149	8416	1.1212 ug/mL	99
61) 4Nitroaniline	8.175	138	1627	1.0004 ug/mL	93
64) 46Dinit2mylph	8.192	198	522	1.8771 ug/mL#	1
65) Ntrsdiphlam&Diphlam	8.241	169	12127	2.4411 ug/mL	99
66) Azobenz&12Diphlhyd	8.266	182	4035	2.2761 ug/mL#	86
67) 4Brphlphlethr	8.437	248	1873	1.0597 ug/mL	97
68) Hexaclbenzene	8.471	284	2120	1.1944 ug/mL	93
70) Phenanthrene	8.667	178	9766	1.1755 ug/mL	99
71) Anthracene	8.690	178	9929	1.1741 ug/mL	99
72) Carbazole	8.761	167	8850	1.1559 ug/mL	99
73) Dinbtylphthal	8.906	149	11524	1.1782 ug/mL	98
74) Fluoranthene	9.269	202	10886	1.1142 ug/mL	97
76) Benzidine	9.323	184	3343	1.0139 ug/mL	97
77) Pyrene	9.400	202	11463	1.1074 ug/mL	97
79) Btylbzylphth	9.747	149	4398	0.9365 ug/mL	98
80) bis2Ethlhxlad	9.781	129	3220	0.8859 ug/mL#	85
81) 33Diclbnzidin	10.099	252	3109	1.0667 ug/mL	96
82) B[a]anthracen	10.133	228	10852	1.1292 ug/mL	95
83) Chrysene	10.159	228	10402	1.1287 ug/mL	98
84) bis2Ethlhxlph	10.110	149	6068	0.9320 ug/mL	97
85) Dinoctylphthl	10.539	149	8873	0.7873 ug/mL	100
87) B[b]fluoranth	10.860	252	8821	1.0248 ug/mL	92
88) B[k]fluoranth	10.880	252	8771	1.0355 ug/mL	98
89) Benz[a]pyrene	11.113	252	9926	1.0645 ug/mL	96
90) Indeno-pyrene	12.122	276	7150	0.8577 ug/mL	93
91) Dib[ah]anthr	12.131	278	6139	0.8541 ug/mL	97
92) B[ghi]perylen	12.401	276	6469	0.9020 ug/mL	96

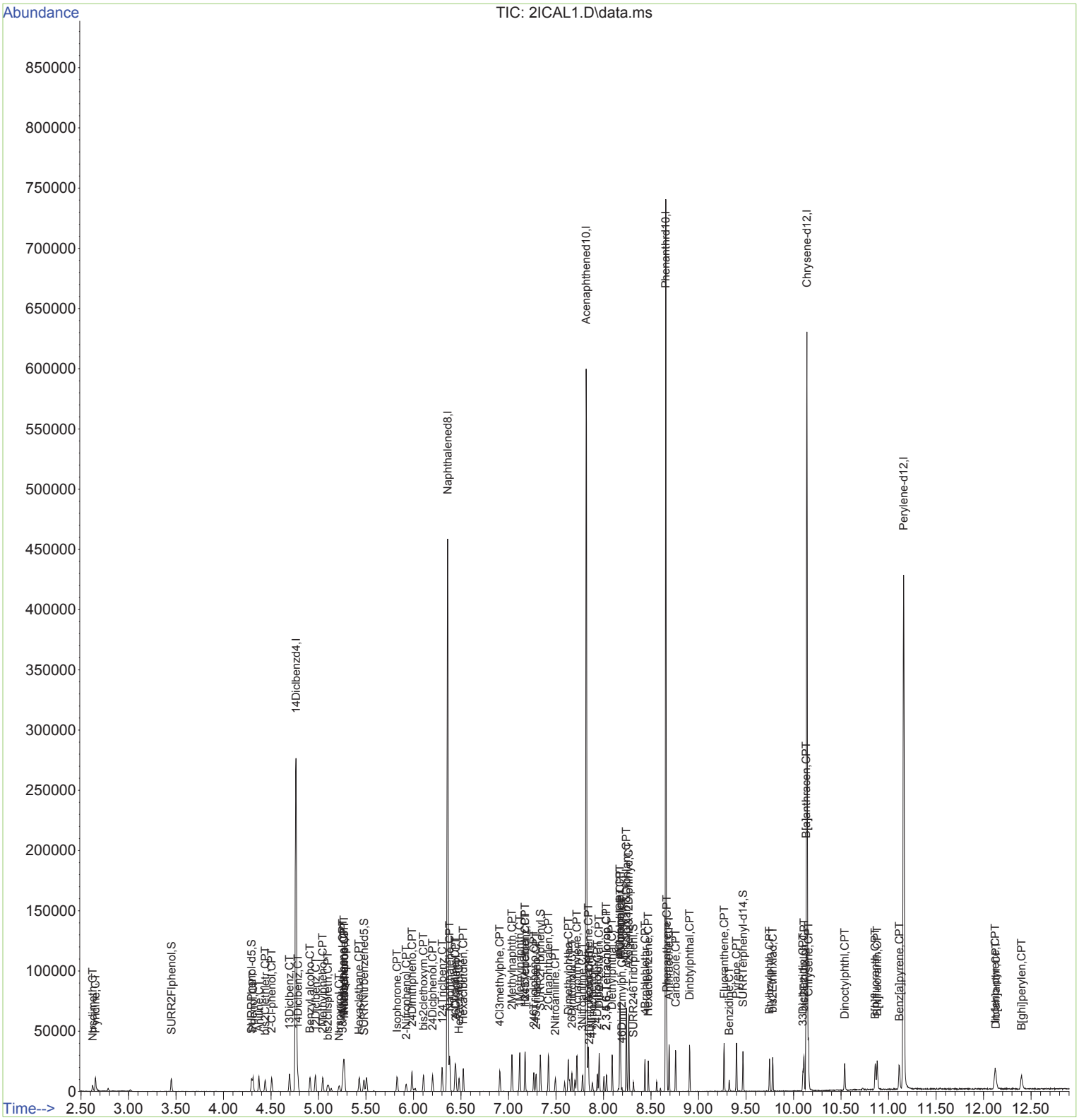
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\INSTARCH\DATA\2S092418\2ICAL1.D
Acq On : 24 Sep 2018 15:47
Sample : ICAL 1ug/mL SVMS8098
Misc : 500ul+5ul IS S3916B
Integrator: RTE
Quant Time: Sep 24 16:51:55 2018

Vial: 8
Operator: RPN
Inst : SVMS2
Multiplr: 1.00

Quant Method : C:\INSTARCH\METHOD\2S092418.M
Quant Title : Method for 8270 Analysis
QLast Update : Mon Sep 24 16:11:58 2018
Response via : Initial Calibration
DataAcq Meth:2S092418.M



Evaluate Continuing Calibration Report

Data File : C:\INSTARCH\DATA\2S092418\2ICV1.D Vial: 9
Acq On : 24 Sep 2018 16:07 Operator: RPN
Sample : ICV 20ug/mL SVMS8105 Inst : SVMS2
Misc : 500ul+5ul IS S3916B Multiplr: 1.00
Integrator: RTE
Quant Time: Sep 24 16:56:11 2018

Quant Method : C:\INSTARCH\METHOD\2S092418.M
Quant Title : Method for 8270 Analysis
QLast Update : Mon Sep 24 16:53:25 2018
Response via : Initial Calibration
DataAcq Meth:2S092418.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	14Diclbenzd4	20.000	20.000	0.0	101	0.00
2	CT	Ntrsdimeth	20.000	19.244	3.8	88	0.00
3	CT	Pyridine	20.000	20.976	-4.9	99	0.00
4	S	SURR2Flphenol	50.000	53.750	-7.5	100	0.00
5	CT	Aniline	20.000	21.394	-7.0	100	0.00
6	CPT	bis2Clethletr	20.000	20.714	-3.6	96	0.00
7	S	SURRPhenol-d5	50.000	52.839	-5.7	98	0.00
8	CPT	Phenol	20.000	23.389	-16.9	111	0.00
9	CPT	2-Cl-phenol	20.000	21.467	-7.3	100	0.00
10	CT	13Diclbenz	20.000	21.035	-5.2	99	0.00
11	CT	14Diclbenz	20.000	20.777	-3.9	98	0.00
12	CT	12Diclbenz	20.000	21.080	-5.4	98	0.00
13	CT	Benzyl alcoho	20.000	22.423	-12.1	102	0.00
14	CPT	bis2clispreth	20.000	23.874	-19.4	109	0.00
15	CPT	2Methylphenol	20.000	23.314	-16.6	109	0.00
16	CT	Ntrspyrrol	20.000	21.947	-9.7	99	0.00
17	CPT	Acetophenone	20.000	21.263	-6.3	99	0.00
18	CPT	Hexaclethane	20.000	21.106	-5.5	96	0.00
19	CPT	N-Ntrsdinprop	20.000	21.344	-6.7	98	0.00
20	CPT	3&4Methylphenol	20.000	22.099	-10.5	102	0.00
21	I	Naphthalened8	20.000	20.000	0.0	99	0.00
22	S	SURRNitrbenzened5	100.000	109.760	-9.8	100	0.00
23	CPT	Nitrobenzene	20.000	21.507	-7.5	98	0.00
24	CPT	Isophorone	20.000	20.892	-4.5	95	0.00
25	CPT	2-Nitrophenol	20.000	21.111	-5.6	97	0.00
26	CPT	24Dimthpheno	20.000	20.578	-2.9	95	0.00
27	CPT	bis2clethoxym	20.000	21.022	-5.1	97	0.00
28	CPT	24Diclphenol	20.000	21.973	-9.9	99	0.00
29	CT	124Triclbenz	20.000	20.898	-4.5	97	0.00
30	CT	Benzoic acid	20.000	18.913	5.4	90	0.00
31	CPT	Naphthalene	20.000	21.207	-6.0	99	0.00
32	CPT	4-Cl-aniline	20.000	21.226	-6.1	97	0.00
33	CT	26Diclphenol	20.000	21.273	-6.4	97	0.00
34	CT	Hexaclprop	20.000	22.266	-11.3	100	0.00
35	CPT	Hexaclbutdien	20.000	21.320	-6.6	100	0.00
36	CPT	4Cl3methylphe	20.000	20.834	-4.2	95	0.00
37	CPT	2Methylnaphth	20.000	22.041	-10.2	102	0.00
38	CT	1Methylnaphth	20.000	21.434	-7.2	99	0.00
39	I	Acenaphthened10	20.000	20.000	0.0	99	0.00
40	CPT	Hxclcycpentdi	20.000	21.076	-5.4	93	0.00
41	CPT	1245Tetrclbenz	20.000	21.076	-5.4	97	0.00
42	CPT	246Triclpheno	20.000	21.412	-7.1	95	0.00
43	CPT	245Triclpheno	20.000	21.811	-9.1	96	0.00
44	S	SURR2Flbiphenyl	100.000	106.888	-6.9	98	0.00
45	CPT	2Clnaphthalen	20.000	21.047	-5.2	97	0.00
46	CPT	2Nitroaniline	20.000	21.778	-8.9	95	0.00
47	CPT	Acnaphthylene	20.000	22.252	-11.3	101	0.00
48	CPT	Dimethylphtha	20.000	21.022	-5.1	97	0.00
49	CPT	26Dinitrotolu	20.000	21.648	-8.2	96	0.00
50	CPT	Acenaphthene	20.000	22.283	-11.4	100	0.00
51	CPT	3Nitroaniline	20.000	21.176	-5.9	95	0.00

Evaluate Continuing Calibration Report

Data File : C:\INSTARCH\DATA\2S092418\2ICV1.D Vial: 9
Acq On : 24 Sep 2018 16:07 Operator: RPN
Sample : ICV 20ug/mL SVMS8105 Inst : SVMS2
Misc : 500ul+5ul IS S3916B Multiplr: 1.00
Integrator: RTE
Quant Time: Sep 24 16:56:11 2018

Quant Method : C:\INSTARCH\METHOD\2S092418.M
Quant Title : Method for 8270 Analysis
QLast Update : Mon Sep 24 16:53:25 2018
Response via : Initial Calibration
DataAcq Meth:2S092418.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
52	CPT	24Dinitphenol	20.000	18.701	6.5	89	0.00
53	CPT	Dibenzofuran	20.000	21.098	-5.5	97	0.00
54	CPT	24Dinitrotolu	20.000	21.742	-8.7	97	0.00
55	CPT	4-Nitrophenol	20.000	21.297	-6.5	95	0.00
56	CT	2,3,5,6-Tetrachlorop	20.000	21.784	-8.9	95	0.00
57	CPT	2,3,4,6-Tetrachlorop	20.000	21.288	-6.4	93	0.00
58	CPT	Fluorene	20.000	21.305	-6.5	99	0.00
59	CPT	4Clphlphlethr	20.000	20.324	-1.6	95	0.00
60	CPT	Diethylphthal	20.000	20.627	-3.1	95	0.00
61	CPT	4Nitroaniline	20.000	20.283	-1.4	91	0.00
62	S	SURR246Tribrphenl	50.000	55.099	-10.2	97	0.00
63	I	Phenanthrd10	20.000	20.000	0.0	99	0.00
64	CPT	46Dinit2mylph	20.000	20.169	-0.8	91	0.00
65	CPT	Ntrsdiphlam&Diphlam	40.000	43.456	-8.6	100	0.00
66	CT	Azobenz&12Diphlhyd	40.000	42.247	-5.6	97	0.00
67	CPT	4Brphlphlethr	20.000	20.898	-4.5	95	0.00
68	CPT	Hexaclbenzene	20.000	20.838	-4.2	96	0.00
69	CPT	Pentaclphenol	20.000	21.386	-6.9	96	0.00
70	CPT	Phenanthrene	20.000	21.288	-6.4	99	0.00
71	CPT	Anthracene	20.000	21.451	-7.3	98	0.00
72	CPT	Carbazole	20.000	20.912	-4.6	95	0.00
73	CPT	Dinbtylphthal	20.000	21.066	-5.3	96	0.00
74	CPT	Fluoranthene	20.000	21.803	-9.0	99	0.00
75	I	Chrysene-d12	20.000	20.000	0.0	100	0.00
76	CT	Benzidine	20.000	23.696	-18.5	119	0.00
77	CPT	Pyrene	20.000	21.423	-7.1	99	0.00
78	S	SURRTerphenyl-d14	100.000	106.507	-6.5	98	0.00
79	CPT	Btylbzylphth	20.000	21.778	-8.9	96	0.00
80	CT	bis2Ethlhxlad	20.000	22.475	-12.4	100	0.00
81	CPT	33Diclbnzidin	20.000	20.550	-2.8	104	0.00
82	CPT	B[a]anthracen	20.000	21.503	-7.5	99	0.00
83	CPT	Chrysene	20.000	21.110	-5.5	98	0.00
84	CPT	bis2Ethlhxlph	20.000	21.930	-9.6	96	0.00
85	CPT	Dinoctylphthl	20.000	22.287	-11.4	95	0.00
86	I	Perylene-d12	20.000	20.000	0.0	99	0.00
87	CPT	B[b]fluoranth	20.000	22.057	-10.3	97	0.00
88	CPT	B[k]fluoranth	20.000	20.716	-3.6	96	0.00
89	CPT	Benz[a]pyrene	20.000	20.675	-3.4	94	0.00
90	CPT	Indeno-pyrene	20.000	22.518	-12.6	99	0.00
91	CPT	Dib[ah]anthr	20.000	22.434	-12.2	97	0.00
92	CPT	B[ghi]perylen	20.000	21.962	-9.8	97	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Evaluate Continuing Calibration Report

Data File : C:\INSTARCH\DATA\2S092418\2ICV1.D Vial: 9
Acq On : 24 Sep 2018 16:07 Operator: RPN
Sample : ICV 20ug/mL SVMS8105 Inst : SVMS2
Misc : 500ul+5ul IS S3916B Multiplr: 1.00
Integrator: RTE
Quant Time: Sep 24 16:56:11 2018

Quant Method : C:\INSTARCH\METHOD\2S092418.M
Quant Title : Method for 8270 Analysis
QLast Update : Mon Sep 24 16:53:25 2018
Response via : Initial Calibration
DataAcq Meth:2S092418.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	14Diclbenzd4	1.000	1.000	0.0	101	0.00
2	CT	Ntrsdimeth	0.893	0.859	3.8	88	0.00
3	CT	Pyridine	1.646	1.726	-4.9	99	0.00
4	S	SURR2Flphenol	0.552	0.593	-7.4	100	0.00
5	CT	Aniline	2.015	2.155	-6.9	100	0.00
6	CPT	bis2Clethletr	1.390	1.440	-3.6	96	0.00
7	S	SURRPhenol-d5	0.668	0.706	-5.7	98	0.00
8	CPT	Phenol	1.570	1.837	-17.0	111	0.00
9	CPT	2-Cl-phenol	1.333	1.431	-7.4	100	0.00
10	CT	13Diclbenz	1.638	1.723	-5.2	99	0.00
11	CT	14Diclbenz	1.587	1.648	-3.8	98	0.00
12	CT	12Diclbenz	1.540	1.623	-5.4	98	0.00
13	CT	Benzyl alcoho	0.874	0.980	-12.1	102	0.00
14	CPT	bis2clispreth	1.907	2.276	-19.3	109	0.00
15	CPT	2Methylphenol	0.970	1.130	-16.5	109	0.00
16	CT	Ntrspyrrol	0.682	0.749	-9.8	99	0.00
17	CPT	Acetophenone	2.096	2.228	-6.3	99	0.00
18	CPT	Hexaclethane	0.675	0.712	-5.5	96	0.00
19	CPT	N-Ntrsdinprop	1.182	1.261	-6.7	98	0.00
20	CPT	3&4Methylphenol	1.508	1.666	-10.5	102	0.00
21	I	Naphthalened8	1.000	1.000	0.0	99	0.00
22	S	SURRNitrbenzened5	0.081	0.089	-9.9	100	0.00
23	CPT	Nitrobenzene	0.532	0.572	-7.5	98	0.00
24	CPT	Isophorone	0.628	0.656	-4.5	95	0.00
25	CPT	2-Nitrophenol	0.188	0.215	-14.4	97	0.00
26	CPT	24Dimthpheno	0.311	0.320	-2.9	95	0.00
27	CPT	bis2clethoxym	0.443	0.466	-5.2	97	0.00
28	CPT	24Diclphenol	0.311	0.341	-9.6	99	0.00
29	CT	124Triclbenz	0.370	0.386	-4.3	97	0.00
30	CT	Benzoic acid	0.200	0.205	-2.5	90	0.00
31	CPT	Naphthalene	1.119	1.186	-6.0	99	0.00
32	CPT	4-Cl-aniline	0.434	0.461	-6.2	97	0.00
33	CT	26Diclphenol	0.282	0.300	-6.4	97	0.00
34	CT	Hexaclprop	0.222	0.247	-11.3	100	0.00
35	CPT	Hexaclbutdien	0.205	0.219	-6.8	100	0.00
36	CPT	4Cl3methylphe	0.339	0.353	-4.1	95	0.00
37	CPT	2Methylnaphth	0.704	0.776	-10.2	102	0.00
38	CT	1Methylnaphth	0.633	0.679	-7.3	99	0.00
39	I	Acenaphthened10	1.000	1.000	0.0	99	0.00
40	CPT	Hxclcycpentdi	0.378	0.398	-5.3	93	0.00
41	CPT	1245Tetrclbenz	0.654	0.689	-5.4	97	0.00
42	CPT	246Triclpheno	0.461	0.493	-6.9	95	0.00
43	CPT	245Triclpheno	0.480	0.523	-9.0	96	0.00
44	S	SURR2Flbiphenyl	0.303	0.324	-6.9	98	0.00
45	CPT	2Clnaphthalen	1.361	1.432	-5.2	97	0.00
46	CPT	2Nitroaniline	0.430	0.469	-9.1	95	0.00
47	CPT	Acnaphthylene	1.995	2.220	-11.3	101	0.00
48	CPT	Dimethylphtha	1.581	1.662	-5.1	97	0.00
49	CPT	26Dinitrotolu	0.364	0.394	-8.2	96	0.00
50	CPT	Acenaphthene	1.291	1.439	-11.5	100	0.00
51	CPT	3Nitroaniline	0.360	0.381	-5.8	95	0.00

Evaluate Continuing Calibration Report

Data File : C:\INSTARCH\DATA\2S092418\2ICV1.D Vial: 9
Acq On : 24 Sep 2018 16:07 Operator: RPN
Sample : ICV 20ug/mL SVMS8105 Inst : SVMS2
Misc : 500ul+5ul IS S3916B Multiplr: 1.00
Integrator: RTE
Quant Time: Sep 24 16:56:11 2018

Quant Method : C:\INSTARCH\METHOD\2S092418.M
Quant Title : Method for 8270 Analysis
QLast Update : Mon Sep 24 16:53:25 2018
Response via : Initial Calibration
DataAcq Meth:2S092418.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
52	CPT	24Dinitphenol	0.258	0.240	7.0	89	0.00
53	CPT	Dibenzofuran	1.788	1.886	-5.5	97	0.00
54	CPT	24Dinitrotolu	0.481	0.523	-8.7	97	0.00
55	CPT	4-Nitrophenol	0.324	0.345	-6.5	95	0.00
56	CT	2,3,5,6-Tetrachlorop	0.369	0.402	-8.9	95	0.00
57	CPT	2,3,4,6-Tetrachlorop	0.377	0.401	-6.4	93	0.00
58	CPT	Fluorene	1.435	1.528	-6.5	99	0.00
59	CPT	4Clphlphlethr	0.741	0.753	-1.6	95	0.00
60	CPT	Diethylphthal	1.584	1.634	-3.2	95	0.00
61	CPT	4Nitroaniline	0.343	0.348	-1.5	91	0.00
62	S	SURR246Tribrphenl	0.064	0.071	-10.9	97	0.00
63	I	Phenanthrd10	1.000	1.000	0.0	99	0.00
64	CPT	46Dinit2mylph	0.167	0.180	-7.8	91	0.00
65	CPT	Ntrsdiphlam&Diphlam	0.646	0.701	-8.5	100	0.00
66	CT	Azobenz&12Diphlhyd	0.230	0.243	-5.7	97	0.00
67	CPT	4Brphlphlethr	0.230	0.240	-4.3	95	0.00
68	CPT	Hexaclbenzene	0.231	0.240	-3.9	96	0.00
69	CPT	Pentaclphenol	0.142	0.151	-6.3	96	0.00
70	CPT	Phenanthrene	1.080	1.149	-6.4	99	0.00
71	CPT	Anthracene	1.099	1.179	-7.3	98	0.00
72	CPT	Carbazole	0.995	1.040	-4.5	95	0.00
73	CPT	Dinbtylphthal	1.271	1.339	-5.4	96	0.00
74	CPT	Fluoranthene	1.270	1.384	-9.0	99	0.00
75	I	Chrysene-d12	1.000	1.000	0.0	100	0.00
76	CT	Benzidine	0.435	0.515	-18.4	119	0.00
77	CPT	Pyrene	1.365	1.462	-7.1	99	0.00
78	S	SURRTerphenyl-d14	0.176	0.187	-6.3	98	0.00
79	CPT	Btylbzylphth	0.619	0.674	-8.9	96	0.00
80	CT	bis2Ethlhxlad	0.479	0.539	-12.5	100	0.00
81	CPT	33Diclbnzidin	0.384	0.395	-2.9	104	0.00
82	CPT	B[a]anthracen	1.267	1.363	-7.6	99	0.00
83	CPT	Chrysene	1.215	1.283	-5.6	98	0.00
84	CPT	bis2Ethlhxlph	0.859	0.942	-9.7	96	0.00
85	CPT	Dinoctylphthl	1.486	1.656	-11.4	95	0.00
86	I	Perylene-d12	1.000	1.000	0.0	99	0.00
87	CPT	B[b]fluoranth	1.182	1.303	-10.2	97	0.00
88	CPT	B[k]fluoranth	1.163	1.204	-3.5	96	0.00
89	CPT	Benz[a]pyrene	1.280	1.323	-3.4	94	0.00
90	CPT	Indeno-pyrene	1.144	1.289	-12.7	99	0.00
91	CPT	Dib[ah]anthr	0.987	1.107	-12.2	97	0.00
92	CPT	B[ghi]perylen	0.985	1.081	-9.7	97	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File : C:\INSTARCH\DATA\2S092418\2ICV1.D Vial: 9
Acq On : 24 Sep 2018 16:07 Operator: RPN
Sample : ICV 20ug/mL SVMS8105 Inst : SVMS2
Misc : 500ul+5ul IS S3916B Multiplr: 1.00
Integrator: RTE
Quant Time: Sep 24 16:56:11 2018

Quant Method : C:\INSTARCH\METHOD\2S092418.M
Quant Title : Method for 8270 Analysis
QLast Update : Mon Sep 24 16:53:25 2018
Response via : Initial Calibration
DataAcq Meth:2S092418.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 14Diclbenzd4	4.763	152	42713	20.00	ug/mL	0.00
21) Naphthalened8	6.363	136	177466	20.00	ug/mL	0.00
39) Acenaphthened10	7.823	164	93148	20.00	ug/mL	0.00
63) Phenanthrd10	8.659	188	146636	20.00	ug/mL	0.00
75) Chrysene-d12	10.142	240	142676	20.00	ug/mL	0.00
86) Perylene-d12	11.159	264	139427	20.00	ug/mL	0.00
System Monitoring Compounds						
4) SURR2Flphenol	3.453	112	63360	53.75	%REC	0.00
Spiked Amount 100.000			Recovery = 53.75%			
7) SURRPhenol-d5	4.303	99	75366	52.84	%REC	0.00
Spiked Amount 100.000			Recovery = 52.84%			
22) SURRNitrbenzened5	5.485	82	78619	109.76	%REC	0.00
Spiked Amount 100.000			Recovery = 109.76%			
44) SURR2Flbiphenyl	7.340	172	150968	106.89	%REC	0.00
Spiked Amount 100.000			Recovery = 106.89%			
62) SURR246Tribrphenl	8.320	330	16548	55.10	%REC	0.00
Spiked Amount 100.000			Recovery = 55.10%			
78) SURRTerphenyl-d14	9.468	244	133645	106.51	%REC	0.00
Spiked Amount 100.000			Recovery = 106.51%			
Target Compounds						Qvalue
2) Ntrsdimeth	2.620	74	36700	19.2444	ug/mL	99
3) Pyridine	2.646	79	73726	20.9764	ug/mL	98
5) Aniline	4.376	93	92061	21.3942	ug/mL	100
6) bis2Clethletr	4.445	93	61503	20.7139	ug/mL	98
8) Phenol	4.320	94	78445	23.3887	ug/mL	98
9) 2-Cl-phenol	4.510	128	61123	21.4675	ug/mL	99
10) 13Diclbenz	4.698	146	73588	21.0345	ug/mL	99
11) 14Diclbenz	4.783	146	70404	20.7770	ug/mL	99
12) 12Diclbenz	4.970	146	69335	21.0805	ug/mL	99
13) Benzyl alcoho	4.916	108	41841	22.4227	ug/mL	98
14) bis2clispreth	5.104	45	97221	23.8741	ug/mL	100
15) 2Methylphenol	5.053	107	48273	23.3144	ug/mL	98
16) Ntrspyrrol	5.235	100	31987	21.9472	ug/mL	99
17) Acetophenone	5.274	105	95171	21.2627	ug/mL	95
18) Hexaclethane	5.431	117	30406	21.1057	ug/mL	99
19) N-Ntrsdinprop	5.286	70	53862	21.3444	ug/mL	99
20) 3&4Methylphenol	5.269	107	71158	22.0992	ug/mL	98
23) Nitrobenzene	5.274	77	101489	21.5072	ug/mL	99
24) Isophorone	5.837	82	116436	20.8920	ug/mL	99
25) 2-Nitrophenol	5.928	139	38126	21.1108	ug/mL	98
26) 24Dimthpheno	5.990	122	56843	20.5782	ug/mL	97
27) bis2clethoxym	6.110	93	82685	21.0220	ug/mL	99
28) 24Diclphenol	6.206	162	60555	21.9732	ug/mL	99
29) 124Triclbenz	6.303	180	68536	20.8982	ug/mL	98
30) Benzoic acid	6.098	122	36336	18.9126	ug/mL	98
31) Naphthalene	6.385	128	210513	21.2074	ug/mL	99
32) 4-Cl-aniline	6.445	127	81729	21.2263	ug/mL	97
33) 26Diclphenol	6.451	162	53303	21.2727	ug/mL	99
34) Hexaclprop	6.482	213	43855	22.2662	ug/mL	96
35) Hexaclbutdien	6.527	225	38811	21.3204	ug/mL	100
36) 4Cl3methylphe	6.914	107	62586	20.8336	ug/mL	98
37) 2Methylnaphth	7.039	142	137753	22.0406	ug/mL	99
38) 1Methylnaphth	7.121	141	120415	21.4336	ug/mL	100
40) Hxclcycpentdi	7.178	237	37068	21.0760	ug/mL	99

Quantitation Report (QT Reviewed)

Data File : C:\INSTARCH\DATA\2S092418\2ICV1.D Vial: 9
Acq On : 24 Sep 2018 16:07 Operator: RPN
Sample : ICV 20ug/mL SVMS8105 Inst : SVMS2
Misc : 500ul+5ul IS S3916B Multiplr: 1.00
Integrator: RTE
Quant Time: Sep 24 16:56:11 2018

Quant Method : C:\INSTARCH\METHOD\2S092418.M
Quant Title : Method for 8270 Analysis
QLast Update : Mon Sep 24 16:53:25 2018
Response via : Initial Calibration
DataAcq Meth:2S092418.M

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
41) 1245Tetrclbenz	7.178	216	64183	21.0759 ug/mL	99
42) 246Triclpheno	7.269	196	45951	21.4116 ug/mL	96
43) 245Triclpheno	7.295	196	48762	21.8113 ug/mL	96
45) 2Clnaphthalen	7.425	162	133390	21.0468 ug/mL	99
46) 2Nitroaniline	7.499	65	43653	21.7783 ug/mL	96
47) Acnaphthylene	7.724	152	206792	22.2520 ug/mL	99
48) Dimethylphtha	7.638	163	154767	21.0218 ug/mL	100
49) 26Dinitrotolu	7.675	165	36736	21.6478 ug/mL	99
50) Acenaphthene	7.846	154	134017	22.2827 ug/mL	99
51) 3Nitroaniline	7.789	138	35500	21.1756 ug/mL	97
52) 24Dinitphenol	7.857	184	22395	18.7006 ug/mL	84
53) Dibenzofuran	7.960	168	175719	21.0984 ug/mL	99
54) 24Dinitrotolu	7.942	165	48705	21.7423 ug/mL	96
55) 4-Nitrophenol	7.891	65	32142	21.2965 ug/mL	97
56) 2,3,5,6-Tetrachlorop	8.008	232	37444	21.7838 ug/mL	95
57) 2,3,4,6-Tetrachlorop	8.036	232	37390	21.2883 ug/mL	97
58) Fluorene	8.181	166	142369	21.3051 ug/mL	98
59) 4Clphlphlethr	8.175	204	70161	20.3238 ug/mL	97
60) Diethylphthal	8.102	149	152179	20.6267 ug/mL	99
61) 4Nitroaniline	8.187	138	32421	20.2829 ug/mL	97
64) 46Dinit2mylph	8.204	198	26371	20.1692 ug/mL	99
65) Ntrsdiphlam&Diphlam	8.247	169	205678	43.4562 ug/mL	99
66) Azobenz&12Diphlhyd	8.272	182	71355	42.2473 ug/mL	95
67) 4Brphlphlethr	8.440	248	35191	20.8981 ug/mL	95
68) Hexaclbenzene	8.474	284	35238	20.8384 ug/mL	98
69) Pentaclphenol	8.562	266	22188	21.3861 ug/mL	97
70) Phenanthrene	8.670	178	168501	21.2878 ug/mL	99
71) Anthracene	8.693	178	172834	21.4514 ug/mL	99
72) Carbazole	8.761	167	152537	20.9116 ug/mL	99
73) Dinbtylphthal	8.909	149	196298	21.0656 ug/mL	100
74) Fluoranthene	9.272	202	202944	21.8030 ug/mL	100
76) Benzidine	9.323	184	73505	23.6962 ug/mL	99
77) Pyrene	9.403	202	208633	21.4225 ug/mL	100
79) Btylbzylphth	9.747	149	96216	21.7776 ug/mL	99
80) bis2Ethlhxlad	9.781	129	76852	22.4748 ug/mL	100
81) 33Diclbnzidin	10.099	252	56349	20.5497 ug/mL	99
82) B[a]anthracen	10.133	228	194424	21.5030 ug/mL	99
83) Chrysene	10.159	228	183038	21.1104 ug/mL	99
84) bis2Ethlhxlph	10.111	149	134332	21.9301 ug/mL	99
85) Dinoctylphthl	10.537	149	236301	22.2873 ug/mL	100
87) B[b]fluoranth	10.864	252	181698	22.0570 ug/mL	100
88) B[k]fluoranth	10.883	252	167926	20.7156 ug/mL	99
89) Benz[a]pyrene	11.116	252	184495	20.6749 ug/mL	99
90) Indeno-pyrene	12.125	276	179652	22.5176 ug/mL	98
91) Dib[ah]anthr	12.134	278	154315	22.4342 ug/mL	98
92) B[ghi]perylen	12.409	276	150731	21.9615 ug/mL	100

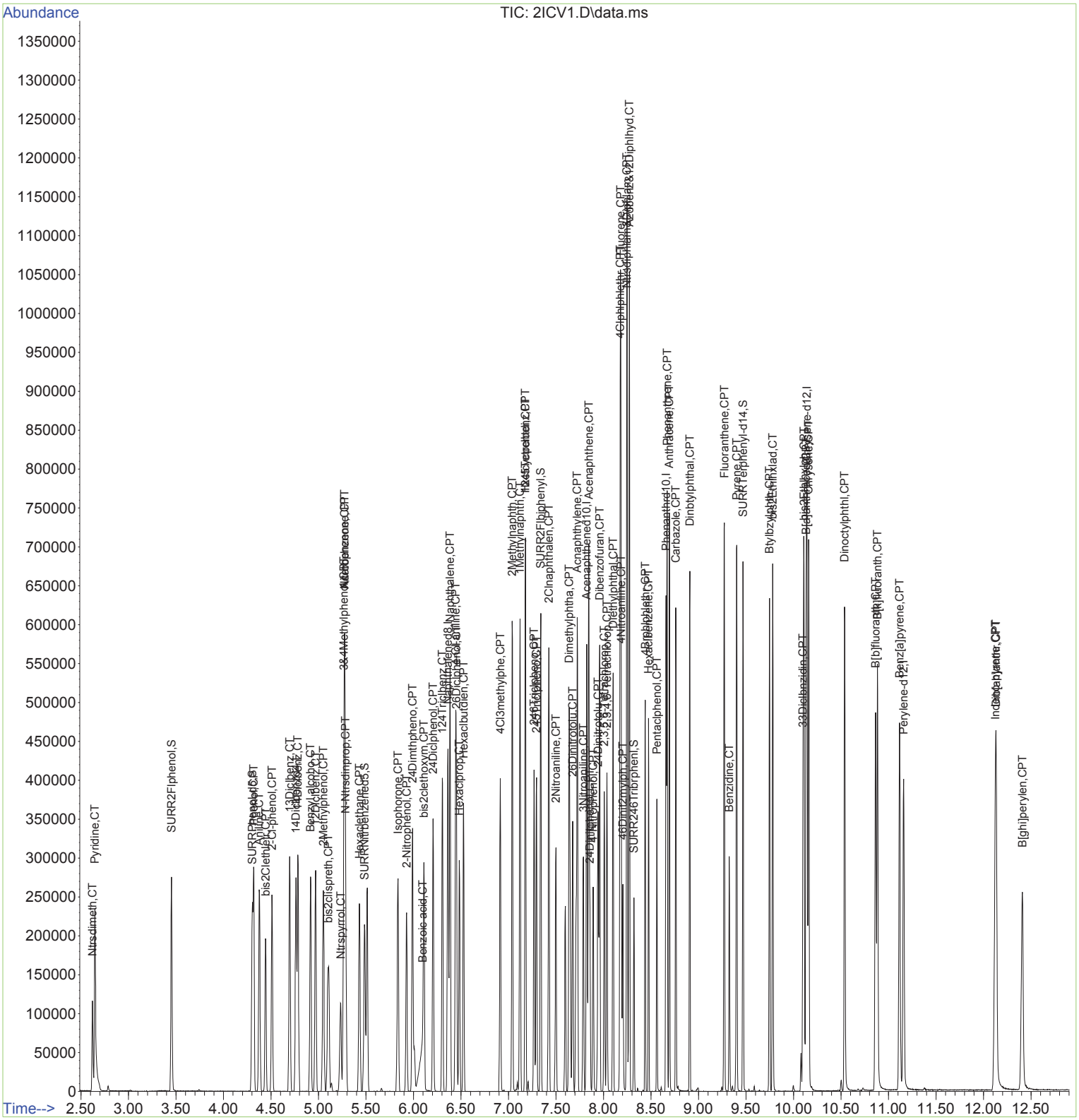
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\INSTARCH\DATA\2S092418\2ICV1.D
Acq On : 24 Sep 2018 16:07
Sample : ICV 20ug/mL SVMS8105
Misc : 500ul+5ul IS S3916B
Integrator: RTE
Quant Time: Sep 24 16:56:11 2018

Vial: 9
Operator: RPN
Inst : SVMS2
Multiplr: 1.00

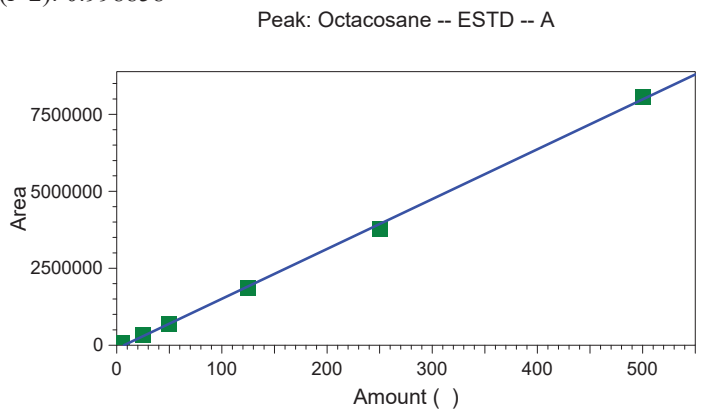
Quant Method : C:\INSTARCH\METHOD\2S092418.M
Quant Title : Method for 8270 Analysis
QLast Update : Mon Sep 24 16:53:25 2018
Response via : Initial Calibration
DataAcq Meth:2S092418.M



Calibration Report

Method: C:\Instarch\Semi 4\Methods\8015C\092018droic\092018droic.met
Print Time: Sep 20, 2018 16:03:09
User: AJZ
Instrument: Semi 4 (Offline)

Octacosane (A)
Average RF: 14250.7 RF StDev: 1447.11 RF %RSD: 10.1547
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 16185.4x - 110803.
Goodness of fit (r^2): 0.998858



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	5	25	50	125	250
Area	60100	343067	679578	1872640	3757445
RF	12020	13722.68	13591.56	14981.12	15029.78
Last Area					
Residual	-5.55907	-3.04193	1.16704	2.45478	11.0038
Rep StDev					
Rep %RSD					
Rep 1 Area	60100	343067	679578	1872640	3757445
Rep 1 User	AJZ	AJZ	AJZ	AJZ	AJZ
Rep 1 Data File	C:\Instarch\Semi 4\Data\092018droic\003.dat	C:\Instarch\Semi 4\Data\092018droic\004.dat	C:\Instarch\Semi 4\Data\092018droic\005.dat	C:\Instarch\Semi 4\Data\092018droic\006.dat	C:\Instarch\Semi 4\Data\092018droic\007.dat
Rep 1 Sample ID	8015 Lin PT 1 DRO 6570	8015 Lin PT 2 DRO 6571	8015 Lin PT 3 DRO 6572	8015 Lin PT 4 DRO 6573	8015 Lin PT 5 DRO 6574
Rep 1 Calib. Time	Sep 20, 2018 15:57:45	Sep 20, 2018 15:57:54	Sep 20, 2018 15:58:04	Sep 20, 2018 15:58:15	Sep 20, 2018 15:58:24

	Level 6
Amount	500
Area	8079405

Calibration Report

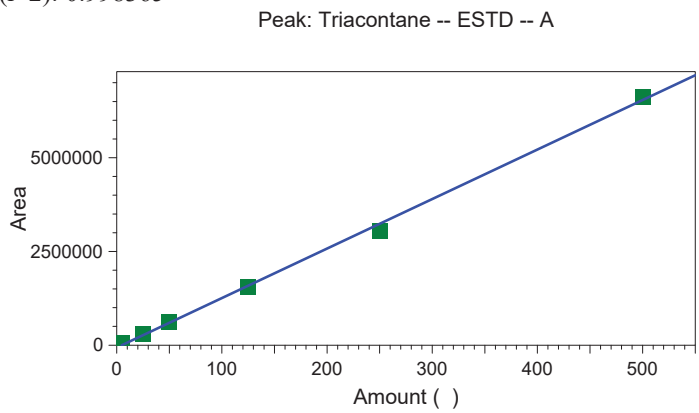
Method: C:\Instarch\Semi 4\Methods\8015C\092018droic\092018droic.met
Print Time: Sep 20, 2018 16:03:09
User: AJZ
Instrument: Semi 4 (Offline)

RF	16158.81
Last Area	
Residual	-6.02461
Rep StDev	
Rep %RSD	
Rep 1 Area	8079405
Rep 1 User	AJZ
Rep 1 Data File	C:\Instarch\Semi 4\Data\092018droic\008.dat
Rep 1 Sample ID	8015 Lin PT 6 DRO 6575
Rep 1 Calib. Time	Sep 20, 2018 15:58:33

Calibration Report

Method: C:\Instarch\Semi 4\Methods\8015C\092018droic\092018droic.met
Print Time: Sep 20, 2018 16:03:12
User: AJZ
Instrument: Semi 4 (Offline)

Triacontane (A)
Average RF: 12575.2 RF StDev: 435.510 RF %RSD: 3.46325
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 13200.3x - 61904.5
Goodness of fit (r^2): 0.998365



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	5	25	50	125	250
Area	64622	304674	618070	1564315	3048674
RF	12924.4	12186.96	12361.4	12514.52	12194.696
Last Area					
Residual	-4.58509	-2.77037	-1.51186	1.8048	14.3563
Rep StDev					
Rep %RSD					
Rep 1 Area	64622	304674	618070	1564315	3048674
Rep 1 User	AJZ	AJZ	AJZ	AJZ	AJZ
Rep 1 Data File	C:\Instarch\Semi 4\Data\092018droic\003.dat	C:\Instarch\Semi 4\Data\092018droic\004.dat	C:\Instarch\Semi 4\Data\092018droic\005.dat	C:\Instarch\Semi 4\Data\092018droic\006.dat	C:\Instarch\Semi 4\Data\092018droic\007.dat
Rep 1 Sample ID	8015 Lin PT 1 DRO 6570	8015 Lin PT 2 DRO 6571	8015 Lin PT 3 DRO 6572	8015 Lin PT 4 DRO 6573	8015 Lin PT 5 DRO 6574
Rep 1 Calib. Time	Sep 20, 2018 15:57:45	Sep 20, 2018 15:57:54	Sep 20, 2018 15:58:04	Sep 20, 2018 15:58:15	Sep 20, 2018 15:58:24

	Level 6
Amount	500
Area	6634550

Calibration Report

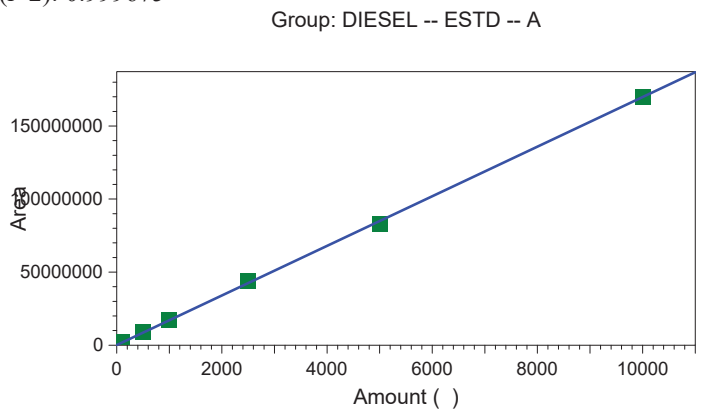
Method: C:\Instarch\Semi 4\Methods\8015C\092018droic\092018droic.met
Print Time: Sep 20, 2018 16:03:12
User: AJZ
Instrument: Semi 4 (Offline)

RF	13269.1
Last Area	
Residual	-7.2938
Rep StDev	
Rep %RSD	
Rep 1 Area	6634550
Rep 1 User	AJZ
Rep 1 Data File	C:\Instarch\Semi 4\Data\092018droic\008.dat
Rep 1 Sample ID	8015 Lin PT 6 DRO 6575
Rep 1 Calib. Time	Sep 20, 2018 15:58:33

Calibration Report

Method: C:\Instarch\Semi 4\Methods\8015C\092018droic\092018droic.met
Print Time: Sep 20, 2018 16:03:20
User: AJZ
Instrument: Semi 4 (Offline)

DIESEL (A)
Average RF: 17217.4 RF StDev: 393.210 RF %RSD: 2.28379
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 16977.9x + 102242.
Goodness of fit (r^2): 0.999675



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	100	500	1000	2500	5000
Area	1728865	8805680	17140304	44111655	82976622
RF	17288.65	17611.36	17140.304	17644.662	16595.3244
Last Area					
Residual	4.1919	-12.6325	-3.54184	-92.1544	118.699
Rep StDev					
Rep %RSD					
Rep 1 Area	1728865	8805680	17140304	44111655	82976622
Rep 1 User	AJZ	AJZ	AJZ	AJZ	AJZ
Rep 1 Data File	C:\Instarch\Semi 4\Data\092018droic\003.dat	C:\Instarch\Semi 4\Data\092018droic\004.dat	C:\Instarch\Semi 4\Data\092018droic\005.dat	C:\Instarch\Semi 4\Data\092018droic\006.dat	C:\Instarch\Semi 4\Data\092018droic\007.dat
Rep 1 Sample ID	8015 Lin PT 1 DRO 6570	8015 Lin PT 2 DRO 6571	8015 Lin PT 3 DRO 6572	8015 Lin PT 4 DRO 6573	8015 Lin PT 5 DRO 6574
Rep 1 Calib. Time	Sep 20, 2018 15:57:45	Sep 20, 2018 15:57:54	Sep 20, 2018 15:58:04	Sep 20, 2018 15:58:15	Sep 20, 2018 15:58:24

	Level 6
Amount	10000
Area	170242338

Calibration Report

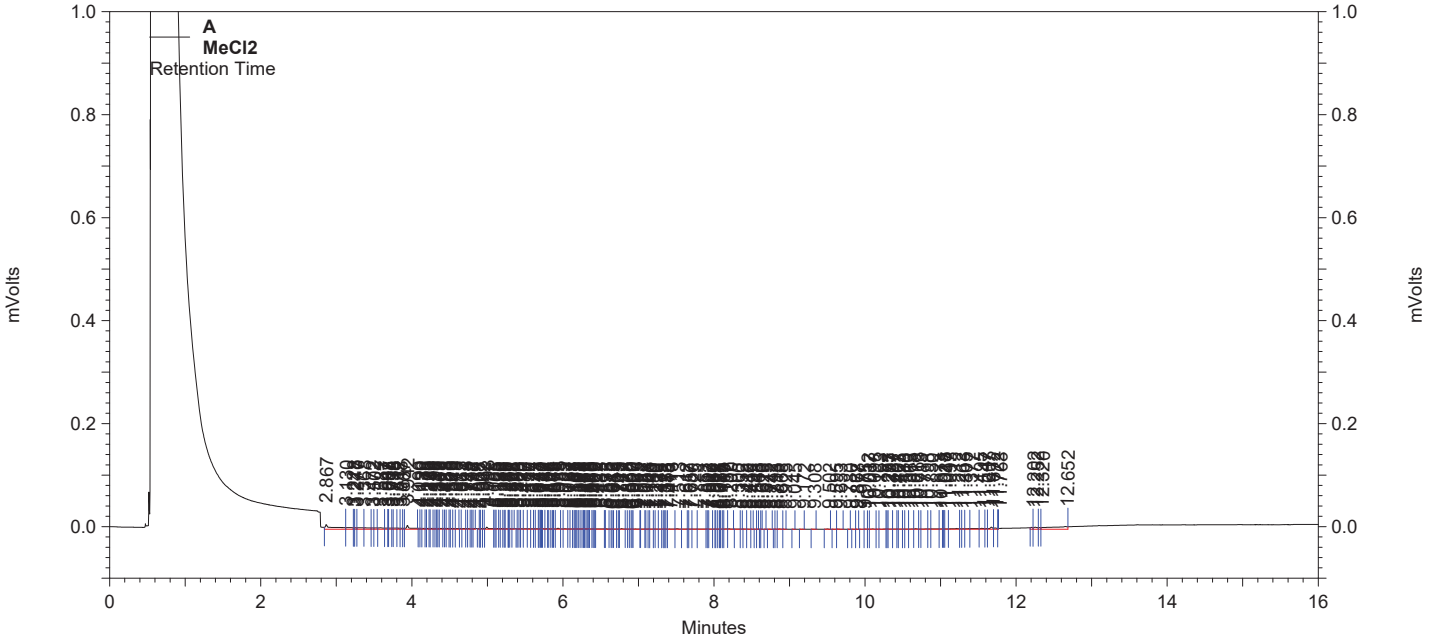
Method: C:\Instarch\Semi 4\Methods\8015C\092018droic\092018droic.met
Print Time: Sep 20, 2018 16:03:20
User: AJZ
Instrument: Semi 4 (Offline)

RF	17024.2338
Last Area	
Residual	-21.2515
Rep StDev	
Rep %RSD	
Rep 1 Area	170242338
Rep 1 User	AJZ
Rep 1 Data File	C:\Instarch\Semi 4\Data\092018droic\008.dat
Rep 1 Sample ID	8015 Lin PT 6 DRO 6575
Rep 1 Calib. Time	Sep 20, 2018 15:58:33

8015B Analysis Report

Data File: C:\Instarch\Semi 4\Data\092018droic\001.dat
Method: C:\Instarch\Semi 4\Methods\8015C\092018droic\092018droic.met
User: AJZ
Sample ID: MeCl2
Acquired: Sep 20, 2018 11:48:46
Printed: Sep 20, 2018 16:02:08

Data Summary: {Data Description}



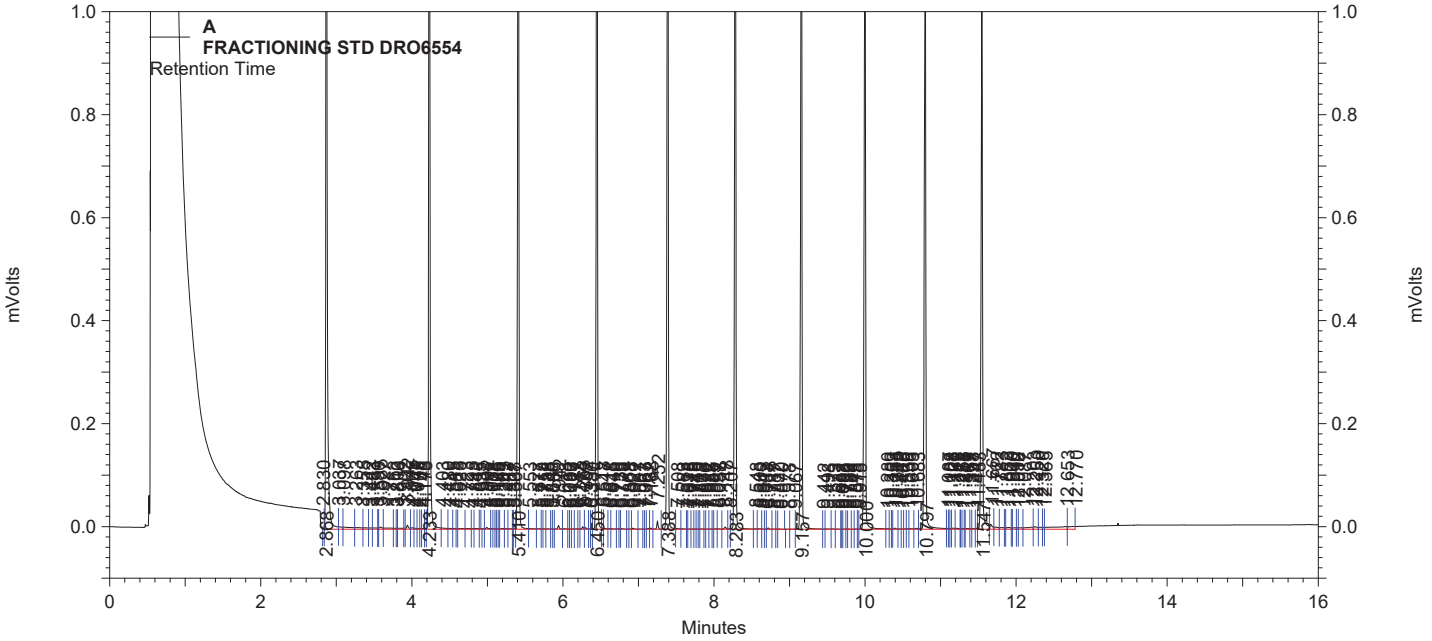
A Results

Component	Retention Time	Area Counts	Concentration (ug/ml)
Octacosane	11.547	6831	7.268
Triacontane	12.252	14497	6.824
DIESEL		441063	19.957

8015B Analysis Report

Data File: C:\Instarch\Semi 4\Data\092018droic\002.dat
Method: C:\Instarch\Semi 4\Methods\8015C\092018droic\092018droic.met
User: AJZ
Sample ID: FRACTIONING STD DRO6554
Acquired: Sep 20, 2018 12:15:53
Printed: Sep 20, 2018 16:02:24

Data Summary: {Data Description}



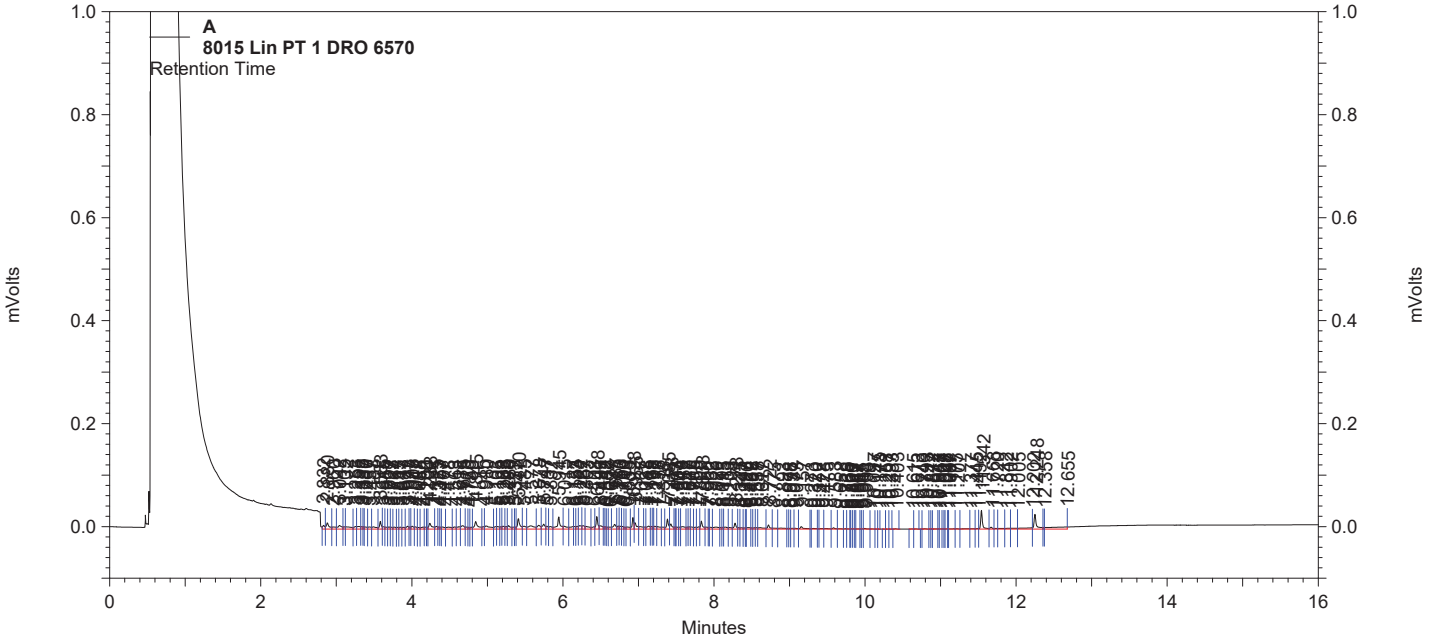
A Results

Component	Retention Time	Area Counts	Concentration (ug/ml)
Octacosane	11.547	1378538	92.018
Triacontane	12.250	16833	7.002
DIESEL		16801928	983.612

8015B Analysis Report

Data File: C:\Instarch\Semi 4\Data\092018droic\003.dat
Method: C:\Instarch\Semi 4\Methods\8015C\092018droic\092018droic.met
User: AJZ
Sample ID: 8015 Lin PT 1 DRO 6570
Acquired: Sep 20, 2018 12:42:53
Printed: Sep 20, 2018 16:02:28

Data Summary: {Data Description}



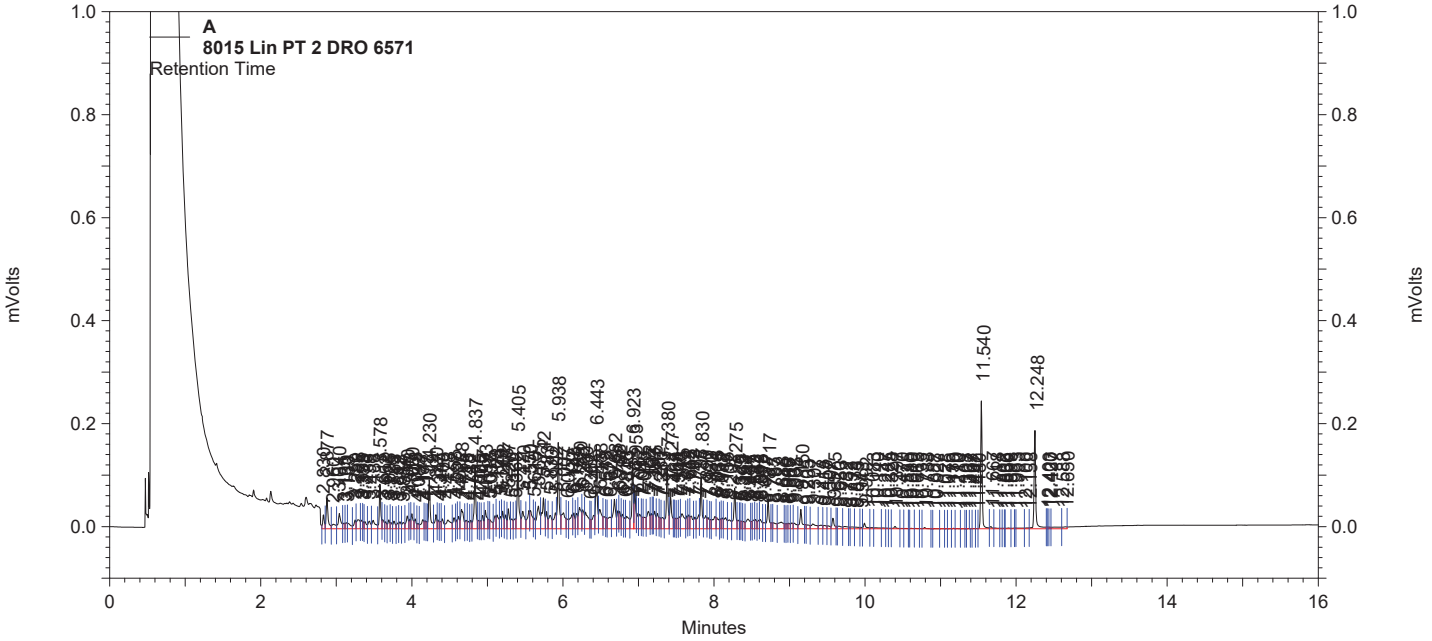
A Results

Component	Retention Time	Area Counts	Concentration (ug/ml)
Octacosane	11.542	60100	5.000 CAL
Triacontane	12.248	64622	5.000 CAL
DIESEL		1728865	100.000 CAL

8015B Analysis Report

Data File: C:\Instarch\Semi 4\Data\092018droic\004.dat
Method: C:\Instarch\Semi 4\Methods\8015C\092018droic\092018droic.met
User: AJZ
Sample ID: 8015 Lin PT 2 DRO 6571
Acquired: Sep 20, 2018 13:10:01
Printed: Sep 20, 2018 16:02:31

Data Summary: {Data Description}



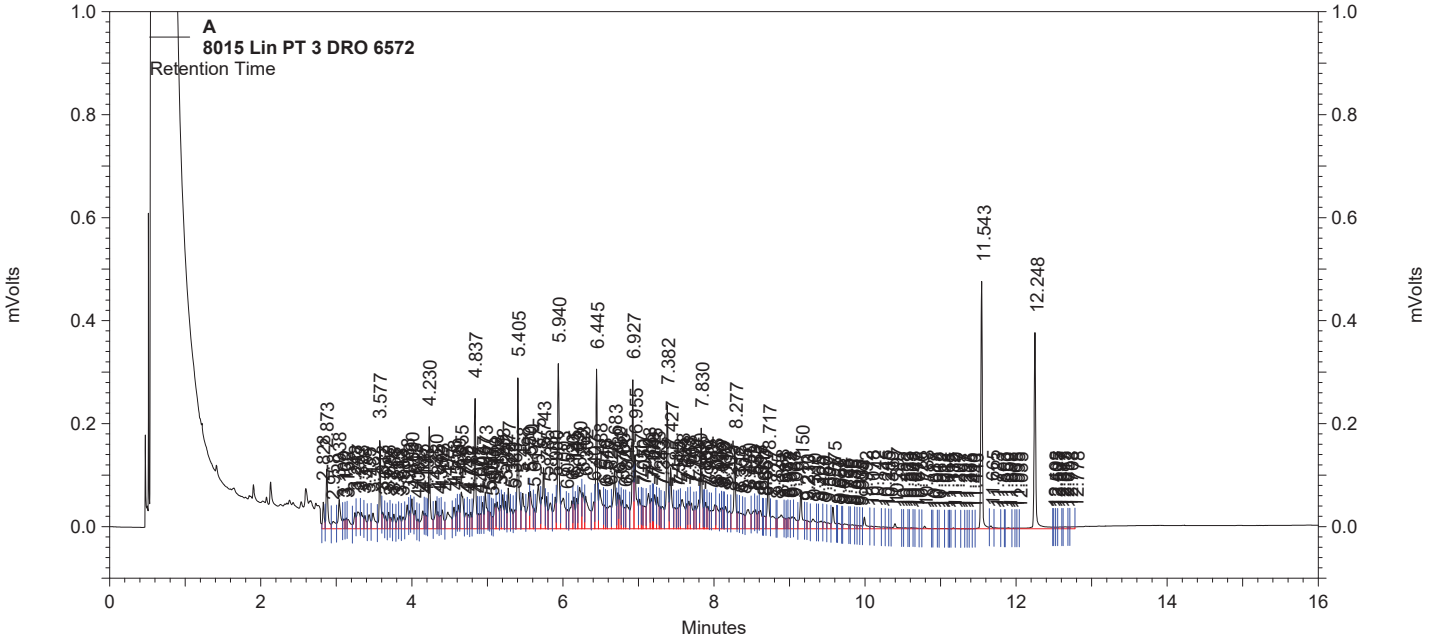
A Results

Component	Retention Time	Area Counts	Concentration (ug/ml)
Octacosane	11.540	343067	25.000 CAL
Triacontane	12.248	304674	25.000 CAL
DIESEL		8805680	500.000 CAL

8015B Analysis Report

Data File: C:\Instarch\Semi 4\Data\092018droic\005.dat
Method: C:\Instarch\Semi 4\Methods\8015C\092018droic\092018droic.met
User: AJZ
Sample ID: 8015 Lin PT 3 DRO 6572
Acquired: Sep 20, 2018 13:37:11
Printed: Sep 20, 2018 16:02:35

Data Summary: {Data Description}



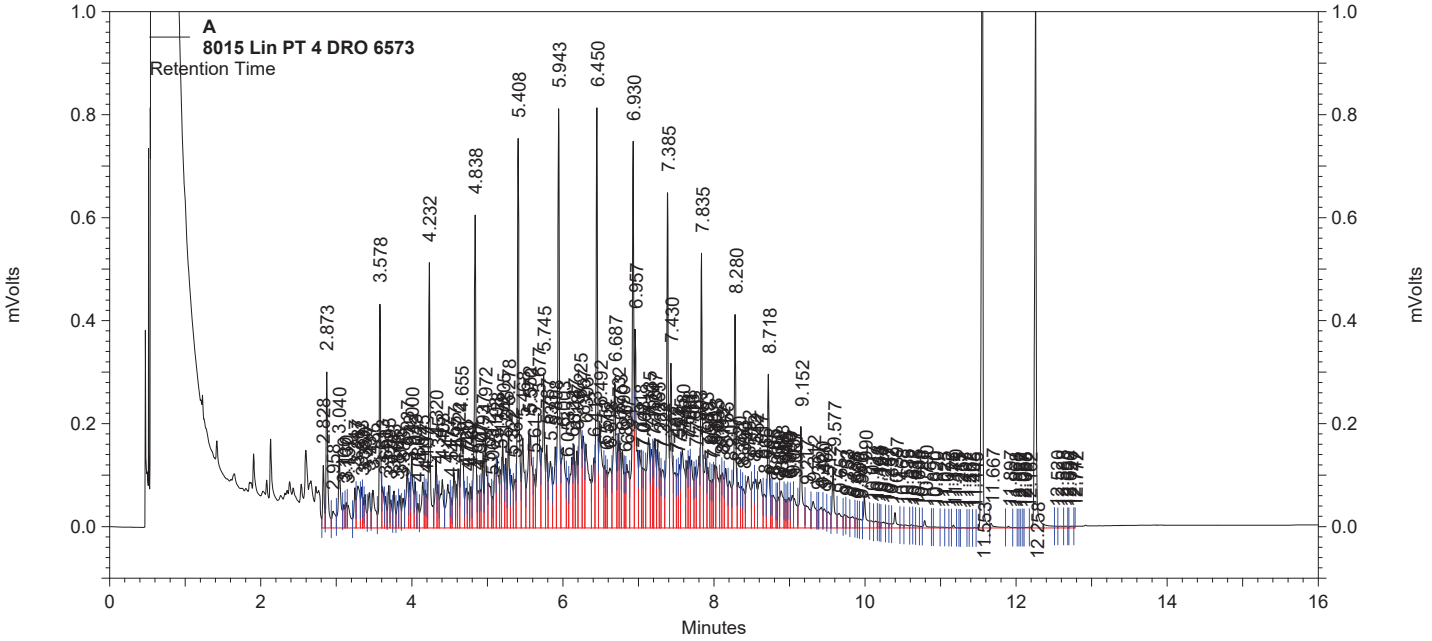
A Results

Component	Retention Time	Area Counts	Concentration (ug/ml)
Octacosane	11.543	679578	50.000 CAL
Triacontane	12.248	618070	50.000 CAL
DIESEL		17140316	1000.000 CAL

8015B Analysis Report

Data File: C:\Instarch\Semi 4\Data\092018droic\006.dat
Method: C:\Instarch\Semi 4\Methods\8015C\092018droic\092018droic.met
User: AJZ
Sample ID: 8015 Lin PT 4 DRO 6573
Acquired: Sep 20, 2018 14:04:24
Printed: Sep 20, 2018 16:02:38

Data Summary: {Data Description}



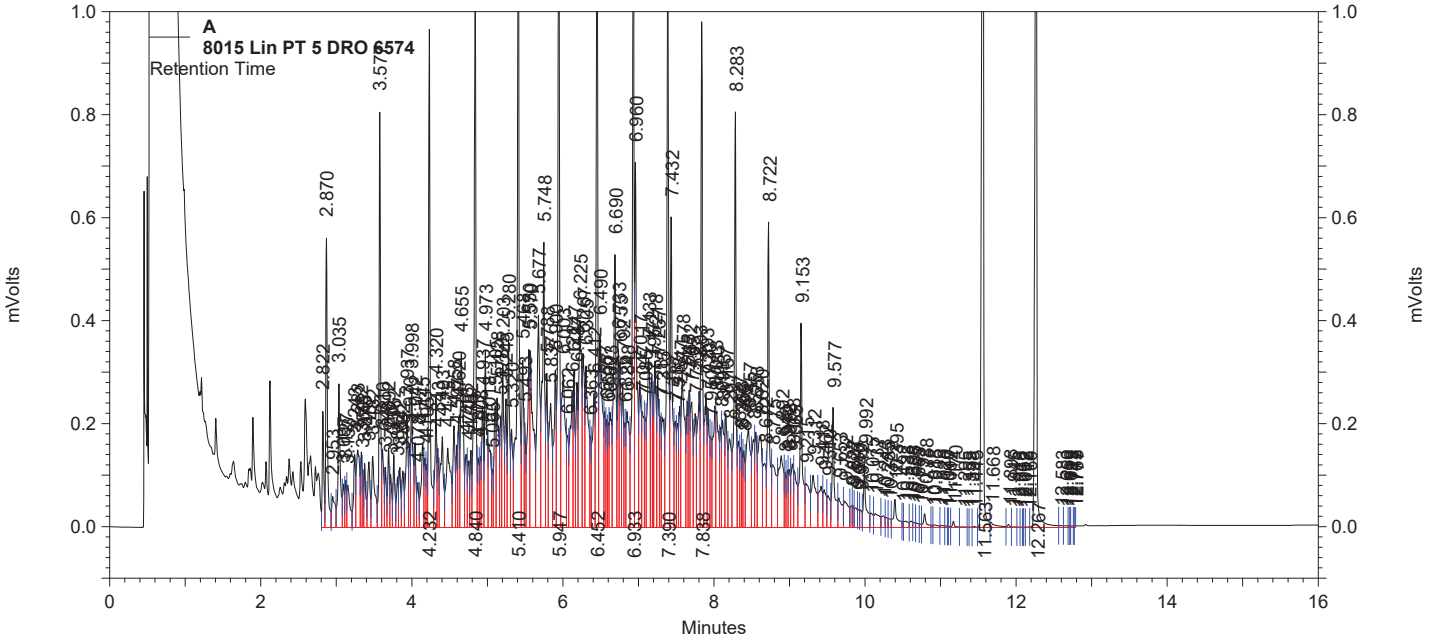
A Results

Component	Retention Time	Area Counts	Concentration (ug/ml)
Octacosane	11.553	1872640	125.000 CAL
Triacontane	12.258	1564315	125.000 CAL
DIESEL		44111640	2500.000 CAL

8015B Analysis Report

Data File: C:\Instarch\Semi 4\Data\092018droic\007.dat
Method: C:\Instarch\Semi 4\Methods\8015C\092018droic\092018droic.met
User: AJZ
Sample ID: 8015 Lin PT 5 DRO 6574
Acquired: Sep 20, 2018 14:31:33
Printed: Sep 20, 2018 16:02:42

Data Summary: {Data Description}



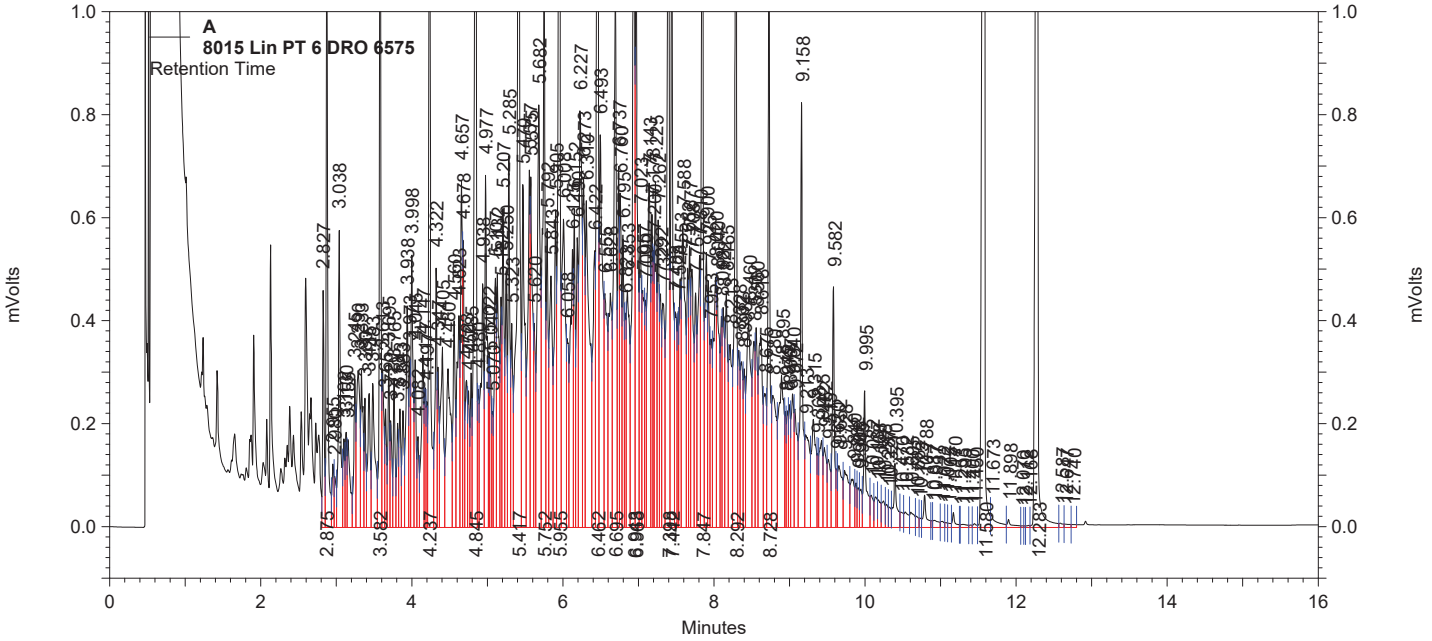
A Results

Component	Retention Time	Area Counts	Concentration (ug/ml)
Octacosane	11.563	3757445	250.000 CAL
Triacontane	12.267	3048674	250.000 CAL
DIESEL		82976640	5000.000 CAL

8015B Analysis Report

Data File: C:\Instarch\Semi 4\Data\092018droic\008.dat
Method: C:\Instarch\Semi 4\Methods\8015C\092018droic\092018droic.met
User: AJZ
Sample ID: 8015 Lin PT 6 DRO 6575
Acquired: Sep 20, 2018 14:58:44
Printed: Sep 20, 2018 16:02:46

Data Summary: {Data Description}



A Results

Component	Retention Time	Area Counts	Concentration (ug/ml)
Octacosane	11.580	8079405	500.000 CAL
Triacontane	12.283	6634550	500.000 CAL
DIESEL		170242288	10000.000 CAL

QC Check Standard Report

Sequence : C:\Instarch\Semi 4\Sequence\092018droic.seq
User : AJZ
Printed : Sep 20, 2018 16:02:52

File	Sample ID	Acquired
C:\Instarch\Semi 4\Data\092018droic\009.dat	8015 ICV DRO6576	Sep 20, 2018 16:02:52

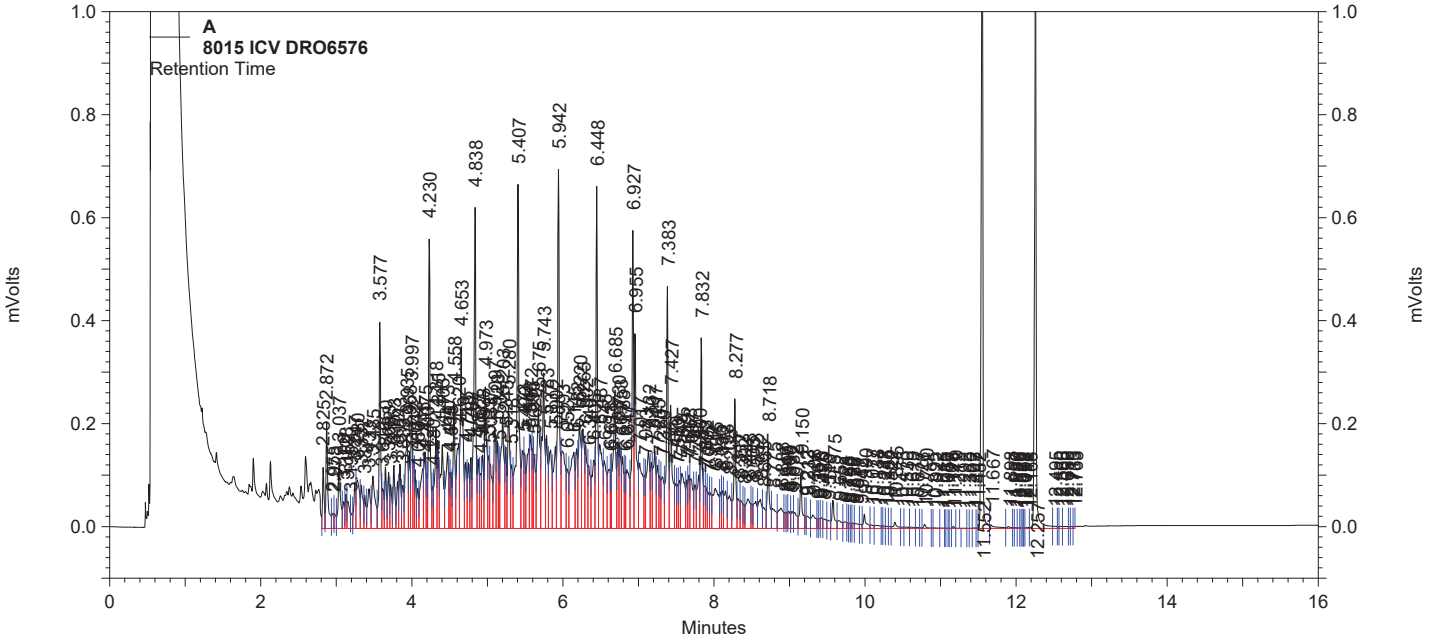
A

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
Octacosane	125.000	126.614	1.291	20.000	Passed
Triacontane	125.000	133.081	6.465	20.000	Passed
DIESEL	2500.000	2592.546	3.702	20.000	Passed

8015B Analysis Report

Data File: C:\Instarch\Semi 4\Data\092018droic\009.dat
Method: C:\Instarch\Semi 4\Methods\8015C\092018droic\092018droic.met
User: AJZ
Sample ID: 8015 ICV DRO6576
Acquired: Sep 20, 2018 15:25:50
Printed: Sep 20, 2018 16:02:49

Data Summary: {Data Description}



A Results

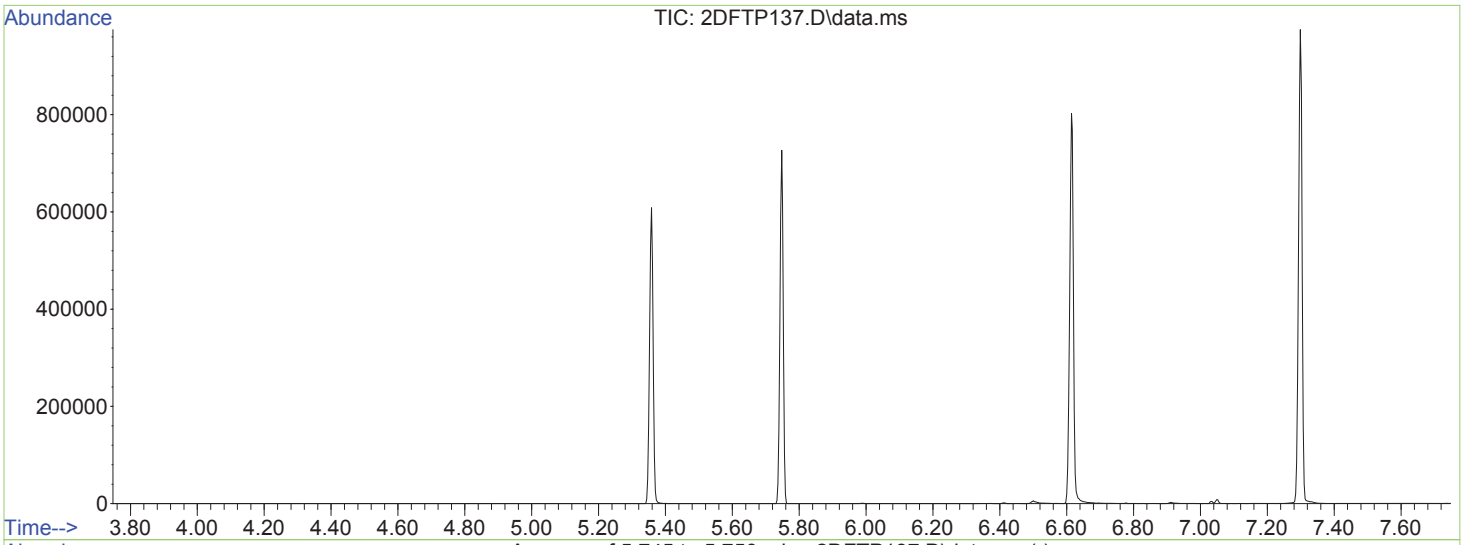
Component	Retention Time	Area Counts	Concentration (ug/ml)
Octacosane	11.552	1938487	126.614
Triacontane	12.257	1694813	133.081
DIESEL		44118316	2592.546

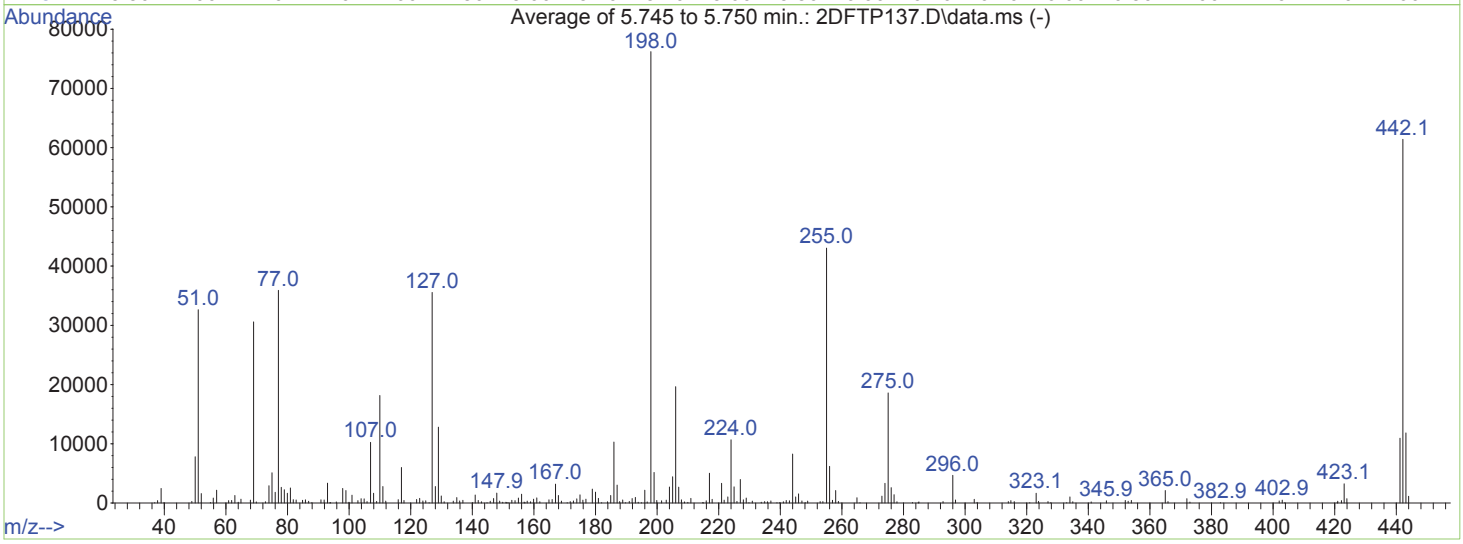
SEMI - VOLATILE ORGANIC ANALYSIS
CONTINUING CALIBRATION
DOCUMENTS

DFTPP

Data File : C:\INSTARCH\DATA\2S092518\2DFTP137.D Vial: 1
Acq On : 25 Sep 2018 13:30 Operator: RPN
Sample : DFTPP TUNE SVMS7999 Inst : SVMS2
Misc : SVMS2, 25ng DFTPP Multiplr: 1.00
Integrator: RTE

Method : C:\INSTARCH\METHOD\2DFTPP.M
Title : DFTPP TUNE
Last Update : Wed Sep 26 15:28:33 2018





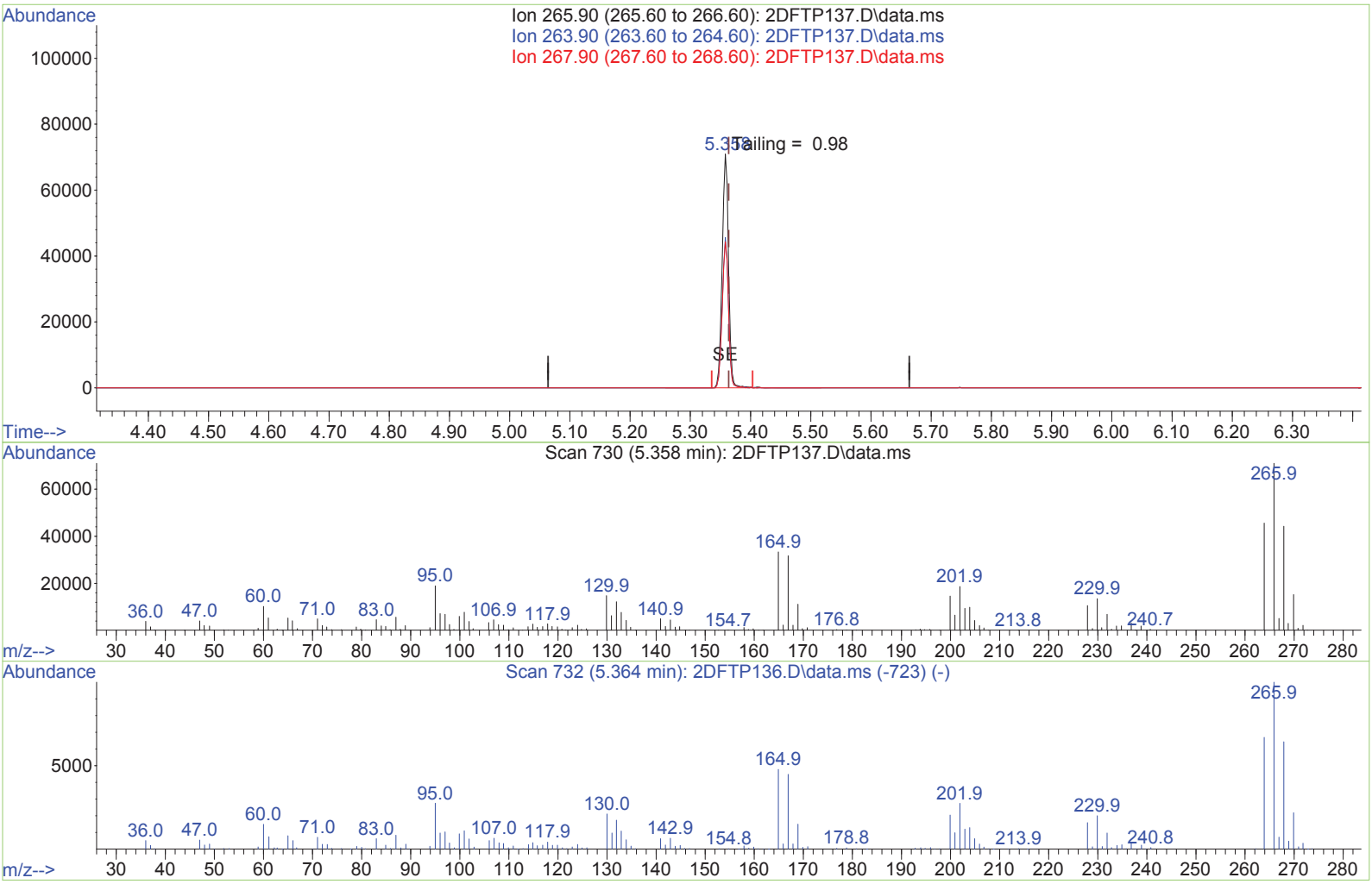
AutoFind: Scans 866, 867, 868; Background Corrected with Scan 859

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	42.8	32635	PASS
68	69	0.00	2	1.6	476	PASS
70	69	0.00	2	0.6	190	PASS
127	198	10	80	46.6	35547	PASS
197	198	0.00	2	0.3	200	PASS
198	198	50	100	100.0	76211	PASS
199	198	5	9	6.8	5149	PASS
275	198	10	60	24.4	18589	PASS
365	198	1	100	2.8	2110	PASS
441	442	0.01	24	17.8	10953	PASS
442	198	50	100	80.6	61403	PASS
443	442	15	24	19.3	11847	PASS

Quantitation Report (Qedit)

Data File : C:\INSTARCH\DATA\2S092518\2DFTP137.D Vial: 1
Acq On : 25 Sep 2018 13:30 Operator: RPN
Sample : DFTPP TUNE SVMS7999 Inst : SVMS2
Misc : SVMS2, 25ng DFTPP Multiplr: 1.00
Integrator: RTE
Quant Time: Sep 26 16:17:44 2018

Quant Method : C:\INSTARCH\METHOD\2DFTPP.M
Quant Title : DFTPP TUNE
QLast Update : Wed Sep 26 15:28:33 2018
Response via : Initial Calibration
DataAcq Meth:2DFTPP.M



TIC: 2DFTP137.D\data.ms

(1) Pentachlorophenol

5.358min (-0.006) 3.02 ng

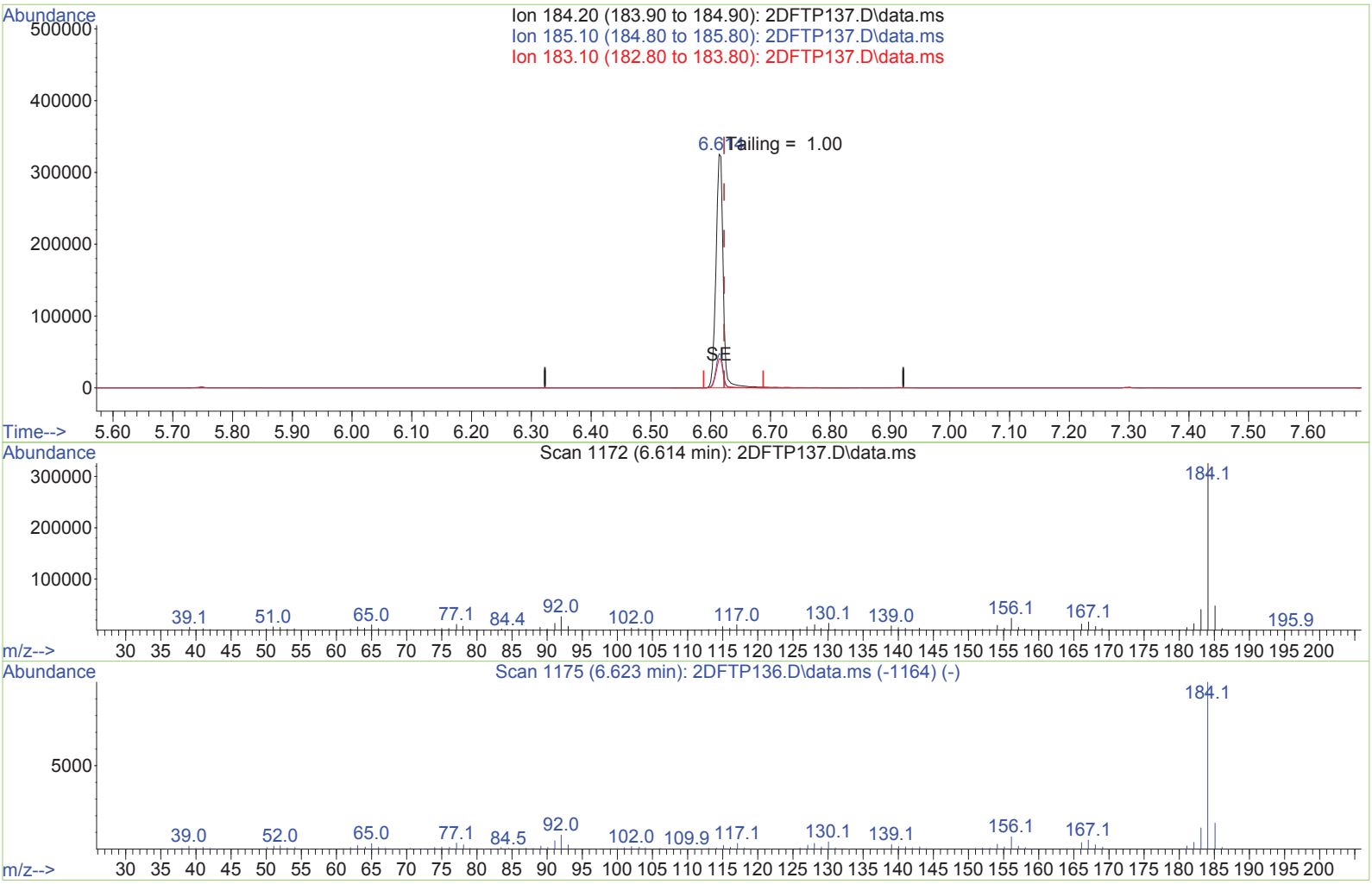
response 52285

Ion	Exp%	Act%
265.90	100.00	100.00
263.90	64.10	63.06
267.90	63.60	62.42
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : C:\INSTARCH\DATA\2S092518\2DFTP137.D Vial: 1
Acq On : 25 Sep 2018 13:30 Operator: RPN
Sample : DFTPP TUNE SVMS7999 Inst : SVMS2
Misc : SVMS2, 25ng DFTPP Multiplr: 1.00
Integrator: RTE
Quant Time: Sep 26 16:17:44 2018

Quant Method : C:\INSTARCH\METHOD\2DFTPP.M
Quant Title : DFTPP TUNE
QLast Update : Wed Sep 26 15:28:33 2018
Response via : Initial Calibration
DataAcq Meth:2DFTPP.M



TIC: 2DFTP137.D\data.ms

(3) Benzidine

6.614min (-0.008) 4.12 ng

response 270569

Ion	Exp%	Act%
184.20	100.00	100.00
185.10	14.60	14.65
183.10	12.00	12.07
0.00	0.00	0.00

Data File Name	2DFTP137.D
Vial Number	1
Data File Path	C:\INSTARCH\DATA\2S092518\
Operator	RPN
Date Acquired	9/25/2018 13:30
Instrument Name	SVMS2
Sample Name	DFTPP TUNE SVMS7999
Sample Multiplier	1
Misc Info	SVMS2, 25ng DFTPP
Calibration Title	DFTPP TUNE
Last Calibration Update	Wed Sep 26 15:28:33 2018

#	Name	Ret Time	Target Response
1)	Pentachlorophenol	5.36	52285
2)	DFTPP	5.75	59532
3)	Benzidine	6.61	270569
4)	DDE	6.78	185
5)	DDD	7.05	1603
6)	DDT	7.30	144136

DDT % Degradation

$$\frac{DDD+DDEx100}{DDD+DDE+DDT} \quad 1.23\ \%$$

Evaluate Continuing Calibration Report

Data File : C:\INSTARCH\DATA\2S092518\2CCV205.D Vial: 2
Acq On : 25 Sep 2018 13:46 Operator: RPN
Sample : CCV 20ug/mL SVMS8107 Inst : SVMS2
Misc : 500ul+5ul IS S3916B Multiplr: 1.00
Integrator: RTE
Quant Time: Sep 25 13:59:09 2018

Quant Method : C:\INSTARCH\METHOD\2S092418.M
Quant Title : Method for 8270 Analysis
QLast Update : Mon Sep 24 16:53:25 2018
Response via : Initial Calibration
DataAcq Meth:2S092418.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	14Diclbenzd4	20.000	20.000	0.0	95	0.00
2	CT	Ntrsdimeth	20.000	21.588	-7.9	94	0.00
3	CT	Pyridine	20.000	20.971	-4.9	94	0.00
4	S	SURR2Flphenol	50.000	52.405	-4.8	92	0.00
5	CT	Aniline	20.000	20.718	-3.6	92	0.00
6	CPT	bis2Clethletr	20.000	21.018	-5.1	92	0.00
7	S	SURRPhenol-d5	50.000	52.541	-5.1	92	0.00
8	CPT	Phenol	20.000	20.630	-3.1	92	0.00
9	CPT	2-Cl-phenol	20.000	20.867	-4.3	92	0.00
10	CT	13Diclbenz	20.000	20.751	-3.8	93	0.00
11	CT	14Diclbenz	20.000	20.917	-4.6	93	0.00
12	CT	12Diclbenz	20.000	21.079	-5.4	93	0.00
13	CT	Benzyl alcoho	20.000	21.317	-6.6	92	0.00
14	CPT	bis2clispreth	20.000	17.197	14.0	74	0.00
15	CPT	2Methylphenol	20.000	20.570	-2.9	91	0.00
16	CT	Ntrspyrrol	20.000	21.190	-6.0	90	0.00
17	CPT	Acetophenone	20.000	20.814	-4.1	92	0.00
18	CPT	Hexaclethane	20.000	20.995	-5.0	91	0.00
19	CPT	N-Ntrsdinprop	20.000	20.870	-4.4	91	0.00
20	CPT	3&4Methylphenol	20.000	20.637	-3.2	90	0.00
21	I	Naphthalened8	20.000	20.000	0.0	94	0.00
22	S	SURRNitrbenzened5	100.000	105.312	-5.3	91	0.00
23	CPT	Nitrobenzene	20.000	21.190	-6.0	91	0.00
24	CPT	Isophorone	20.000	20.680	-3.4	89	0.00
25	CPT	2-Nitrophenol	20.000	21.329	-6.6	92	0.00
26	CPT	24Dimthpheno	20.000	20.840	-4.2	91	0.00
27	CPT	bis2clethoxym	20.000	20.545	-2.7	90	0.00
28	CPT	24Diclphenol	20.000	21.380	-6.9	91	0.00
29	CT	124Triclbenz	20.000	21.327	-6.6	93	0.00
30	CT	Benzoic acid	20.000	19.421	2.9	88	0.00
31	CPT	Naphthalene	20.000	20.945	-4.7	92	0.00
32	CPT	4-Cl-aniline	20.000	20.983	-4.9	91	0.00
33	CT	26Diclphenol	20.000	21.329	-6.6	92	0.00
34	CT	Hexaclprop	20.000	22.080	-10.4	94	0.00
35	CPT	Hexaclbutdien	20.000	21.396	-7.0	94	0.00
36	CPT	4Cl3methylphe	20.000	21.222	-6.1	92	0.00
37	CPT	2Methylnaphth	20.000	20.870	-4.4	91	0.00
38	CT	1Methylnaphth	20.000	21.045	-5.2	92	0.00
39	I	Acenaphthened10	20.000	20.000	0.0	94	0.00
40	CPT	Hxclcycpentdi	20.000	21.854	-9.3	92	0.00
41	CPT	1245Tetrclbenz	20.000	20.854	-4.3	92	0.00
42	CPT	246Triclpheno	20.000	21.781	-8.9	92	0.00
43	CPT	245Triclpheno	20.000	21.616	-8.1	91	0.00
44	S	SURR2Flbiphenyl	100.000	104.185	-4.2	92	0.00
45	CPT	2Clnaphthalen	20.000	20.893	-4.5	92	0.00
46	CPT	2Nitroaniline	20.000	21.633	-8.2	90	0.00
47	CPT	Acnaphthylene	20.000	21.026	-5.1	91	0.00
48	CPT	Dimethylphtha	20.000	21.263	-6.3	93	0.00
49	CPT	26Dinitrotolu	20.000	21.424	-7.1	91	0.00
50	CPT	Acenaphthene	20.000	21.452	-7.3	92	0.00
51	CPT	3Nitroaniline	20.000	20.874	-4.4	89	0.00

Evaluate Continuing Calibration Report

Data File : C:\INSTARCH\DATA\2S092518\2CCV205.D Vial: 2
Acq On : 25 Sep 2018 13:46 Operator: RPN
Sample : CCV 20ug/mL SVMS8107 Inst : SVMS2
Misc : 500ul+5ul IS S3916B Multiplr: 1.00
Integrator: RTE
Quant Time: Sep 25 13:59:09 2018

Quant Method : C:\INSTARCH\METHOD\2S092418.M
Quant Title : Method for 8270 Analysis
QLast Update : Mon Sep 24 16:53:25 2018
Response via : Initial Calibration
DataAcq Meth:2S092418.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
52	CPT	24Dinitphenol	20.000	20.329	-1.6	93	0.00
53	CPT	Dibenzofuran	20.000	20.914	-4.6	92	0.00
54	CPT	24Dinitrotolu	20.000	22.082	-10.4	94	0.00
55	CPT	4-Nitrophenol	20.000	21.174	-5.9	90	0.00
56	CT	2,3,5,6-Tetrachlorop	20.000	22.089	-10.4	92	0.00
57	CPT	2,3,4,6-Tetrachlorop	20.000	22.243	-11.2	93	0.00
58	CPT	Fluorene	20.000	20.860	-4.3	92	0.00
59	CPT	4Clphlphlethr	20.000	21.009	-5.0	94	0.00
60	CPT	Diethylphthal	20.000	20.651	-3.3	91	0.00
61	CPT	4Nitroaniline	20.000	20.897	-4.5	89	0.00
62	S	SURR246Tribrphenl	50.000	55.688	-11.4	93	0.00
63	I	Phenanthrd10	20.000	20.000	0.0	96	0.00
64	CPT	46Dinit2mylph	20.000	20.424	-2.1	90	0.00
65	CPT	Ntrsdiphlam&Diphlam	40.000	41.393	-3.5	93	0.00
66	CT	Azobenz&12Diphlhyd	40.000	41.668	-4.2	93	0.00
67	CPT	4Brphlphlethr	20.000	21.203	-6.0	94	0.00
68	CPT	Hexaclbenzene	20.000	20.752	-3.8	93	0.00
69	CPT	Pentaclphenol	20.000	21.788	-8.9	95	0.00
70	CPT	Phenanthrene	20.000	20.847	-4.2	94	0.00
71	CPT	Anthracene	20.000	20.787	-3.9	93	0.00
72	CPT	Carbazole	20.000	20.359	-1.8	90	0.00
73	CPT	Dinbtylphthal	20.000	20.738	-3.7	92	0.00
74	CPT	Fluoranthene	20.000	21.068	-5.3	93	0.00
75	I	Chrysene-d12	20.000	20.000	0.0	98	0.00
76	CT	Benzidine	20.000	19.223	3.9	94	0.00
77	CPT	Pyrene	20.000	20.709	-3.5	93	0.00
78	S	SURRTerphenyl-d14	100.000	103.344	-3.3	93	0.00
79	CPT	Btylbzylphth	20.000	21.040	-5.2	90	0.00
80	CT	bis2Ethlhxlad	20.000	21.244	-6.2	92	0.00
81	CPT	33Diclbnzidin	20.000	17.029	14.9	84	0.00
82	CPT	B[a]anthracen	20.000	20.559	-2.8	92	0.00
83	CPT	Chrysene	20.000	21.108	-5.5	95	0.00
84	CPT	bis2Ethlhxlph	20.000	21.496	-7.5	91	0.00
85	CPT	Dinoctylphthl	20.000	22.063	-10.3	92	0.00
86	I	Perylene-d12	20.000	20.000	0.0	98	0.00
87	CPT	B[b]fluoranth	20.000	20.479	-2.4	89	0.00
88	CPT	B[k]fluoranth	20.000	21.031	-5.2	97	0.00
89	CPT	Benz[a]pyrene	20.000	20.797	-4.0	94	0.00
90	CPT	Indeno-pyrene	20.000	21.104	-5.5	92	0.00
91	CPT	Dib[ah]anthr	20.000	21.218	-6.1	91	0.00
92	CPT	B[ghi]perylen	20.000	21.261	-6.3	94	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Evaluate Continuing Calibration Report

Data File : C:\INSTARCH\DATA\2S092518\2CCV205.D Vial: 2
Acq On : 25 Sep 2018 13:46 Operator: RPN
Sample : CCV 20ug/mL SVMS8107 Inst : SVMS2
Misc : 500ul+5ul IS S3916B Multiplr: 1.00
Integrator: RTE
Quant Time: Sep 25 13:59:09 2018

Quant Method : C:\INSTARCH\METHOD\2S092418.M
Quant Title : Method for 8270 Analysis
QLast Update : Mon Sep 24 16:53:25 2018
Response via : Initial Calibration
DataAcq Meth:2S092418.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	14Diclbenzd4	1.000	1.000	0.0	95	0.00
2	CT	Ntrsdimeth	0.893	0.964	-8.0	94	0.00
3	CT	Pyridine	1.646	1.726	-4.9	94	0.00
4	S	SURR2Flphenol	0.552	0.579	-4.9	92	0.00
5	CT	Aniline	2.015	2.087	-3.6	92	0.00
6	CPT	bis2Clethletr	1.390	1.461	-5.1	92	0.00
7	S	SURRPhenol-d5	0.668	0.702	-5.1	92	0.00
8	CPT	Phenol	1.570	1.620	-3.2	92	0.00
9	CPT	2-Cl-phenol	1.333	1.391	-4.4	92	0.00
10	CT	13Diclbenz	1.638	1.700	-3.8	93	0.00
11	CT	14Diclbenz	1.587	1.659	-4.5	93	0.00
12	CT	12Diclbenz	1.540	1.623	-5.4	93	0.00
13	CT	Benzyl alcoho	0.874	0.931	-6.5	92	0.00
14	CPT	bis2clispreth	1.907	1.640	14.0	74	0.00
15	CPT	2Methylphenol	0.970	0.997	-2.8	91	0.00
16	CT	Ntrspyrrol	0.682	0.723	-6.0	90	0.00
17	CPT	Acetophenone	2.096	2.181	-4.1	92	0.00
18	CPT	Hexaclethane	0.675	0.708	-4.9	91	0.00
19	CPT	N-Ntrsdinprop	1.182	1.233	-4.3	91	0.00
20	CPT	3&4Methylphenol	1.508	1.556	-3.2	90	0.00
21	I	Naphthalened8	1.000	1.000	0.0	94	0.00
22	S	SURRNitrbenzened5	0.081	0.085	-4.9	91	0.00
23	CPT	Nitrobenzene	0.532	0.563	-5.8	91	0.00
24	CPT	Isophorone	0.628	0.649	-3.3	89	0.00
25	CPT	2-Nitrophenol	0.188	0.217	-15.4	92	0.00
26	CPT	24Dimthpheno	0.311	0.324	-4.2	91	0.00
27	CPT	bis2clethoxym	0.443	0.455	-2.7	90	0.00
28	CPT	24Diclphenol	0.311	0.332	-6.8	91	0.00
29	CT	124Triclbenz	0.370	0.394	-6.5	93	0.00
30	CT	Benzoic acid	0.200	0.211	-5.5	88	0.00
31	CPT	Naphthalene	1.119	1.172	-4.7	92	0.00
32	CPT	4-Cl-aniline	0.434	0.455	-4.8	91	0.00
33	CT	26Diclphenol	0.282	0.301	-6.7	92	0.00
34	CT	Hexaclprop	0.222	0.245	-10.4	94	0.00
35	CPT	Hexaclbutdien	0.205	0.219	-6.8	94	0.00
36	CPT	4Cl3methylphe	0.339	0.359	-5.9	92	0.00
37	CPT	2Methylnaphth	0.704	0.735	-4.4	91	0.00
38	CT	1Methylnaphth	0.633	0.666	-5.2	92	0.00
39	I	Acenaphthened10	1.000	1.000	0.0	94	0.00
40	CPT	Hxclcycpentdi	0.378	0.413	-9.3	92	0.00
41	CPT	1245Tetrclbenz	0.654	0.682	-4.3	92	0.00
42	CPT	246Triclpheno	0.461	0.502	-8.9	92	0.00
43	CPT	245Triclpheno	0.480	0.519	-8.1	91	0.00
44	S	SURR2Flbiphenyl	0.303	0.316	-4.3	92	0.00
45	CPT	2Clnaphthalen	1.361	1.422	-4.5	92	0.00
46	CPT	2Nitroaniline	0.430	0.466	-8.4	90	0.00
47	CPT	Acnaphthylene	1.995	2.098	-5.2	91	0.00
48	CPT	Dimethylphtha	1.581	1.681	-6.3	93	0.00
49	CPT	26Dinitrotolu	0.364	0.390	-7.1	91	0.00
50	CPT	Acenaphthene	1.291	1.385	-7.3	92	0.00
51	CPT	3Nitroaniline	0.360	0.376	-4.4	89	0.00

Evaluate Continuing Calibration Report

Data File : C:\INSTARCH\DATA\2S092518\2CCV205.D Vial: 2
Acq On : 25 Sep 2018 13:46 Operator: RPN
Sample : CCV 20ug/mL SVMS8107 Inst : SVMS2
Misc : 500ul+5ul IS S3916B Multiplr: 1.00
Integrator: RTE
Quant Time: Sep 25 13:59:09 2018

Quant Method : C:\INSTARCH\METHOD\2S092418.M
Quant Title : Method for 8270 Analysis
QLast Update : Mon Sep 24 16:53:25 2018
Response via : Initial Calibration
DataAcq Meth:2S092418.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
52	CPT	24Dinitphenol	0.258	0.264	-2.3	93	0.00
53	CPT	Dibenzofuran	1.788	1.870	-4.6	92	0.00
54	CPT	24Dinitrotolu	0.481	0.531	-10.4	94	0.00
55	CPT	4-Nitrophenol	0.324	0.343	-5.9	90	0.00
56	CT	2,3,5,6-Tetrachlorop	0.369	0.408	-10.6	92	0.00
57	CPT	2,3,4,6-Tetrachlorop	0.377	0.419	-11.1	93	0.00
58	CPT	Fluorene	1.435	1.496	-4.3	92	0.00
59	CPT	4Clphlphlethr	0.741	0.779	-5.1	94	0.00
60	CPT	Diethylphthal	1.584	1.636	-3.3	91	0.00
61	CPT	4Nitroaniline	0.343	0.359	-4.7	89	0.00
62	S	SURR246Tribrphenl	0.064	0.072	-12.5	93	0.00
63	I	Phenanthrd10	1.000	1.000	0.0	96	0.00
64	CPT	46Dinit2mylph	0.167	0.182	-9.0	90	0.00
65	CPT	Ntrsdiphlam&Diphlam	0.646	0.668	-3.4	93	0.00
66	CT	Azobenz&12Diphlhyd	0.230	0.240	-4.3	93	0.00
67	CPT	4Brphlphlethr	0.230	0.243	-5.7	94	0.00
68	CPT	Hexaclbenzene	0.231	0.239	-3.5	93	0.00
69	CPT	Pentaclphenol	0.142	0.154	-8.5	95	0.00
70	CPT	Phenanthrene	1.080	1.125	-4.2	94	0.00
71	CPT	Anthracene	1.099	1.142	-3.9	93	0.00
72	CPT	Carbazole	0.995	1.013	-1.8	90	0.00
73	CPT	Dinbtylphthal	1.271	1.318	-3.7	92	0.00
74	CPT	Fluoranthene	1.270	1.337	-5.3	93	0.00
75	I	Chrysene-d12	1.000	1.000	0.0	98	0.00
76	CT	Benzidine	0.435	0.418	3.9	94	0.00
77	CPT	Pyrene	1.365	1.414	-3.6	93	0.00
78	S	SURRTerphenyl-d14	0.176	0.182	-3.4	93	0.00
79	CPT	Btylbzylphth	0.619	0.652	-5.3	90	0.00
80	CT	bis2Ethlhxlad	0.479	0.509	-6.3	92	0.00
81	CPT	33Diclbnzidin	0.384	0.327	14.8	84	0.00
82	CPT	B[a]anthracen	1.267	1.303	-2.8	92	0.00
83	CPT	Chrysene	1.215	1.283	-5.6	95	0.00
84	CPT	bis2Ethlhxlph	0.859	0.923	-7.5	91	0.00
85	CPT	Dinoctylphthl	1.486	1.640	-10.4	92	0.00
86	I	Perylene-d12	1.000	1.000	0.0	98	0.00
87	CPT	B[b]fluoranth	1.182	1.210	-2.4	89	0.00
88	CPT	B[k]fluoranth	1.163	1.223	-5.2	97	0.00
89	CPT	Benz[a]pyrene	1.280	1.331	-4.0	94	0.00
90	CPT	Indeno-pyrene	1.144	1.208	-5.6	92	0.00
91	CPT	Dib[ah]anthr	0.987	1.047	-6.1	91	0.00
92	CPT	B[ghi]perylen	0.985	1.047	-6.3	94	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File : C:\INSTARCH\DATA\2S092518\2CCV205.D Vial: 2
Acq On : 25 Sep 2018 13:46 Operator: RPN
Sample : CCV 20ug/mL SVMS8107 Inst : SVMS2
Misc : 500ul+5ul IS S3916B Multiplr: 1.00
Integrator: RTE
Quant Time: Sep 25 13:59:09 2018

Quant Method : C:\INSTARCH\METHOD\2S092418.M
Quant Title : Method for 8270 Analysis
QLast Update : Mon Sep 24 16:53:25 2018
Response via : Initial Calibration
DataAcq Meth:2S092418.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 14Diclbenzd4	4.763	152	40521	20.00	ug/mL	0.00
21) Naphthalened8	6.362	136	167678	20.00	ug/mL	0.00
39) Acenaphthened10	7.823	164	88832	20.00	ug/mL	0.00
63) Phenanthrd10	8.658	188	142398	20.00	ug/mL	0.00
75) Chrysene-d12	10.144	240	139113	20.00	ug/mL	0.00
86) Perylene-d12	11.162	264	138439	20.00	ug/mL	0.00
System Monitoring Compounds						
4) SURR2Flphenol	3.453	112	58604	52.41	%REC	0.00
Spiked Amount 100.000			Recovery = 52.41%			
7) SURRPhenol-d5	4.302	99	71095	52.54	%REC	0.00
Spiked Amount 100.000			Recovery = 52.54%			
22) SURRNitrbenzened5	5.484	82	71272	105.31	%REC	0.00
Spiked Amount 100.000			Recovery = 105.31%			
44) SURR2Flbiphenyl	7.340	172	140333	104.19	%REC	0.00
Spiked Amount 100.000			Recovery = 104.19%			
62) SURR246Tribrphenl	8.320	330	15950	55.69	%REC	0.00
Spiked Amount 100.000			Recovery = 55.69%			
78) SURRTerphenyl-d14	9.468	244	126437	103.34	%REC	0.00
Spiked Amount 100.000			Recovery = 103.34%			
Target Compounds						Qvalue
2) Ntrsdimeth	2.620	74	39057	21.5882	ug/mL	99
3) Pyridine	2.646	79	69923	20.9706	ug/mL	99
5) Aniline	4.379	93	84574	20.7175	ug/mL	99
6) bis2Clethletr	4.442	93	59203	21.0179	ug/mL	97
8) Phenol	4.317	94	65642	20.6302	ug/mL	99
9) 2-Cl-phenol	4.510	128	56364	20.8669	ug/mL	98
10) 13Diclbenz	4.697	146	68869	20.7505	ug/mL	98
11) 14Diclbenz	4.783	146	67242	20.9173	ug/mL	99
12) 12Diclbenz	4.970	146	65773	21.0793	ug/mL	95
13) Benzyl alcoho	4.916	108	37736	21.3167	ug/mL	97
14) bis2clispreth	5.101	45	66437	17.1972	ug/mL	99
15) 2Methylphenol	5.050	107	40404	20.5696	ug/mL	98
16) Ntrspyrrol	5.234	100	29299	21.1904	ug/mL	98
17) Acetophenone	5.274	105	88381	20.8138	ug/mL	95
18) Hexaclethane	5.431	117	28694	20.9948	ug/mL	99
19) N-Ntrsdinprop	5.286	70	49962	20.8700	ug/mL	99
20) 3&4Methylphenol	5.269	107	63038	20.6365	ug/mL	96
23) Nitrobenzene	5.274	77	94475	21.1895	ug/mL	99
24) Isophorone	5.837	82	108898	20.6801	ug/mL	99
25) 2-Nitrophenol	5.928	139	36405	21.3295	ug/mL	96
26) 24Dimthpheno	5.990	122	54392	20.8403	ug/mL	98
27) bis2clethoxym	6.110	93	76353	20.5453	ug/mL	99
28) 24Diclphenol	6.206	162	55670	21.3798	ug/mL	99
29) 124Triclbenz	6.306	180	66084	21.3268	ug/mL	98
30) Benzoic acid	6.104	122	35440	19.4208	ug/mL	93
31) Naphthalene	6.385	128	196445	20.9454	ug/mL	99
32) 4-Cl-aniline	6.445	127	76336	20.9830	ug/mL	97
33) 26Diclphenol	6.451	162	50497	21.3292	ug/mL	99
34) Hexaclprop	6.482	213	41090	22.0802	ug/mL	98
35) Hexaclbutdien	6.527	225	36801	21.3964	ug/mL	97
36) 4Cl3methylphe	6.914	107	60236	21.2218	ug/mL	100
37) 2Methylnaphth	7.039	142	123240	20.8695	ug/mL	97
38) 1Methylnaphth	7.121	141	111713	21.0454	ug/mL	99
40) Hxclcycpentdi	7.175	237	36656	21.8544	ug/mL	98

Quantitation Report (QT Reviewed)

Data File : C:\INSTARCH\DATA\2S092518\2CCV205.D Vial: 2
Acq On : 25 Sep 2018 13:46 Operator: RPN
Sample : CCV 20ug/mL SVMS8107 Inst : SVMS2
Misc : 500ul+5ul IS S3916B Multiplr: 1.00
Integrator: RTE
Quant Time: Sep 25 13:59:09 2018

Quant Method : C:\INSTARCH\METHOD\2S092418.M
Quant Title : Method for 8270 Analysis
QLast Update : Mon Sep 24 16:53:25 2018
Response via : Initial Calibration
DataAcq Meth:2S092418.M

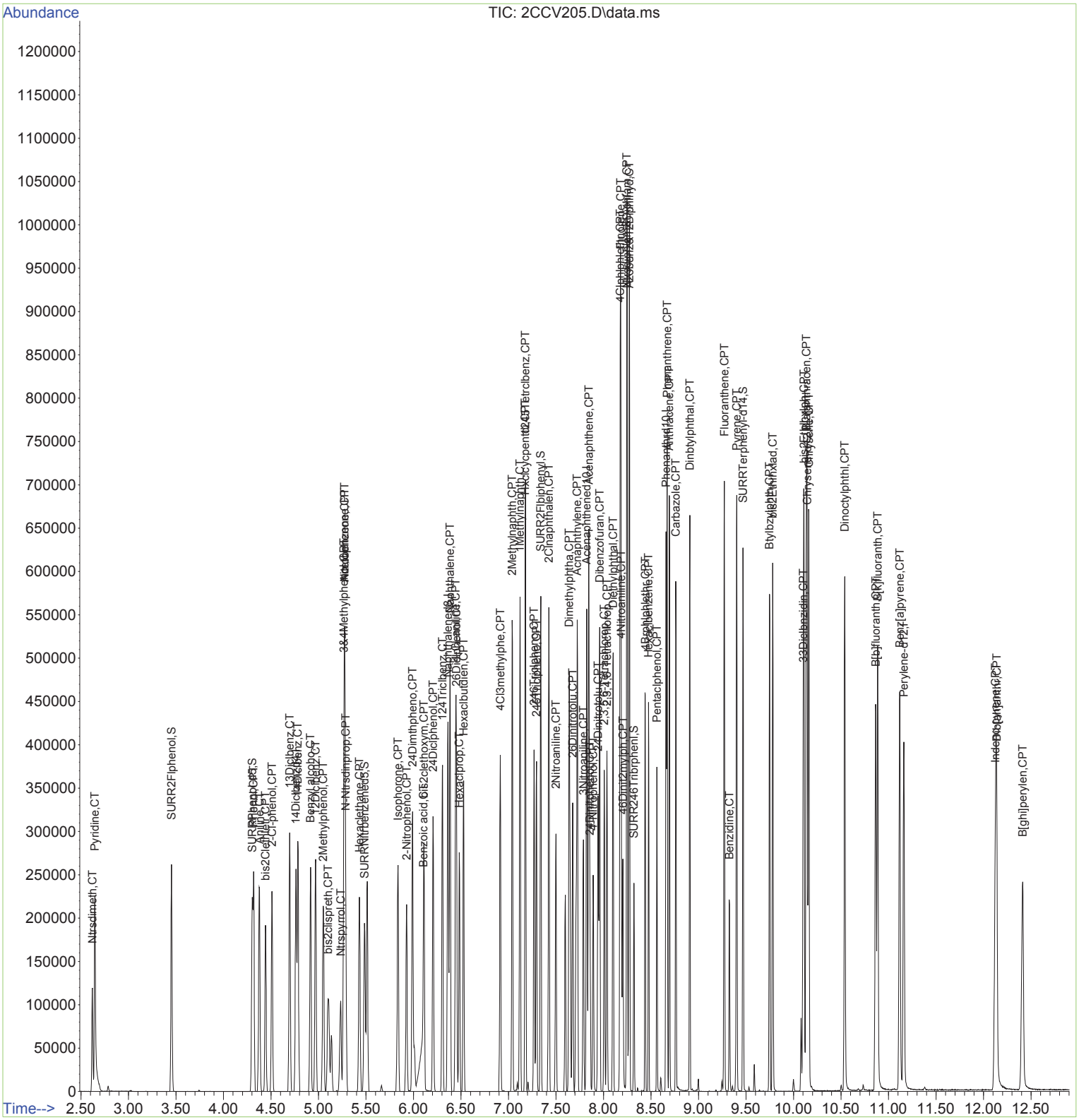
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
41) 1245Tetrclbenz	7.178	216	60566	20.8545 ug/mL	98
42) 246Triclpheno	7.269	196	44577	21.7805 ug/mL	98
43) 245Triclpheno	7.294	196	46087	21.6164 ug/mL	98
45) 2Clnaphthalen	7.425	162	126281	20.8932 ug/mL	99
46) 2Nitroaniline	7.499	65	41352	21.6327 ug/mL	95
47) Acnaphthylene	7.724	152	186346	21.0261 ug/mL	100
48) Dimethylphtha	7.638	163	149292	21.2633 ug/mL	100
49) 26Dinitrotolu	7.675	165	34671	21.4236 ug/mL	95
50) Acenaphthene	7.846	154	123045	21.4524 ug/mL	97
51) 3Nitroaniline	7.789	138	33373	20.8741 ug/mL	98
52) 24Dinitphenol	7.857	184	23488	20.3294 ug/mL	83
53) Dibenzofuran	7.959	168	166112	20.9140 ug/mL	100
54) 24Dinitrotolu	7.942	165	47174	22.0820 ug/mL	98
55) 4-Nitrophenol	7.891	65	30477	21.1745 ug/mL	95
56) 2,3,5,6-Tetrachlorop	8.008	232	36210	22.0894 ug/mL	97
57) 2,3,4,6-Tetrachlorop	8.036	232	37257	22.2432 ug/mL	96
58) Fluorene	8.181	166	132936	20.8600 ug/mL	100
59) 4Clphlphlethr	8.175	204	69167	21.0094 ug/mL	96
60) Diethylphthal	8.101	149	145295	20.6505 ug/mL	99
61) 4Nitroaniline	8.187	138	31855	20.8971 ug/mL	97
64) 46Dinit2mylph	8.204	198	25959	20.4241 ug/mL	98
65) Ntrsdiphlam&Diphlam	8.246	169	190252	41.3933 ug/mL	99
66) Azobenz&12Diphlhyd	8.272	182	68342	41.6676 ug/mL	100
67) 4Brphlphlethr	8.440	248	34672	21.2027 ug/mL	93
68) Hexaclbenzene	8.474	284	34078	20.7522 ug/mL	96
69) Pentaclphenol	8.562	266	21952	21.7883 ug/mL	98
70) Phenanthrene	8.670	178	160245	20.8473 ug/mL	100
71) Anthracene	8.692	178	162638	20.7867 ug/mL	100
72) Carbazole	8.761	167	144216	20.3593 ug/mL	100
73) Dinbtylphthal	8.908	149	187658	20.7377 ug/mL	99
74) Fluoranthene	9.272	202	190435	21.0680 ug/mL	99
76) Benzidine	9.326	184	58139	19.2226 ug/mL	99
77) Pyrene	9.403	202	196644	20.7086 ug/mL	99
79) Btylbzylphth	9.747	149	90636	21.0401 ug/mL	98
80) bis2Ethlhxlad	9.781	129	70828	21.2436 ug/mL	99
81) 33Diclbnzidin	10.102	252	45530	17.0294 ug/mL	96
82) B[a]anthracen	10.136	228	181243	20.5586 ug/mL	100
83) Chrysene	10.162	228	178450	21.1084 ug/mL	100
84) bis2Ethlhxlph	10.110	149	128386	21.4962 ug/mL	98
85) Dinoctylphthl	10.539	149	228085	22.0634 ug/mL	99
87) B[b]fluoranth	10.866	252	167507	20.4794 ug/mL	99
88) B[k]fluoranth	10.886	252	169272	21.0307 ug/mL	99
89) Benz[a]pyrene	11.119	252	184267	20.7967 ug/mL	98
90) Indeno-pyrene	12.125	276	167179	21.1038 ug/mL	99
91) Dib[ah]anthr	12.139	278	144918	21.2184 ug/mL	96
92) B[ghi]perylen	12.412	276	144892	21.2614 ug/mL	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\INSTARCH\DATA\2S092518\2CCV205.D Vial: 2
Acq On : 25 Sep 2018 13:46 Operator: RPN
Sample : CCV 20ug/mL SVMS8107 Inst : SVMS2
Misc : 500ul+5ul IS S3916B Multiplr: 1.00
Integrator: RTE
Quant Time: Sep 25 13:59:09 2018

Quant Method : C:\INSTARCH\METHOD\2S092418.M
Quant Title : Method for 8270 Analysis
QLast Update : Mon Sep 24 16:53:25 2018
Response via : Initial Calibration
DataAcq Meth:2S092418.M



Ending CCV %Recovery Report

Data File Name	2CCV208.D
Data File Path	C:\INSTARCH\DATA\2S092518\
Operator	RPN
Date Acquired	9/25/2018 23:28
Acq. Method File	2S092418.M
Sample Name	CCV 20ug/mL SVMS8107
Misc Info	500ul+5ul IS S3916B
Vial Number	2
Instrument Name	SVMS2
Sample Multiplier	1

#	Name	Ret Time	Amount	Units	Response	50-150 %REC
1	14Diclbenzd4	4.76	20.00	ug/mL	50964	ISTD
2	Ntrsdimeth	2.62	17.98	ug/mL	40909	90
3	Pyridine	2.65	19.69	ug/mL	82568	98
4	SURR2Flphenol	3.45	49.48	%REC	69589	99
5	Aniline	4.38	18.65	ug/mL	95738	93
6	bis2Clethletr	4.44	18.95	ug/mL	67142	95
7	SURRPhenol-d5	4.31	48.99	%REC	83370	98
8	Phenol	4.32	21.19	ug/mL	84805	106
9	2-Cl-phenol	4.51	20.01	ug/mL	67969	100
10	13Diclbenz	4.70	19.53	ug/mL	81540	98
11	14Diclbenz	4.79	19.23	ug/mL	77761	96
12	12Diclbenz	4.97	19.24	ug/mL	75507	96
13	Benzyl alcoho	4.92	18.53	ug/mL	41255	93
14	bis2clispreth	5.10	21.33	ug/mL	103663	107
15	2Methylphenol	5.05	20.85	ug/mL	51514	104
16	Ntrspyrrol	5.24	19.71	ug/mL	34267	99
17	Acetophenone	5.28	18.94	ug/mL	101151	95
18	Hexaclethane	5.43	19.20	ug/mL	33005	96
19	N-Ntrsdinprop	5.29	18.41	ug/mL	55433	92
20	3&4Methylphenol	5.27	19.31	ug/mL	74181	97
21	Naphthalened8	6.36	20.00	ug/mL	199973	ISTD
22	SURRNitrbenzened5	5.48	104.92	%REC	84687	105
23	Nitrobenzene	5.28	20.37	ug/mL	108317	102
24	Isophorone	5.84	19.28	ug/mL	121073	96
25	2-Nitrophenol	5.93	19.93	ug/mL	40497	100
26	24Dimthpheno	5.99	22.72	ug/mL	70724	114
27	bis2clethoxym	6.11	18.61	ug/mL	82464	93
28	24Diclphenol	6.21	20.34	ug/mL	63155	102
29	124Triclbenz	6.30	19.74	ug/mL	50964	99
30	Benzoic acid	6.11	18.57	ug/mL	72943	93
31	Naphthalene	6.38	19.72	ug/mL	220545	99
32	4-Cl-aniline	6.44	19.33	ug/mL	83879	97
33	26Diclphenol	6.45	20.36	ug/mL	57495	102
34	Hexaclprop	6.48	21.05	ug/mL	46712	105
35	Hexaclbutdien	6.52	20.60	ug/mL	42259	103
36	4Cl3methylphe	6.91	19.75	ug/mL	66845	99
37	2Methylnaphth	7.04	20.62	ug/mL	145202	103

38	1Methylnaphth	7.12	19.69	ug/mL	124640	98
39	Acenaphthened10	7.82	20.00	ug/mL	50964	ISTD
40	Hxclcycpentdi	7.17	19.19	ug/mL	106795	96
41	1245Tetrclbenz	7.18	19.90	ug/mL	69476	99
42	246Triclpheno	7.27	20.12	ug/mL	49506	101
43	245Triclpheno	7.29	20.85	ug/mL	53453	104
44	SURR2Flbiphenyl	7.34	101.12	%REC	163747	101
45	2Clnaphthalen	7.42	19.45	ug/mL	141340	97
46	2Nitroaniline	7.50	20.02	ug/mL	46006	100
47	Acnaphthylene	7.72	20.10	ug/mL	50964	100
48	Dimethylphtha	7.64	19.41	ug/mL	214131	97
49	26Dinitrotolu	7.67	20.12	ug/mL	39149	101
50	Acenaphthene	7.84	20.53	ug/mL	141592	103
51	3Nitroaniline	7.79	19.90	ug/mL	38258	100
52	24Dinitphenol	7.85	17.00	ug/mL	23005	85
53	Dibenzofuran	7.95	19.64	ug/mL	187529	98
54	24Dinitrotolu	7.94	20.26	ug/mL	50964	101
55	4-Nitrophenol	7.89	19.48	ug/mL	52036	97
56	2,3,5,6-Tetrachlorop	8.01	21.02	ug/mL	41418	105
57	2,3,4,6-Tetrachlorop	8.03	20.23	ug/mL	40743	101
58	Fluorene	8.18	20.06	ug/mL	153656	100
59	4Clphlphlethr	8.17	19.30	ug/mL	76407	97
60	Diethylphthal	8.10	19.04	ug/mL	161019	95
61	4Nitroaniline	8.18	20.46	ug/mL	37503	102
62	SURR246Tribrphenl	8.32	54.77	%REC	18859	110
63	Phenanthrd10	8.66	20.00	ug/mL	172787	ISTD
64	46Dinit2mylph	8.20	18.83	ug/mL	28846	94
65	Ntrsdiphlam&Diphlam	8.24	39.95	ug/mL	222821	100
66	Azobenz&12Diphlhyd	8.27	38.99	ug/mL	77597	97
67	4Brphlphlethr	8.44	19.68	ug/mL	39051	98
68	Hexaclbenzene	8.47	19.48	ug/mL	38821	97
69	Pentaclphenol	8.56	20.60	ug/mL	25185	103
70	Phenanthrene	8.67	19.92	ug/mL	185748	100
71	Anthracene	8.69	19.89	ug/mL	188840	99
72	Carbazole	8.76	19.63	ug/mL	168762	98
73	Dinbtylphthal	8.91	19.32	ug/mL	212100	97
74	Fluoranthene	9.27	20.49	ug/mL	224778	102
75	Chrysene-d12	10.15	20.00	ug/mL	168324	ISTD
76	Benzidine	9.33	11.67	ug/mL	42723	58
77	Pyrene	9.40	20.20	ug/mL	232067	101
78	SURRTerphenyl-d14	9.47	103.58	%REC	153339	104
79	Btylbzylphth	9.75	20.08	ug/mL	104675	100
80	bis2Ethlhxlad	9.78	20.94	ug/mL	84485	105
81	33Diclbnzidin	10.10	21.30	ug/mL	68904	106
82	B[a]anthracen	10.14	20.20	ug/mL	215516	101
83	Chrysene	10.16	19.48	ug/mL	199311	97
84	bis2Ethlhxlph	10.11	19.88	ug/mL	143685	99
85	Dinoctylphthl	10.54	20.78	ug/mL	259975	104
86	Perylene-d12	11.16	20.00	ug/mL	168306	ISTD
87	B[b]fluoranth	10.87	19.84	ug/mL	197283	99

88	B[k]fluoranth	10.89	20.00	ug/mL	195741	100
89	Benz[a]pyrene	11.12	19.12	ug/mL	205922	96
90	Indeno-pyrene	12.13	20.52	ug/mL	197615	103
91	Dib[ah]anthr	12.14	20.24	ug/mL	168075	101
92	B[ghi]perylen	12.42	19.13	ug/mL	158515	96

(#) = recovery out of range Average Percent Recovery = 99

Quantitation Report (QT Reviewed)

Data File : C:\INSTARCH\DATA\2S092518\2CCV208.D Vial: 2
Acq On : 25 Sep 2018 23:28 Operator: RPN
Sample : CCV 20ug/mL SVMS8107 Inst : SVMS2
Misc : 500ul+5ul IS S3916B Multiplr: 1.00
Integrator: RTE
Quant Time: Sep 26 09:23:13 2018

Quant Method : C:\INSTARCH\METHOD\2S092418.M
Quant Title : Method for 8270 Analysis
QLast Update : Mon Sep 24 16:53:25 2018
Response via : Initial Calibration
DataAcq Meth:2S092418.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 14Diclbenzd4	4.763	152	50964	20.00	ug/mL	0.00
21) Naphthalened8	6.360	136	199973	20.00	ug/mL	0.00
39) Acenaphthened10	7.820	164	106795	20.00	ug/mL	0.00
63) Phenanthrd10	8.656	188	172787	20.00	ug/mL	0.00
75) Chrysene-d12	10.148	240	168324	20.00	ug/mL	0.00
86) Perylene-d12	11.165	264	168306	20.00	ug/mL	0.00
System Monitoring Compounds						
4) SURR2Flphenol	3.453	112	69589	49.48	%REC	0.00
Spiked Amount 100.000			Recovery = 49.48%			
7) SURRPhenol-d5	4.306	99	83370	48.99	%REC	0.00
Spiked Amount 100.000			Recovery = 48.99%			
22) SURRNitrbenzened5	5.485	82	84687	104.92	%REC	0.00
Spiked Amount 100.000			Recovery = 104.92%			
44) SURR2Flbiphenyl	7.337	172	163747	101.12	%REC	0.00
Spiked Amount 100.000			Recovery = 101.12%			
62) SURR246Tribrphenl	8.318	330	18859	54.77	%REC	0.00
Spiked Amount 100.000			Recovery = 54.77%			
78) SURRTerphenyl-d14	9.471	244	153339	103.58	%REC	0.00
Spiked Amount 100.000			Recovery = 103.58%			
Target Compounds						Qvalue
2) Ntrsdimeth	2.621	74	40909	17.9785	ug/mL	99
3) Pyridine	2.646	79	82568	19.6888	ug/mL	100
5) Aniline	4.379	93	95738	18.6467	ug/mL	99
6) bis2Clethletr	4.445	93	67142	18.9521	ug/mL	99
8) Phenol	4.320	94	84805	21.1914	ug/mL	99
9) 2-Cl-phenol	4.513	128	67969	20.0071	ug/mL	99
10) 13Diclbenz	4.698	146	81540	19.5341	ug/mL	96
11) 14Diclbenz	4.786	146	77761	19.2328	ug/mL	99
12) 12Diclbenz	4.970	146	75507	19.2403	ug/mL	100
13) Benzyl alcoho	4.919	108	41255	18.5293	ug/mL	96
14) bis2clispreth	5.104	45	103663	21.3347	ug/mL	99
15) 2Methylphenol	5.053	107	51514	20.8518	ug/mL	99
16) Ntrspyrrol	5.237	100	34267	19.7051	ug/mL	97
17) Acetophenone	5.277	105	101151	18.9400	ug/mL	96
18) Hexaclethane	5.431	117	33005	19.2007	ug/mL	99
19) N-Ntrsdinprop	5.286	70	55433	18.4106	ug/mL	97
20) 3&4Methylphenol	5.272	107	74181	19.3083	ug/mL	92
23) Nitrobenzene	5.277	77	108317	20.3707	ug/mL	100
24) Isophorone	5.837	82	121073	19.2790	ug/mL	98
25) 2-Nitrophenol	5.928	139	40497	19.9276	ug/mL	98
26) 24Dimthpheno	5.990	122	70724	22.7217	ug/mL	100
27) bis2clethoxym	6.110	93	82464	18.6061	ug/mL	99
28) 24Diclphenol	6.206	162	63155	20.3374	ug/mL	99
29) 124Triclbenz	6.303	180	72943	19.7386	ug/mL	97
30) Benzoic acid	6.107	122	40043	18.5660	ug/mL	95
31) Naphthalene	6.383	128	220545	19.7174	ug/mL	99
32) 4-Cl-aniline	6.442	127	83879	19.3329	ug/mL	97
33) 26Diclphenol	6.451	162	57495	20.3631	ug/mL	100
34) Hexaclprop	6.479	213	46712	21.0475	ug/mL	97
35) Hexaclbutdien	6.525	225	42259	20.6018	ug/mL	96
36) 4Cl3methylphe	6.911	107	66845	19.7469	ug/mL	100
37) 2Methylnaphth	7.036	142	145202	20.6176	ug/mL	100
38) 1Methylnaphth	7.119	141	124640	19.6886	ug/mL	99
40) Hxclcycpentdi	7.173	237	38705	19.1946	ug/mL	99

Quantitation Report (QT Reviewed)

Data File : C:\INSTARCH\DATA\2S092518\2CCV208.D Vial: 2
Acq On : 25 Sep 2018 23:28 Operator: RPN
Sample : CCV 20ug/mL SVMS8107 Inst : SVMS2
Misc : 500ul+5ul IS S3916B Multiplr: 1.00
Integrator: RTE
Quant Time: Sep 26 09:23:13 2018

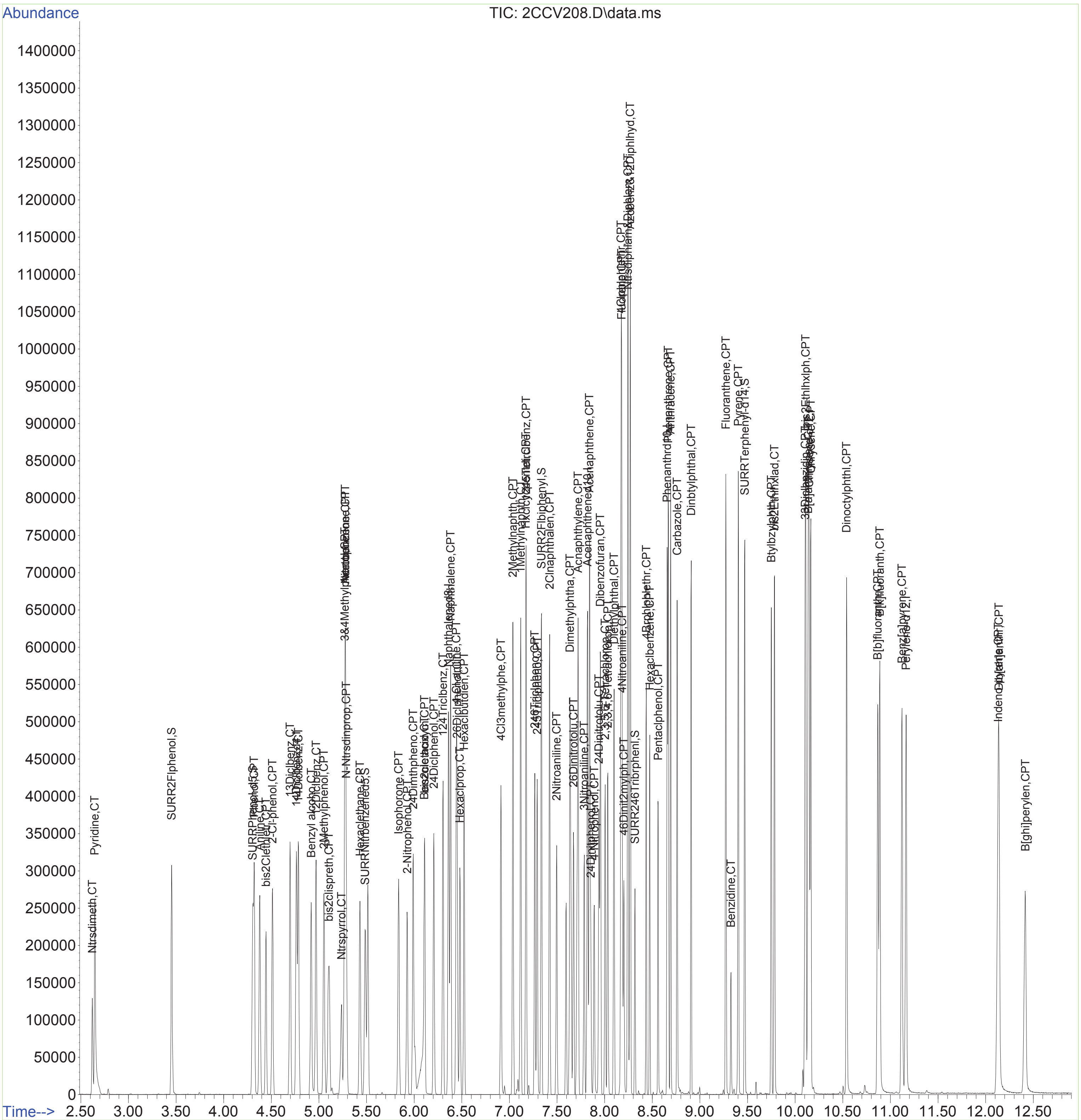
Quant Method : C:\INSTARCH\METHOD\2S092418.M
Quant Title : Method for 8270 Analysis
QLast Update : Mon Sep 24 16:53:25 2018
Response via : Initial Calibration
DataAcq Meth:2S092418.M

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
41) 1245Tetrclbenz	7.175	216	69476	19.8987 ug/mL	100
42) 246Triclpheno	7.266	196	49506	20.1203 ug/mL	98
43) 245Triclpheno	7.292	196	53453	20.8543 ug/mL	94
45) 2Clnaphthalen	7.423	162	141340	19.4514 ug/mL	99
46) 2Nitroaniline	7.496	65	46006	20.0192 ug/mL	94
47) Acnaphthylene	7.721	152	214131	20.0973 ug/mL	100
48) Dimethylphtha	7.636	163	163872	19.4141 ug/mL	100
49) 26Dinitrotolu	7.673	165	39149	20.1217 ug/mL	97
50) Acenaphthene	7.840	154	141592	20.5338 ug/mL	99
51) 3Nitroaniline	7.786	138	38258	19.9046 ug/mL	97
52) 24Dinitphenol	7.854	184	23005	17.0021 ug/mL	82
53) Dibenzofuran	7.954	168	187529	19.6391 ug/mL	99
54) 24Dinitrotolu	7.940	165	52036	20.2609 ug/mL	99
55) 4-Nitrophenol	7.891	65	33714	19.4836 ug/mL	94
56) 2,3,5,6-Tetrachlorop	8.005	232	41418	21.0166 ug/mL	97
57) 2,3,4,6-Tetrachlorop	8.033	232	40743	20.2330 ug/mL	98
58) Fluorene	8.178	166	153656	20.0558 ug/mL	99
59) 4Clphlphlethr	8.173	204	76407	19.3048 ug/mL	96
60) Diethylphthal	8.099	149	161019	19.0360 ug/mL	98
61) 4Nitroaniline	8.184	138	37503	20.4641 ug/mL	98
64) 46Dinit2mylph	8.201	198	28846	18.8325 ug/mL	97
65) Ntrsdiphlam&Diphlam	8.244	169	222821	39.9530 ug/mL	98
66) Azobenz&12Diphlhyd	8.269	182	77597	38.9896 ug/mL	94
67) 4Brphlphlethr	8.437	248	39051	19.6806 ug/mL	96
68) Hexaclbenzene	8.474	284	38821	19.4827 ug/mL	95
69) Pentaclphenol	8.562	266	25185	20.6008 ug/mL	97
70) Phenanthrene	8.667	178	185748	19.9151 ug/mL	99
71) Anthracene	8.693	178	188840	19.8907 ug/mL	99
72) Carbazole	8.761	167	168762	19.6344 ug/mL	99
73) Dinbtylphthal	8.909	149	212100	19.3165 ug/mL	99
74) Fluoranthene	9.272	202	224778	20.4939 ug/mL	99
76) Benzidine	9.326	184	42723	11.6742 ug/mL	99
77) Pyrene	9.403	202	232067	20.1979 ug/mL	99
79) Btylbzylphth	9.750	149	104675	20.0822 ug/mL	96
80) bis2Ethlhxlad	9.784	129	84485	20.9423 ug/mL	99
81) 33Diclbnzidin	10.105	252	68904	21.2995 ug/mL	98
82) B[a]anthracen	10.136	228	215516	20.2039 ug/mL	100
83) Chrysene	10.165	228	199311	19.4846 ug/mL	100
84) bis2Ethlhxlph	10.111	149	143685	19.8828 ug/mL	99
85) Dinoctylphthl	10.540	149	259975	20.7840 ug/mL	99
87) B[b]fluoranth	10.866	252	197283	19.8396 ug/mL	99
88) B[k]fluoranth	10.889	252	195741	20.0036 ug/mL	99
89) Benz[a]pyrene	11.122	252	205922	19.1165 ug/mL	99
90) Indeno-pyrene	12.131	276	197615	20.5190 ug/mL	100
91) Dib[ah]anthr	12.139	278	168075	20.2420 ug/mL	99
92) B[ghi]perylen	12.418	276	158515	19.1327 ug/mL	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data File : C:\INSTARCH\DATA\2S092518\2CCV208.D Vial: 2
Acq On : 25 Sep 2018 23:28 Operator: RPN
Sample : CCV 20ug/mL SVMS8107 Inst : SVMS2
Misc : 500ul+5ul IS S3916B Multiplr: 1.00
Integrator: RTE
Quant Time: Sep 26 09:23:13 2018

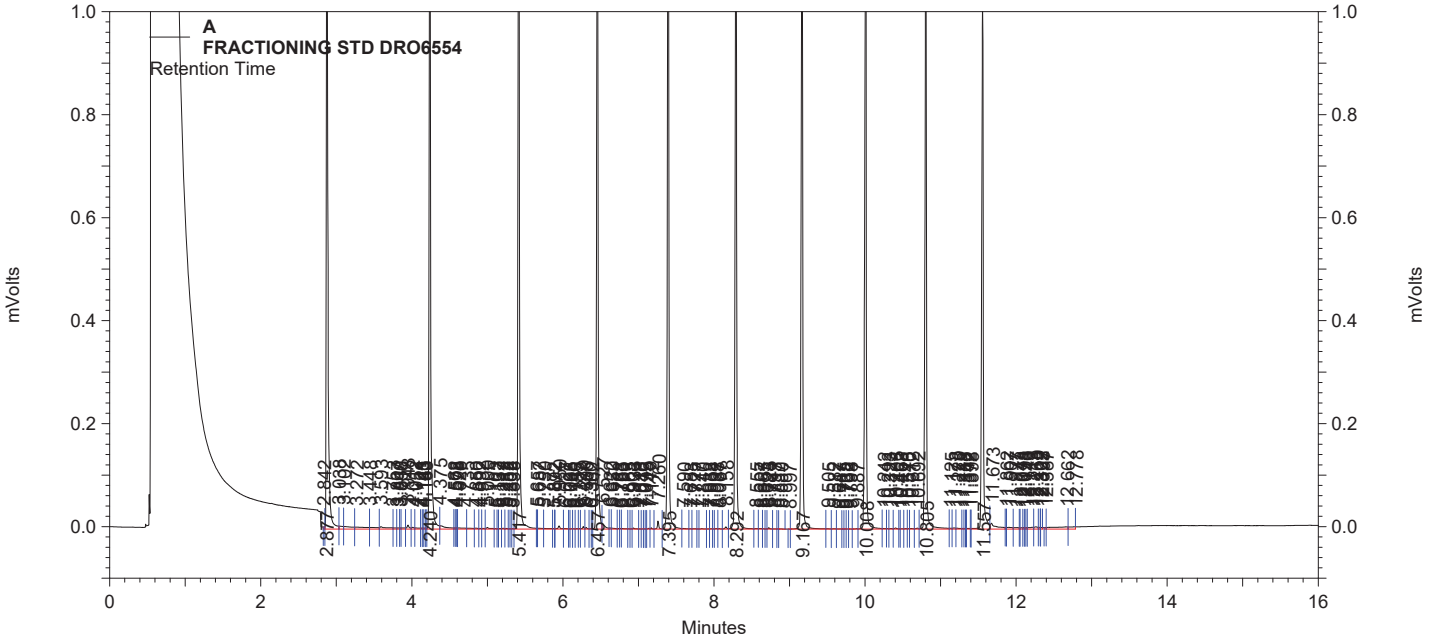
Quant Method : C:\INSTARCH\METHOD\2S092418.M
Quant Title : Method for 8270 Analysis
QLast Update : Mon Sep 24 16:53:25 2018
Response via : Initial Calibration
DataAcq Meth:2S092418.M



8015B Analysis Report

Data File: C:\Instarch\Semi 4\Data\092118dro\002.dat
Method: C:\Instarch\Semi 4\Methods\8015C\092018droic\092118dro.met
User: AJZ
Sample ID: FRACTIONING STD DRO6554
Acquired: Sep 21, 2018 06:28:39
Printed: Sep 21, 2018 12:10:46

Data Summary: {Data Description}



A Results

Component	Retention Time	Area Counts	Concentration (ug/ml)
Octacosane	11.557	1521222	100.833
Triacontane	12.260	13770	5.733
DIESEL		17638810	1032.904

QC Check Standard Report

Sequence : C:\Instarch\Semi 4\Sequence\092118dro.seq
User : AJZ
Printed : Sep 21, 2018 12:10:53

File	Sample ID	Acquired
C:\Instarch\Semi 4\Data\092118dro\003.dat	8015 CCV DRO6577	Sep 21, 2018 12:10:53

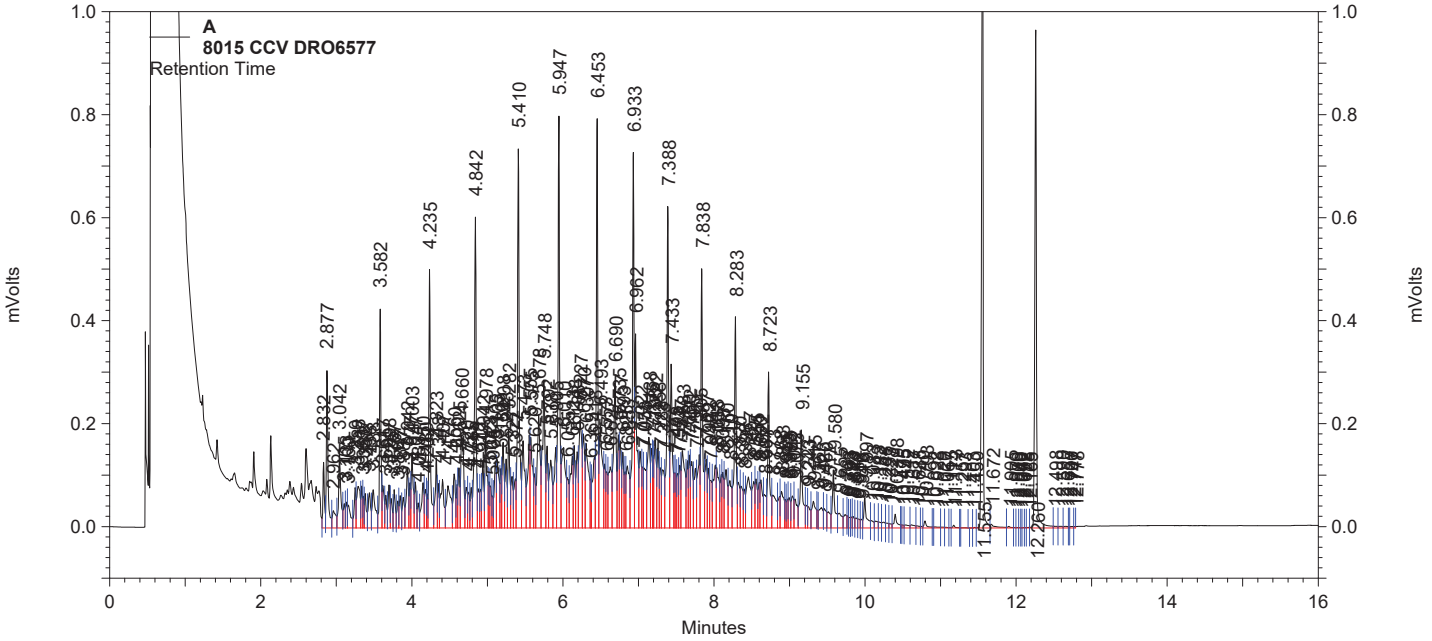
A

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
Octacosane	125.000	119.726	4.219	20.000	Passed
Triacontane	125.000	117.700	5.840	20.000	Passed
DIESEL	2500.000	2594.111	3.764	20.000	Passed

8015B Analysis Report

Data File: C:\Instarch\Semi 4\Data\092118dro\003.dat
Method: C:\Instarch\Semi 4\Methods\8015C\092018droic\092118dro.met
User: AJZ
Sample ID: 8015 CCV DRO6577
Acquired: Sep 21, 2018 06:55:33
Printed: Sep 21, 2018 12:10:51

Data Summary: {Data Description}



A Results

Component	Retention Time	Area Counts	Concentration (ug/ml)
Octacosane	11.555	1827014	119.726
Triacontane	12.260	1491774	117.700
DIESEL		44144872	2594.111

QC Check Standard Report

Sequence : C:\Instarch\Semi 4\Sequence\092118dro.seq
User : AJZ
Printed : Sep 21, 2018 12:11:55

File	Sample ID	Acquired
C:\Instarch\Semi 4\Data\092118dro\014.dat	8015 CCV DRO6577	Sep 21, 2018 12:11:54

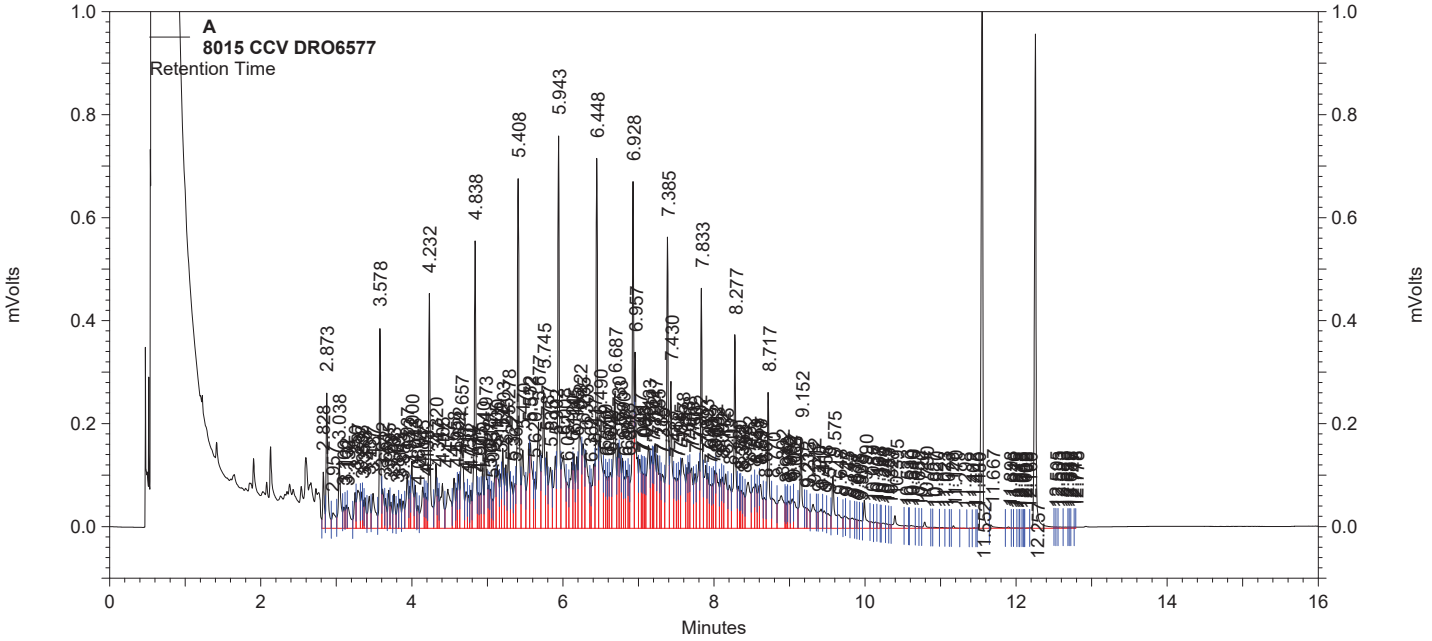
A

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
Octacosane	125.000	112.398	10.081	20.000	Passed
Triacontane	125.000	113.099	9.521	20.000	Passed
DIESEL	2500.000	2379.261	4.830	20.000	Passed

8015B Analysis Report

Data File: C:\Instarch\Semi 4\Data\092118dro\014.dat
Method: C:\Instarch\Semi 4\Methods\8015C\092018droic\092118dro.met
User: AJZ
Sample ID: 8015 CCV DRO6577
Acquired: Sep 21, 2018 11:53:35
Printed: Sep 21, 2018 12:11:51

Data Summary: {Data Description}



A Results

Component	Retention Time	Area Counts	Concentration (ug/ml)
Octacosane	11.552	1708408	112.398
Triacontane	12.257	1431038	113.099
DIESEL		40497140	2379.261

SEMI - VOLATILE ORGANIC ANALYSIS
QUALITY CONTROL
DOCUMENTS

Quantitation Report (QT Reviewed)

Data File : C:\INSTARCH\DATA\2S092518\2MBW03.D Vial: 19
Acq On : 25 Sep 2018 21:01 Operator: RPN
Sample : 153655,MBW, Inst : SVMS2
Misc : 179886,500ul+5ul IS S3916B Multiplr: 1.00
Integrator: RTE
Quant Time: Sep 26 16:35:21 2018

Quant Method : C:\INSTARCH\METHOD\2S092418.M
Quant Title : Method for 8270 Analysis
QLast Update : Mon Sep 24 16:53:25 2018
Response via : Initial Calibration
DataAcq Meth:2S092418.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 14Diclbenzd4	4.760	152	40146	20.00	ug/mL	0.00
21) Naphthalened8	6.360	136	166395	20.00	ug/mL	0.00
39) Acenaphthened10	7.820	164	90258	20.00	ug/mL	0.00
63) Phenanthrd10	8.656	188	150668	20.00	ug/mL	0.00
75) Chrysene-d12	10.139	240	147743	20.00	ug/mL	0.00
86) Perylene-d12	11.159	264	140315	20.00	ug/mL	0.00
System Monitoring Compounds						
4) SURR2Flphenol	3.459	112	63639	57.44	%REC	0.00
Spiked Amount 100.000			Recovery = 57.44%			
7) SURRPhenol-d5	4.300	99	59423	44.33	%REC	0.00
Spiked Amount 100.000			Recovery = 44.33%			
22) SURRNitrbenzened5	5.479	82	52442	78.09	%REC	0.00
Spiked Amount 100.000			Recovery = 78.09%			
44) SURR2Flbiphenyl	7.337	172	108626	79.37	%REC	0.00
Spiked Amount 100.000			Recovery = 79.37%			
62) SURR246Tribrphenl	8.317	330	26099	89.68	%REC	0.00
Spiked Amount 100.000			Recovery = 89.68%			
78) SURRTerphenyl-d14	9.468	244	136692	105.20	%REC	0.00
Spiked Amount 100.000			Recovery = 105.20%			
Target Compounds						Qvalue
55) 4-Nitrophenol	7.820	65	570	0.3898	ug/mL#	23
60) Diethylphthal	8.093	149	4389	0.6139	ug/mL	96
73) Dinbtylphthal	8.906	149	2511	0.2623	ug/mL	98

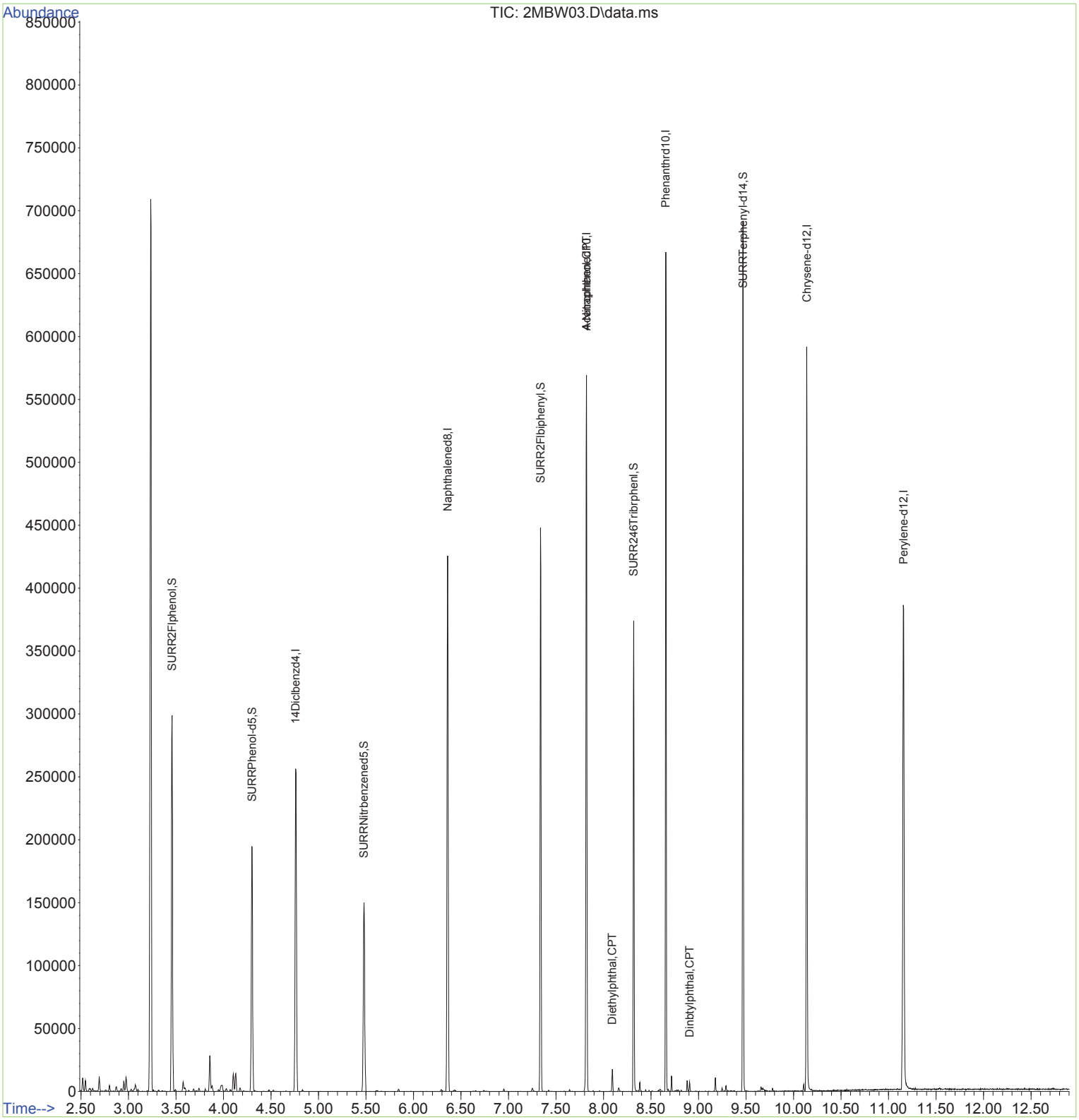
(#) = qualifier out of range (m) = manual integration (+) = signals summed

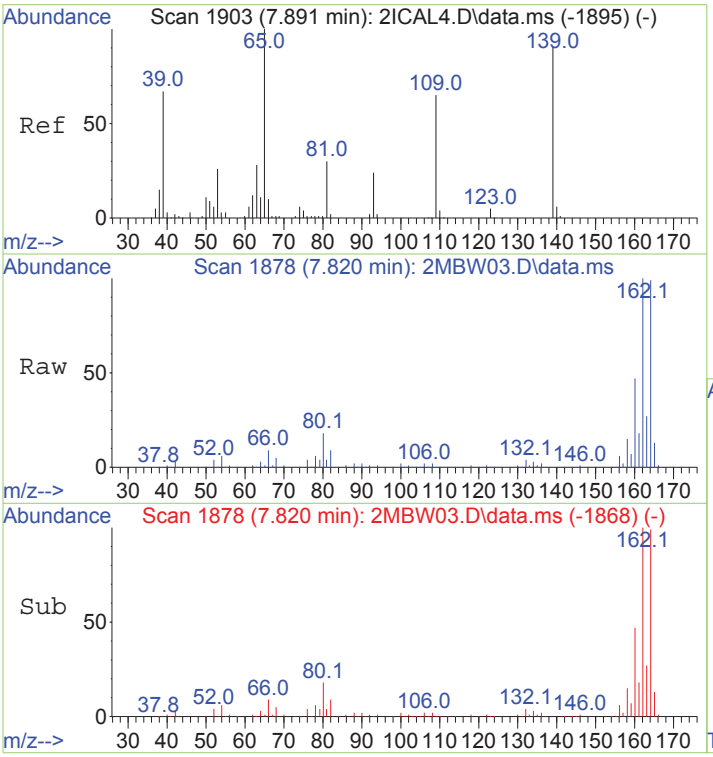
Quantitation Report (QT Reviewed)

Data File : C:\INSTARCH\DATA\2S092518\2MBW03.D
Acq On : 25 Sep 2018 21:01
Sample : 153655,MBW,
Misc : 179886,500ul+5ul IS S3916B
Integrator: RTE
Quant Time: Sep 26 16:35:21 2018

Vial: 19
Operator: RPN
Inst : SVMS2
Multiplr: 1.00

Quant Method : C:\INSTARCH\METHOD\2S092418.M
Quant Title : Method for 8270 Analysis
QLast Update : Mon Sep 24 16:53:25 2018
Response via : Initial Calibration
DataAcq Meth:2S092418.M

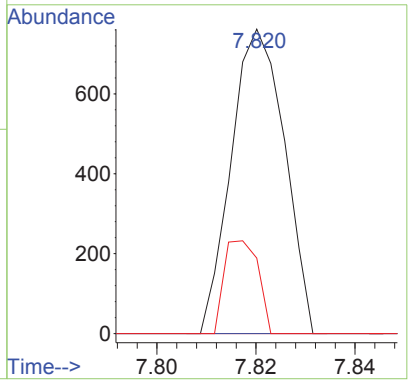


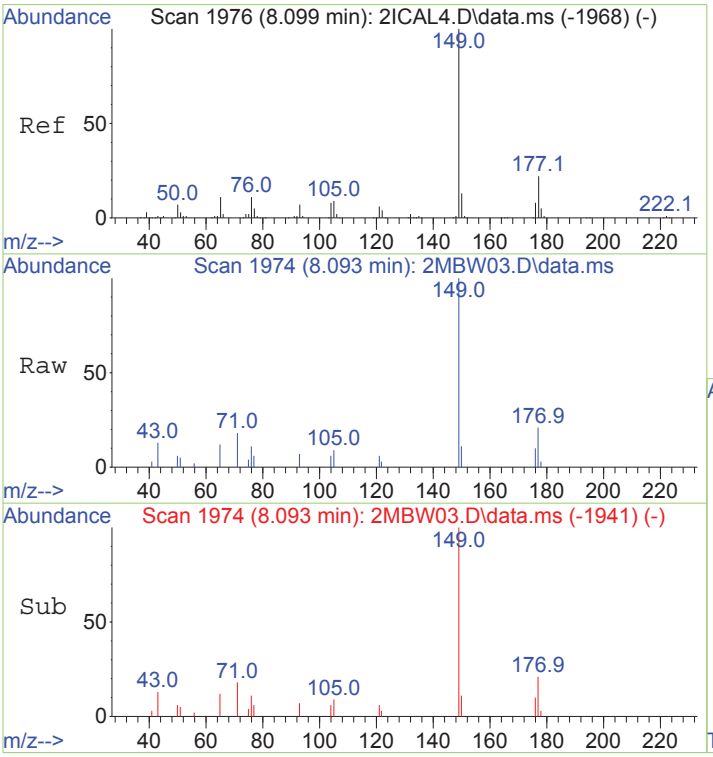


#55
4-Nitrophenol
Concen: 0.39 ug/mL
RT: 7.820 min Scan# 1878
Delta R.T. -0.071 min
Lab File: 2MBW03.D
Acq: 25 Sep 2018 21:01

Tgt Ion: 65 Resp: 570

Ion	Ratio	Lower	Upper
65	100		
139	0.0	60.8	120.8#
109	24.8	34.6	94.6#

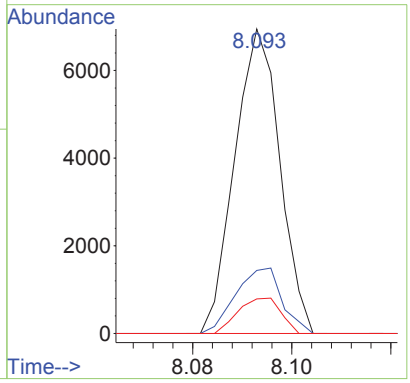


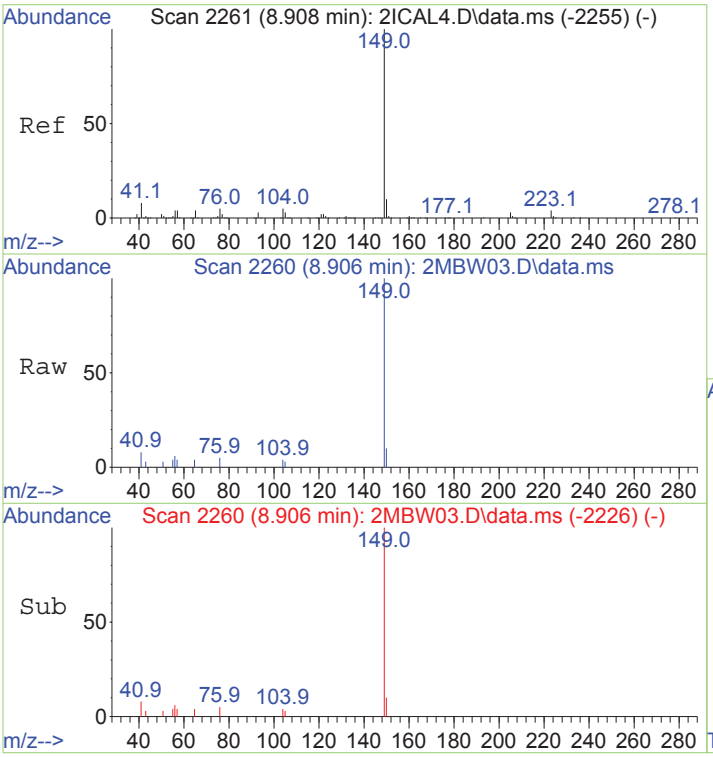


#60
Diethylphthal
Concen: 0.61 ug/mL
RT: 8.093 min Scan# 1974
Delta R.T. -0.006 min
Lab File: 2MBW03.D
Acq: 25 Sep 2018 21:01

Tgt Ion:149 Resp: 4389

Ion	Ratio	Lower	Upper
149	100		
177	20.7	0.0	52.4
150	11.3	0.0	43.1

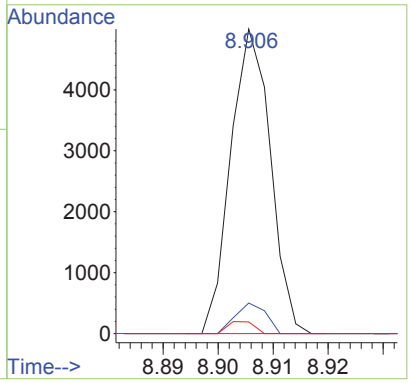




#73
Dinbtylphthal
Concen: 0.26 ug/mL
RT: 8.906 min Scan# 2260
Delta R.T. -0.002 min
Lab File: 2MBW03.D
Acq: 25 Sep 2018 21:01

Tgt Ion:149 Resp: 2511

Ion	Ratio	Lower	Upper
149	100		
150	10.0	0.0	39.7
104	3.8	0.0	35.0



Quantitation Report (QT Reviewed)

Data File : C:\INSTARCH\DATA\2S092518\2MBTV03.D Vial: 20
Acq On : 25 Sep 2018 21:22 Operator: RPN
Sample : 153655,MBTV, Inst : SVMS2
Misc : 2907,500ul+5ul IS S3916B Multiplr: 1.00
Integrator: RTE
Quant Time: Sep 26 09:37:53 2018

Quant Method : C:\INSTARCH\METHOD\2S092418.M
Quant Title : Method for 8270 Analysis
QLast Update : Mon Sep 24 16:53:25 2018
Response via : Initial Calibration
DataAcq Meth:2S092418.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 14Diclbenzd4	4.763	152	41221	20.00	ug/mL	0.00
21) Naphthalened8	6.357	136	170244	20.00	ug/mL	0.00
39) Acenaphthened10	7.817	164	92992	20.00	ug/mL	0.00
63) Phenanthrd10	8.656	188	156386	20.00	ug/mL	0.00
75) Chrysene-d12	10.139	240	151738	20.00	ug/mL	0.00
86) Perylene-d12	11.159	264	143185	20.00	ug/mL	0.00
System Monitoring Compounds						
4) SURR2Flphenol	3.459	112	47172	41.47	%REC	0.00
Spiked Amount 100.000			Recovery = 41.47%			
7) SURRPhenol-d5	4.300	99	41717	30.31	%REC	0.00
Spiked Amount 100.000			Recovery = 30.31%			
22) SURRNitrbenzened5	5.479	82	48180	70.12	%REC	0.00
Spiked Amount 100.000			Recovery = 70.12%			
44) SURR2Flbiphenyl	7.337	172	106915	75.82	%REC	0.00
Spiked Amount 100.000			Recovery = 75.82%			
62) SURR246Tribrphenl	8.317	330	26659	88.91	%REC	0.00
Spiked Amount 100.000			Recovery = 88.91%			
78) SURRTerphenyl-d14	9.468	244	132659	99.41	%REC	0.00
Spiked Amount 100.000			Recovery = 99.41%			
Target Compounds						Qvalue
60) Diethylphthal	8.090	149	3709	0.5036	ug/mL	91
73) Dinbtylphthal	8.906	149	1855	0.1867	ug/mL	96

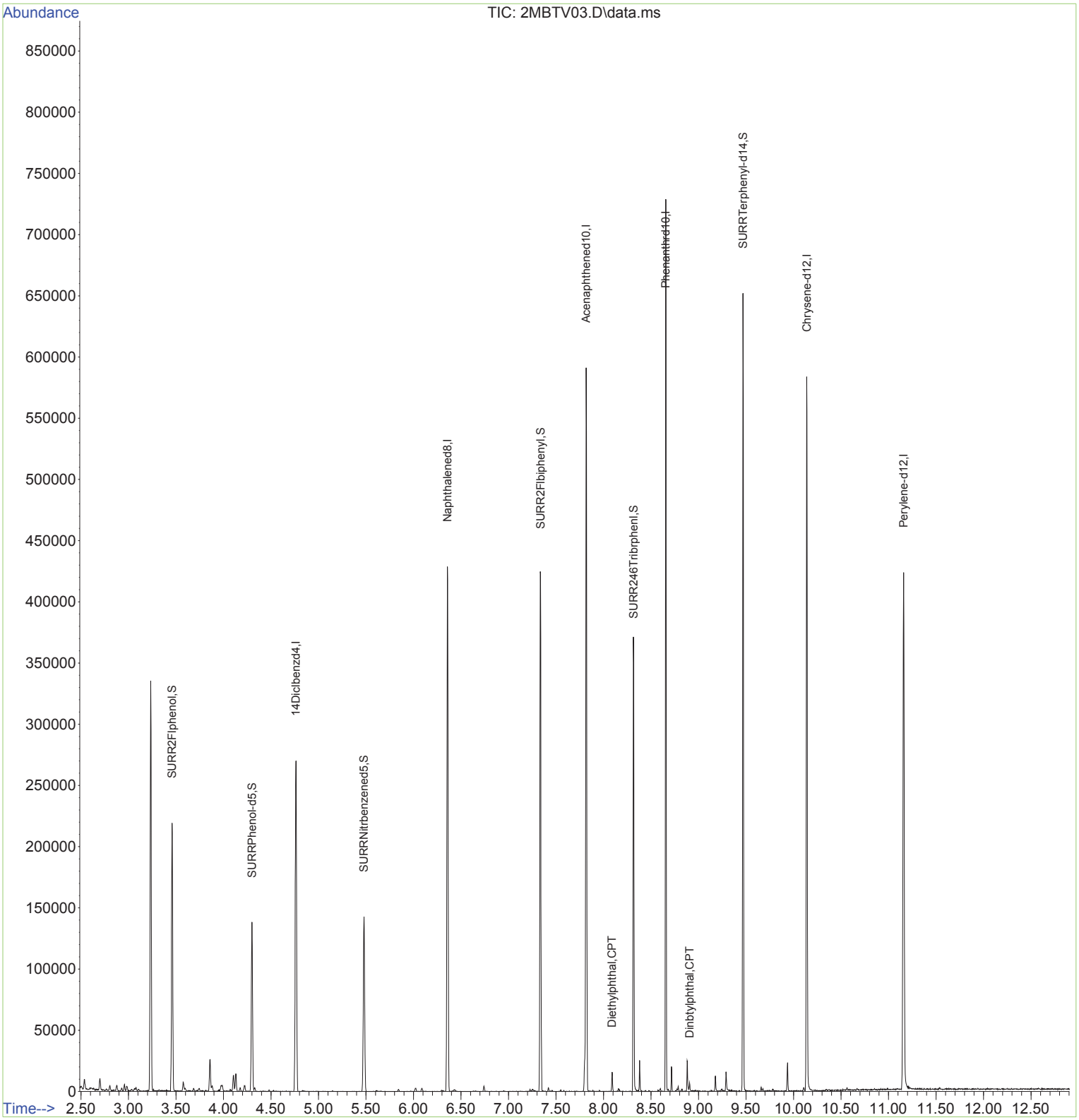
(#) = qualifier out of range (m) = manual integration (+) = signals summed

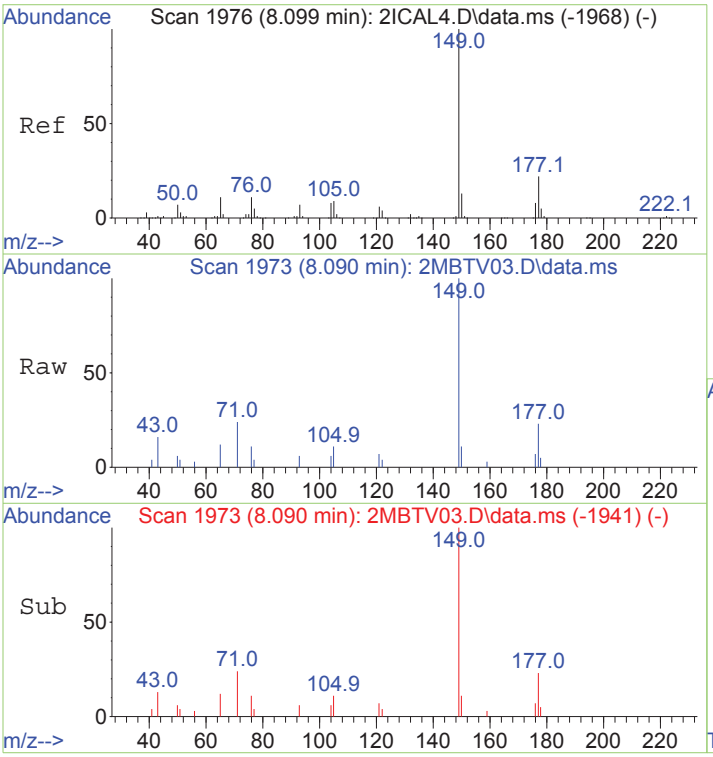
Quantitation Report (QT Reviewed)

Data File : C:\INSTARCH\DATA\2S092518\2MBTV03.D
Acq On : 25 Sep 2018 21:22
Sample : 153655,MBTV,
Misc : 2907,500ul+5ul IS S3916B
Integrator: RTE
Quant Time: Sep 26 09:37:53 2018

Vial: 20
Operator: RPN
Inst : SVMS2
Multiplr: 1.00

Quant Method : C:\INSTARCH\METHOD\2S092418.M
Quant Title : Method for 8270 Analysis
QLast Update : Mon Sep 24 16:53:25 2018
Response via : Initial Calibration
DataAcq Meth:2S092418.M

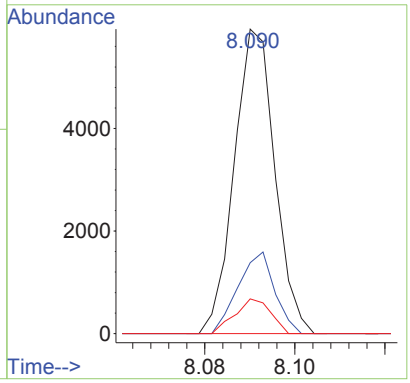


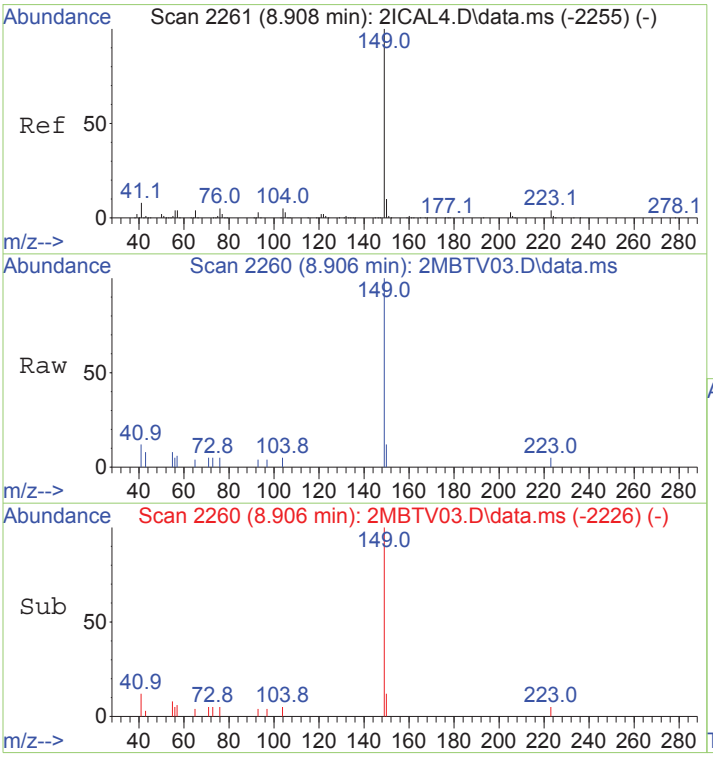


#60
Diethylphthal
Concen: 0.50 ug/mL
RT: 8.090 min Scan# 1973
Delta R.T. -0.009 min
Lab File: 2MBTV03.D
Acq: 25 Sep 2018 21:22

Tgt Ion:149 Resp: 3709

Ion	Ratio	Lower	Upper
149	100		
177	28.2	0.0	52.4
150	11.4	0.0	43.1

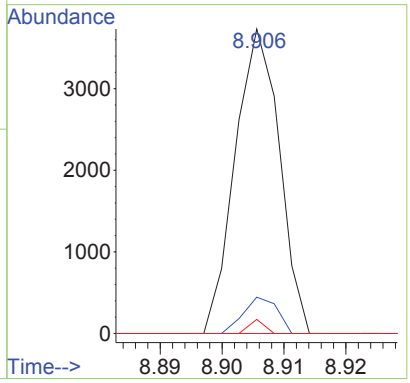




#73
Dinbtylphthal
Concen: 0.19 ug/mL
RT: 8.906 min Scan# 2260
Delta R.T. -0.002 min
Lab File: 2MBTV03.D
Acq: 25 Sep 2018 21:22

Tgt Ion:149 Resp: 1855

Ion	Ratio	Lower	Upper
149	100		
150	11.9	0.0	39.7
104	4.6	0.0	35.0



Quantitation Report (QT Reviewed)

Data File : C:\INSTARCH\DATA\2S092518\2MBTS03.D Vial: 21
Acq On : 25 Sep 2018 21:43 Operator: RPN
Sample : 153655,MBTS, Inst : SVMS2
Misc : 2907,500ul+5ul IS S3916B Multiplr: 1.00
Integrator: RTE
Quant Time: Sep 26 09:37:49 2018

Quant Method : C:\INSTARCH\METHOD\2S092418.M
Quant Title : Method for 8270 Analysis
QLast Update : Mon Sep 24 16:53:25 2018
Response via : Initial Calibration
DataAcq Meth:2S092418.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 14Diclbenzd4	4.763	152	43833	20.00	ug/mL	0.00
21) Naphthalened8	6.357	136	176689	20.00	ug/mL	0.00
39) Acenaphthened10	7.817	164	98616	20.00	ug/mL	0.00
63) Phenanthrd10	8.656	188	165412	20.00	ug/mL	0.00
75) Chrysene-d12	10.142	240	161923	20.00	ug/mL	0.00
86) Perylene-d12	11.162	264	153857	20.00	ug/mL	0.00
System Monitoring Compounds						
4) SURR2Flphenol	3.461	112	51470	42.55	%REC	0.00
Spiked Amount 100.000			Recovery = 42.55%			
7) SURRPhenol-d5	4.300	99	50540	34.53	%REC	0.00
Spiked Amount 100.000			Recovery = 34.53%			
22) SURRNitrbenzened5	5.479	82	52817	74.06	%REC	0.00
Spiked Amount 100.000			Recovery = 74.06%			
44) SURR2Flbiphenyl	7.334	172	119067	79.63	%REC	0.00
Spiked Amount 100.000			Recovery = 79.63%			
62) SURR246Tribrphenl	8.315	330	30299	95.29	%REC	0.00
Spiked Amount 100.000			Recovery = 95.29%			
78) SURRTerphenyl-d14	9.471	244	158315	111.17	%REC	0.00
Spiked Amount 100.000			Recovery = 111.17%			
Target Compounds						Qvalue
55) 4-Nitrophenol	7.817	65	621	0.3886	ug/mL#	23
60) Diethylphthal	8.090	149	5326	0.6819	ug/mL	97
73) Dinbtylphthal	8.906	149	2087	0.1985	ug/mL	97

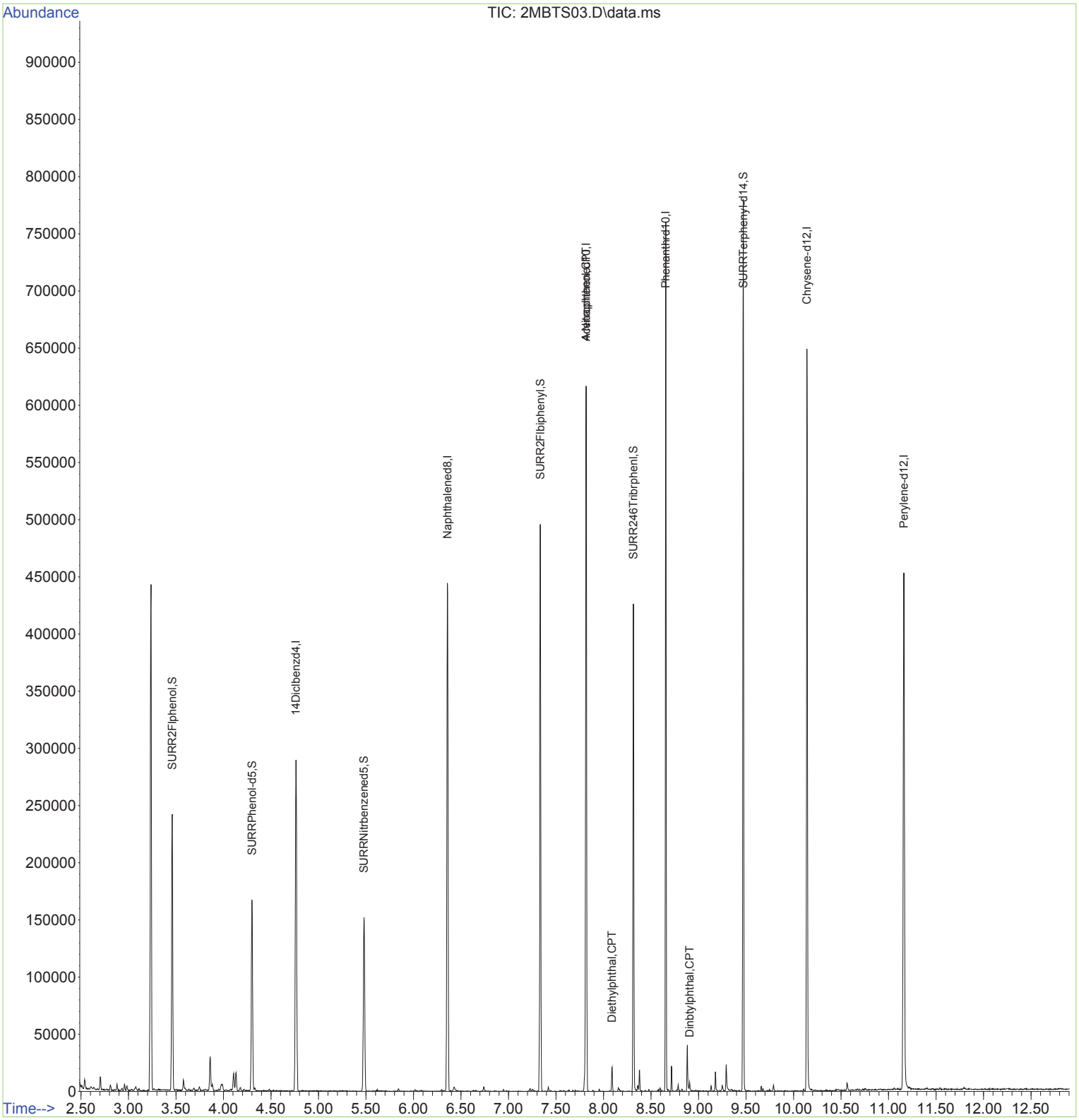
(#) = qualifier out of range (m) = manual integration (+) = signals summed

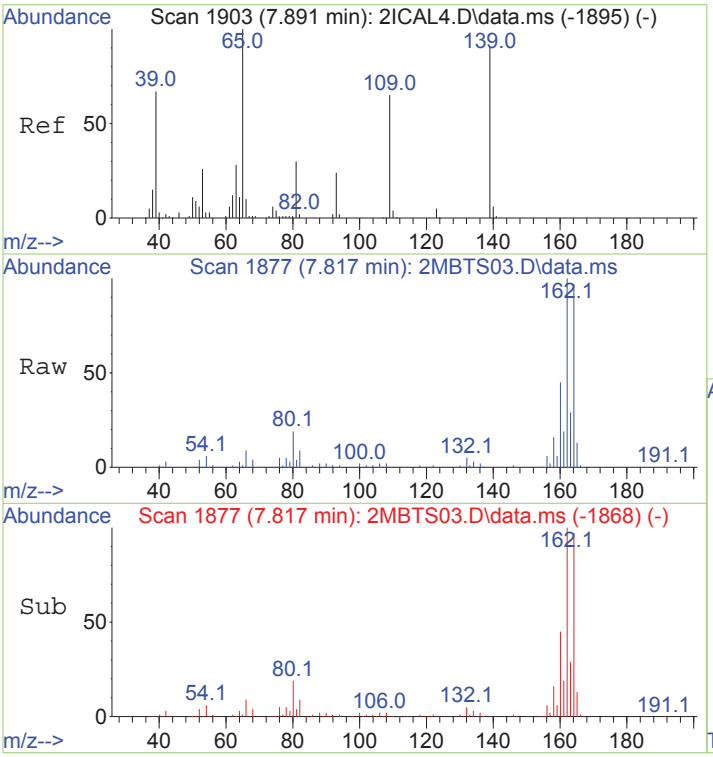
Quantitation Report (QT Reviewed)

Data File : C:\INSTARCH\DATA\2S092518\2MBTS03.D
Acq On : 25 Sep 2018 21:43
Sample : 153655,MBTS,
Misc : 2907,500ul+5ul IS S3916B
Integrator: RTE
Quant Time: Sep 26 09:37:49 2018

Vial: 21
Operator: RPN
Inst : SVMS2
Multiplr: 1.00

Quant Method : C:\INSTARCH\METHOD\2S092418.M
Quant Title : Method for 8270 Analysis
QLast Update : Mon Sep 24 16:53:25 2018
Response via : Initial Calibration
DataAcq Meth:2S092418.M

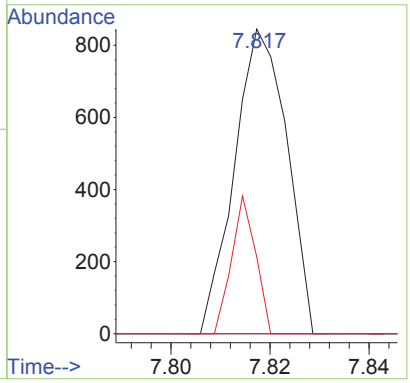


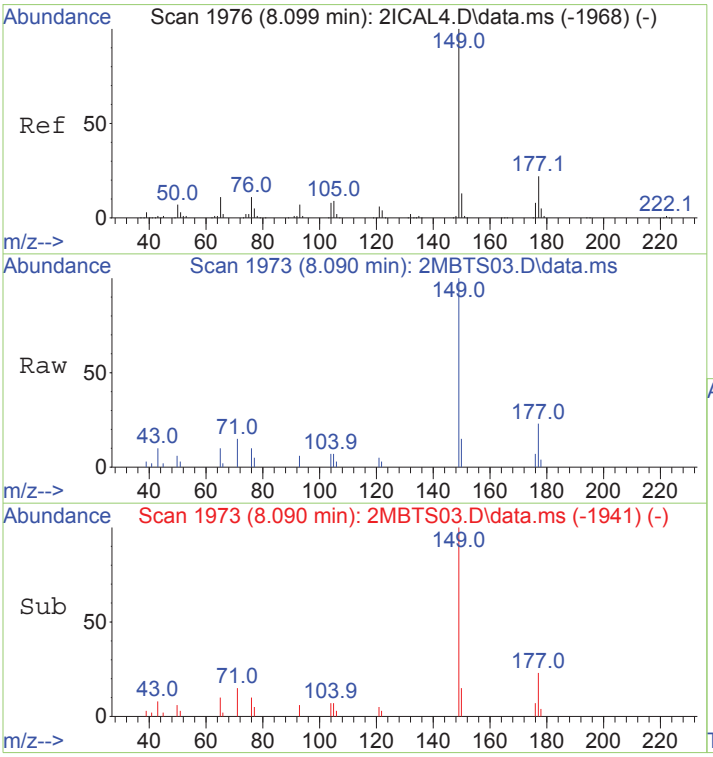


#55
4-Nitrophenol
Concen: 0.39 ug/mL
RT: 7.817 min Scan# 1877
Delta R.T. -0.074 min
Lab File: 2MBTS03.D
Acq: 25 Sep 2018 21:43

Tgt Ion: 65 Resp: 621

Ion	Ratio	Lower	Upper
65	100		
139	0.0	60.8	120.8#
109	25.2	34.6	94.6#

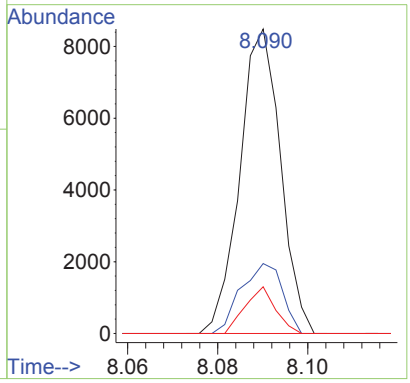


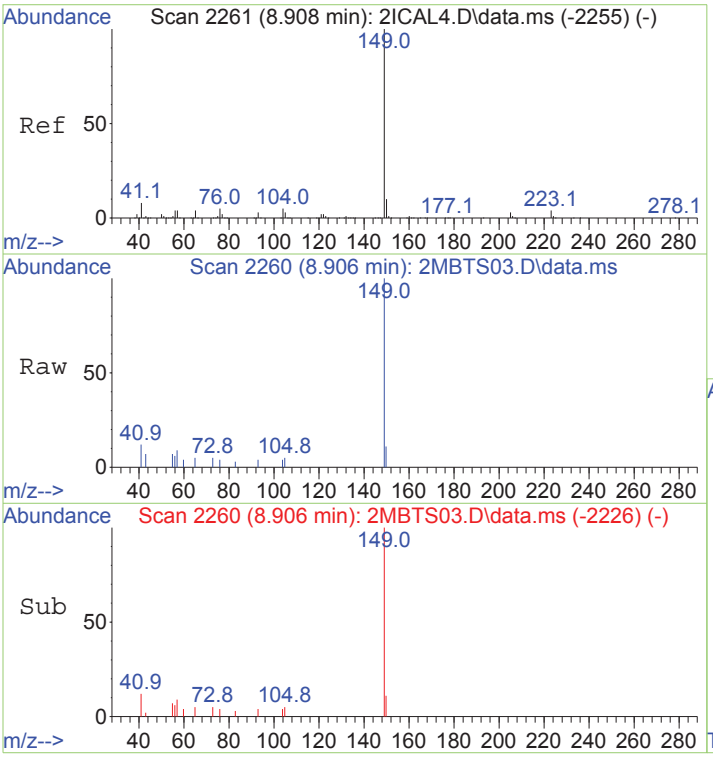


#60
Diethylphthal
Concen: 0.68 ug/mL
RT: 8.090 min Scan# 1973
Delta R.T. -0.009 min
Lab File: 2MBTS03.D
Acq: 25 Sep 2018 21:43

Tgt Ion:149 Resp: 5326

Ion	Ratio	Lower	Upper
149	100		
177	23.0	0.0	52.4
150	15.3	0.0	43.1

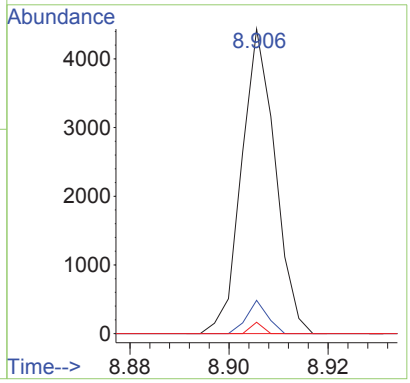




#73
Dinbtylphthal
Concen: 0.20 ug/mL
RT: 8.906 min Scan# 2260
Delta R.T. -0.002 min
Lab File: 2MBTS03.D
Acq: 25 Sep 2018 21:43

Tgt Ion:149 Resp: 2087

Ion	Ratio	Lower	Upper
149	100		
150	9.8	0.0	39.7
104	7.5	0.0	35.0



Quantitation Report (QT Reviewed)

Data File : C:\INSTARCH\DATA\2S092518\2LCSW03.D Vial: 22
Acq On : 25 Sep 2018 22:04 Operator: RPN
Sample : 153655,LCSW, Inst : SVMS2
Misc : 179887,500ul+5ul IS S3916B Multiplr: 1.00
Integrator: RTE
Quant Time: Sep 26 09:37:37 2018

Quant Method : C:\INSTARCH\METHOD\2S092418.M
Quant Title : Method for 8270 Analysis
QLast Update : Mon Sep 24 16:53:25 2018
Response via : Initial Calibration
DataAcq Meth:2S092418.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 14Diclbenzd4	4.763	152	40209	20.00	ug/mL	0.00
21) Naphthalened8	6.360	136	166654	20.00	ug/mL	0.00
39) Acenaphthened10	7.817	164	89924	20.00	ug/mL	0.00
63) Phenanthrd10	8.656	188	144341	20.00	ug/mL	0.00
75) Chrysene-d12	10.144	240	140582	20.00	ug/mL	0.00
86) Perylene-d12	11.162	264	139344	20.00	ug/mL	0.00
System Monitoring Compounds						
4) SURR2Flphenol	3.461	112	57244	51.59	%REC	0.00
Spiked Amount 100.000			Recovery = 51.59%			
7) SURRPhenol-d5	4.302	99	66126	49.25	%REC	0.00
Spiked Amount 100.000			Recovery = 49.25%			
22) SURRNitrbenzened5	5.482	82	52836	78.55	%REC	0.00
Spiked Amount 100.000			Recovery = 78.55%			
44) SURR2Flbiphenyl	7.334	172	112938	82.83	%REC	0.00
Spiked Amount 100.000			Recovery = 82.83%			
62) SURR246Tribrphenl	8.317	330	29744	102.59	%REC	0.00
Spiked Amount 100.000			Recovery = 102.59%			
78) SURRTerphenyl-d14	9.471	244	134941	109.14	%REC	0.00
Spiked Amount 100.000			Recovery = 109.14%			
Target Compounds						Qvalue
2) Ntrsdimeth	2.629	74	17986	10.0186	ug/mL	95
3) Pyridine	2.666	79	30068	9.0876	ug/mL	98
5) Aniline	4.376	93	40579	10.0175	ug/mL	100
6) bis2Clethletr	4.442	93	36918	13.2081	ug/mL	95
8) Phenol	4.317	94	33049	10.4673	ug/mL	99
9) 2-Cl-phenol	4.510	128	34087	12.7175	ug/mL	98
10) 13Diclbenz	4.695	146	41277	12.5335	ug/mL	94
11) 14Diclbenz	4.783	146	39897	12.5073	ug/mL	100
12) 12Diclbenz	4.967	146	39015	12.6008	ug/mL	97
13) Benzyl alcoho	4.916	108	23300	13.2641	ug/mL	95
14) bis2clispreth	5.104	45	57771	15.0700	ug/mL	98
15) 2Methylphenol	5.053	107	27356	14.0349	ug/mL	97
16) Ntrspyrrol	5.229	100	20014	14.5874	ug/mL	97
17) Acetophenone	5.271	105	59002	14.0029	ug/mL	97
18) Hexaclethane	5.430	117	15852	11.6886	ug/mL	95
19) N-Ntrsdinprop	5.280	70	31989	13.4660	ug/mL	98
20) 3&4Methylphenol	5.263	107	40815	13.4651	ug/mL	96
23) Nitrobenzene	5.269	77	62373	14.0754	ug/mL	98
24) Isophorone	5.831	82	73536	14.0505	ug/mL	99
25) 2-Nitrophenol	5.925	139	23145	13.8180	ug/mL	98
26) 24Dimthpheno	5.987	122	34361	13.2463	ug/mL	97
27) bis2clethoxym	6.107	93	50311	13.6210	ug/mL	98
28) 24Diclphenol	6.203	162	38641	14.9311	ug/mL	99
29) 124Triclbenz	6.300	180	40688	13.2116	ug/mL	96
30) Benzoic acid	6.078	122	23022	13.7905	ug/mL	95
31) Naphthalene	6.380	128	128276	13.7611	ug/mL	99
32) 4-Cl-aniline	6.439	127	33501	9.2652	ug/mL	95
33) 26Diclphenol	6.448	162	35632	15.1429	ug/mL	97
34) Hexaclprop	6.479	213	23871	12.9062	ug/mL	97
35) Hexaclbutdien	6.522	225	21844	12.7783	ug/mL	99
36) 4Cl3methylphe	6.914	107	45430	16.1038	ug/mL	99
37) 2Methylnaphth	7.036	142	87276	14.8702	ug/mL	99
38) 1Methylnaphth	7.118	141	75590	14.3278	ug/mL	97
40) Hxclcycpentdi	7.172	237	18601	10.9553	ug/mL	97

Quantitation Report (QT Reviewed)

Data File : C:\INSTARCH\DATA\2S092518\2LCSW03.D Vial: 22
Acq On : 25 Sep 2018 22:04 Operator: RPN
Sample : 153655,LCSW, Inst : SVMS2
Misc : 179887,500ul+5ul IS S3916B Multiplr: 1.00
Integrator: RTE
Quant Time: Sep 26 09:37:37 2018

Quant Method : C:\INSTARCH\METHOD\2S092418.M
Quant Title : Method for 8270 Analysis
QLast Update : Mon Sep 24 16:53:25 2018
Response via : Initial Calibration
DataAcq Meth:2S092418.M

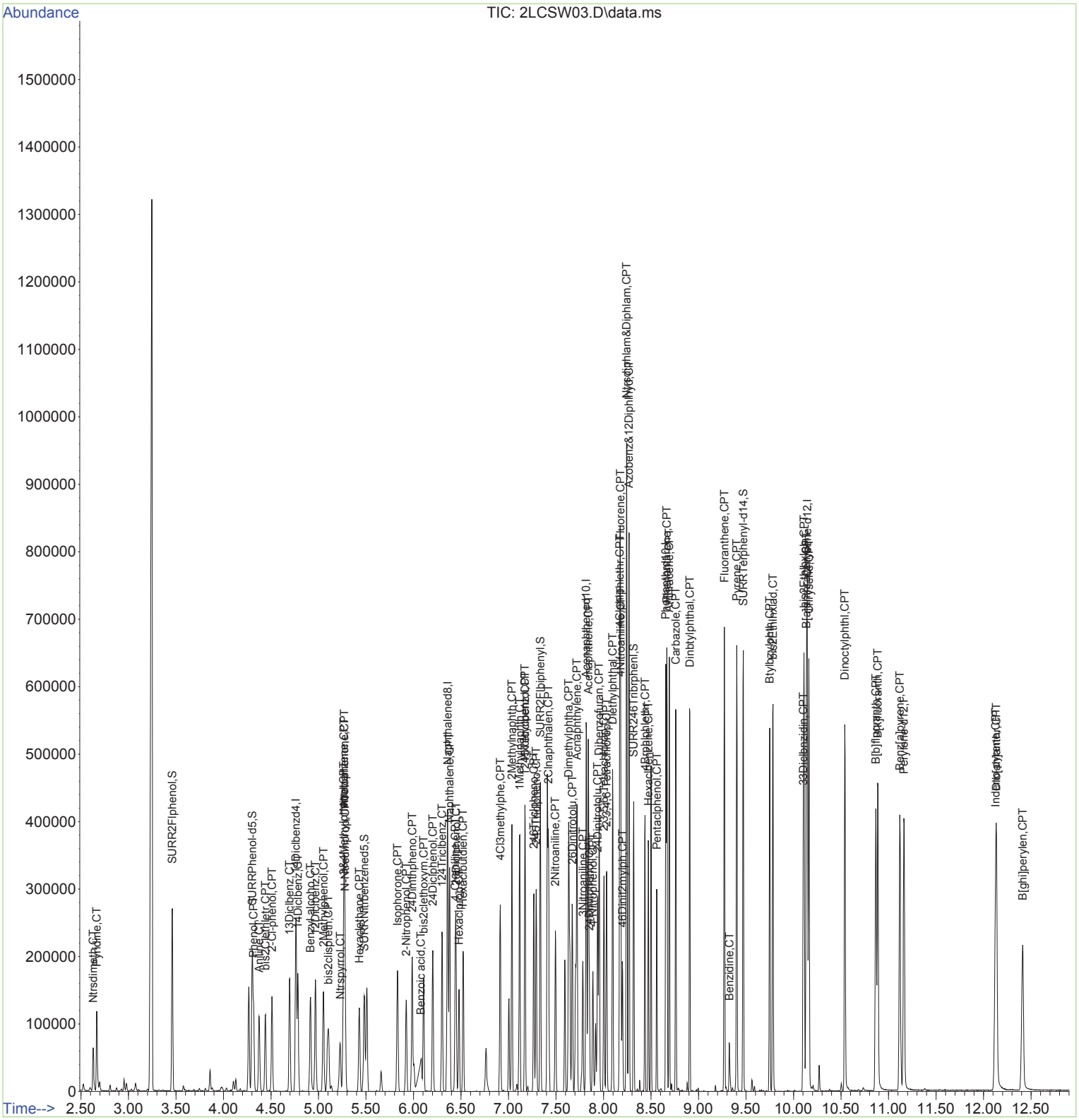
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
41) 1245Tetrclbenz	7.175	216	41545	14.1313 ug/mL	99
42) 246Triclpheno	7.266	196	32969	15.9132 ug/mL	98
43) 245Triclpheno	7.292	196	37427	17.3414 ug/mL	98
45) 2Clnaphthalen	7.419	162	85970	14.0510 ug/mL	99
46) 2Nitroaniline	7.493	65	33164	17.1386 ug/mL	95
47) Acnaphthylene	7.721	152	146124	16.2875 ug/mL	99
48) Dimethylphtha	7.633	163	125389	17.6420 ug/mL	99
49) 26Dinitrotolu	7.672	165	29801	18.1908 ug/mL	96
50) Acenaphthene	7.840	154	93911	16.1742 ug/mL	98
51) 3Nitroaniline	7.783	138	22746	14.0544 ug/mL	99
52) 24Dinitphenol	7.851	184	14485	13.3124 ug/mL	82
53) Dibenzofuran	7.954	168	131372	16.3392 ug/mL	100
54) 24Dinitrotolu	7.939	165	41097	19.0037 ug/mL	99
55) 4-Nitrophenol	7.888	65	22833	15.6710 ug/mL	97
56) 2,3,5,6-Tetrachlorop	8.005	232	30985	18.6724 ug/mL	97
57) 2,3,4,6-Tetrachlorop	8.033	232	31132	18.3607 ug/mL	100
58) Fluorene	8.178	166	112477	17.4353 ug/mL	97
59) 4Clphlphlethr	8.170	204	55433	16.6332 ug/mL	97
60) Diethylphthal	8.096	149	131160	18.4152 ug/mL	99
61) 4Nitroaniline	8.181	138	27462	17.7965 ug/mL	97
64) 46Dinit2mylph	8.201	198	20049	15.9251 ug/mL	98
65) Ntrsdiphlam&Diphlam	8.243	169	178665	38.3490 ug/mL	99
66) Azobenz&12Diphlhyd	8.269	182	60120	36.1613 ug/mL	94
67) 4Brphlphlethr	8.437	248	29518	17.8079 ug/mL	93
68) Hexaclbenzene	8.474	284	29455	17.6955 ug/mL	97
69) Pentaclphenol	8.562	266	19457	19.0520 ug/mL	96
70) Phenanthrene	8.667	178	145358	18.6560 ug/mL	98
71) Anthracene	8.692	178	148278	18.6962 ug/mL	99
72) Carbazole	8.761	167	138263	19.2562 ug/mL	99
73) Dinbtylphthal	8.908	149	171698	18.7186 ug/mL	99
74) Fluoranthene	9.272	202	179692	19.6119 ug/mL	100
76) Benzidine	9.326	184	19886	6.5062 ug/mL	98
77) Pyrene	9.403	202	184103	19.1853 ug/mL	99
79) Btylbzylphth	9.749	149	82182	18.8782 ug/mL	99
80) bis2Ethlhxlad	9.784	129	67158	19.9324 ug/mL	99
81) 33Diclbnzidin	10.102	252	45005	16.6572 ug/mL	99
82) B[a]anthracen	10.136	228	171160	19.2120 ug/mL	99
83) Chrysene	10.161	228	159952	18.7226 ug/mL	98
84) bis2Ethlhxlph	10.110	149	119162	19.7433 ug/mL	99
85) Dinoctylphthl	10.539	149	206755	19.7911 ug/mL	100
87) B[b]fluoranth	10.866	252	159540	19.3787 ug/mL	99
88) B[k]fluoranth	10.886	252	150842	18.6192 ug/mL	100
89) Benz[a]pyrene	11.119	252	161528	18.1119 ug/mL	99
90) Indeno-pyrene	12.128	276	152358	19.1079 ug/mL	97
91) Dib[ah]anthr	12.136	278	131069	19.0661 ug/mL	99
92) B[ghi]perylen	12.412	276	127651	18.6098 ug/mL	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\INSTARCH\DATA\2S092518\2LCSW03.D Vial: 22
Acq On : 25 Sep 2018 22:04 Operator: RPN
Sample : 153655,LCSW, Inst : SVMS2
Misc : 179887,500ul+5ul IS S3916B Multiplr: 1.00
Integrator: RTE
Quant Time: Sep 26 09:37:37 2018

Quant Method : C:\INSTARCH\METHOD\2S092418.M
Quant Title : Method for 8270 Analysis
QLast Update : Mon Sep 24 16:53:25 2018
Response via : Initial Calibration
DataAcq Meth:2S092418.M



Quantitation Report (QT Reviewed)

Data File : C:\INSTARCH\DATA\2S092518\175864MS.D Vial: 25
Acq On : 25 Sep 2018 23:07 Operator: RPN
Sample : 153655,MSW175864, Inst : SVMS2
Misc : 500ul+5ul IS S3916B Multiplr: 1.00
Integrator: RTE
Quant Time: Sep 26 09:36:53 2018

Quant Method : C:\INSTARCH\METHOD\2S092418.M
Quant Title : Method for 8270 Analysis
QLast Update : Mon Sep 24 16:53:25 2018
Response via : Initial Calibration
DataAcq Meth:2S092418.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 14Diclbenzd4	4.763	152	36437	20.00	ug/mL	0.00
21) Naphthalened8	6.357	136	150729	20.00	ug/mL	0.00
39) Acenaphthened10	7.817	164	86553	20.00	ug/mL	0.00
63) Phenanthrd10	8.655	188	140835	20.00	ug/mL	0.00
75) Chrysene-d12	10.144	240	135191	20.00	ug/mL	0.00
86) Perylene-d12	11.162	264	131845	20.00	ug/mL	0.00
System Monitoring Compounds						
4) SURR2Flphenol	3.461	112	32156	31.98	%REC	0.00
Spiked Amount 100.000			Recovery = 31.98%			
7) SURRPhenol-d5	4.302	99	51991	42.73	%REC	0.00
Spiked Amount 100.000			Recovery = 42.73%			
22) SURRNitrbenzened5	5.482	82	41652	68.47	%REC	0.00
Spiked Amount 100.000			Recovery = 68.47%			
44) SURR2Flbiphenyl	7.334	172	100493	76.57	%REC	0.00
Spiked Amount 100.000			Recovery = 76.57%			
62) SURR246Tribrphenl	8.317	330	26703	95.69	%REC	0.00
Spiked Amount 100.000			Recovery = 95.69%			
78) SURRTerphenyl-d14	9.468	244	121772	102.42	%REC	0.00
Spiked Amount 100.000			Recovery = 102.42%			
Target Compounds						Qvalue
2) Ntrsdimeth	2.637	74	7487	4.6022	ug/mL	86
3) Pyridine	2.683	79	7731	2.5785	ug/mL	98
5) Aniline	4.379	93	13935	3.7962	ug/mL	99
6) bis2Clethletr	4.442	93	28102	11.0948	ug/mL	98
8) Phenol	4.317	94	26729	9.3420	ug/mL	98
9) 2-Cl-phenol	4.510	128	22503	9.2648	ug/mL	100
10) 13Diclbenz	4.697	146	35733	11.9733	ug/mL	99
11) 14Diclbenz	4.783	146	34700	12.0042	ug/mL	99
12) 12Diclbenz	4.967	146	34216	12.1948	ug/mL	99
13) Benzyl alcoho	4.916	108	20788	13.0592	ug/mL	95
14) bis2clispreth	5.104	45	45340	13.0517	ug/mL	99
15) 2Methylphenol	5.050	107	23824	13.4882	ug/mL	98
16) Ntrspyrrol	5.229	100	18084	14.5451	ug/mL	95
17) Acetophenone	5.271	105	49746	13.0283	ug/mL	95
18) Hexaclethane	5.430	117	13904	11.3135	ug/mL	98
19) N-Ntrsdinprop	5.277	70	29006	13.4743	ug/mL	96
20) 3&4Methylphenol	5.266	107	37405	13.6176	ug/mL	92
23) Nitrobenzene	5.271	77	53988	13.4704	ug/mL	97
24) Isophorone	5.831	82	67508	14.2616	ug/mL	99
25) 2-Nitrophenol	5.922	139	20262	13.3903	ug/mL	94
26) 24Dimthpheno	5.985	122	30393	12.9546	ug/mL	98
27) bis2clethoxym	6.107	93	45363	13.5790	ug/mL	97
28) 24Diclphenol	6.203	162	34833	14.8817	ug/mL	99
29) 124Triclbenz	6.300	180	34749	12.4753	ug/mL	99
30) Benzoic acid	6.087	122	26000	16.4322	ug/mL	93
31) Naphthalene	6.380	128	111542	13.2302	ug/mL	100
32) 4-Cl-aniline	6.439	127	16033	4.9027	ug/mL	97
33) 26Diclphenol	6.448	162	31947	15.0113	ug/mL	98
34) Hexaclprop	6.479	213	21265	12.7119	ug/mL	97
35) Hexaclbutdien	6.522	225	19234	12.4403	ug/mL	97
36) 4Cl3methylphe	6.914	107	40784	15.9843	ug/mL	98
37) 2Methylnaphth	7.036	142	77551	14.6092	ug/mL	98
38) 1Methylnaphth	7.118	141	68928	14.4454	ug/mL	97
40) Hxclcycpentdi	7.172	237	16522	10.1098	ug/mL	97

Quantitation Report (QT Reviewed)

Data File : C:\INSTARCH\DATA\2S092518\175864MS.D Vial: 25
Acq On : 25 Sep 2018 23:07 Operator: RPN
Sample : 153655,MSW175864, Inst : SVMS2
Misc : 500ul+5ul IS S3916B Multiplr: 1.00
Integrator: RTE
Quant Time: Sep 26 09:36:53 2018

Quant Method : C:\INSTARCH\METHOD\2S092418.M
Quant Title : Method for 8270 Analysis
QLast Update : Mon Sep 24 16:53:25 2018
Response via : Initial Calibration
DataAcq Meth:2S092418.M

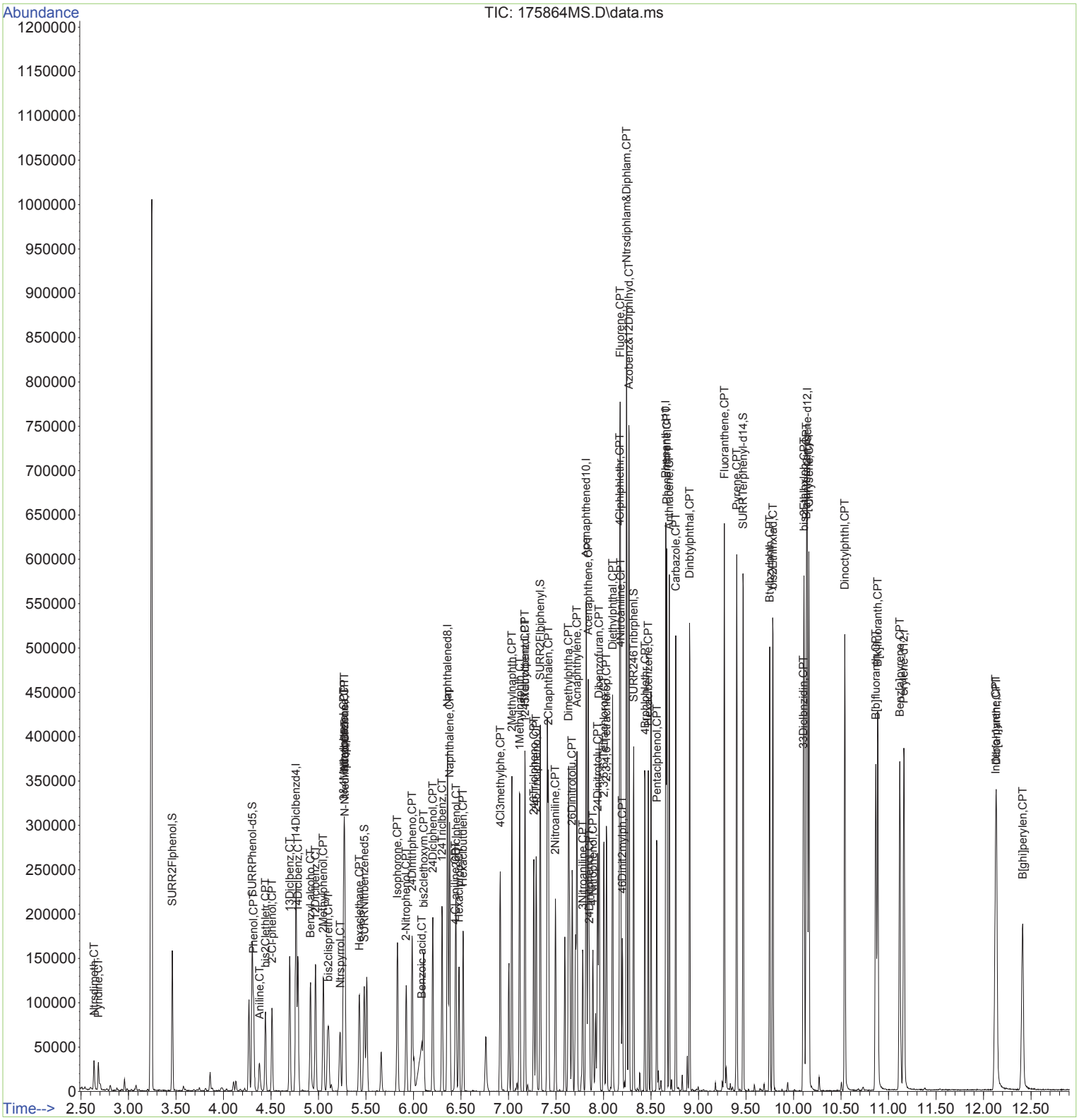
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
41) 1245Tetrclbenz	7.175	216	37842	13.3731 ug/mL	100
42) 246Triclpheno	7.266	196	29889	14.9884 ug/mL	99
43) 245Triclpheno	7.292	196	34243	16.4840 ug/mL	94
45) 2Clnaphthalen	7.419	162	78321	13.2994 ug/mL	99
46) 2Nitroaniline	7.493	65	29563	15.8727 ug/mL	99
47) Acnaphthylene	7.721	152	131172	15.1904 ug/mL	100
48) Dimethylphtha	7.633	163	115140	16.8310 ug/mL	99
49) 26Dinitrotolu	7.670	165	26594	16.8654 ug/mL	99
50) Acenaphthene	7.840	154	84079	15.0448 ug/mL	99
51) 3Nitroaniline	7.783	138	18037	11.5788 ug/mL	94
52) 24Dinitphenol	7.851	184	12764	12.3882 ug/mL	88
53) Dibenzofuran	7.954	168	118076	15.2575 ug/mL	100
54) 24Dinitrotolu	7.939	165	37339	17.9385 ug/mL	99
55) 4-Nitrophenol	7.888	65	20809	14.8381 ug/mL	96
56) 2,3,5,6-Tetrachlorop	8.005	232	28730	17.9878 ug/mL	97
57) 2,3,4,6-Tetrachlorop	8.030	232	28867	17.6880 ug/mL	96
58) Fluorene	8.175	166	102524	16.5114 ug/mL	99
59) 4Clphlphlethr	8.170	204	50109	15.6213 ug/mL	99
60) Diethylphthal	8.096	149	121553	17.7310 ug/mL	99
61) 4Nitroaniline	8.181	138	23453	15.7904 ug/mL	95
64) 46Dinit2mylph	8.198	198	16961	14.0105 ug/mL	99
65) Ntrsdiphlam&Diphlam	8.243	169	164133	36.1069 ug/mL	99
66) Azobenz&12Diphlhyd	8.269	182	55323	34.1043 ug/mL	94
67) 4Brphlphlethr	8.437	248	26089	16.1311 ug/mL	95
68) Hexaclbenzene	8.471	284	27348	16.8387 ug/mL	99
69) Pentaclphenol	8.562	266	18487	18.5528 ug/mL	97
70) Phenanthrene	8.667	178	134571	17.7015 ug/mL	100
71) Anthracene	8.692	178	134273	17.3518 ug/mL	100
72) Carbazole	8.761	167	123314	17.6017 ug/mL	100
73) Dinbtylphthal	8.906	149	158472	17.7068 ug/mL	100
74) Fluoranthene	9.272	202	163534	18.2927 ug/mL	99
77) Pyrene	9.403	202	166914	18.0877 ug/mL	100
79) Btylbzylphth	9.749	149	77265	18.4565 ug/mL	99
80) bis2Ethlhxlad	9.784	129	61898	19.1038 ug/mL	99
81) 33Diclbnzidin	10.102	252	38507	14.8205 ug/mL	99
82) B[a]anthracen	10.136	228	157525	18.3866 ug/mL	99
83) Chrysene	10.161	228	145595	17.7217 ug/mL	100
84) bis2Ethlhxlph	10.110	149	107641	18.5456 ug/mL	100
85) Dinoctylphthl	10.539	149	189558	18.8685 ug/mL	98
87) B[b]fluoranth	10.866	252	145923	18.7328 ug/mL	98
88) B[k]fluoranth	10.886	252	134302	17.5205 ug/mL	99
89) Benz[a]pyrene	11.119	252	143980	17.0625 ug/mL	99
90) Indeno-pyrene	12.128	276	134322	17.8041 ug/mL	98
91) Dib[ah]anthr	12.136	278	116238	17.8704 ug/mL	98
92) B[ghi]perylen	12.412	276	111455	17.1729 ug/mL	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\INSTARCH\DATA\2S092518\175864MS.D Vial: 25
Acq On : 25 Sep 2018 23:07 Operator: RPN
Sample : 153655,MSW175864, Inst : SVMS2
Misc : 500ul+5ul IS S3916B Multiplr: 1.00
Integrator: RTE
Quant Time: Sep 26 09:36:53 2018

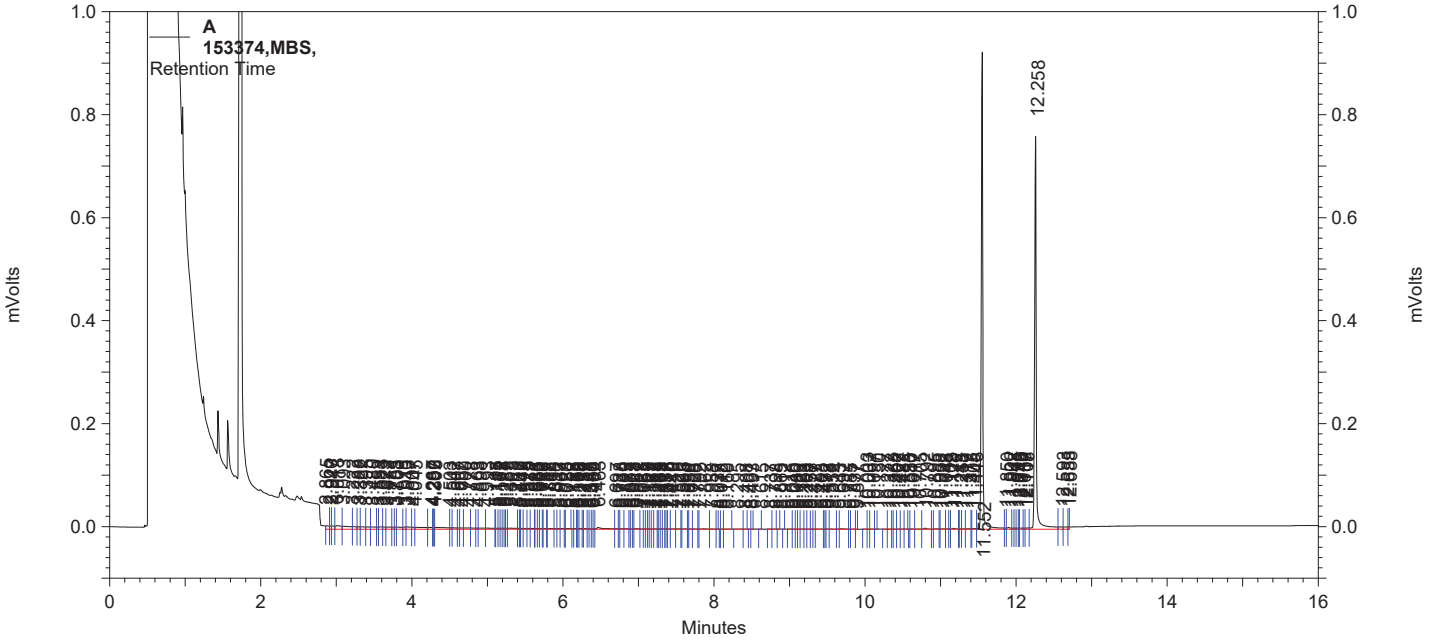
Quant Method : C:\INSTARCH\METHOD\2S092418.M
Quant Title : Method for 8270 Analysis
QLast Update : Mon Sep 24 16:53:25 2018
Response via : Initial Calibration
DataAcq Meth:2S092418.M



8015B Analysis Report

Data File: C:\Instarch\Semi 4\Data\092118dro\004.dat
Method: C:\Instarch\Semi 4\Methods\8015C\092018droic\092118dro.met
User: AJZ
Sample ID: 153374,MBS,
Acquired: Sep 21, 2018 07:22:35
Printed: Sep 21, 2018 12:10:58

Data Summary: {Data Description}



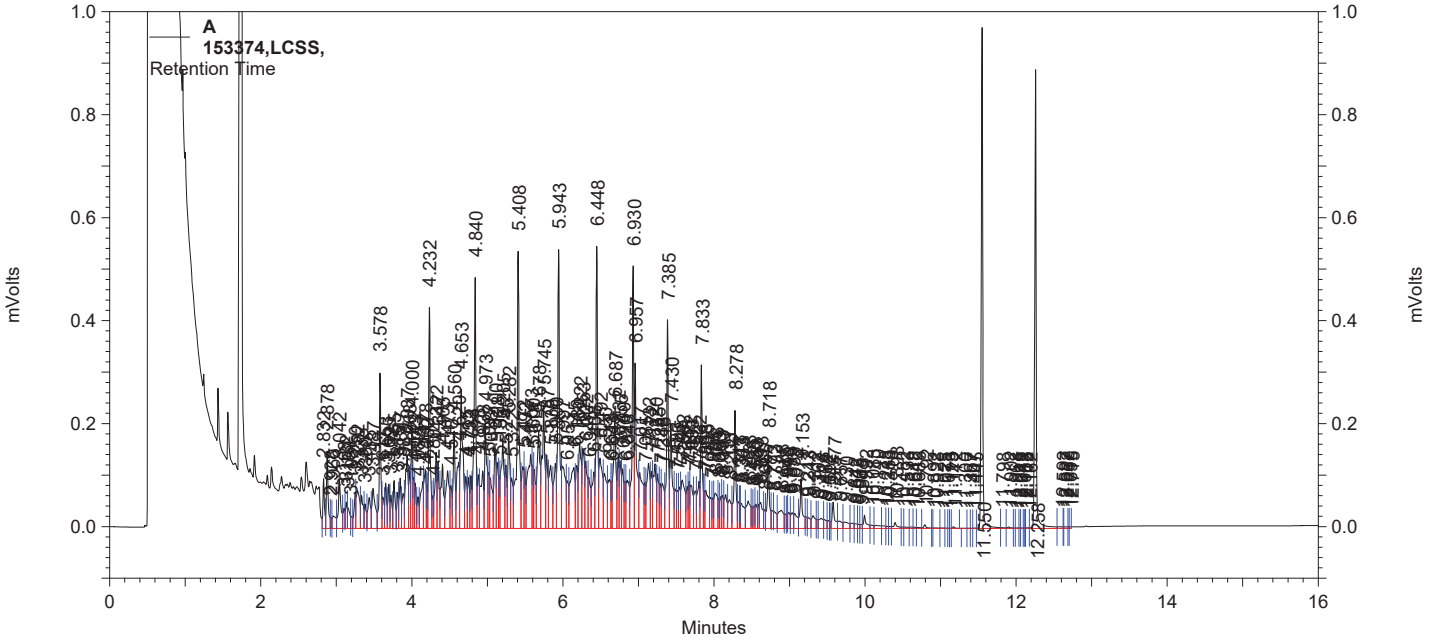
A Results

Component	Retention Time	Area Counts	Concentration (ug/ml)
Octacosane	11.552	1300323	87.185
Triacontane	12.258	1217934	96.955
DIESEL		704011	35.444

8015B Analysis Report

Data File: C:\Instarch\Semi 4\Data\092118dro\005.dat
Method: C:\Instarch\Semi 4\Methods\8015C\092018droic\092118dro.met
User: AJZ
Sample ID: 153374,LCSS,
Acquired: Sep 21, 2018 07:49:41
Printed: Sep 21, 2018 12:11:03

Data Summary: {Data Description}



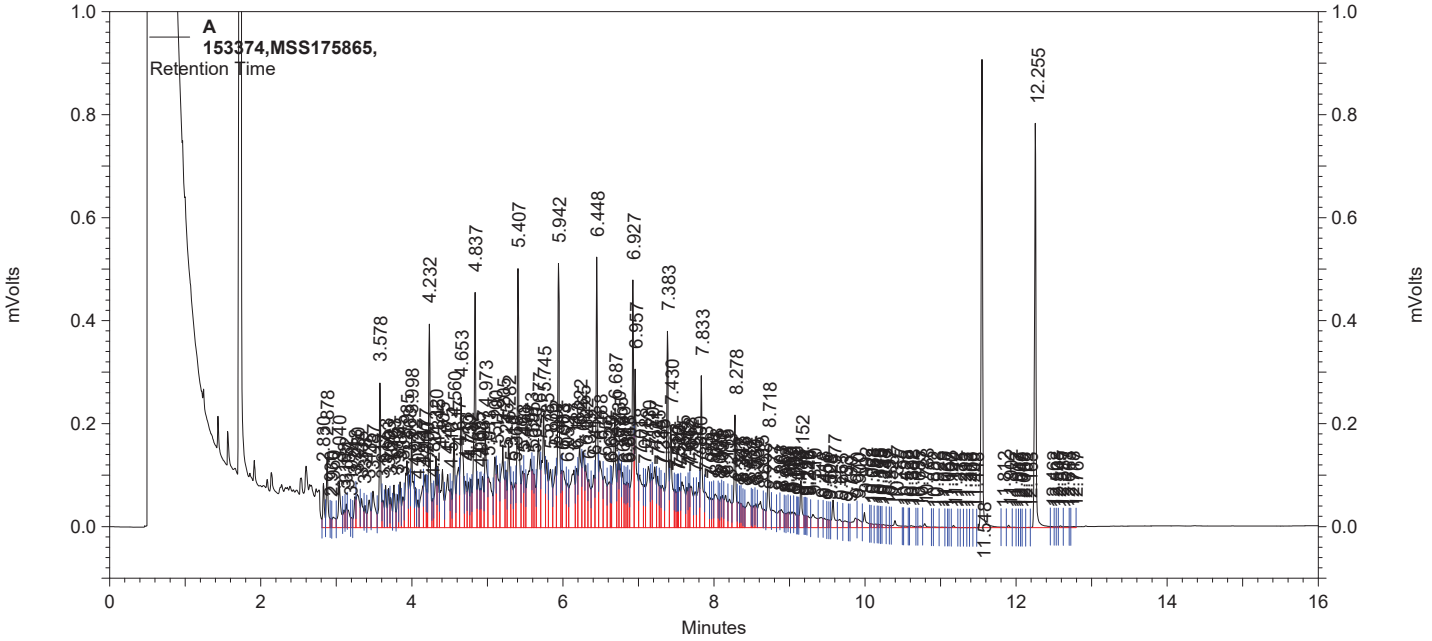
A Results

Component	Retention Time	Area Counts	Concentration (ug/ml)
Octacosane	11.550	1363225	91.071
Triacontane	12.258	1264730	100.500
DIESEL		35940864	2110.896

8015B Analysis Report

Data File: C:\Instarch\Semi 4\Data\092118dro\007.dat
Method: C:\Instarch\Semi 4\Methods\8015C\092018droic\092118dro.met
User: AJZ
Sample ID: 153374,MSS175865,
Acquired: Sep 21, 2018 08:43:48
Printed: Sep 21, 2018 12:11:13

Data Summary: {Data Description}



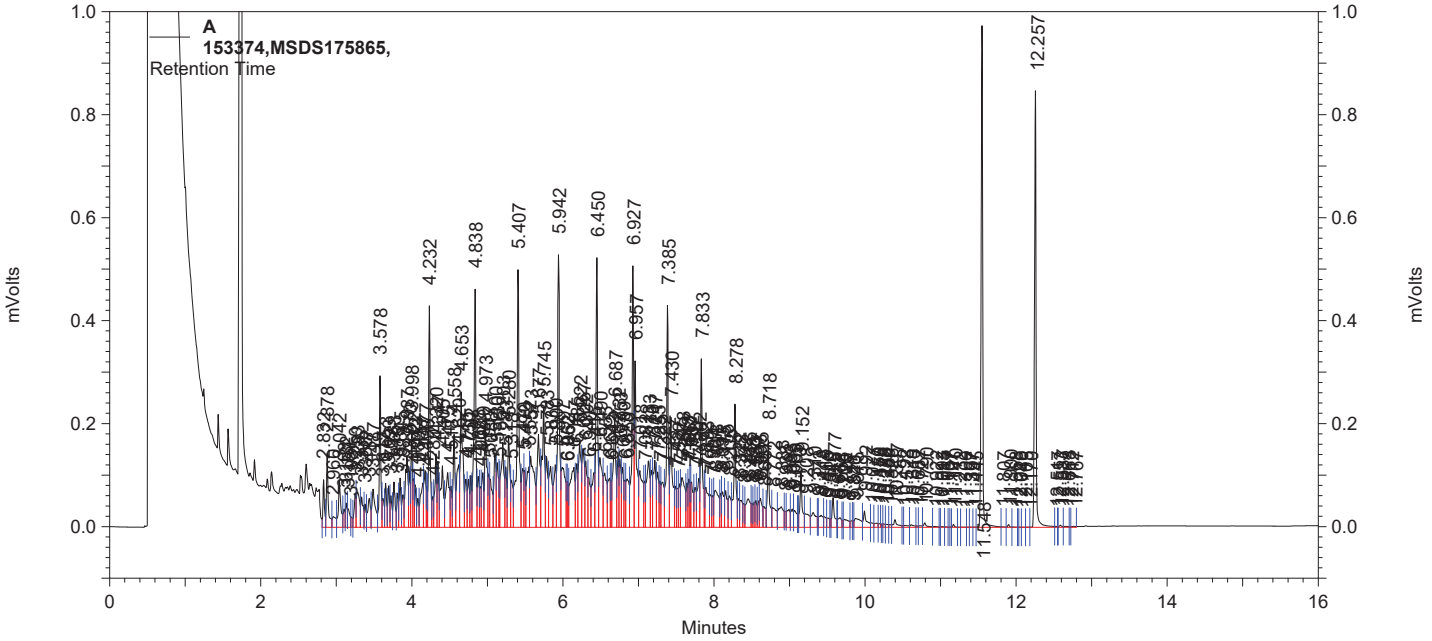
A Results

Component	Retention Time	Area Counts	Concentration (ug/ml)
Octacosane	11.548	1263471	84.908
Triacontane	12.255	1114116	89.090
DIESEL		33717820	1979.958

8015B Analysis Report

Data File: C:\Instarch\Semi 4\Data\092118dro\008.dat
Method: C:\Instarch\Semi 4\Methods\8015C\092018droic\092118dro.met
User: AJZ
Sample ID: 153374,MSDS175865,
Acquired: Sep 21, 2018 09:10:53
Printed: Sep 21, 2018 12:11:20

Data Summary: {Data Description}



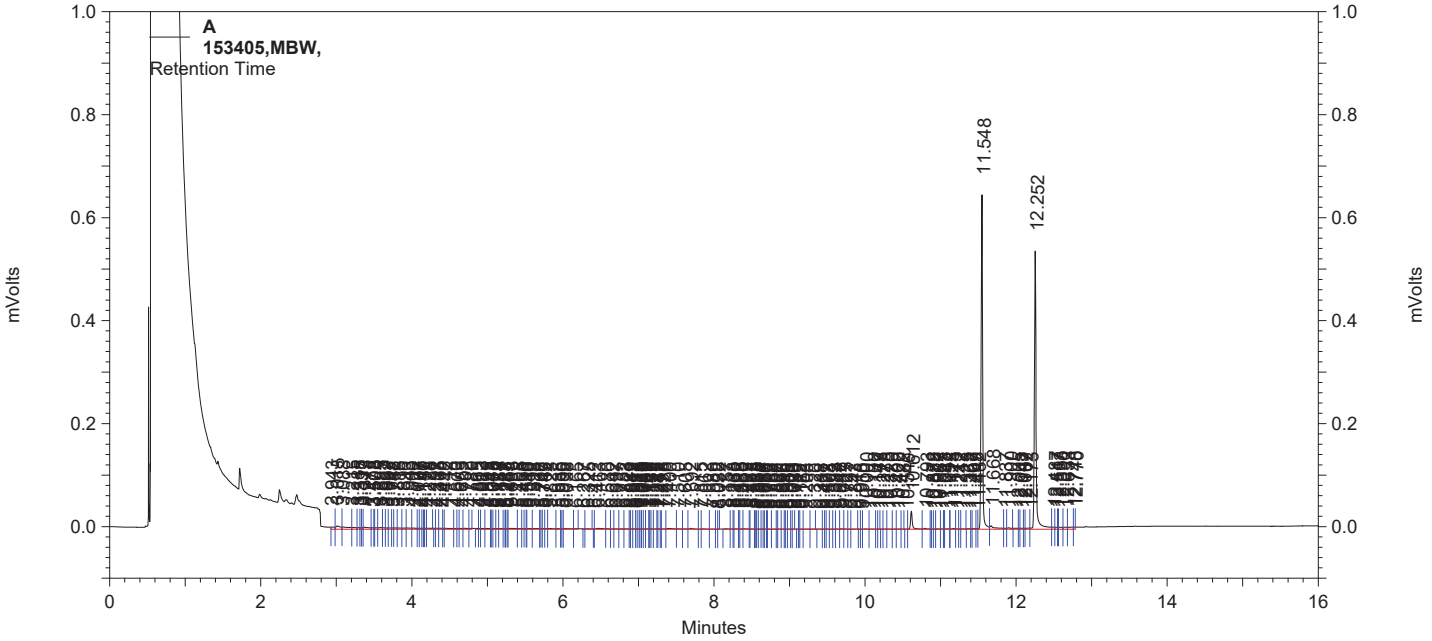
A Results

Component	Retention Time	Area Counts	Concentration (ug/ml)
Octacosane	11.548	1412116	94.092
Triacontane	12.257	1261501	100.255
DIESEL		35856732	2105.939

8015B Analysis Report

Data File: C:\Instarch\Semi 4\Data\092118dro\010.dat
Method: C:\Instarch\Semi 4\Methods\8015C\092018droic\092118dro.met
User: AJZ
Sample ID: 153405,MBW,
Acquired: Sep 21, 2018 10:05:12
Printed: Sep 21, 2018 12:11:30

Data Summary: {Data Description}



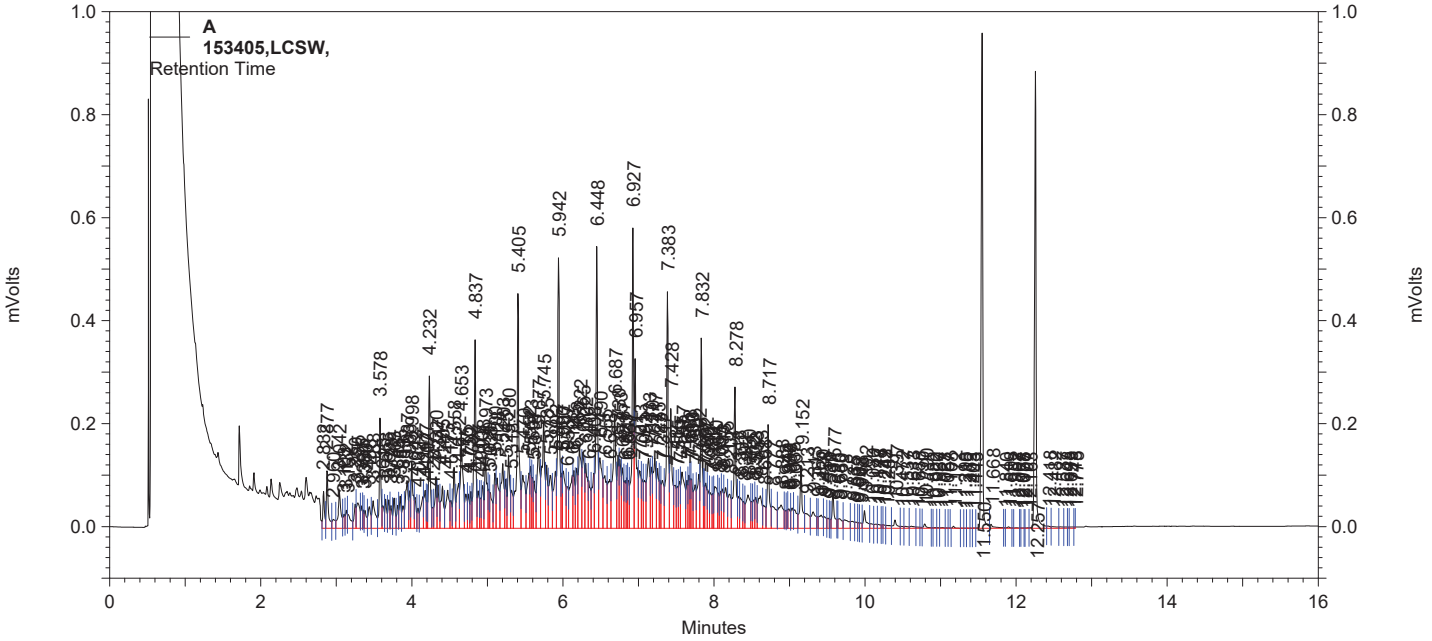
A Results

Component	Retention Time	Area Counts	Concentration (ug/ml)
Octacosane	11.548	915266	63.395
Triacontane	12.252	859354	69.790
DIESEL		512081	24.140

8015B Analysis Report

Data File: C:\Instarch\Semi 4\Data\092118dro\011.dat
Method: C:\Instarch\Semi 4\Methods\8015C\092018droic\092118dro.met
User: AJZ
Sample ID: 153405,LCSW,
Acquired: Sep 21, 2018 10:32:21
Printed: Sep 21, 2018 12:11:36

Data Summary: {Data Description}



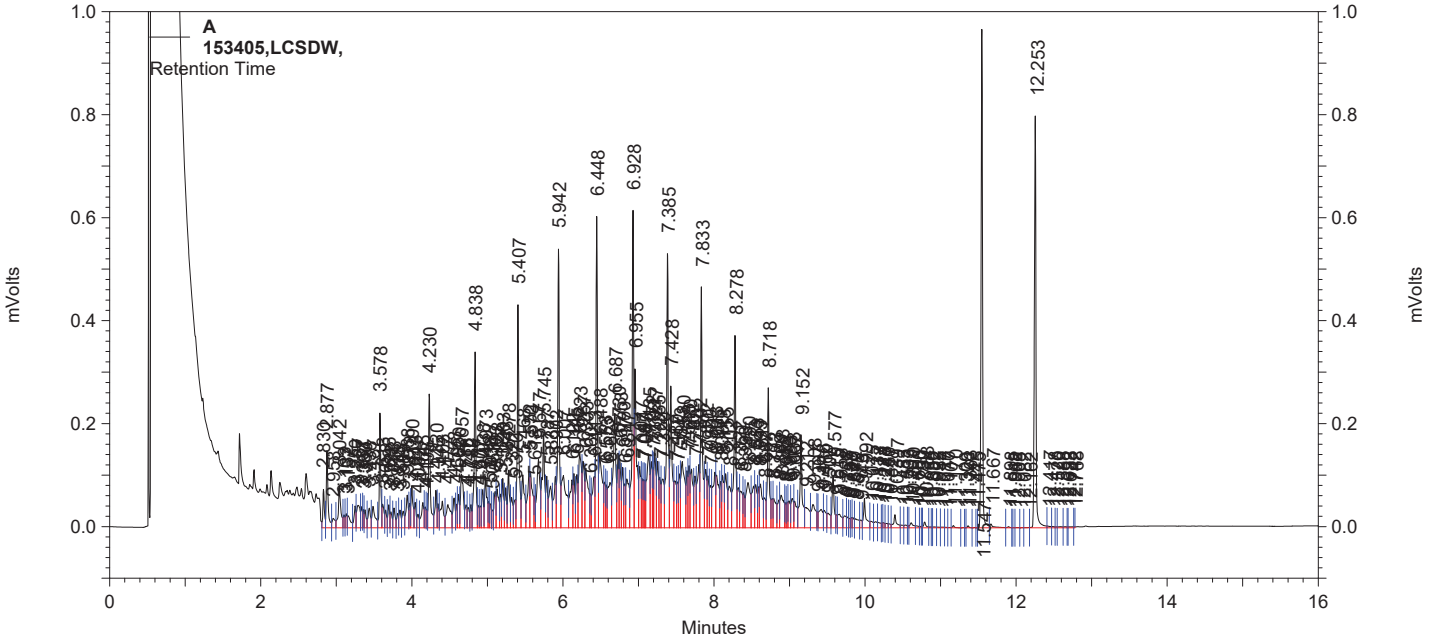
A Results

Component	Retention Time	Area Counts	Concentration (ug/ml)
Octacosane	11.550	1401242	93.420
Triacontane	12.257	1302890	103.391
DIESEL		32761476	1923.629

8015B Analysis Report

Data File: C:\Instarch\Semi 4\Data\092118dro\013.dat
Method: C:\Instarch\Semi 4\Methods\8015C\092018droic\092118dro.met
User: AJZ
Sample ID: 153405,LCSDW,
Acquired: Sep 21, 2018 11:26:31
Printed: Sep 21, 2018 12:11:46

Data Summary: {Data Description}



A Results

Component	Retention Time	Area Counts	Concentration (ug/ml)
Octacosane	11.547	1324019	88.649
Triacontane	12.253	1219600	97.081
DIESEL		32036256	1880.913

SEMI - VOLATILE ORGANIC ANALYSIS
LOGBOOK
DOCUMENTS

S SVOC 8270 WATER Analytical Run
153655 on 09/24/2018

Date Analyzed: _____ JJY Date Reviewed: _____

Date Entered: _____ 09/27/18 Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME	QC TYPE (Parent Sample)	CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
139370	175864		09/11/2008 0800		MAXXAM ANALYTICS	SI AFFF	SVOC 8270 QSM 5 TCLP		M	**4**	
		PETER-WS-001						68734			
139370	175866		09/11/2018 0800		MAXXAM ANALYTICS	SI AFFF	SVOC 8270 QSM 5 TCLP		M	**4**	
		PETER-WW-001						68734			
	179886						SVOC 8270 QSM 5 TCLP				
				MBW				68734			
	179887						SVOC 8270 QSM 5 TCLP				
				LCSW				68734			
	179889		09/11/2008 0800				SVOC 8270 QSM 5 TCLP				
		PETER-WS-001		MSW 175864				68734			

5 SAMPLE COUNT ON RUN, INCLUDING METHOD AND INSTRUMENT QC

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

Distribution: C:\LIMSREPS\ANALYTICALRUN.RPT

PREP WORKSHEET
on 09/24/2018

Prep Batch **68,734** Date Prepped: 09/24/2018 Prepped By TMG

Folder #	Order	QC Type	Link	Test	Matrix	Volume	Weight	Initial Volume	SDG Level	Notes
	179886	MBW		SVOC 8270 QSM 5 TCLP	LIQUID	1.0		0.10		
	179887	LCSW		SVOC 8270 QSM 5 TCLP	LIQUID	1.0		0.10		
139370	175864			SVOC 8270 QSM 5 TCLP	TCLP	1.0		0.10	4	
	175866			SVOC 8270 QSM 5 TCLP	TCLP	1.0		0.10	4	
	179889	MSW	175864	SVOC 8270 QSM 5 TCLP	TCLP	1.0		0.10		

Notes:

Method 8270-SV GC/MS Extraction Bench Sheet

(SOP Reference #'s SV006 & SV007)

3510=WATER
3546=Microwave

Prep Batch #:	68734
Prep Method:	3510
Analyst:	TMG/JAV
Date:	09/24/2018
Start Time:	11:00
End Date:	09/24/2018
End Time:	14:45

Matrix: TCLP
Balance Used: NA
Ave MW temp(°C): NA

Reagent Lots>>>

Sodium Sulfate	MISC0516
Diatomaceous Earth	NA
Dionex Solution	NA
Methylene Chloride	DS639
Acetone	NA
Sulfuric Acid	MISC0528
Sodium Hydroxide	MISC0527

Initial Concentration By: NA
Date: NA
GPC Cleanup? (yes/no): NO
Date: NA
Final Concentration By: TMG
Date: 09/24/2018

Microwave Cell #	Sample ID	Comments		(Solids) Sample Weight (g)	(Liquids) Sample Volume (L)	Final Volume (mL)	ph Adj. <2 (Yes/No)	pH Adj. >12 (Yes/No)
	179886	MB			0.10	1.0	Y	Y
	179887	LCS			0.10	1.0	Y	Y
	175864				0.10	1.0	Y	Y
	175866				0.10	1.0	Y	**Y**
	SB 2907				0.10	1.0	Y	Y
	VB 2907				0.10	1.0	Y	Y
						1.0		
						1.0		
						1.0		
						1.0		
						1.0		
						1.0		
						1.0		
						1.0		
						1.0		
						1.0		
						1.0		
						1.0		
						1.0		
						1.0		
						1.0		
						1.0		
						1.0		
	179889	(MS)	Parent Sample		0.10	1.0	Y	Y
		(MSD)	175964			1.0		

MB=Method Blank, LCS=Laboratory Control Sample, MS=Matrix Spike & MSD=Matrix Spike Duplicate

MS/MSD/ LCS Spike Amount (mL): 1
Spike Concentration (µg/mL): 20
Spike Reference #: SVMS8096

Surrogate Spike Amount (mL): 1
Surrogate Spike Conc. (µg/mL): 20/40
Surrogate Spike Reference #: SVMS8080

Relinquished to: RPN
Date: 09/24/2018

Reviewed By: JJY
Date: 09/27/2018

8270 SVOC Analysis Data Review Checklist

Analytical Run #: 153655	**Independent Reviewer: JJY**
Sequence Date: 09/25/2018	**Date of Review: 09/27/2018**
Analyst/Data Interpreter: RPN	**Approval: Yes**

Instructions: Complete one checklist per *analytical run* . Enter the appropriate response for each question. Each "No" response requires an explanation in the Comments section, and may require the initiation of a Nonconformance Report.

Requirements:	Acceptance Criteria	Analyst Review		Independent Review		Comments (indicate reference to an attachment if necessary)
		Yes	No	Yes	No	
1. INITIAL CALIBRATION (ICAL)						
a. Was the initial calibration performed using a minimum of five standard concentration levels?	Lowest standard at or near MRL	Yes		x		TCLP
b. SPCC responses.	Avg. RRF ≥ 0.05	Yes		x		
c. Is the variation between calibration response factors for all concentration levels <15% RSD, is r >.995, or r^2 > 0.990 for the regression line. RSD≤ 15%, ≤ 30% for CCCs.	RSD≤ 15%, ≤ 30% for CCCs	Yes		x		
d. Were the standards used for the ICAL uniquely identified?		Yes		x		
e. Was there a DFTPP standard analyzed prior to the ICAL?		Yes		x		
f. Was an instrument blank (IB) analyzed prior to the ICAL?		Yes		x		
2. INITIAL CALIBRATION VERIFICATION (ICV)						
a. Were there a second source ICVs for all target analytes analyzed after the initial calibration and prior to analysis of any samples?	Second source	Yes		x		
b. Were the SPCC within QC limits	RRF ≥ 0.05	Yes		x		
c. Were the CCCs within QC limits	%D ≤ 20%	Yes		x		
d. Were the ICVs uniquely identified (i.e. Standard Number)?		Yes		x		
3. CONTINUING CALIBRATION VERIFICATION (CCV)						
a. Were CCVs for target analytes analyzed at the beginning of the sequence and after every 12 hours.		Yes		x		
b. Were SPCC compounds acceptable?	RRF ≥ 0.050	Yes		x		
c. Were the CCCs compounds acceptable?	%D ≤ 20%	Yes		x		
d. Were the recoveries for the CCVs acceptable?	%D≤20%	Yes		x		
e. Was each CCV uniquely identified (i.e. Standard Number)?		Yes		x		

Additional Comments:

8270 SVOC Analysis Data Review Checklist

Requirements:	Acceptance Criteria	Analyst		Independent		Comments (indicate reference to an attachment if necessary)
		Yes	No	Yes	No	
4. DFTPP						
a. Was a DFTPP tune check ran at the beginning of every twelve hour shift?		Yes		x		
b. Were the relative abundance criteria met?		Yes		x		
c. Was the peak tailing <2 on Pentachlorophenol and <2 on Benzidine?	Tailing <2%	Yes		x		
d. Was the breakdown of DDT to DDE and DDD less than 20%	Breakdown ≤20%	Yes		x		
5. BLANKS						
a. Was method blank (MB) analyzed prior to the analysis of samples?		Yes		x		
b. Were the MB results less than the reporting limit (RL)?	< MRL	Yes		x		
c. Was a MB prepped and analyzed at a frequency of one per Prep Batch?	Batch <20 samples	Yes		x		
6. LABORATORY CONTROL SAMPLE (LCS)						
a. Was a LCS analyzed prior to the analysis of samples?		Yes		x		
b. Were the LCS recoveries in each LCS within the acceptance criteria?	In-house limits or client specified limits	Yes		x		
7. MATRIX SPIKES						
a. Was a matrix spiked (MS) sample analyzed at a frequency one per Prep Batch?	Batch <20 samples	Yes		x		
b. Were MS recoveries in each MS within the acceptance criteria?	In-house limits or client specified limits	Yes		x		
8. LABORATORY CONTROL SPIKE / MATRIX SPIKE DUPLICATE						
a. Was a duplicate matrix spike or laboratory control spike sample analyzed at a . frequency one per Prep Batch?	Batch <20 samples		No		x	TCLP
b. Were MSD or LCSD recoveries within the acceptance criteria?	In-house limits or client specified limits	N/A		na		
c. Is the relative percent difference (RPD) between a matrix spike (MS) and its' duplicate (MSD) or laboratory control spike (LCS) and its' duplicate (LCSD) within the acceptance criteria?	In-house limits or client specified limits	N/A		na		

Additional Comments:

8270 SVOC Analysis Data Review Checklist

Requirements:	Acceptance Criteria	Analyst		Independent		Comments (indicate reference to an attachment if necessary)
		Yes	No	Yes	No	
9. SAMPLES (INCLUDING BLANKS, STANDARDS, AND QC SAMPLES)						
a. Are chromatogram characteristics, including peak shapes and areas, consistent with those of the CCV?		Yes		x		
b. Are surrogate recoveries for all samples, blanks, standards, and QC samples within acceptance criteria?		Yes		x		
c. Were all samples having analytes detected in amounts exceeding the calibration range diluted and reanalyzed?		Yes		x		
d. Were all samples extracted within holding times?	Waters extracted within 7days of collection, soils 14 days of collection	Yes		x		
e.Were all samples analyzed within 40 days of extracting?	Analysis within 40 days of extraction	Yes		x		
f. Did the samples require additional cleanup steps? (i.e. acid treatment, acid-base fractioning, and GPC)	GPC, Acid/Base, Treatments		No		x	
g. Where all manual integratinons performed properly?		Yes		x		
h. Was the rational for the manual integration verified?		Yes		x		
10. RECORDS AND REPORTING						
a. Are Run, Prep Batch and Extraction sheets, Summary sheets, Sequence file, initial and rerun raw and process data present in the data file?		Yes		x		
b. Are all chromatograms dated and initialed?		Yes		x		
c. Are reported results whose amounts exceeded the acceptance criteria flagged with an appropriate qualifier and, if needed, a NCR completed?		Yes		x		
d. Do all values, dilution factors and qualifiers listed on the raw reports match the LIMS data?		Yes		x		
e. Is the ICAL method referenced on the Raw Data?		Yes		x		

Additional Comments:

Sequence Name: C:\INSTARCH\SEQUENCE\2S092418.s
Comment: 8270
Operator: RPN
Data Path: C:\INSTARCH\DATA\2S092418\
Instrument Control Pre-Seq Cmd:
Data Analysis Pre-Seq Cmd:

JJY
09/27/18

Instrument Control Post-Seq Cmd:
Data Analysis Post-Seq Cmd:

Method Sections To Run
(X) Full Method
( ) Reprocessing Only

Sequence Barcode Options
(X) On Mismatch, Inject Anyway
( ) On Mismatch, Don't Inject
( ) Barcode Disabled

Line			Sample Name/Misc Info	
1)	Sample	100	2PRIM01	2S092418 PRIMER 50ug/mL
2)	Sample	100	2PRIM02	2S092418 PRIMER 40ug/mL
3)	Sample	100	2PRIM03	2S092418 PRIMER 40ug/mL
4)	DFTPP	1	2DFTP135	2DFTPP DFTPP TUNE SVMS7999
5)	DFTPP	1	2DFTP136	2DFTPP DFTPP TUNE SVMS7999
6)	Sample	99	2IB02	2S092418 InstrumentBlank
7)	Sample	2	2ICAL7	2S092418 ICAL 50ug/mL SVMS8104
8)	Sample	3	2ICAL6	2S092418 ICAL 40ug/mL SVMS8103
9)	Sample	4	2ICAL5	2S092418 ICAL 30ug/mL SVMS8102
10)	Sample	5	2ICAL4	2S092418 ICAL 20ug/mL SVMS8101
11)	Sample	6	2ICAL3	2S092418 ICAL 10ug/mL SVMS8100
12)	Sample	7	2ICAL2	2S092418 ICAL 5ug/mL SVMS8099
13)	Sample	8	2ICAL1	2S092418 ICAL 1ug/mL SVMS8098
14)	Sample	9	2ICV1	2S092418 ICV 20ug/mL SVMS8105
15)	Sample	10	2ICV2	2S092418 ICV 40ug/mL SVMS8106
16)	Sample	99	2IB03	2S092418 InstrumentBlank
17)	Sample	11	2ICAL7A	2S092418 ICAL 50ug/mL SVMS8114
18)	Sample	12	2ICAL6A	2S092418 ICAL 40ug/mL SVMS8113
19)	Sample	13	2ICAL5A	2S092418 ICAL 30ug/mL SVMS8112
20)	Sample	14	2ICAL4A	2S092418 ICAL 20ug/mL SVMS8111
21)	Sample	15	2ICAL3A	2S092418 ICAL 10ug/mL SVMS8110
22)	Sample	16	2ICAL2A	2S092418 ICAL 5ug/mL SVMS8109
23)	Sample	17	2ICAL1A	2S092418 ICAL 1ug/mL SVMS8108
24)	Sample	18	2ICV1A	2S092418 ICV 20ug/mL SVMS8115
25)	Sample	19	2ICV2A	2S092418 ICV 40ug/mL SVMS8116

Sequence Name: C:\INSTARCH\SEQUENCE\2S092518.s
Comment: 8270
Operator: RPN
Data Path: C:\INSTARCH\DATA\2S092518\
Instrument Control Pre-Seq Cmd:
Data Analysis Pre-Seq Cmd:

JJY
09/27/18

Instrument Control Post-Seq Cmd:
Data Analysis Post-Seq Cmd:

Method Sections To Run
(X) Full Method
( ) Reprocessing Only

Sequence Barcode Options
(X) On Mismatch, Inject Anyway
( ) On Mismatch, Don't Inject
( ) Barcode Disabled

Line			Sample Name/Misc Info	
1)	Sample	100	2PRIM03	2S092418 PRIMER 40ug/mL
2)	DFTPP	1	2DFTP137	2DFTPP DFTPP TUNE SVMS7999
3)	Sample	2	2CCV205	2S092418 CCV 20ug/mL SVMS8107
4)	Sample	3	2CCV206	2S092418 CCV 20ug/mL SVMS8117
5)	Sample	4	2MBW01	2S092418 152651,MBW,
6)	Sample	5	143853	2S092418 152651,143853,
7)	Sample	6	168625	2S092418 152651,168625,
8)	Sample	7	2LOQW2	2S092418 152651,168625,
9)	Sample	8	2LOQW3	2S092418 152651,168625,
10)	Sample	3	2CCV207	2S092418 CCV 20ug/mL SVMS8117
11)	Sample	9	2MBW02	2S092418 153555,MBW,
12)	Sample	10	2LCSW02	2S092418 153555,LCSW,
13)	Sample	11	178074	2S092418 153555,178074,
14)	Sample	12	178086	2S092418 153555,178086,
15)	Sample	13	178087	2S092418 153555,178087,
16)	Sample	14	178088	2S092418 153555,178088,
17)	Sample	15	178089	2S092418 153555,178089,
18)	Sample	16	178824	2S092418 153555,178824,
19)	Sample	17	178824MS	2S092418 153555,MSW178824,
20)	Sample	18	178824SD	2S092418 153555,MSDW178824,
21)	Sample	19	2MBW03	2S092418 153655,MBW,
22)	Sample	20	2MBTV03	2S092418 153655,MBTV,
23)	Sample	21	2MBTS03	2S092418 153655,MBTS,
24)	Sample	22	2LCSW03	2S092418 153655,LCSW,
25)	Sample	23	175864	2S092418 153655,175864,
26)	Sample	24	175866	2S092418 153655,175866,
27)	Sample	25	175864MS	2S092418 153655,MSW175864,
28)	Sample	2	2CCV208	2S092418 CCV 20ug/mL SVMS8107

SVOC Logbook-02
Semi-Volatiles Prep Logbook
Logbook Created: 04/10/18

NOTEBOOK VIEW: LTN_SVOC_Logbook_02_Default, NOTEBOOK: SVOC_Logbook_02, PAGE: 19
Page is Unlocked
Page is not Witnessed
Project: Unassigned
Page Title: 062118

Standard Number	Standard Description	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
SVMS7999	DFTPP TUNING MIX	Methylene Chloride ChemPure DS480	RPN	06/21/18	12/20/18

STD Parent ID	Parent Concentration	Units	Standard Volume (ul)	Final Volume (ml)	Final Concentration (ug/ml)
S3798	500	ug/mL	1000	10	50

1

CT Laboratories, LLC

SVOC Logbook-02
Semi-Volatiles Prep Logbook
Logbook Created: 04/10/18

NOTEBOOK VIEW: LTN_SVOC_Logbook_02_Default, NOTEBOOK: SVOC_Logbook_02, PAGE: 36
Page is Unlocked
Page is not Witnessed
Project: Unassigned
Page Title: 090618

Standard Number	Standard Description	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
SVMS8080	8270 Surrogate Spike	Acetone ChemPure DR775	RPN	09/06/18	03/05/19

STD Parent ID	Parent Concentration	Units	Standard Volume (ul)	Final Volume (ml)	Final Concentration (ug/ml)
S3800	10000	ug/mL	1000	250	40
S3801	5000	ug/mL	1000	250	20

1

CT Laboratories, LLC

SVOC Logbook-02
Semi-Volatiles Prep Logbook
Logbook Created: 04/10/18

NOTEBOOK VIEW: LTN_SVOC_Logbook_02_Default, NOTEBOOK: SVOC_Logbook_02, PAGE: 38
Page is Unlocked
Page is not Witnessed
Project: Unassigned
Page Title: 09/19/18

Standard Number	Standard Description	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
SVMS8092	8270 I Cal Intermediate Standard	Methylene Chloride ChemPure DS639	RPN	09/19/18	03/18/19

STD Parent ID	Parent Concentration	Units	Standard Volume (ul)	Final Volume (ml)	Final Concentration (ug/ml)
S3918	1000	ug/mL	500	5	100
S3907B	2000	ug/mL	250	5	100
S3923	2000	ug/mL	250	5	100
S3898	10000	ug/mL	50	5	100
S3899	5000	ug/mL	100	5	100
					100

Standard Number	Standard Description	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
SVMS8093	8270 I C V Intermediate Standard	Methylene Chloride ChemPure DS639	RPN	09/19/18	01/17/19

STD Parent ID	Parent Concentration	Units	Standard Volume (ul)	Final Volume (ml)	Final Concentration (ug/ml)
S3917B	1000	ug/mL	500	5	100
S3908B	2000	ug/mL	250	5	100
S3746B	2000	ug/mL	250	5	100
S3898	10000	ug/mL	50	5	100
S3899	5000	ug/mL	100	5	100

SVOC Logbook-02
Semi-Volatiles Prep Logbook
Logbook Created: 04/10/18

NOTEBOOK VIEW: LTN_SVOC_Logbook_02_Default, NOTEBOOK: SVOC_Logbook_02, PAGE: 39
Page is Unlocked
Page is not Witnessed
Project: Unassigned
Page Title: 092018

Standard Number	Standard Description	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
SVMS8096	8270 Spike	Acetone ChemPure DR774	RPN	09/20/18	01/17/19

STD Parent ID	Parent Concentration	Units	Standard Volume (ul)	Final Volume (ml)	Final Concentration (ug/ml)
S3917B	1000	ug/mL	500	25	20
S3930A	1000	ug/mL	500	25	20
S3908A	2000	ug/mL	250	25	20
S3846B	2000	ug/mL	250	25	20

Standard Number	Standard Description	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
SVMS8097	8270 Spike	Acetone ChemPure DR774	RPN	09/20/18	03/19/19

STD Parent ID	Parent Concentration	Units	Standard Volume (ul)	Final Volume (ml)	Final Concentration (ug/ml)
S3918	1000	ug/mL	500	25	20
S3931A	1000	ug/mL	500	25	20
S3908B	2000	ug/mL	250	25	20
S3923	2000	ug/mL	250	25	20

1

CT Laboratories, LLC

SVOC Logbook-02
Semi-Volatiles Prep Logbook
Logbook Created: 04/10/18

NOTEBOOK VIEW: LTN_SVOC_Logbook_02_Default, NOTEBOOK: SVOC_Logbook_02, PAGE: 40
Page is Unlocked
Page is not Witnessed
Project: Unassigned
Page Title: N/A

	Initial Calibration	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
	8270 I CAL STDS	Methylene Chloride ChemPure DS639	RPN	09/21/18	01/17/19

Standard Number	Standard Description	Parent ID	Parent Concentration	Units	Standard Volume (ml)	Final Volume (ml)	Final Concentration (ug/ml)
SVMS8098	ICAL 1	SVMS8092	100	ug/mL	0.005	0.5	1
SVMS8099	ICAL 2	SVMS8092	100	ug/mL	0.025	0.5	5
SVMS8100	ICAL 3	SVMS8092	100	ug/mL	0.050	0.5	10
SVMS8101	ICAL 4	SVMS8092	100	ug/mL	0.100	0.5	20
SVMS8102	ICAL 5	SVMS8092	100	ug/mL	0.150	0.5	30
SVMS8103	ICAL 6	SVMS8092	100	ug/mL	0.200	0.5	40
SVMS8104	ICAL 7	SVMS8092	100	ug/mL	0.250	0.5	50
SVMS8105	ICV1	SVMS8093	100	ug/mL	0.100	0.5	20
SVMS8106	ICV2	SVMS8093	100	ug/mL	0.200	0.5	40
SVMS8107	CCV	SVMS8092	100	ug/mL	0.100	0.5	20
SVMS		SVMS					
SVMS		SVMS					
SVMS		SVMS					

	Initial Calibration	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
	8270 Addl. I Cal Stds	Methylene Chloride ChemPure DS639	RPN	09/21/18	03/18/19

Standard Number	Standard Description	Parent ID	Parent Concentration	Units	Standard Volume (ml)	Final Volume (ml)	Final Concentration (ug/ml)
		SVMS8094	100		0.005	0.5	1
SVMS8108	ICAL 1	SVMS8094	100	ug/mL	0.025	0.5	5
SVMS8109	ICAL 2	SVMS8094	100	ug/mL	0.050	0.5	10
SVMS8110	ICAL 3	SVMS8094	100	ug/mL	0.100	0.5	20
SVMS8111	ICAL 4	SVMS8094	100	ug/mL	0.150	0.5	30
SVMS8112	ICAL 5	SVMS8094	100	ug/mL	0.200	0.5	40
SVMS8113	ICAL 6	SVMS8094	100	ug/mL	0.250	0.5	50
SVMS8114	ICAL 7	SVMS8095	100	ug/mL	0.100	0.5	20
SVMS8115	ICV1	SVMS8095	100	ug/mL	0.200	0.5	40
SVMS8115	ICV2	SVMS8094	100	ug/mL	0.100	0.5	20

SVMS8116	CCV	SVMS8094	100	ug/mL	0.100	0.5	20
SVMS8117		SVMS					
SVMS		SVMS					
SVMS		SVMS					

1

CT Laboratories, LLC

S DRO 8015 Analytical Run
153374 on 09/18/2018

Date Analyzed: _____ JJY Date Reviewed: _____

Date Entered: _____ 09/26/18 Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME	QC TYPE (Parent Sample)		CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
139370	175865		09/11/2018 0800			MAXXAM ANALYTICS	SI AFFF	DRO 8015 QSM 5		S	4	
		PETER-WS-001							68672			
	177826							DRO 8015 QSM 5				
				MBS					68672			
	177827							DRO 8015 QSM 5				
				LCSS					68672			
	177829		09/11/2018 0800					DRO 8015 QSM 5				
		PETER-WS-001		MSS	175865				68672			
	177830		09/11/2018 0800					DRO 8015 QSM 5				
		PETER-WS-001		MSDS	177829				68672			

5 SAMPLE COUNT ON RUN, INCLUDING METHOD AND INSTRUMENT QC

Page 473

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

Distribution: C:\LIMSREPS\ANALYTICALRUN.RPT

PREP WORKSHEET
on 09/18/2018

Prep Batch **68,672** Date Prepped: 09/18/2018 Prepped By TMG

Folder #	Order	QC Type	Link	Test	Matrix	Volume	Weight	Initial Volume	SDG Level	Notes
	177826	MBS		DRO 8015 QSM 5	SOLID	1.0	10.00			
	177827	LCSS		DRO 8015 QSM 5	SOLID	1.0	10.00			
139370	175865			DRO 8015 QSM 5	SOIL	1.0	10.03		4	
	177829	MSS	175865	DRO 8015 QSM 5	SOIL	1.0	10.05			
	177830	MSDS	177829	DRO 8015 QSM 5	SOIL	1.0	10.03			

Notes:

8015C Extraction Bench Sheet

(SOP Reference # SV001)

3510=WATER
3546=Microwave

Prep Batch #:	68672
Prep Method:	3546
Analyst:	TMG/JLH
Date:	09/18/2018
Start Time:	09:00
End Date:	09/18/2018
End Time:	14:20

Matrix: SOIL

Balance Used: SVB02

Ave MW temp(°C): 110.0

Concentration By: TMG

Concentration Date: 09/18/2018

Reagent Lots>>>

Sodium Sulfate	MISC0516
Diatomaceous Earth	S3739
Dionex Solution	MISC0525C
Methylene Chloride	DS639
Acetone	DR774
Sulfuric Acid	NA

(Liquids)

Microwave Cell #	Sample ID	Comments		Solid Sample Weight (g)	Liquid Sample Volume (L)	Final Volume (ml)	ph adj. to <2 (Yes/No)
A	177826	(MB)		10.00		1.0	
B	177827	(LCS)		10.00		1.0	
C	175865			10.03		1.0	
D	177829	(MS)	Parent Sample	10.05		1.0	
E	177830	(MSD)	175865	10.03		1.0	

MB=Method Blank, LCS=Laboratory Control Sample, MS=Matrix Spike & MSD=Matrix Spike Duplicate

MS/MSD/ LCS Spike Amount (ml):	1	Surrogate Spike Amount (ml):	1
Spike Concentration (µg/mL):	2500	Surrogate Spike Conc. (µg/mL):	100
Spike Reference #:	DRO6582	Surrogate Spike Reference #:	DRO6578

Relinquished to: AJZ
Date: 09/18/2018

Reviewed By: AJZ
Date: 09/18/2018

8015C DRO Analysis Data Review Checklist

Analytical Run #: 153374	**Independent Reviewer: JJY**
Sequence Date: 09/21/2018	**Date of Review: 09/25/2018**
Analyst/Data Interpreter: AJZ	**Approval: YES**

Instructions: Complete one checklist per *analytical run* . Enter the appropriate response for each question. Each "No" response requires an explanation in the Comments section, and may require the initiation of a Nonconformance Report.

Requirements:	Acceptance Criteria	Analyst Review		Independent Review		Comments (indicate reference to an attachment if necessary)
		Yes	No	Yes	No	
1. INITIAL CALIBRATION (ICAL)						
a. Was a synthetic standard ranging form C_8-C_{40} analyzed prior to the initial calibration for the establishment of the Retention Time Window (RTW)?		Yes		x		
b. Was the fuel product initial calibration performed using a minimum of five varying standard concentration levels?	Lowest standard at or near MRL	Yes		x		
c. Is the variation between calibration response factors for all concentration levels RSD≤20%, r≥0.990, or r^2 > 0.990 for the regression line?	RSD<20%, r^2>0.990	Yes		x		
d. Was each ICAL uniquely identified (i.e. Standard Number)?		Yes		x		
e. Was an initial calibration blank (ICB) analyzed?		Yes		x		
2. INITIAL CALIBRATION VERIFICATION (ICV)						
a. Was there a second source ICV for the fuel product analyzed after the initial calibration and prior to analysis of any samples?	Second source	Yes		x		
b. Were the recoveries for the ICV within program limits?	%Recovery	Yes		x		
c. Was the ICV uniquely identified (i.e. Standard Number)?		Yes		x		
3. CONTINUING CALIBRATION VERIFICATION (CCV)						
a. Were CCVs (fuel product) analyzed at the beginning of the sequence, after every 12 hours or every 20 samples (which ever comes first) and at the end of the analytical run? (QSM after every 10 field samples)		Yes		x		
b. Were the recoveries for the CCVs within program limits?	%Recovery	Yes		x		
c. Was a synthetic standard ranging from C_8-C_{40} analyzed at the beginning of the sequence for the establishment of the Retention Time Window (RTW) and every 12 hours?		Yes		x		
d. Was each CCV and RTW standard uniquely identified (i.e. Standard Number)?		Yes		x		

Additional Comments:

Analytical Run #: 153374

8015B DRO Analysis Data Review Checklist

Requirements:	Acceptance Criteria	Analyst		Independent		Comments (indicate reference to an attachment if necessary)
		Yes	No	Yes	No	
4. BLANKS						
a. Was a method blank (MB) analyzed prior to the analysis of samples?		Yes		x		
b. Was the MB result less than the program specified limit?	MB < program limits	Yes		x		
c. Was a MB prepped and analyzed at a frequency of one per Prep Batch?	Batch ≤ 20 samples	Yes		x		
5. LABORATORY CONTROL SAMPLE (LCS)						
a. Was a LCS analyzed prior to the analysis of samples?		Yes		x		
b. Were the LCS recoveries in each LCS within the acceptance criteria?	In-house limits or client- or program-specified limits.	Yes		x		
c. Was a LCS analyzed at a frequency one per Prep Batch?	Batch ≤ 20 samples	Yes		x		
6. MATRIX SPIKES						
a. Was a matrix spiked (MS) sample analyzed at a frequency one per Prep Batch?	Batch ≤ 20 samples	Yes		x		
b. Were MS recoveries in each MS within the acceptance criteria?	In-house limits or client- or program-specified limits	Yes		x		
7. LABORATORY CONTROL SPIKE / MATRIX SPIKE DUPLICATE						
a. Was a duplicate matrix spike or laboratory control spike sample analyzed at a frequency one per Prep Batch?	Batch ≤ 20 samples	Yes		x		
b. Were MSD or LCSD recoveries within the acceptance criteria?	In-house limits or client- or program-specified limits	Yes		x		
c. Is the relative percent difference (RPD) betweenthe matrix spike (MS) and its duplicate (MSD) or laboratory control spike (LCS) and its duplicate (LCSD) within the acceptance criteria?	In-house limits or client- or program-specified limits	Yes		x		

Additional Comments:

Analytical Run #: 153374

8015B DRO Analysis Data Review Checklist

Requirements:	Acceptance Criteria	Analyst		Independent		Comments (indicate reference to an attachment if necessary)
		Yes	No	Yes	No	
8. SAMPLES (INCLUDING BLANKS, STANDARDS, AND QC SAMPLES)						
a. Are chromatogram characteristics, including peak shapes and areas, consistent with those of the CCV?		Yes		x		
b. Are surrogate recoveries for all samples, blanks, standards, and QC samples within acceptance criteria?	In-house or client- or program-specified limits	Yes		x		
c. Were all samples having product detected in amounts exceeding the calibration range diluted and reanalyzed?		Yes		x		
d. Were all samples extracted within holding times and analyzed within 40 days of extracting?	Analysis within 40 days of extraction	Yes		x		
e. Was there a methylene chloride injection performed prior to sample analysis?		Yes		x		
9. RECORDS AND REPORTING						
a. Is the Analytical Run, Prep Batch and Extraction sheets, Summary sheets, Sequence file, analytical data, and method transferred to PDF format?		Yes		x		
b. Are reported results whose amounts exceeded the acceptance criteria flagged with an appropriate qualifier and, if needed, a NCR completed?		Yes		x		
c. Do all values, dilution factors and qualifiers listed on the raw reports match the LIMS data?		Yes		x		
d. . Is the ICAL method referenced on the Raw Data?		Yes		x		

Additional Comments:

S DRO 8015 Analytical Run
153405 on 09/19/2018

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

JJY
09/26/18

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME	QC TYPE (Parent Sample)	CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
139370	175867		09/11/2018 0800		MAXXAM ANALYTICS	SI AFFF	DRO 8015 QSM 5		GW	4	
		PETER-WW-001						68670			
	177823						DRO 8015 QSM 5				
				MBW				68670			
	177824						DRO 8015 QSM 5				
				LCSW				68670			
	177825						DRO 8015 QSM 5				
				LCSDW 177824				68670			

4 SAMPLE COUNT ON RUN, INCLUDING METHOD AND INSTRUMENT QC

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

Distribution: C:\LIMSREPS\ANALYTICALRUN.RPT

PREP WORKSHEET
on 09/19/2018

Prep Batch **68,670** Date Prepped: 09/18/2018 Prepped By JLH

Folder #	Order	QC Type	Link	Test	Matrix	Volume	Weight	Initial Volume	SDG Level	Notes
	177823	MBW		DRO 8015 QSM 5	LIQUID	1.0		1.00		
	177824	LCSW		DRO 8015 QSM 5	LIQUID	1.0		1.00		
	177825	LCSD	177824	DRO 8015 QSM 5	LIQUID	1.0		1.00		
139370	175867			DRO 8015 QSM 5	GROUND WATER	1.0		0.98	4	

Notes:

8015C Extraction Bench Sheet

(SOP Reference # SV001)

3510=WATER
3546=Microwave

Prep Batch #:	68670
Prep Method:	3510
Analyst:	JLH
Date:	09/18/2018
Start Time:	10:00
End Date:	09/19/2018
End Time:	12:00

Matrix: WATER

Balance Used: NA

Ave MW temp(°C): NA

Concentration By: JLH

Concentration Date: 09/19/2018

Reagent Lots>>>

Sodium Sulfate	MISC0516
Diatomaceous Earth	NA
Dionex Solution	NA
Methylene Chloride	DS639
Acetone	NA
Sulfuric Acid	MISC0528

(Liquids)

Microwave Cell #	Sample ID	Comments	Solid Sample Weight (g)	Liquid Sample Volume (L)	Final Volume (ml)	ph adj. to <2 (Yes/No)
	177823	(MB)		1.00	1.0	Y
	177824	(LCS)		1.00	1.0	Y
	177825	LCSD		1.00	1.0	Y
	175867			0.98	1.0	Y
		(MS) Parent Sample				
		(MSD)				

MB=Method Blank, LCS=Laboratory Control Sample, MS=Matrix Spike & MSD=Matrix Spike Duplicate

MS/MSD/ LCS Spike Amount (ml):	1	Surrogate Spike Amount (ml):	SEE ABOVE
Spike Concentration (µg/mL):	2500	Surrogate Spike Conc. (µg/mL):	100
Spike Reference #:	DRO6566/6582	Surrogate Spike Reference #:	DRO6578

Relinquished to: AJZ
Date: 09/19/2018

Reviewed By: JJY
Date: 09/19/2018

8015C DRO Analysis Data Review Checklist

Analytical Run #: 153405	**Independent Reviewer: JJY**
Sequence Date: 09/21/2018	**Date of Review: 09/25/2018**
Analyst/Data Interpreter: AJZ	**Approval: YES**

Instructions: Complete one checklist per *analytical run* . Enter the appropriate response for each question. Each "No" response requires an explanation in the Comments section, and may require the initiation of a Nonconformance Report.

Requirements:	Acceptance Criteria	Analyst Review		Independent Review		Comments (indicate reference to an attachment if necessary)
		Yes	No	Yes	No	
1. INITIAL CALIBRATION (ICAL)						
a. Was a synthetic standard ranging form C_8-C_{40} analyzed prior to the initial calibration for the establishment of the Retention Time Window (RTW)?		Yes		x		
b. Was the fuel product initial calibration performed using a minimum of five varying standard concentration levels?	Lowest standard at or near MRL	Yes		x		
c. Is the variation between calibration response factors for all concentration levels RSD≤20%, r≥0.990, or r^2 > 0.990 for the regression line?	RSD<20%, r^2>0.990	Yes		x		
d. Was each ICAL uniquely identified (i.e. Standard Number)?		Yes		x		
e. Was an initial calibration blank (ICB) analyzed?		Yes		x		
2. INITIAL CALIBRATION VERIFICATION (ICV)						
a. Was there a second source ICV for the fuel product analyzed after the initial calibration and prior to analysis of any samples?	Second source	Yes		x		
b. Were the recoveries for the ICV within program limits?	%Recovery	Yes		x		
c. Was the ICV uniquely identified (i.e. Standard Number)?		Yes		x		
3. CONTINUING CALIBRATION VERIFICATION (CCV)						
a. Were CCVs (fuel product) analyzed at the beginning of the sequence, after every 12 hours or every 20 samples (which ever comes first) and at the end of the analytical run? (QSM after every 10 field samples)		Yes		x		
b. Were the recoveries for the CCVs within program limits?	%Recovery	Yes		x		
c. Was a synthetic standard ranging from C_8-C_{40} analyzed at the beginning of the sequence for the establishment of the Retention Time Window (RTW) and every 12 hours?		Yes		x		
d. Was each CCV and RTW standard uniquely identified (i.e. Standard Number)?		Yes		x		

Additional Comments:

Analytical Run #: 153405

8015B DRO Analysis Data Review Checklist

Requirements:	Acceptance Criteria	Analyst		Independent		Comments (indicate reference to an attachment if necessary)
		Yes	No	Yes	No	
4. BLANKS						
a. Was a method blank (MB) analyzed prior to the analysis of samples?		Yes		x		
b. Was the MB result less than the program specified limit?	MB < program limits	Yes		x		
c. Was a MB prepped and analyzed at a frequency of one per Prep Batch?	Batch ≤ 20 samples	Yes		x		
5. LABORATORY CONTROL SAMPLE (LCS)						
a. Was a LCS analyzed prior to the analysis of samples?		Yes		x		LCS/LCSD
b. Were the LCS recoveries in each LCS within the acceptance criteria?	In-house limits or client- or program-specified limits.	Yes		x		
c. Was a LCS analyzed at a frequency one per Prep Batch?	Batch ≤ 20 samples	Yes		x		
6. MATRIX SPIKES						
a. Was a matrix spiked (MS) sample analyzed at a frequency one per Prep Batch?	Batch ≤ 20 samples		No		x	
b. Were MS recoveries in each MS within the acceptance criteria?	In-house limits or client- or program-specified limits	Na		na		
7. LABORATORY CONTROL SPIKE / MATRIX SPIKE DUPLICATE						
a. Was a duplicate matrix spike or laboratory control spike sample analyzed at a frequency one per Prep Batch?	Batch ≤ 20 samples	Yes		x		
b. Were MSD or LCSD recoveries within the acceptance criteria?	In-house limits or client- or program-specified limits	Yes		x		
c. Is the relative percent difference (RPD) betweenthe matrix spike (MS) and its duplicate (MSD) or laboratory control spike (LCS) and its duplicate (LCSD) within the acceptance criteria?	In-house limits or client- or program-specified limits	Yes		x		

Additional Comments:

Analytical Run #: 153405

8015B DRO Analysis Data Review Checklist

Requirements:	Acceptance Criteria	Analyst		Independent		Comments (indicate reference to an attachment if necessary)
		Yes	No	Yes	No	
8. SAMPLES (INCLUDING BLANKS, STANDARDS, AND QC SAMPLES)						
a. Are chromatogram characteristics, including peak shapes and areas, consistent with those of the CCV?		Yes		x		
b. Are surrogate recoveries for all samples, blanks, standards, and QC samples within acceptance criteria?	In-house or client- or program-specified limits	Yes		x		
c. Were all samples having product detected in amounts exceeding the calibration range diluted and reanalyzed?		Yes		x		
d. Were all samples extracted within holding times and analyzed within 40 days of extracting?	Analysis within 40 days of extraction	Yes		x		
e. Was there a methylene chloride injection performed prior to sample analysis?		Yes		x		
9. RECORDS AND REPORTING						
a. Is the Analytical Run, Prep Batch and Extraction sheets, Summary sheets, Sequence file, analytical data, and method transferred to PDF format?		Yes		x		
b. Are reported results whose amounts exceeded the acceptance criteria flagged with an appropriate qualifier and, if needed, a NCR completed?		Yes		x		
c. Do all values, dilution factors and qualifiers listed on the raw reports match the LIMS data?		Yes		x		
d. . Is the ICAL method referenced on the Raw Data?		Yes		x		

Additional Comments:

Summary Report

Instrument ID: **Semi 4 (Offline)**
Data Path: **C:\Instarch\Semi 4\Sequence\092018droic.seq**
User ID: **AJZ**
Printed Date: **Sep 20, 2018 15:19:49**

JJY
09/26/18

Run Number	Sample ID	Data Filename	Method Filename	Analysis Date	Data Description
1	MeCl2	001.dat	092018droic.met	Sep 20, 2018 11:48:46	
2	FRACTIONING STD DRO...	002.dat	092018droic.met	Sep 20, 2018 12:15:53	
3	8015 Lin PT 1 DRO 6570	003.dat	092018droic.met	Sep 20, 2018 12:42:53	
4	8015 Lin PT 2 DRO 6571	004.dat	092018droic.met	Sep 20, 2018 13:10:01	
5	8015 Lin PT 3 DRO 6572	005.dat	092018droic.met	Sep 20, 2018 13:37:11	
6	8015 Lin PT 4 DRO 6573	006.dat	092018droic.met	Sep 20, 2018 14:04:24	
7	8015 Lin PT 5 DRO 6574	007.dat	092018droic.met	Sep 20, 2018 14:31:33	
8	8015 Lin PT 6 DRO 6575	008.dat	092018droic.met	Sep 20, 2018 14:58:44	
9	8015 ICV DRO6576	009.dat	092018droic.met	Sep 20, 2018 15:25:50	

Summary Report

Instrument ID: **Semi 4 (Offline)**
Data Path: **C:\Instarch\Semi 4\Sequence\092118dro.seq**
User ID: **AJZ**
Printed Date: **Sep 21, 2018 12:10:34**

JJY
09/26/18

Run Number	Sample ID	Data Filename	Method Filename	Analysis Date	Data Description
1	MeCl2	001.dat	092118dro.met	Sep 21, 2018 06:01:59	
2	FRACTIONING STD DRO...	002.dat	092118dro.met	Sep 21, 2018 06:28:39	
3	8015 CCV DRO6577	003.dat	092118dro.met	Sep 21, 2018 06:55:33	
4	153374,MBS,	004.dat	092118dro.met	Sep 21, 2018 07:22:35	
5	153374,LCSS,	005.dat	092118dro.met	Sep 21, 2018 07:49:41	
6	153374,175865,	006.dat	092118dro.met	Sep 21, 2018 08:16:48	
7	153374,MSS175865,	007.dat	092118dro.met	Sep 21, 2018 08:43:48	
8	153374,MSDS175865,	008.dat	092118dro.met	Sep 21, 2018 09:10:53	
9	MeCl2	009.dat	092118dro.met	Sep 21, 2018 09:38:04	
10	153405,MBW,	010.dat	092118dro.met	Sep 21, 2018 10:05:12	
11	153405,LCSW,	011.dat	092118dro.met	Sep 21, 2018 10:32:21	
12	153405,175867,	012.dat	092118dro.met	Sep 21, 2018 10:59:28	
13	153405,LCSDW,	013.dat	092118dro.met	Sep 21, 2018 11:26:31	
14	8015 CCV DRO6577	014.dat	092118dro.met	Sep 21, 2018 11:53:35	

DRO-Logbook 02
SV DRO Standards Prep Logbook
Logbook Created: 01/17/18

NOTEBOOK VIEW: LTN_DRO_Logbook02_Default, NOTEBOOK: DRO_Logbook02, PAGE: 11
Page is Locked
Author: azurfluh on: 5/29/2018 1:26:35 PM
Page is not Witnessed
Project: Unassigned
Page Title: 052918

Standard Number	Standard Description	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
DRO6554	DRO WI CCV	MeCL2 ChemPure Lot DS480	AJZ	05/29/2018	11/23/2018

STD Parent ID	Parent Concentration	Units	Standard Volume (ml)	Final Volume (ml)	Final Concentration (ug/ml)
S3768B	2000	ug/mL	0.250	5.0	100

1

CT Laboratories, LLC

DRO-Logbook 02
SV DRO Standards Prep Logbook
Logbook Created: 01/17/18

NOTEBOOK VIEW: LTN_DRO_Logbook02_Default, NOTEBOOK: DRO_Logbook02, PAGE: 12
Page is Unlocked
Page is not Witnessed
Project: Unassigned
Page Title: 052918B

Standard Number	Standard Description	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
DRO6555	8015 Intermediate Standard	MeCl2 ChemPure Lot DS480	AJZ	05/29/2018	10/27/2018

STD Parent ID	Parent Concentration	Units	Standard Volume (ml)	Final Volume (ml)	Final Concentration (ug/ml)
S3803C	50000	ug/mL	1.00	5.00	10000
S3795B	10000	ug/mL	0.250	5.00	500
S3796A	10000	ug/mL	0.250	5.00	500

Standard Number	Standard Description	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
DRO6556	8015 2nd Source	MeCl2 ChemPure Lot DS480	AJZ	05/29/2018	10/27/2018

STD Parent ID	Parent Concentration	Units	Standard Volume (ml)	Final Volume (ml)	Final Concentration (ug/ml)
S3804	20000	ug/mL	0.500	1.0	10000
S3795B	10000	ug/mL	0.050	1.0	500
S3796A	10000	ug/mL	0.050	1.0	500

	Initial Calibration	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
	8015 ICAL	MeCl2 ChemPure Lot DS480	AJZ	05/29/2018	10/27/2018

Standard Number	Standard Description	Parent ID	Parent Concentration	Units	Standard Volume (ml)	Final Volume (ml)	Final Concentration (ug/ml)
		DRO6555	10000	ug/mL	0.010	1.0	100
DRO6557	8015 Lin PT 1	DRO6555	10000	ug/mL	0.050	1.0	500
DRO6558	8015 Lin PT 2	DRO6555	10000	ug/mL	0.100	1.0	1000
DRO6559	8015 Lin PT 3	DRO6555	10000	ug/mL	0.250	1.0	2500
DRO6560	8015 Lin PT 4	DRO6555	10000	ug/mL	0.500	1.0	5000

DRO6561	8015 Lin PT 5	DRO6555	10000	ug/mL	0.500	1.0	5000
DRO6562	8015 Lin PT 6	DRO6555	10000	ug/mL	1.000	1.0	10000
DRO6563	8015 ICV	DRO6556	10000	ug/mL	0.250	1.0	2500
DRO6564	8015 CCV	DRO6555	10000	ug/mL	0.500	2.0	2500

1

CT Laboratories, LLC

DRO-Logbook 02
SV DRO Standards Prep Logbook
Logbook Created: 01/17/18

NOTEBOOK VIEW: LTN_DRO_Logbook02_Default, NOTEBOOK: DRO_Logbook02, PAGE: 14
Page is Unlocked
Page is not Witnessed
Project: Unassigned
Page Title: 061918

Standard Number	Standard Description	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
DRO6566	8015 Spike	Acetone ChemPure Lot DR774	AJZ	06/19/2018	12/11/2018

STD Parent ID	Parent Concentration	Units	Standard Volume (ml)	Final Volume (ml)	Final Concentration (ug/ml)
S3803D	50000	ug/mL	0.500	10	2500

1

CT Laboratories, LLC

DRO-Logbook 02
SV DRO Standards Prep Logbook
Logbook Created: 01/17/18

NOTEBOOK VIEW: LTN_DRO_Logbook02_Default, NOTEBOOK: DRO_Logbook02, PAGE: 18
Page is Locked
Author: azurfluh on: 8/13/2018 2:41:28 PM
Page is not Witnessed
Project: Unassigned
Page Title: 081318

	Initial Calibration	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
	8015 ICAL	MeCl2 ChemPure Lot DS480	AJZ	08/13/2018	10/27/2018

Standard Number	Standard Description	Parent ID	Parent Concentration	Units	Standard Volume (ml)	Final Volume (ml)	Final Concentration (ug/ml)
DRO6570	8015 Lin Pt 1	DRO6555	10000	ug/mL	0.010	1.0	100
DRO6571	8015 Lin Pt 2	DRO6555	10000	ug/mL	0.050	1.0	500
DRO6572	8015 Lin Pt 3	DRO6555	10000	ug/mL	0.100	1.0	1000
DRO6573	8015 Lin Pt 4	DRO6555	10000	ug/mL	0.250	1.0	2500
DRO6574	8015 Lin Pt 5	DRO6555	10000	ug/mL	0.500	1.0	5000
DRO6575	8015 Lin Pt 6	DRO6555	10000	ug/mL	1.000	1.0	10000
DRO6576	8015 ICV	DRO6556	10000	ug/mL	0.250	1.0	2500
DRO6577	8015 CCV	DRO6555	10000	ug/mL	0.250	1.0	2500

1

CT Laboratories, LLC

DRO-Logbook 02
SV DRO Standards Prep Logbook
Logbook Created: 01/17/18

NOTEBOOK VIEW: LTN_DRO_Logbook02_Default, NOTEBOOK: DRO_Logbook02, PAGE: 19
Page is Unlocked
Page is not Witnessed
Project: Unassigned
Page Title: 081718

Standard Number	Standard Description	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
DRO6578	8015 Surrogates	Acetone ChemPure Lot DR774	AJZ	08/17/2018	11/09/2018

STD Parent ID	Parent Concentration	Units	Standard Volume (ml)	Final Volume (ml)	Final Concentration (ug/ml)
S3795D	10000	ug/mL	1.00	100	100
S3796B	10000	ug/mL	1.00	100	100

1

CT Laboratories, LLC

DRO-Logbook 02
SV DRO Standards Prep Logbook
Logbook Created: 01/17/18

NOTEBOOK VIEW: LTN_DRO_Logbook02_Default, NOTEBOOK: DRO_Logbook02, PAGE: 23
Page is Unlocked
Page is not Witnessed
Project: Unassigned
Page Title: 091818

Standard Number	Standard Description	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
DRO6582	8015 Spike	Acetone ChemPure Lot DR774	AJZ	09/18/2018	03/18/2019

STD Parent ID	Parent Concentration	Units	Standard Volume (ml)	Final Volume (ml)	Final Concentration (ug/ml)
S3911A	50000	ug/mL	1.25	25	2500

1

CT Laboratories, LLC

PESTICIDE/HERBICIDE QUALITY CONTROL SUMMARY DOCUMENTS

CT LABORATORIES
delivering more than data from your environmental analyses

1D-1

PESTICIDE ORGANICS ANALYSIS

Sample Description

PETER-WS-001

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Matrix:	TCLP	SDG No.:	139370
Sample wt/vol:	0.10 (g/L)	CTL Sample ID:	175864
% Solids:		Date Received:	09/13/2018
Conc. Extract Vol:	10 (mL)	Date/Time Prepared:	09/25/2018 / 09:00
Analytical Method:	EPA 8151A	Analytical Prep Batch #	68741
Analytical Run #:	153704	Dilution Factor:	1.00
Date & Time Analyzed:	09/25/2018 / 16:22		
Cleanup Date/Time/Type:	, , ,		
TCLP / SPLP / MLP or ASTM Procedure Extraction Date (*if applicable*):			09/18/2018 / 08:00
ICAL Calibration #:	080218hrbic	Concentration Units:	mg/L

CAS NO.	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
93-72-1	2,4,5-TP	0.00060	U	0.00021	0.00060	0.0012	0.0012
94-75-7	2,4-D	0.0030	U	0.0015	0.0030	0.0060	0.0060

CT LABORATORIES
delivering more than data from your environmental analyses

1D-1

PESTICIDE ORGANICS ANALYSIS

Sample Description

PETER-WS-001

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Matrix:	TCLP	SDG No.:	139370
Sample wt/vol:	0.10 (g/L)	CTL Sample ID:	175864
% Solids:		Date Received:	09/13/2018
Conc. Extract Vol:	10 (mL)	Date/Time Prepared:	09/24/2018 / 11:00
Analytical Method:	EPA 8081B	Analytical Prep Batch #	68735
Analytical Run #:	153654	Dilution Factor:	1.00
Date & Time Analyzed:	09/24/2018 / 18:56		
Cleanup Date/Time/Type:	, 09/24/2018 16:30 (Sulfur) , ,		
TCLP / SPLP / MLP or ASTM Procedure Extraction Date (*if applicable*):			09/18/2018 / 08:00
ICAL Calibration #:	091318pstic	Concentration Units:	mg/L

CAS NO.	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
5103-71-9	alpha-Chlordane	0.00010	U	0.000090	0.00010	0.00040	0.00040
12789-03-6	Chlordane (Technical)	0.0030	U	0.0010	0.0030	0.0060	0.0060
72-20-8	Endrin	0.00010	U	0.000060	0.00010	0.00024	0.00024
5103-74-2	gamma-Chlordane	0.00010	U	0.000070	0.00010	0.00024	0.00024
76-44-8	Heptachlor	0.00010	U	0.000060	0.00010	0.00024	0.00024
1024-57-3	Heptachlor epoxide	0.00010	U	0.000070	0.00010	0.00024	0.00024
58-89-9	Lindane	0.00010	U	0.000070	0.00010	0.00024	0.00024
72-43-5	Methoxychlor	0.00010	U	0.000060	0.00010	0.00040	0.00040
8001-35-2	Toxaphene	0.0030	U	0.0018	0.0030	0.0060	0.0060

CT LABORATORIES
delivering more than data from your environmental analyses

1D-1

PESTICIDE ORGANICS ANALYSIS

Sample Description

PETER-WW-001

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Matrix:	TCLP	SDG No.:	139370
Sample wt/vol:	0.10 (g/L)	CTL Sample ID:	175866
% Solids:		Date Received:	09/13/2018
Conc. Extract Vol:	10 (mL)	Date/Time Prepared:	09/25/2018 / 09:00
Analytical Method:	EPA 8151A	Analytical Prep Batch #	68741
Analytical Run #:	153704	Dilution Factor:	1.00
Date & Time Analyzed:	09/25/2018 / 16:06		
Cleanup Date/Time/Type:	, , ,		
TCLP / SPLP / MLP or ASTM Procedure Extraction Date (*if applicable*):			09/19/2018 / 0700
ICAL Calibration #:	080218hrbic	Concentration Units:	mg/L

CAS NO.	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
93-72-1	2,4,5-TP	0.00060	U	0.00021	0.00060	0.0012	0.0012
94-75-7	2,4-D	0.0030	U	0.0015	0.0030	0.0060	0.0060

CT LABORATORIES
delivering more than data from your environmental analyses

1D-1

PESTICIDE ORGANICS ANALYSIS

Sample Description

PETER-WW-001

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Matrix:	TCLP	SDG No.:	139370
Sample wt/vol:	0.10 (g/L)	CTL Sample ID:	175866
% Solids:		Date Received:	09/13/2018
Conc. Extract Vol:	10 (mL)	Date/Time Prepared:	09/24/2018 / 11:00
Analytical Method:	EPA 8081B	Analytical Prep Batch #	68735
Analytical Run #:	153654	Dilution Factor:	1.00
Date & Time Analyzed:	09/24/2018 / 18:39		

Cleanup Date/Time/Type: , 09/24/2018 16:30 (Sulfur) , ,

TCLP / SPLP / MLP or ASTM Procedure Extraction Date (*if applicable*): 09/19/2018 / 0700

ICAL Calibration #: 091318pstic Concentration Units: mg/L

CAS NO.	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
5103-71-9	alpha-Chlordane	0.00010	U	0.000090	0.00010	0.00040	0.00040
12789-03-6	Chlordane (Technical)	0.0030	U	0.0010	0.0030	0.0060	0.0060
72-20-8	Endrin	0.00010	U	0.000060	0.00010	0.00024	0.00024
5103-74-2	gamma-Chlordane	0.00010	U	0.000070	0.00010	0.00024	0.00024
76-44-8	Heptachlor	0.00010	U	0.000060	0.00010	0.00024	0.00024
1024-57-3	Heptachlor epoxide	0.00010	U	0.000070	0.00010	0.00024	0.00024
58-89-9	Lindane	0.00010	U	0.000070	0.00010	0.00024	0.00024
72-43-5	Methoxychlor	0.00010	U	0.000060	0.00010	0.00040	0.00040
8001-35-2	Toxaphene	0.0030	U	0.0018	0.0030	0.0060	0.0060

CT LABORATORIES
delivering more than data from your environmental analyses

1D-3

Sample Description

METHOD BLANK

PESTICIDE ORGANICS ANALYSIS (MB)

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Matrix:		SDG No.:	139370
Sample wt/vol:	0.10 (g/L)	CTL Sample ID:	179891
% Solids:		Date Received:	09/13/2018
Conc. Extract Vol:	10 (mL)	Date/Time Prepared:	09/24/2018 / 11:00
Analytical Method:	EPA 8081B	Analytical Prep Batch #	68735
Analytical Run #:	153654	Dilution Factor:	mg/L
Cleanup Date/Time/Type:	09/24/2018 16:30 (Sulfur)		
TCLP / SPLP / MLP or ASTM Procedure Extraction Date (*if applicable*):			09/18/2018 / 08:00
ICAL Calibration #:	091318pstic	Concentration Units:	MBW

CAS NO.	Analyte	Analysis Date/Time		Concentration	Qualifiers	DL/LOD	RL	*Control Limit*
5103-71-9	alpha-Chlordane	09/24/2018	17:51	0.000009	U	0.000009	0.000040	***0.000020***
12789-03-6	Chlordane (Technical)	09/24/2018	17:51	0.000102	U	0.000102	0.00050	***0.00025***
72-20-8	Endrin	09/24/2018	17:51	0.000006	U	0.000006	0.000024	***0.000012***
5103-74-2	gamma-Chlordane	09/24/2018	17:51	0.000007	U	0.000007	0.000040	***0.000020***
76-44-8	Heptachlor	09/24/2018	17:51	0.000006	U	0.000006	0.000024	***0.000012***
1024-57-3	Heptachlor epoxide	09/24/2018	17:51	0.000007	U	0.000007	0.000024	***0.000012***
58-89-9	Lindane	09/24/2018	17:51	0.000007	U	0.000007	0.000024	***0.000012***
72-43-5	Methoxychlor	09/24/2018	17:51	0.000006	U	0.000006	0.000040	***0.000020***
8001-35-2	Toxaphene	09/24/2018	17:51	0.000176	U	0.000176	0.00050	***0.00025***

CT LABORATORIES
delivering more than data from your environmental analyses

1D-3

Sample Description

METHOD BLANK

PESTICIDE ORGANICS ANALYSIS (MB)

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Matrix:		SDG No.:	139370
Sample wt/vol:	0.10 (g/L)	CTL Sample ID:	180860
% Solids:		Date Received:	09/13/2018
Conc. Extract Vol:	10 (mL)	Date/Time Prepared:	09/25/2018 / 09:00
Analytical Method:	EPA 8151A	Analytical Prep Batch #	68741
Analytical Run #:	153704	Dilution Factor:	mg/L
Cleanup Date/Time/Type:	, , ,		
TCLP / SPLP / MLP or ASTM Procedure Extraction Date (*if applicable*):			09/18/2018 / 08:00
ICAL Calibration #:	080218hrbic	Concentration Units:	MBW

CAS NO.	Analyte	Analysis Date/Time		Concentration	Qualifiers	DL/LOD	RL	*Control Limit*
93-72-1	2,4,5-TP	09/25/2018	15:32	0.00021	U	0.00021	0.00120	***0.00060***
94-75-7	2,4-D	09/25/2018	15:32	0.0015	U	0.0015	0.0060	***0.0030***

CT LABORATORIES
delivering more than data from your environmental analyses

2E-1

WATER PESTICIDE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: CT Laboratories | Contract: MAXXAM ANALYTICS-SI AFFF

Analytical Method: EPA 8081B | SDG: 139370

Analytical Run #: 153654 | ICAL Calibration #: 091318pstic

GC Column(1): Restek RTX ID: 0.32 (mm) | GC Column(2): Restek RTX C2 ID: 0.32 (mm)

CTLab #	175864				
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
SURR:2,4,5,6-CL4-m-xylene	100	83	25	140	
SURR:Decachlorobiphenyl	100	87	30	135	

CTLab #	175866				
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
SURR:2,4,5,6-CL4-m-xylene	100	98	25	140	
SURR:Decachlorobiphenyl	100	89	30	135	

CTLab #	179891	Sample Type:		Method Blank	
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
SURR:2,4,5,6-CL4-m-xylene	100	75.8	25	140	
SURR:Decachlorobiphenyl	100	48.0	30	135	

CTLab #	179892	Sample Type:		Lab Control Spike	
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
SURR:2,4,5,6-CL4-m-xylene	100	77.7	25	140	
SURR:Decachlorobiphenyl	100	50.1	30	135	

CTLab #	179893	Sample Type:		Matrix Spike	
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
SURR:2,4,5,6-CL4-m-xylene	100	85.4	25	140	
SURR:Decachlorobiphenyl	100	81.7	30	135	

CT LABORATORIES
delivering more than data from your environmental analyses

2E-1

WATER PESTICIDE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Analytical Method:	EPA 8151A	SDG:	139370
Analytical Run #:	153704	ICAL Calibration #:	080218hrbic

GC Column(1): Restek RTX ID: 0.32 (mm) GC Column(2): Restek RTX C2 ID: 0.32 (mm)

CTLab #	175864				
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
Surr: 2,4-DCAA	100	74	32	138	

CTLab #	175866				
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
Surr: 2,4-DCAA	100	74	32	138	

CTLab #	180860	Sample Type:		Method Blank	
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
Surr: 2,4-DCAA		69.2	32	138	

CTLab #	180861	Sample Type:		Lab Control Spike	
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
Surr: 2,4-DCAA	100	78.6	32	138	

CTLab #	180863	Sample Type:		Matrix Spike	
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
Surr: 2,4-DCAA	100	71.2	32	138	

CT LABORATORIES
delivering more than data from your environmental analyses

3E

Sample Description

PETER-WS-001

WATER PESTICIDE MATRIX SPIKE RECOVERY

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

Matrix: TCLP

SDG No.: 139370

Analytical Method: EPA 8081B

Concentration Units: mg/L

Analytical Run #: 153654

Sample No.: 179893

Parent Sample No.: 175864

Analytical Prep Batch #: 68735

Analytical Preparation Date/Time: 09/24/2018 11:00

ICAL Calibration #: 091318pstic

Analyte	Analysis Date/Time		Control Limit (%R)	Spike Result	Parent Result	Spike Amount	%R
alpha-Chlordane	09/24/2018	19:12	65-125	0.00383	BDL	0.00400	96
Endrin	09/24/2018	19:12	55-135	0.00471	BDL	0.00400	118
gamma-Chlordane	09/24/2018	19:12	60-125	0.00396	BDL	0.00400	99
Heptachlor	09/24/2018	19:12	40-130	0.00416	BDL	0.00400	104
Heptachlor epoxide	09/24/2018	19:12	60-130	0.00390	BDL	0.00400	98
Lindane	09/24/2018	19:12	25-135	0.00395	BDL	0.00400	99
Methoxychlor	09/24/2018	19:12	55-150	0.00449	BDL	0.00400	112

Spike Recovery: 0 out of 7 outside QC limits

CT LABORATORIES
delivering more than data from your environmental analyses

3E

Sample Description

PETER-WS-001

WATER PESTICIDE MATRIX SPIKE RECOVERY

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

Matrix: TCLP

SDG No.: 139370

Analytical Method: EPA 8151A

Concentration Units: mg/L

Analytical Run #: 153704

Sample No.: 180863

Parent Sample No.: 175864

Analytical Prep Batch #: 68741

Analytical Preparation Date/Time: 09/25/2018 09:00

ICAL Calibration #: 080218hrbic

Analyte	Analysis Date/Time		Control Limit (%R)	Spike Result	Parent Result	Spike Amount	%R
2,4,5-TP	09/25/2018	16:39	51-134	0.00668	BDL	0.0100	67
2,4-D	09/25/2018	16:39	45-152	0.0358	BDL	0.0500	72

Spike Recovery: 0 out of 2 outside QC limits

CT LABORATORIES
delivering more than data from your environmental analyses

3E

Sample Description

LCS

WATER PESTICIDE LAB CONTROL SAMPLE

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

Sample No.: 179892

SDG No.: 139370

Analytical Method: EPA 8081B

Concentration Units: mg/L

Sample No.: 179892

Parent Sample No.: 0

Analytical Prep Batch #: 68735

Analytical Preparation Date/Time: 09/24/2018 11:00

Analytical Run #: 153654

ICAL Calibration #: 091318pstic

Analyte	Analysis Date/Time		Control Limit (%R)	Spike Result	Parent Result	Spike Amount	%R
alpha-Chlordane	09/24/2018	18:07	65-125	0.00355		0.00400	89
Endrin	09/24/2018	18:07	55-135	0.00413		0.00400	103
gamma-Chlordane	09/24/2018	18:07	60-125	0.00361		0.00400	90
Heptachlor	09/24/2018	18:07	40-130	0.00359		0.00400	90
Heptachlor epoxide	09/24/2018	18:07	60-130	0.00360		0.00400	90
Lindane	09/24/2018	18:07	25-135	0.00354		0.00400	88
Methoxychlor	09/24/2018	18:07	55-150	0.00420		0.00400	105

Analyte	Analysis Date/Time		Control Limit (%R)	Spike Result	Parent Result	Spike Amount	%R
Chlordane (Technical)	09/24/2018	18:23	50-150	0.0226		0.0250	90
Toxaphene	09/24/2018	18:23	50-150	0.0273		0.0250	109

Spike Recovery: 0 out of 9 outside limits

CT LABORATORIES
delivering more than data from your environmental analyses

3E

Sample Description

LCS

WATER PESTICIDE LAB CONTROL SAMPLE

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

Sample No.: 180861

SDG No.: 139370

Analytical Method: EPA 8151A

Concentration Units: mg/L

Sample No.: 180861

Parent Sample No.: 0

Analytical Prep Batch #: 68741

Analytical Preparation Date/Time: 09/25/2018 09:00

Analytical Run #: 153704

ICAL Calibration #: 080218hrbic

Analyte	Analysis Date/Time		Control Limit (%R)	Spike Result	Parent Result	Spike Amount	%R
2,4,5-TP	09/25/2018	15:49	51-134	0.00704		0.0100	70
2,4-D	09/25/2018	15:49	45-152	0.0387		0.0500	77

Spike Recovery: 0 out of 2 outside limits

CT Laboratories

4C-1

PESTICIDE METHOD BLANK SUMMARY

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Sample ID:	179891	SDG No.:	139370
Matrix:	LIQUID	Date Extracted:	09/24/2018
Date Analyzed:	09/24/2018	Time Analyzed:	17:51
Analytical Method:	EPA 8081B	Extraction Method:	SW3510
Analytical Run #:	153654	Extraction Batch #:	68735
		ICAL Calibration #:	091318pstic

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES AND QC:

SEQUENCE	SAMPLE DESCRIPTION	SAMPLE ID	DATE/TIME ANALYZED	CALIBRATION REFERENCE #
1	PETER-WS-001	175864	09/24/2018 18:56	091318pstic
2	PETER-WW-001	175866	09/24/2018 18:39	091318pstic
3	MBW	179891	09/24/2018 17:51	091318pstic
4	LCSW	179892	09/24/2018 18:07	091318pstic
5	LCSW	179892	09/24/2018 18:23	091318pstic
6	PETER-WS-001MSW	179893	09/24/2018 19:12	091318pstic

CT Laboratories

4C-1

PESTICIDE METHOD BLANK SUMMARY

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Sample ID:	180860	SDG No.:	139370
Matrix:	LIQUID	Date Extracted:	09/25/2018
Date Analyzed:	09/25/2018	Time Analyzed:	15:32
Analytical Method:	EPA 8151A	Extraction Method:	METHOD
Analytical Run #:	153704	Extraction Batch #:	68741
		ICAL Calibration #:	080218hrbic

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES AND QC:

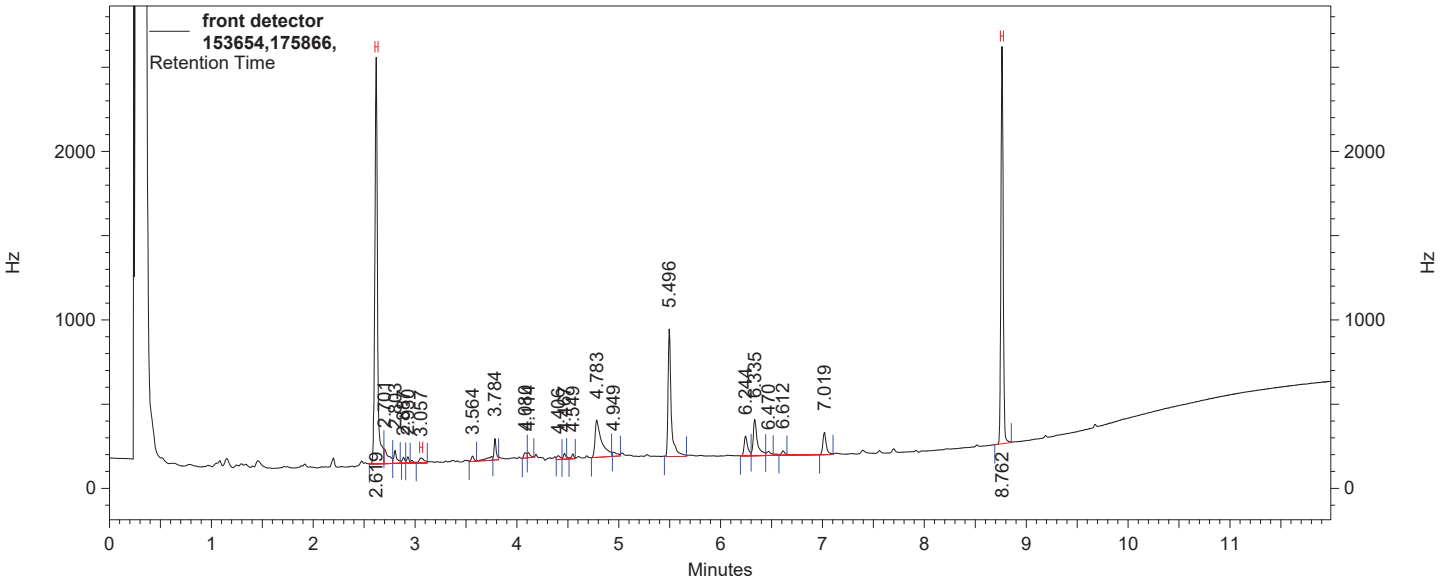
SEQUENCE	SAMPLE DESCRIPTION	SAMPLE ID	DATE/TIME ANALYZED	CALIBRATION REFERENCE #
1	PETER-WS-001	175864	09/25/2018 16:22	080218hrbic
2	PETER-WW-001	175866	09/25/2018 16:06	080218hrbic
3	MBW	180860	09/25/2018 15:32	080218hrbic
4	LCSW	180861	09/25/2018 15:49	080218hrbic
5	PETER-WS-001MSW	180863	09/25/2018 16:39	080218hrbic

PESTICIDE/HERBICIDE SAMPLE DATA DOCUMENTS

Pesticide Analysis Report *(Channel A)*

Data File: C:\Instarch\Semi1\data\092418pst\017.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\092418pst.met
User: JJY
Sample ID: 153654,175866,
Acquired: 09/24/2018 18:39:52
Printed: 09/25/2018 08:29:17

Data Summary: {Data Description}



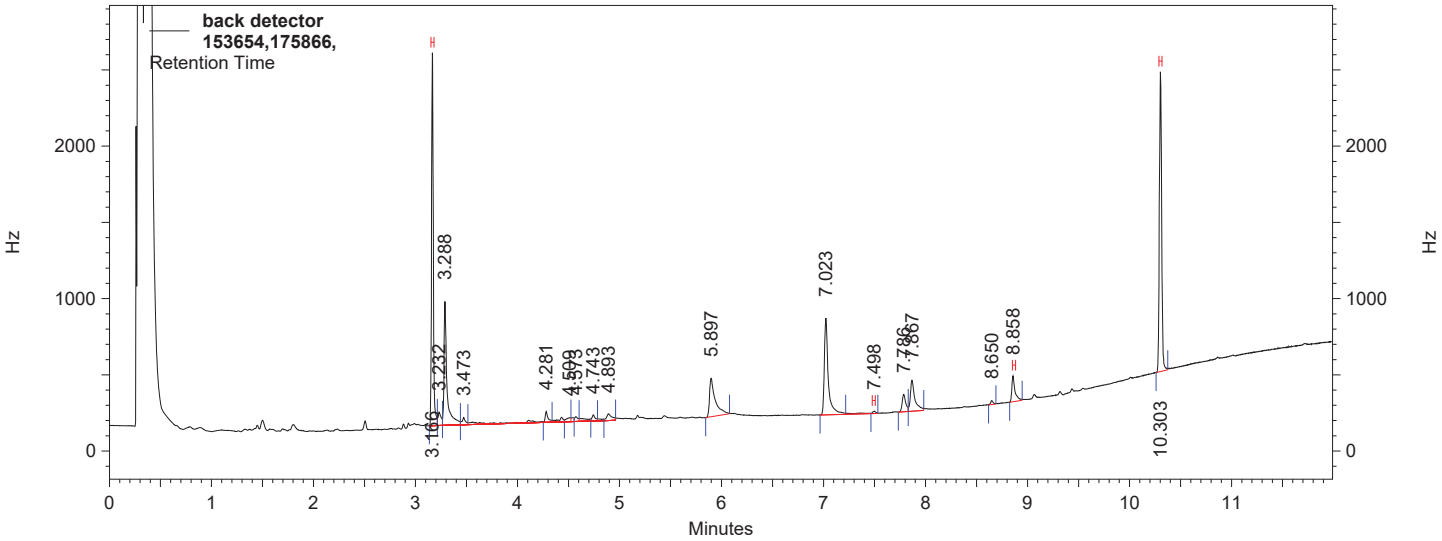
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPEST	2.619	33102757	97.7922
ALPHABHC	3.057	761900	0.0006
LINDANE			0.0000 BDL
BETABHC			0.0000 BDL
DELTABHC			0.0000 BDL
HEPTACHLOR			0.0000 BDL
ALDRIN			0.0000 BDL
HEPTAEPOX			0.0000 BDL
GAMMACHLOR			0.0000 BDL
ALPHACHLOR			0.0000 BDL
44DDE			0.0000 BDL
ENDOI			0.0000 BDL
DIELDRIN			0.0000 BDL
ENDRIN			0.0000 BDL
44DDD			0.0000 BDL
ENDOII			0.0000 BDL
44DDT			0.0000 BDL
ENDRINALDEH			0.0000 BDL
METHOXYCL			0.0000 BDL
ENDOSULFATE			0.0000 BDL
ENDRINKETONE			0.0000 BDL
SURRDCBPEST	8.762	27507903	89.3816

Pesticide Analysis Report *(Channel B)*

Data File: C:\Instarch\Semi1\data\092418pst\017.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\092418pst.met
User: JJY
Sample ID: 153654,175866,
Acquired: 09/24/2018 18:39:52
Printed: 09/25/2018 08:29:17

Data Summary: {Data Description}



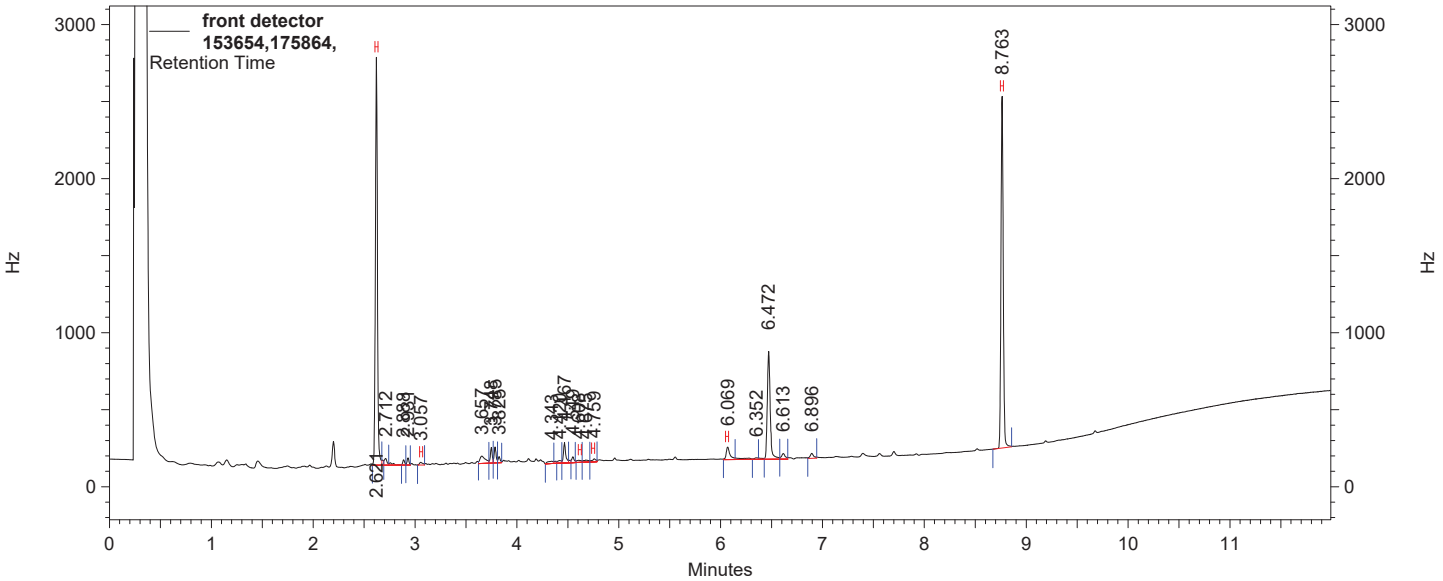
back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPEST	3.166	22469463	71.4707
ALPHABHC			0.0000 BDL
LINDANE			0.0000 BDL
BETABHC			0.0000 BDL
DELTABHC			0.0000 BDL
HEPTACHLOR			0.0000 BDL
ALDRIN			0.0000 BDL
HEPTAEPOX			0.0000 BDL
GAMMACHLOR			0.0000 BDL
ALPHACHLOR			0.0000 BDL
ENDOI			0.0000 BDL
44DDE			0.0000 BDL
DIELDRIN			0.0000 BDL
ENDRIN			0.0000 BDL
44DDD			0.0000 BDL
ENDOII			0.0000 BDL
44DDT	7.498	247384	0.0003
ENDRINALDEH			0.0000 BDL
ENDOSULFATE			0.0000 BDL
METHOXYCL			0.0000 BDL
ENDRINKETONE	8.858	2843295	0.0027
SURRDCBPEST	10.303	22902854	88.1613

Pesticide Analysis Report *(Channel A)*

Data File: C:\Instarch\Semi1\data\092418pst\018.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\092418pst.met
User: JJY
Sample ID: 153654,175864,
Acquired: 09/24/2018 18:56:11
Printed: 09/25/2018 08:29:20

Data Summary: {Data Description}



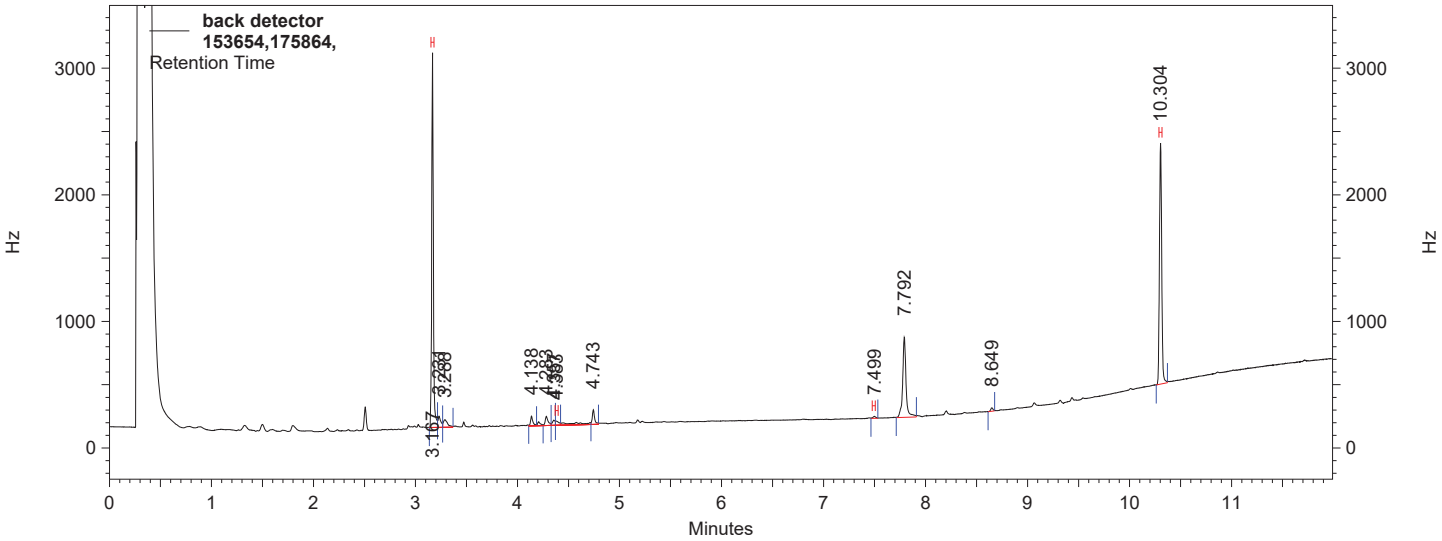
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPEST	2.621	27863297	82.5206
ALPHABHC	3.057	302330	0.0003
LINDANE			0.0000 BDL
BETABHC			0.0000 BDL
DELTABHC			0.0000 BDL
HEPTACHLOR			0.0000 BDL
ALDRIN			0.0000 BDL
HEPTAEPOX			0.0000 BDL
GAMMACHLOR			0.0000 BDL
ALPHACHLOR	4.608	316536	0.0002
44DDE			0.0000 BDL
ENDOI	4.759	378594	0.0002
DIELDRIN			0.0000 BDL
ENDRIN			0.0000 BDL
44DDD			0.0000 BDL
ENDOII			0.0000 BDL
44DDT			0.0000 BDL
ENDRINALDEH	6.069	1575732	0.0021
METHOXYCL			0.0000 BDL
ENDOSULFATE			0.0000 BDL
ENDRINKETONE			0.0000 BDL
SURRDCBPEST	8.763	26849079	87.1671

Pesticide Analysis Report *(Channel B)*

Data File: C:\Instarch\Semi1\data\092418pst\018.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\092418pst.met
User: JJY
Sample ID: 153654,175864,
Acquired: 09/24/2018 18:56:11
Printed: 09/25/2018 08:29:20

Data Summary: {Data Description}



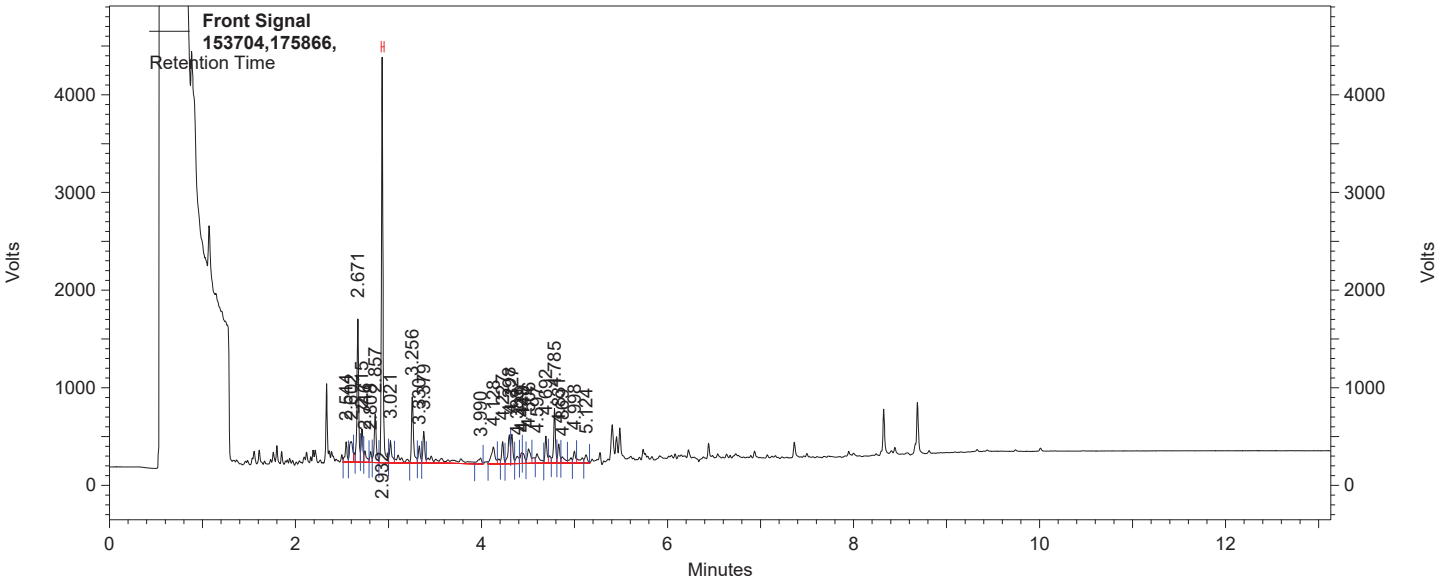
back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPEST	3.167	25626113	81.7208
ALPHABHC			0.0000 BDL
LINDANE			0.0000 BDL
BETABHC			0.0000 BDL
DELTABHC			0.0000 BDL
HEPTACHLOR	4.383	591965	0.0001
ALDRIN			0.0000 BDL
HEPTAEPOX			0.0000 BDL
GAMMACHLOR			0.0000 BDL
ALPHACHLOR			0.0000 BDL
ENDOI			0.0000 BDL
44DDE			0.0000 BDL
DIELDRIN			0.0000 BDL
ENDRIN			0.0000 BDL
44DDD			0.0000 BDL
ENDOII			0.0000 BDL
44DDT	7.499	232942	0.0003
ENDRINALDEH			0.0000 BDL
ENDOSULFATE			0.0000 BDL
METHOXYCL			0.0000 BDL
ENDRINKETONE			0.0000 BDL
SURRDCBPEST	10.304	22123414	85.0423

Pesticide Analysis Report *(Channel A)*

Data File: C:\Instarch\Semi6\Data\092518hrb\010.dat
Method: C:\Instarch\Semi6\Methods\Herb\080218hrbic\090718hrb.met
User: JJY
Sample ID: 153704,175866,
Acquired: 09/25/2018 16:06:00
Printed: 09/26/2018 08:48:38

Data Summary: {Data Description}



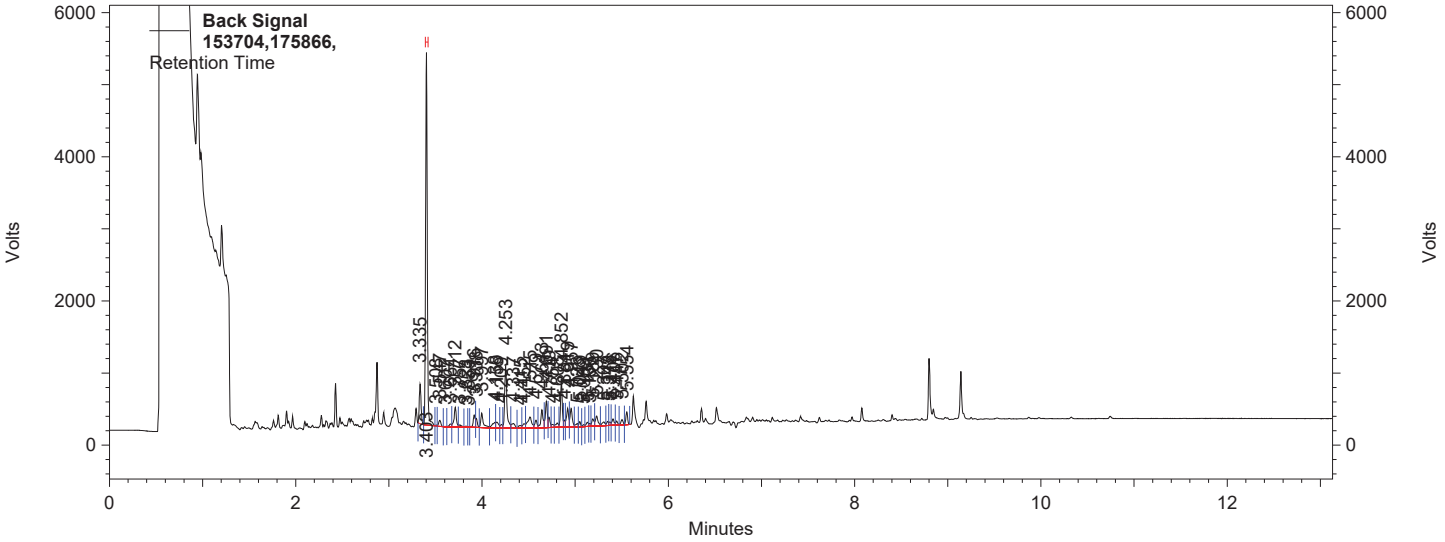
Front Signal Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRDCAA	2.932	37205568	73.9708
2,4-D			0.0000 BDL
Silvex			0.0000 BDL

Pesticide Analysis Report *(Channel B)*

Data File: C:\Instarch\Semi6\Data\092518hrb\010.dat
Method: C:\Instarch\Semi6\Methods\Herb\080218hrbic\090718hrb.met
User: JJY
Sample ID: 153704,175866,
Acquired: 09/25/2018 16:06:00
Printed: 09/26/2018 08:48:38

Data Summary: {Data Description}



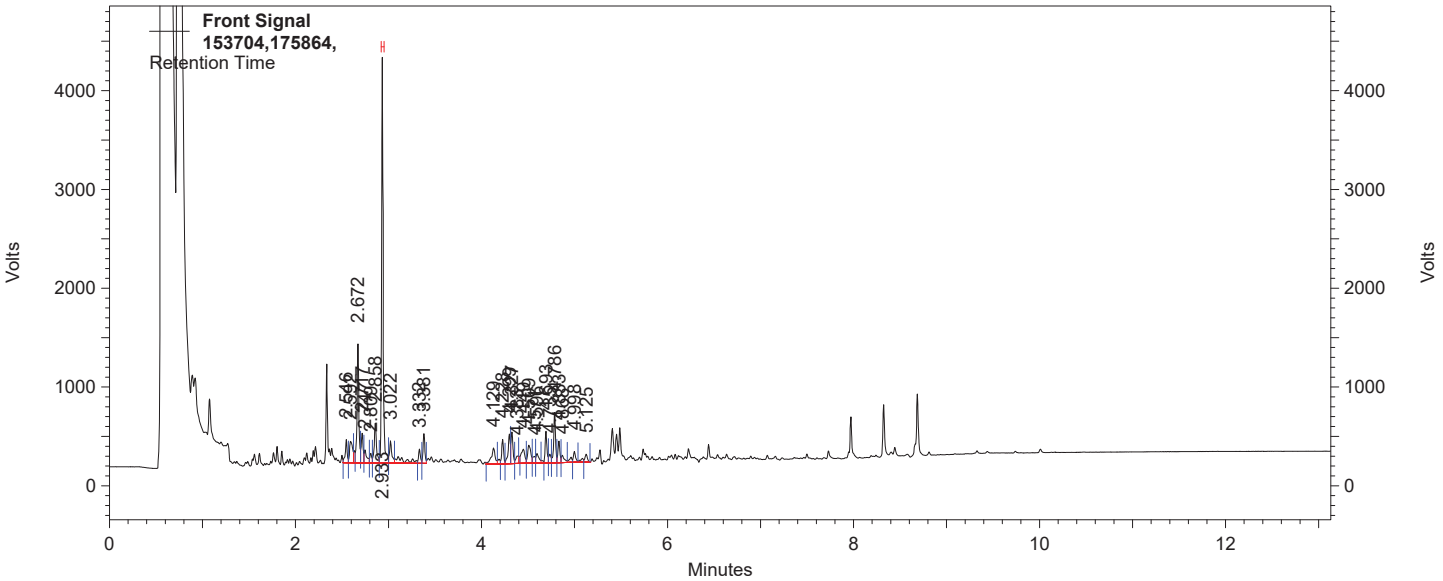
Back Signal Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRDCAA	3.403	49238570	79.7553
2,4-D			0.0000 BDL
Silvex			0.0000 BDL

Pesticide Analysis Report *(Channel A)*

Data File: C:\Instarch\Semi6\Data\092518hrb\011.dat
Method: C:\Instarch\Semi6\Methods\Herb\080218hrbic\090718hrb.met
User: JJY
Sample ID: 153704,175864,
Acquired: 09/25/2018 16:22:51
Printed: 09/26/2018 08:48:41

Data Summary: {Data Description}



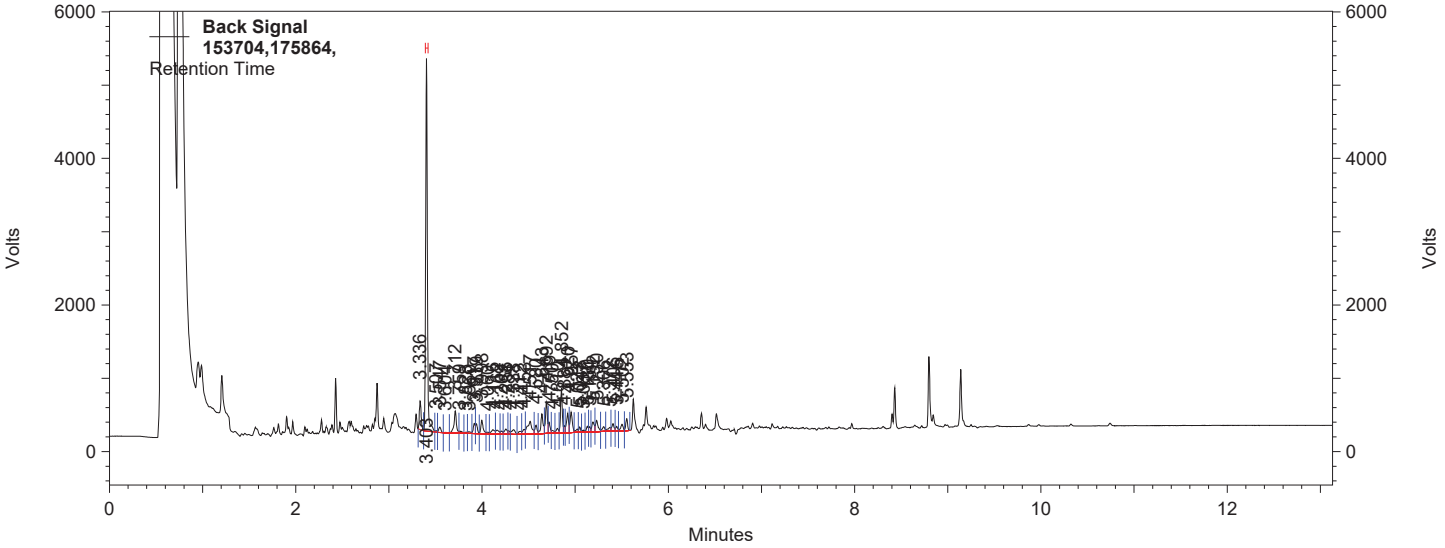
Front Signal Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRDCAA	2.933	37287000	74.1345
2,4-D			0.0000 BDL
Silvex			0.0000 BDL

Pesticide Analysis Report *(Channel B)*

Data File: C:\Instarch\Semi6\Data\092518hrb\011.dat
Method: C:\Instarch\Semi6\Methods\Herb\080218hrbic\090718hrb.met
User: JJY
Sample ID: 153704,175864,
Acquired: 09/25/2018 16:22:51
Printed: 09/26/2018 08:48:41

Data Summary: {Data Description}



Back Signal Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRDCAA	3.403	49480477	80.1520
2,4-D			0.0000 BDL
Silvex			0.0000 BDL

PESTICIDE/HERBICIDE INITIAL CALIBRATION DOCUMENTS

Pesticide Analysis Breakdown Report

Data File: C:\Instarch\Semi1\data\091318pstic\001.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\eval.met
User: JJY
Instrument: Semi 1
Sample ID: EVAL PP5644
Acquired: 09/13/2018 09:02:03
Printed: 09/13/2018 09:14:41

Channel A:	**DDT Breakdown**	**3.6**	**%**	**Endrin Breakdown**	**6.6**	**%**
Channel B:	**DDT Breakdown**	**3.5**	**%**	**Endrin Breakdown**	**6.9**	**%**

Channel A

Compound	Area	Compound	Area
44DDT	63578335	ENDRIN	43226868
44DDD	1792604	ENDRINALDEH	1341103
44DDE	557180	ENDRINKETONE	1711373

Channel B

Compound	Area	Compound	Area
44DDT	55524792	ENDRIN	34039465
44DDD	1352120	ENDRINALDEH	836138
44DDE	664320	ENDRINKETONE	1680895

DDT Breakdown

$$\frac{44DDD + 44DDE}{44DDD + 44DDE + 44DDT} \times 100\ \%$$

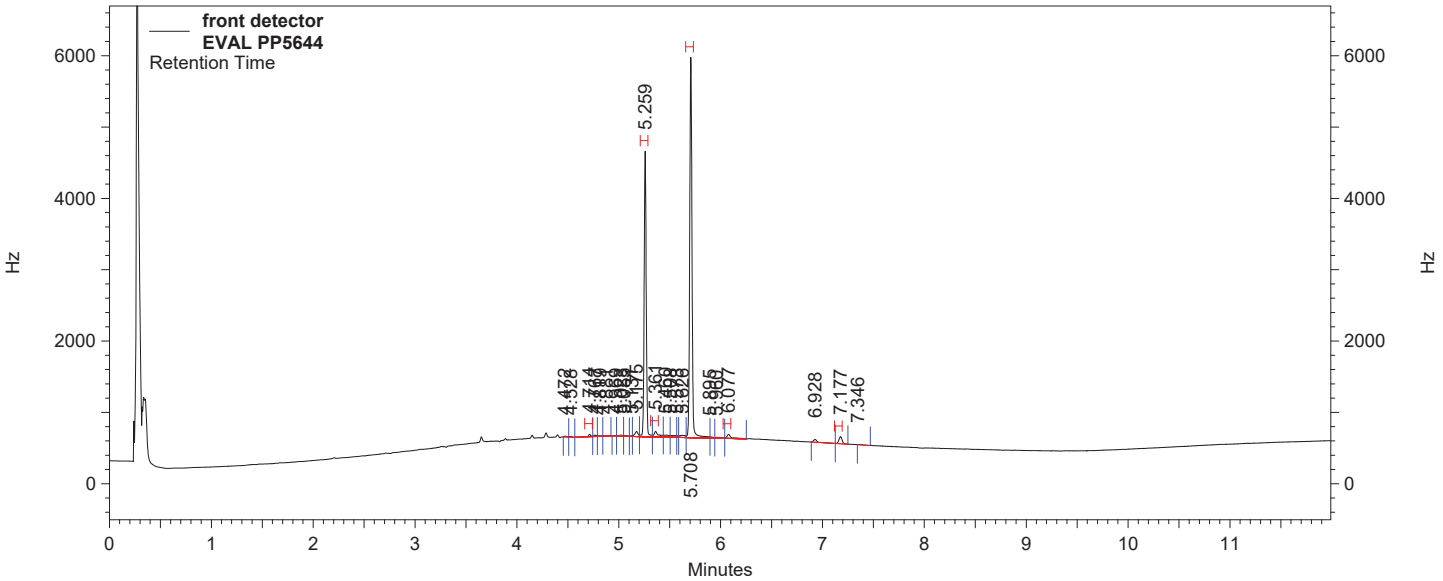
Endrin Breakdown

$$\frac{\text{Endrin aldehyde + Endrin ketone}}{\text{Endrin + Endrin aldehyde + Endrin ketone}} \times 1...\ \%$$

Pesticide Analysis Report *(Channel A)*

Data File: C:\Instarch\Semi1\data\091318pstic\001.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\eval.met
User: JJY
Sample ID: EVAL PP5644
Acquired: 09/13/2018 09:02:03
Printed: 09/13/2018 11:45:34

Data Summary: {Data Description}



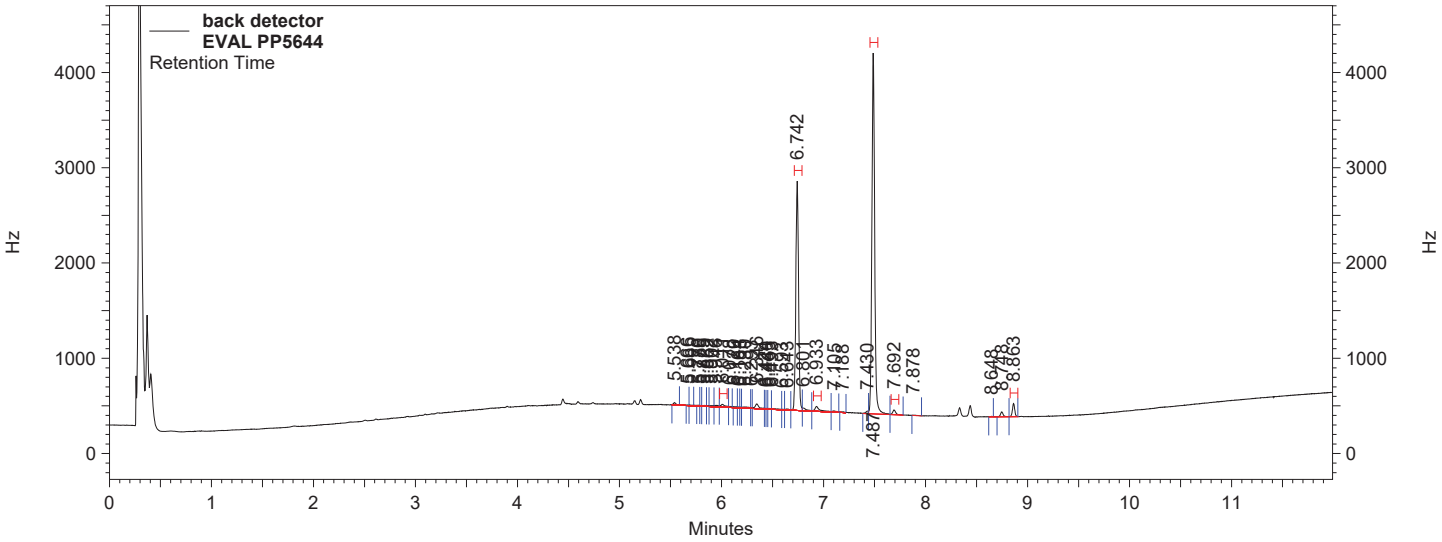
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
44DDE	4.714	557180	0.0005
ENDRIN	5.259	43226868	0.0148
44DDD	5.361	1792604	0.0010
44DDT	5.708	63578335	0.0224
ENDRINALDEH	6.077	1341103	0.0007
ENDRINKETONE	7.177	1711373	0.0007

Pesticide Analysis Report *(Channel B)*

Data File: C:\Instarch\Semi1\data\091318pstic\001.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\eval.met
User: JJY
Sample ID: EVAL PP5644
Acquired: 09/13/2018 09:02:03
Printed: 09/13/2018 11:45:34

Data Summary: {Data Description}



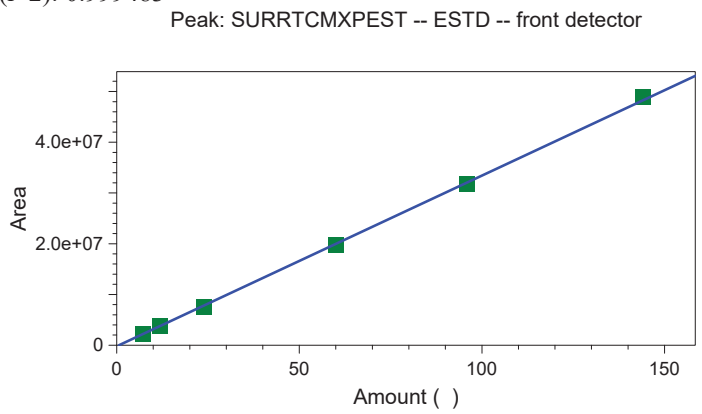
back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
44DDE	6.011	664320	0.0002
ENDRIN	6.742	34039465	0.0085
44DDD	6.933	1352120	0.0005
44DDT	7.487	55524792	0.0131
ENDRINALDEH	7.692	836138	0.0001
ENDRINKETONE	8.863	1680895	0.0003

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
Print Time: 09/13/2018 11:48:13
User: JJY
Instrument: Semi 1 (Offline)

SURRTCMXPEST (front detector)
Average RF: 325770. RF StDev: 9157.53 RF %RSD: 2.81104
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 336406.x - 214831.
Goodness of fit (r^2): 0.999483



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	7.2	12	24	60	96
Area	2291246	3851398	7586604	19675234	31778483
RF	318228.611111	320949.833333333	316108.5	327920.566666667	331025.864583333
Last Area					
Residual	-0.24957	-0.0872806	0.809439	0.874753	0.89661
Rep StDev					
Rep %RSD					
Rep 1 Area	2291246	3851398	7586604	19675234	31778483
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\004.dat	C:\Instarch\Semi1\data\091318pstic\005.dat	C:\Instarch\Semi1\data\091318pstic\006.dat	C:\Instarch\Semi1\data\091318pstic\007.dat	C:\Instarch\Semi1\data\091318pstic\008.dat
Rep 1 Sample ID	TC ICAL 1 PP5710	TC ICAL 2 PP5711	TC ICAL 3 PP5712	TC ICAL 4 PP5713	TC ICAL 5 PP5714
Rep 1 Calib. Time	09/13/2018 11:43:14	09/13/2018 11:43:25	09/13/2018 11:43:34	09/13/2018 11:43:43	09/13/2018 11:43:53

	Level 6
Amount	144
Area	49015457

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
Print Time: 09/13/2018 11:48:13
User: JJY
Instrument: Semi 1 (Offline)

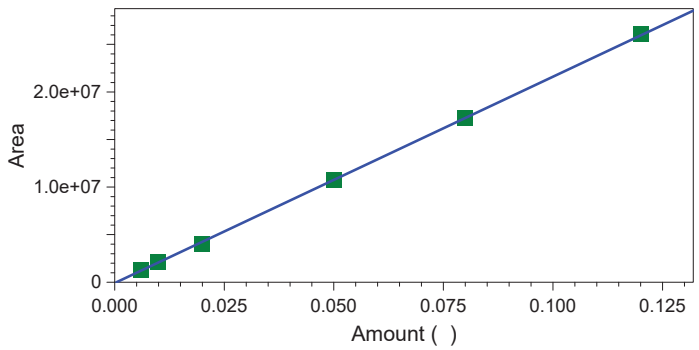
RF	340385.118055556
Last Area	
Residual	-2.34205
Rep StDev	
Rep %RSD	
Rep 1 Area	49015457
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\009.dat
Rep 1 Sample ID	TC ICAL 6 PP5715
Rep 1 Calib. Time	09/13/2018 11:44:02

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
Print Time: 09/13/2018 11:48:16
User: JJY
Instrument: Semi 1 (Offline)

Chlordane #1 (front detector)
Average RF: 2.11925e+008 RF StDev: 5.55968e+006 RF %RSD: 2.62342
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 2.16955e+008x - 85534.9
Goodness of fit (r^2): 0.999825

Peak: Chlordane #1 -- ESTD -- front detector



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.006	0.01	0.02	0.05	0.08
Area	1248965	2127159	4054979	10721310	17246224
RF	208160833.333333	212715900	202748950	214426200	215577800
Last Area					
Residual	-0.000151037	-0.000198848	0.000915358	0.000188608	0.000113683
Rep StDev					
Rep %RSD					
Rep 1 Area	1248965	2127159	4054979	10721310	17246224
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\004.dat	C:\Instarch\Semi1\data\091318pstic\005.dat	C:\Instarch\Semi1\data\091318pstic\006.dat	C:\Instarch\Semi1\data\091318pstic\007.dat	C:\Instarch\Semi1\data\091318pstic\008.dat
Rep 1 Sample ID	TC ICAL 1 PP5710	TC ICAL 2 PP5711	TC ICAL 3 PP5712	TC ICAL 4 PP5713	TC ICAL 5 PP5714
Rep 1 Calib. Time	09/13/2018 11:43:14	09/13/2018 11:43:25	09/13/2018 11:43:34	09/13/2018 11:43:43	09/13/2018 11:43:53

	Level 6
Amount	0.12
Area	26150570

Calibration Report

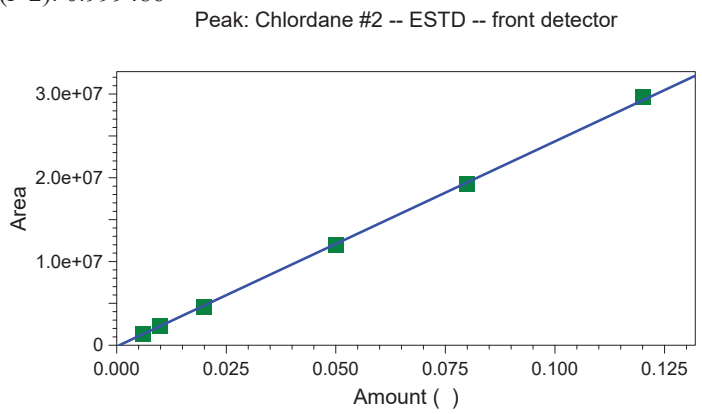
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
Print Time: 09/13/2018 11:48:16
User: JJY
Instrument: Semi 1 (Offline)

RF	217921416.666667
Last Area	
Residual	-0.000928627
Rep StDev	
Rep %RSD	
Rep 1 Area	26150570
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\009.dat
Rep 1 Sample ID	TC ICAL 6 PP5715
Rep 1 Calib. Time	09/13/2018 11:44:02

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
Print Time: 09/13/2018 11:48:19
User: JJY
Instrument: Semi 1 (Offline)

Chlordane #2 (front detector)
Average RF: 2.36322e+008 RF StDev: 7.32828e+006 RF %RSD: 3.10098
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 2.44800e+008x - 142515.
Goodness of fit (r^2): 0.999486



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.006	0.01	0.02	0.05	0.08
Area	1371520	2334725	4585078	11909438	19268626
RF	228586666.666667	233472500	229253900	238188760	240857825
Last Area					
Residual	-0.000184777	-0.000119434	0.000687958	0.000768218	0.000706208
Rep StDev					
Rep %RSD					
Rep 1 Area	1371520	2334725	4585078	11909438	19268626
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\004.dat	C:\Instarch\Semi1\data\091318pstic\005.dat	C:\Instarch\Semi1\data\091318pstic\006.dat	C:\Instarch\Semi1\data\091318pstic\007.dat	C:\Instarch\Semi1\data\091318pstic\008.dat
Rep 1 Sample ID	TC ICAL 1 PP5710	TC ICAL 2 PP5711	TC ICAL 3 PP5712	TC ICAL 4 PP5713	TC ICAL 5 PP5714
Rep 1 Calib. Time	09/13/2018 11:43:14	09/13/2018 11:43:25	09/13/2018 11:43:34	09/13/2018 11:43:43	09/13/2018 11:43:53

	Level 6
Amount	0.12
Area	29708558

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
Print Time: 09/13/2018 11:48:19
User: JJY
Instrument: Semi 1 (Offline)

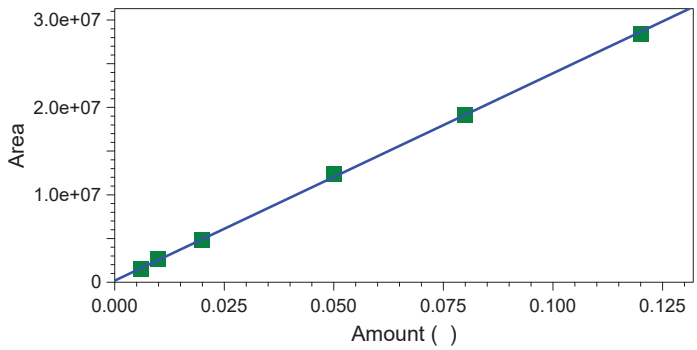
RF	247571316.666667
Last Area	
Residual	-0.00194053
Rep StDev	
Rep %RSD	
Rep 1 Area	29708558
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\009.dat
Rep 1 Sample ID	TC ICAL 6 PP5715
Rep 1 Calib. Time	09/13/2018 11:44:02

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
Print Time: 09/13/2018 11:48:20
User: JJY
Instrument: Semi 1 (Offline)

Chlordane #3 (front detector)
Average RF: 2.48104e+008 RF StDev: 1.08239e+007 RF %RSD: 4.36263
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 2.37381e+008x + 179399.
Goodness of fit (r^2): 0.999710

Peak: Chlordane #3 -- ESTD -- front detector



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.006	0.01	0.02	0.05	0.08
Area	1565649	2616499	4848194	12379572	19104083
RF	260941500	261649900	242409700	247591440	238801037.5
Last Area					
Residual	0.000160231	-0.000266619	0.000332059	-0.00139491	0.000277165
Rep StDev					
Rep %RSD					
Rep 1 Area	1565649	2616499	4848194	12379572	19104083
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\004.dat	C:\Instarch\Semi1\data\091318pstic\005.dat	C:\Instarch\Semi1\data\091318pstic\006.dat	C:\Instarch\Semi1\data\091318pstic\007.dat	C:\Instarch\Semi1\data\091318pstic\008.dat
Rep 1 Sample ID	TC ICAL 1 PP5710	TC ICAL 2 PP5711	TC ICAL 3 PP5712	TC ICAL 4 PP5713	TC ICAL 5 PP5714
Rep 1 Calib. Time	09/13/2018 11:43:14	09/13/2018 11:43:25	09/13/2018 11:43:34	09/13/2018 11:43:43	09/13/2018 11:43:53

	Level 6
Amount	0.12
Area	28467546
RF	237229550

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
Print Time: 09/13/2018 11:48:20
User: JJY
Instrument: Semi 1 (Offline)

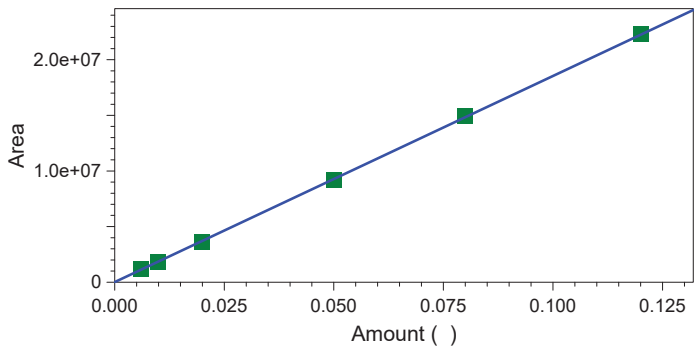
Last Area Residual	0.00083229
Rep StDev	
Rep %RSD	
Rep 1 Area	28467546
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\009.dat
Rep 1 Sample ID	TC ICAL 6 PP5715
Rep 1 Calib. Time	09/13/2018 11:44:02

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
Print Time: 09/13/2018 11:48:22
User: JJY
Instrument: Semi 1 (Offline)

Chlordane #4 (front detector)
Average RF: 1.86403e+008 RF StDev: 6.40717e+006 RF %RSD: 3.43727
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 1.85210e+008x + 17363.8
Goodness of fit (r^2): 0.999807

Peak: Chlordane #4 -- ESTD -- front detector



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.006	0.01	0.02	0.05	0.08
Area	1187770	1853731	3573667	9156505	14955039
RF	197961666.666667	185373100	178683350	183130100	186937987.5
Last Area					
Residual	-0.000319344	8.49499e-005	0.000798544	0.000655271	-0.000652604
Rep StDev					
Rep %RSD					
Rep 1 Area	1187770	1853731	3573667	9156505	14955039
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\004.dat	C:\Instarch\Semi1\data\091318pstic\005.dat	C:\Instarch\Semi1\data\091318pstic\006.dat	C:\Instarch\Semi1\data\091318pstic\007.dat	C:\Instarch\Semi1\data\091318pstic\008.dat
Rep 1 Sample ID	TC ICAL 1 PP5710	TC ICAL 2 PP5711	TC ICAL 3 PP5712	TC ICAL 4 PP5713	TC ICAL 5 PP5714
Rep 1 Calib. Time	09/13/2018 11:43:14	09/13/2018 11:43:25	09/13/2018 11:43:34	09/13/2018 11:43:43	09/13/2018 11:43:53

	Level 6
Amount	0.12
Area	22359955

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
Print Time: 09/13/2018 11:48:22
User: JJY
Instrument: Semi 1 (Offline)

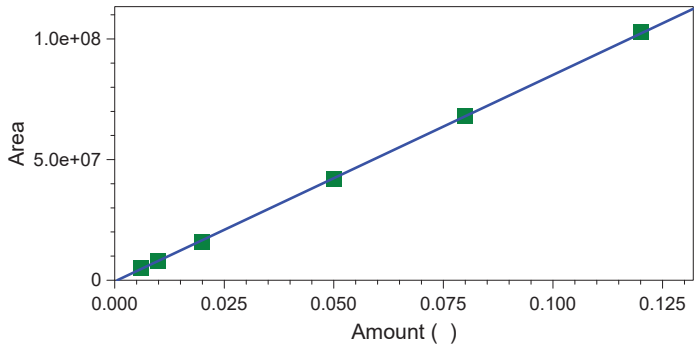
RF	186332958.333333
Last Area	
Residual	-0.000633775
Rep StDev	
Rep %RSD	
Rep 1 Area	22359955
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\009.dat
Rep 1 Sample ID	TC ICAL 6 PP5715
Rep 1 Calib. Time	09/13/2018 11:44:02

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
Print Time: 09/13/2018 11:48:24
User: JJY
Instrument: Semi 1 (Offline)

Chlordane #5 (front detector)
Average RF: 8.27107e+008 RF StDev: 2.59164e+007 RF %RSD: 3.13338
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 8.56208e+008x - 490216.
Goodness of fit (r^2): 0.999823

Peak: Chlordane #5 -- ESTD -- front detector



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.006	0.01	0.02	0.05	0.08
Area	4847116	8080541	15941659	42056681	67933861
RF	807852666.666667	808054100	797082950	841133620	849173262.5
Last Area					
Residual	-0.000233686	-1.01342e-005	0.000808548	0.000307758	8.47523e-005
Rep StDev					
Rep %RSD					
Rep 1 Area	4847116	8080541	15941659	42056681	67933861
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\004.dat	C:\Instarch\Semi1\data\091318pstic\005.dat	C:\Instarch\Semi1\data\091318pstic\006.dat	C:\Instarch\Semi1\data\091318pstic\007.dat	C:\Instarch\Semi1\data\091318pstic\008.dat
Rep 1 Sample ID	TC ICAL 1 PP5710	TC ICAL 2 PP5711	TC ICAL 3 PP5712	TC ICAL 4 PP5713	TC ICAL 5 PP5714
Rep 1 Calib. Time	09/13/2018 11:43:14	09/13/2018 11:43:25	09/13/2018 11:43:34	09/13/2018 11:43:43	09/13/2018 11:43:53

	Level 6
Amount	0.12
Area	103121691

Calibration Report

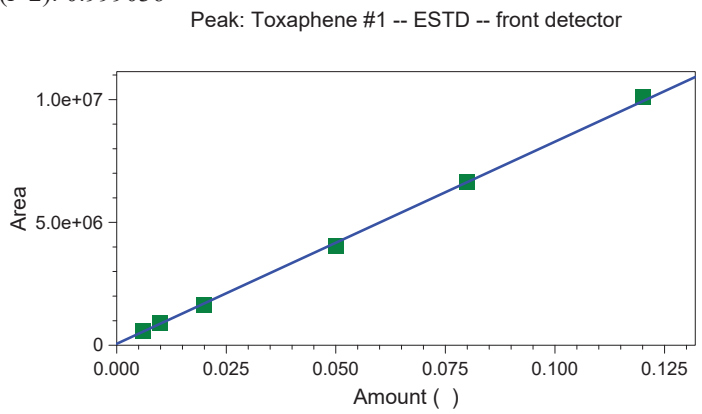
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
Print Time: 09/13/2018 11:48:24
User: JJY
Instrument: Semi 1 (Offline)

RF	859347425
Last Area	
Residual	-0.00101254
Rep StDev	
Rep %RSD	
Rep 1 Area	103121691
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\009.dat
Rep 1 Sample ID	TC ICAL 6 PP5715
Rep 1 Calib. Time	09/13/2018 11:44:02

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
Print Time: 09/13/2018 11:48:25
User: JJY
Instrument: Semi 1 (Offline)

Toxaphene #1 (front detector)
Average RF: 8.58754e+007 RF StDev: 6.21179e+006 RF %RSD: 7.23350
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 8.22582e+007x + 57909.1
Goodness of fit (r^2): 0.999036



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.006	0.01	0.02	0.05	0.08
Area	580281	895373	1623160	4023779	6637005
RF	96713500	89537300	81158000	80475580	82962562.5
Last Area					
Residual	-0.000350393	-0.000180917	0.000971491	0.00178754	1.89639e-005
Rep StDev					
Rep %RSD					
Rep 1 Area	580281	895373	1623160	4023779	6637005
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\004.dat	C:\Instarch\Semi1\data\091318pstic\005.dat	C:\Instarch\Semi1\data\091318pstic\006.dat	C:\Instarch\Semi1\data\091318pstic\007.dat	C:\Instarch\Semi1\data\091318pstic\008.dat
Rep 1 Sample ID	TC ICAL 1 PP5710	TC ICAL 2 PP5711	TC ICAL 3 PP5712	TC ICAL 4 PP5713	TC ICAL 5 PP5714
Rep 1 Calib. Time	09/13/2018 11:43:14	09/13/2018 11:43:25	09/13/2018 11:43:34	09/13/2018 11:43:43	09/13/2018 11:43:53

	Level 6
Amount	0.12
Area	10128627
RF	84405225

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
Print Time: 09/13/2018 11:48:25
User: JJY
Instrument: Semi 1 (Offline)

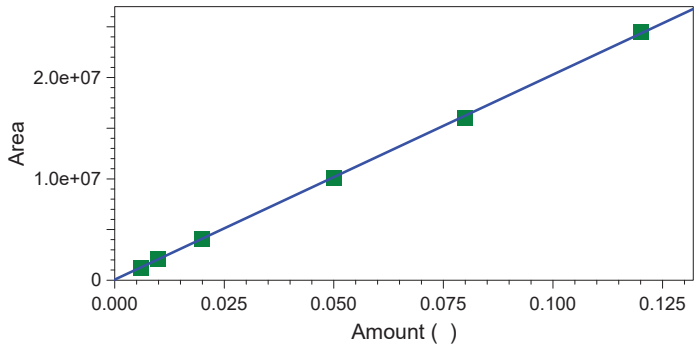
Last Area Residual	-0.00242814
Rep StDev	
Rep %RSD	
Rep 1 Area	10128627
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\009.dat
Rep 1 Sample ID	TC ICAL 6 PP5715
Rep 1 Calib. Time	09/13/2018 11:44:02

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
Print Time: 09/13/2018 11:48:27
User: JJY
Instrument: Semi 1 (Offline)

Toxaphene #2 (front detector)
Average RF: 2.05377e+008 RF StDev: 3.68629e+006 RF %RSD: 1.79489
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 2.02336e+008x + 50807.3
Goodness of fit (r^2): 0.999797

Peak: Toxaphene #2 -- ESTD -- front detector



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.006	0.01	0.02	0.05	0.08
Area	1258238	2095556	4105811	10133095	16041164
RF	209706333.333333	209555600	205290550	202661900	200514550
Last Area					
Residual	3.25378e-005	-0.000105723	-4.09694e-005	0.000170497	0.000971157
Rep StDev					
Rep %RSD					
Rep 1 Area	1258238	2095556	4105811	10133095	16041164
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\004.dat	C:\Instarch\Semi1\data\091318pstic\005.dat	C:\Instarch\Semi1\data\091318pstic\006.dat	C:\Instarch\Semi1\data\091318pstic\007.dat	C:\Instarch\Semi1\data\091318pstic\008.dat
Rep 1 Sample ID	TC ICAL 1 PP5710	TC ICAL 2 PP5711	TC ICAL 3 PP5712	TC ICAL 4 PP5713	TC ICAL 5 PP5714
Rep 1 Calib. Time	09/13/2018 11:43:14	09/13/2018 11:43:25	09/13/2018 11:43:34	09/13/2018 11:43:43	09/13/2018 11:43:53

	Level 6
Amount	0.12
Area	24543626

Calibration Report

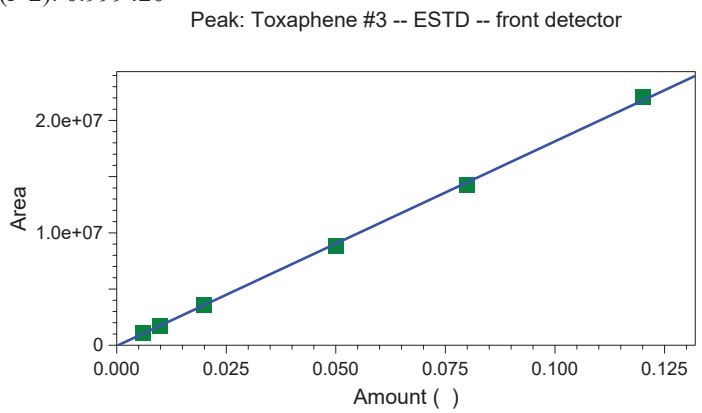
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
Print Time: 09/13/2018 11:48:27
User: JJY
Instrument: Semi 1 (Offline)

RF	204530216.666667
Last Area	
Residual	-0.0010504
Rep StDev	
Rep %RSD	
Rep 1 Area	24543626
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\009.dat
Rep 1 Sample ID	TC ICAL 6 PP5715
Rep 1 Calib. Time	09/13/2018 11:44:02

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
Print Time: 09/13/2018 11:48:29
User: JJY
Instrument: Semi 1 (Offline)

Toxaphene #3 (front detector)
Average RF: 1.78472e+008 RF StDev: 3.59513e+006 RF %RSD: 2.01439
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 1.81942e+008x - 58542.2
Goodness of fit (r^2): 0.999420



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.006	0.01	0.02	0.05	0.08
Area	1054287	1743613	3606004	8868490	14292473
RF	175714500	174361300	180300200	177369800	178655912.5
Last Area					
Residual	-0.000116405	9.48764e-005	-0.000141319	0.000934661	0.00112301
Rep StDev					
Rep %RSD					
Rep 1 Area	1054287	1743613	3606004	8868490	14292473
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\004.dat	C:\Instarch\Semi1\data\091318pstic\005.dat	C:\Instarch\Semi1\data\091318pstic\006.dat	C:\Instarch\Semi1\data\091318pstic\007.dat	C:\Instarch\Semi1\data\091318pstic\008.dat
Rep 1 Sample ID	TC ICAL 1 PP5710	TC ICAL 2 PP5711	TC ICAL 3 PP5712	TC ICAL 4 PP5713	TC ICAL 5 PP5714
Rep 1 Calib. Time	09/13/2018 11:43:14	09/13/2018 11:43:25	09/13/2018 11:43:34	09/13/2018 11:43:43	09/13/2018 11:43:53

	Level 6
Amount	0.12
Area	22131948
RF	184432900

Calibration Report

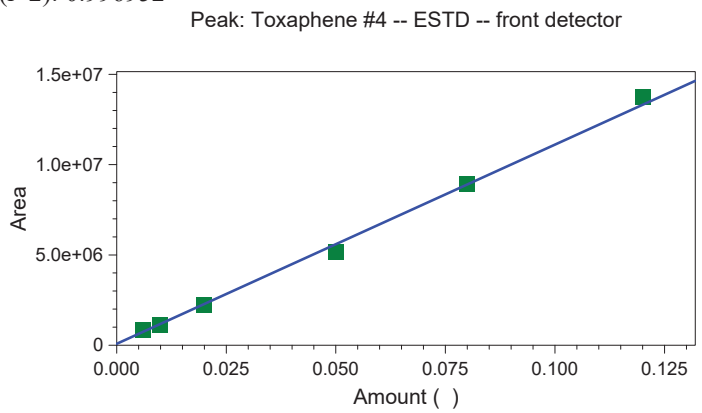
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
Print Time: 09/13/2018 11:48:29
User: JJY
Instrument: Semi 1 (Offline)

Last Area Residual	-0.00196482
Rep StDev	
Rep %RSD	
Rep 1 Area	22131948
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\009.dat
Rep 1 Sample ID	TC ICAL 6 PP5715
Rep 1 Calib. Time	09/13/2018 11:44:02

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
Print Time: 09/13/2018 11:48:30
User: JJY
Instrument: Semi 1 (Offline)

Toxaphene #4 (front detector)
Average RF: 1.15633e+008 RF StDev: 1.24065e+007 RF %RSD: 10.7292
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 1.10319e+008x + 78003.7
Goodness of fit (r^2): 0.996952



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.006	0.01	0.02	0.05	0.08
Area	838090	1132554	2213576	5177344	8948336
RF	139681666.666667	113255400	110678800	103546880	111854200
Last Area Residual	-0.000889922	0.000440862	0.000641768	0.00377623	-0.000406525
Rep StDev					
Rep %RSD					
Rep 1 Area	838090	1132554	2213576	5177344	8948336
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\004.dat	C:\Instarch\Semi1\data\091318pstic\005.dat	C:\Instarch\Semi1\data\091318pstic\006.dat	C:\Instarch\Semi1\data\091318pstic\007.dat	C:\Instarch\Semi1\data\091318pstic\008.dat
Rep 1 Sample ID	TC ICAL 1 PP5710	TC ICAL 2 PP5711	TC ICAL 3 PP5712	TC ICAL 4 PP5713	TC ICAL 5 PP5714
Rep 1 Calib. Time	09/13/2018 11:43:14	09/13/2018 11:43:25	09/13/2018 11:43:34	09/13/2018 11:43:43	09/13/2018 11:43:53

	Level 6
Amount	0.12
Area	13774046

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
Print Time: 09/13/2018 11:48:30
User: JJY
Instrument: Semi 1 (Offline)

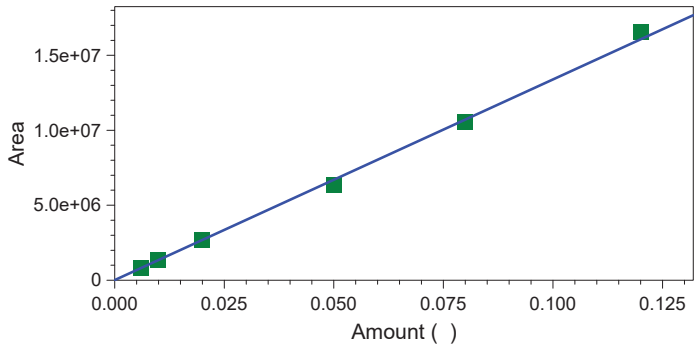
RF	114783716.666667
Last Area	
Residual	-0.00414993
Rep StDev	
Rep %RSD	
Rep 1 Area	13774046
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\009.dat
Rep 1 Sample ID	TC ICAL 6 PP5715
Rep 1 Calib. Time	09/13/2018 11:44:02

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
Print Time: 09/13/2018 11:48:32
User: JJY
Instrument: Semi 1 (Offline)

Toxaphene #5 (front detector)
Average RF: 1.34693e+008 RF StDev: 4.94233e+006 RF %RSD: 3.66934
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 1.33806e+008x + 12606.8
Goodness of fit (r^2): 0.997865

Peak: Toxaphene #5 -- ESTD -- front detector



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.006	0.01	0.02	0.05	0.08
Area	848530	1361808	2658461	6379695	10542807
RF	141421666.666667	136180800	132923050	127593900	131785087.5
Last Area					
Residual	-0.00024729	-8.32845e-005	0.000226151	0.00241543	0.00130232
Rep StDev					
Rep %RSD					
Rep 1 Area	848530	1361808	2658461	6379695	10542807
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\004.dat	C:\Instarch\Semi1\data\091318pstic\005.dat	C:\Instarch\Semi1\data\091318pstic\006.dat	C:\Instarch\Semi1\data\091318pstic\007.dat	C:\Instarch\Semi1\data\091318pstic\008.dat
Rep 1 Sample ID	TC ICAL 1 PP5710	TC ICAL 2 PP5711	TC ICAL 3 PP5712	TC ICAL 4 PP5713	TC ICAL 5 PP5714
Rep 1 Calib. Time	09/13/2018 11:43:14	09/13/2018 11:43:25	09/13/2018 11:43:34	09/13/2018 11:43:43	09/13/2018 11:43:53

	Level 6
Amount	0.12
Area	16590107

Calibration Report

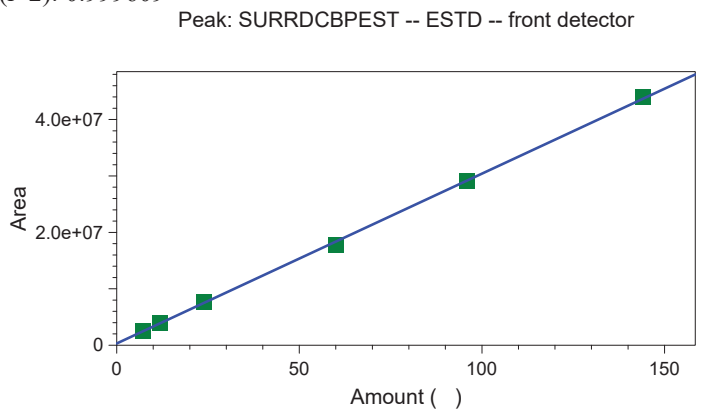
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
Print Time: 09/13/2018 11:48:32
User: JJY
Instrument: Semi 1 (Offline)

RF	138250891.666667
Last Area	
Residual	-0.00389231
Rep StDev	
Rep %RSD	
Rep 1 Area	16590107
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\009.dat
Rep 1 Sample ID	TC ICAL 6 PP5715
Rep 1 Calib. Time	09/13/2018 11:44:02

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
Print Time: 09/13/2018 11:48:34
User: JJY
Instrument: Semi 1 (Offline)

SURRDCBPEST (front detector)
Average RF: 316437. RF StDev: 17723.0 RF %RSD: 5.60080
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 300859.x + 311625.
Goodness of fit (r^2): 0.999609



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	7.2	12	24	60	96
Area	2473141	3962280	7631380	17802716	29194214
RF	343491.805555556	330190	317974.166666667	296711.933333333	304106.39583333
Last Area Residual	0.0155273	-0.134091	-0.329491	1.8629	-0.000304846
Rep StDev					
Rep %RSD					
Rep 1 Area	2473141	3962280	7631380	17802716	29194214
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\004.dat	C:\Instarch\Semi1\data\091318pstic\005.dat	C:\Instarch\Semi1\data\091318pstic\006.dat	C:\Instarch\Semi1\data\091318pstic\007.dat	C:\Instarch\Semi1\data\091318pstic\008.dat
Rep 1 Sample ID	TC ICAL 1 PP5710	TC ICAL 2 PP5711	TC ICAL 3 PP5712	TC ICAL 4 PP5713	TC ICAL 5 PP5714
Rep 1 Calib. Time	09/13/2018 11:43:14	09/13/2018 11:43:25	09/13/2018 11:43:34	09/13/2018 11:43:43	09/13/2018 11:43:53

	Level 6
Amount	144
Area	44084883

Calibration Report

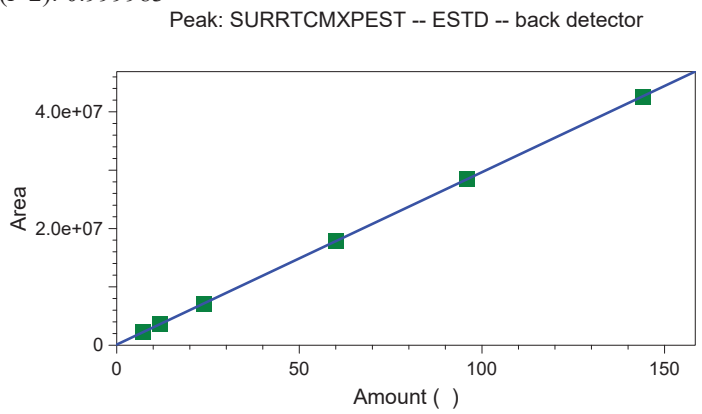
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
Print Time: 09/13/2018 11:48:34
User: JJY
Instrument: Semi 1 (Offline)

RF	306145.020833333
Last Area	
Residual	-1.49409
Rep StDev	
Rep %RSD	
Rep 1 Area	44084883
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\009.dat
Rep 1 Sample ID	TC ICAL 6 PP5715
Rep 1 Calib. Time	09/13/2018 11:44:02

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
Print Time: 09/13/2018 11:48:40
User: JJY
Instrument: Semi 1 (Offline)

SURRTCMXPEST (back detector)
Average RF: 300272. RF StDev: 5406.75 RF %RSD: 1.80061
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 295596.x + 93923.0
Goodness of fit (r^2): 0.999983



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	7.2	12	24	60	96
Area	2220496	3667176	7109858	17946253	28437904
RF	308402.222222222	305598	296244.083333333	299104.216666667	296228.166666667
Last Area Residual	0.00581922	-0.0882885	0.265144	-0.3943	0.112522
Rep StDev					
Rep %RSD					
Rep 1 Area	2220496	3667176	7109858	17946253	28437904
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\004.dat	C:\Instarch\Semi1\data\091318pstic\005.dat	C:\Instarch\Semi1\data\091318pstic\006.dat	C:\Instarch\Semi1\data\091318pstic\007.dat	C:\Instarch\Semi1\data\091318pstic\008.dat
Rep 1 Sample ID	TC ICAL 1 PP5710	TC ICAL 2 PP5711	TC ICAL 3 PP5712	TC ICAL 4 PP5713	TC ICAL 5 PP5714
Rep 1 Calib. Time	09/13/2018 11:43:14	09/13/2018 11:43:25	09/13/2018 11:43:34	09/13/2018 11:43:43	09/13/2018 11:43:53

	Level 6
Amount	144
Area	42632356

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
Print Time: 09/13/2018 11:48:40
User: JJY
Instrument: Semi 1 (Offline)

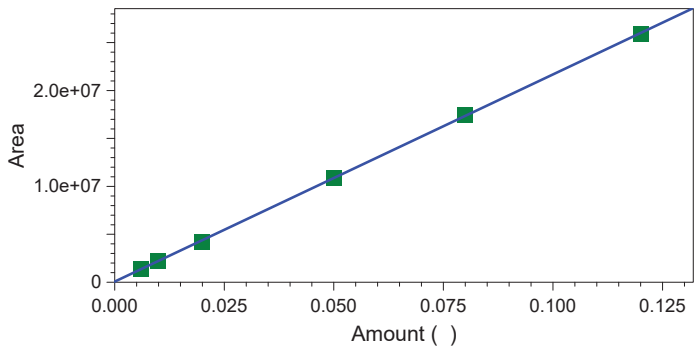
RF	296058.027777778
Last Area	
Residual	0.092796
Rep StDev	
Rep %RSD	
Rep 1 Area	42632356
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\009.dat
Rep 1 Sample ID	TC ICAL 6 PP5715
Rep 1 Calib. Time	09/13/2018 11:44:02

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
Print Time: 09/13/2018 11:48:41
User: JJY
Instrument: Semi 1 (Offline)

Chlordane #1 (back detector)
Average RF: 2.19586e+008 RF StDev: 6.06239e+006 RF %RSD: 2.76083
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 2.16246e+008x + 54714.0
Goodness of fit (r^2): 0.999913

Peak: Chlordane #1 -- ESTD -- back detector



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.006	0.01	0.02	0.05	0.08
Area	1367010	2253557	4226289	10927304	17455139
RF	227835000	225355700	211314450	218546080	218189237.5
Last Area					
Residual	-6.85255e-005	-0.000168235	0.000709147	-0.00027874	-0.00046578
Rep StDev					
Rep %RSD					
Rep 1 Area	1367010	2253557	4226289	10927304	17455139
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\004.dat	C:\Instarch\Semi1\data\091318pstic\005.dat	C:\Instarch\Semi1\data\091318pstic\006.dat	C:\Instarch\Semi1\data\091318pstic\007.dat	C:\Instarch\Semi1\data\091318pstic\008.dat
Rep 1 Sample ID	TC ICAL 1 PP5710	TC ICAL 2 PP5711	TC ICAL 3 PP5712	TC ICAL 4 PP5713	TC ICAL 5 PP5714
Rep 1 Calib. Time	09/13/2018 11:43:14	09/13/2018 11:43:25	09/13/2018 11:43:34	09/13/2018 11:43:43	09/13/2018 11:43:53

	Level 6
Amount	0.12
Area	25952747

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
Print Time: 09/13/2018 11:48:41
User: JJY
Instrument: Semi 1 (Offline)

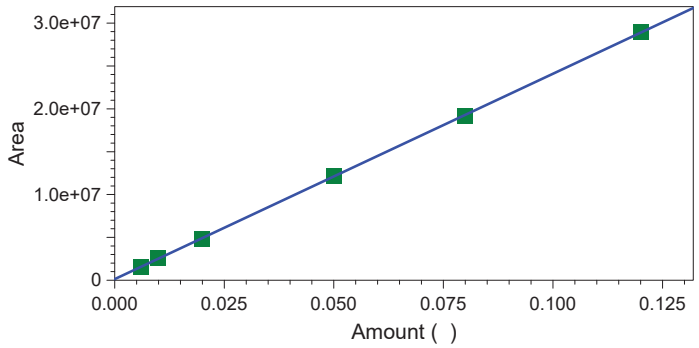
RF	216272891.666667
Last Area	
Residual	0.000238245
Rep StDev	
Rep %RSD	
Rep 1 Area	25952747
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\009.dat
Rep 1 Sample ID	TC ICAL 6 PP5715
Rep 1 Calib. Time	09/13/2018 11:44:02

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
Print Time: 09/13/2018 11:48:43
User: JJY
Instrument: Semi 1 (Offline)

Chlordane #2 (back detector)
Average RF: 2.47652e+008 RF StDev: 1.02199e+007 RF %RSD: 4.12673
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 2.39474e+008x + 136142.
Goodness of fit (r^2): 0.999926

Peak: Chlordane #2 -- ESTD -- back detector



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.006	0.01	0.02	0.05	0.08
Area	1590436	2552675	4824336	12131419	19190951
RF	265072666.666667	255267500	241216800	242628380	239886887.5
Last Area Residual	-7.28691e-005	-9.1004e-005	0.000422953	-9.00952e-005	0.000430584
Rep StDev					
Rep %RSD					
Rep 1 Area	1590436	2552675	4824336	12131419	19190951
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\004.dat	C:\Instarch\Semi1\data\091318pstic\005.dat	C:\Instarch\Semi1\data\091318pstic\006.dat	C:\Instarch\Semi1\data\091318pstic\007.dat	C:\Instarch\Semi1\data\091318pstic\008.dat
Rep 1 Sample ID	TC ICAL 1 PP5710	TC ICAL 2 PP5711	TC ICAL 3 PP5712	TC ICAL 4 PP5713	TC ICAL 5 PP5714
Rep 1 Calib. Time	09/13/2018 11:43:14	09/13/2018 11:43:25	09/13/2018 11:43:34	09/13/2018 11:43:43	09/13/2018 11:43:53

	Level 6
Amount	0.12

Calibration Report

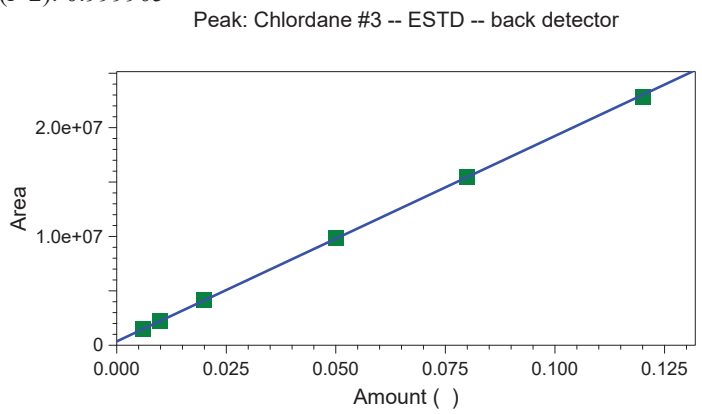
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
Print Time: 09/13/2018 11:48:43
User: JJY
Instrument: Semi 1 (Offline)

Area	29020453
RF	241837108.333333
Last Area	
Residual	-0.000615627
Rep StDev	
Rep %RSD	
Rep 1 Area	29020453
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\009.dat
Rep 1 Sample ID	TC ICAL 6 PP5715
Rep 1 Calib. Time	09/13/2018 11:44:02

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
Print Time: 09/13/2018 11:48:45
User: JJY
Instrument: Semi 1 (Offline)

Chlordane #3 (back detector)
Average RF: 2.09794e+008 RF StDev: 2.00757e+007 RF %RSD: 9.56922
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 1.88844e+008x + 353646.
Goodness of fit (r^2): 0.999905



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.006	0.01	0.02	0.05	0.08
Area	1441561	2271374	4196848	9865898	15490021
RF	240260166.666667	227137400	209842400	197317960	193625262.5
Last Area					
Residual	0.000239077	-0.000155097	-0.000351212	-0.00037098	-0.000152843
Rep StDev					
Rep %RSD					
Rep 1 Area	1441561	2271374	4196848	9865898	15490021
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\004.dat	C:\Instarch\Semi1\data\091318pstic\005.dat	C:\Instarch\Semi1\data\091318pstic\006.dat	C:\Instarch\Semi1\data\091318pstic\007.dat	C:\Instarch\Semi1\data\091318pstic\008.dat
Rep 1 Sample ID	TC ICAL 1 PP5710	TC ICAL 2 PP5711	TC ICAL 3 PP5712	TC ICAL 4 PP5713	TC ICAL 5 PP5714
Rep 1 Calib. Time	09/13/2018 11:43:14	09/13/2018 11:43:25	09/13/2018 11:43:34	09/13/2018 11:43:43	09/13/2018 11:43:53

	Level 6
Amount	0.12
Area	22869839

Calibration Report

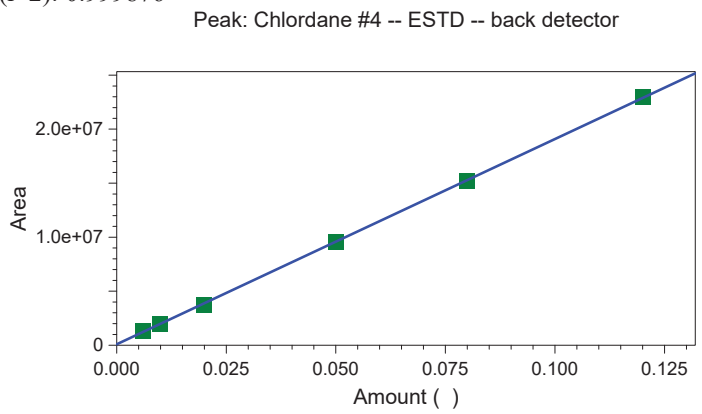
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
Print Time: 09/13/2018 11:48:45
User: JJY
Instrument: Semi 1 (Offline)

RF	190581991.666667
Last Area	
Residual	0.000768224
Rep StDev	
Rep %RSD	
Rep 1 Area	22869839
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\009.dat
Rep 1 Sample ID	TC ICAL 6 PP5715
Rep 1 Calib. Time	09/13/2018 11:44:02

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
Print Time: 09/13/2018 11:48:47
User: JJY
Instrument: Semi 1 (Offline)

Chlordane #4 (back detector)
Average RF: 1.94876e+008 RF StDev: 8.75531e+006 RF %RSD: 4.49276
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 1.90059e+008x + 78176.8
Goodness of fit (r^2): 0.999876



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.006	0.01	0.02	0.05	0.08
Area	1269563	1964770	3737046	9599637	15234920
RF	211593833.333333	196477000	186852300	191992740	190436500
Last Area					
Residual	-0.000268512	7.36372e-005	0.000748758	-9.74281e-005	0.000252373
Rep StDev					
Rep %RSD					
Rep 1 Area	1269563	1964770	3737046	9599637	15234920
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\004.dat	C:\Instarch\Semi1\data\091318pstic\005.dat	C:\Instarch\Semi1\data\091318pstic\006.dat	C:\Instarch\Semi1\data\091318pstic\007.dat	C:\Instarch\Semi1\data\091318pstic\008.dat
Rep 1 Sample ID	TC ICAL 1 PP5710	TC ICAL 2 PP5711	TC ICAL 3 PP5712	TC ICAL 4 PP5713	TC ICAL 5 PP5714
Rep 1 Calib. Time	09/13/2018 11:43:14	09/13/2018 11:43:25	09/13/2018 11:43:34	09/13/2018 11:43:43	09/13/2018 11:43:53

	Level 6
Amount	0.12
Area	23028609

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
Print Time: 09/13/2018 11:48:47
User: JJY
Instrument: Semi 1 (Offline)

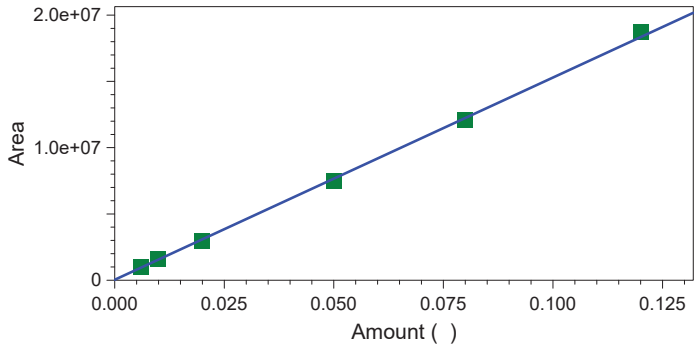
RF	191905075
Last Area	
Residual	-0.000754338
Rep StDev	
Rep %RSD	
Rep 1 Area	23028609
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\009.dat
Rep 1 Sample ID	TC ICAL 6 PP5715
Rep 1 Calib. Time	09/13/2018 11:44:02

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
Print Time: 09/13/2018 11:48:48
User: JJY
Instrument: Semi 1 (Offline)

Chlordane #5 (back detector)
Average RF: 1.54675e+008 RF StDev: 6.14726e+006 RF %RSD: 3.97431
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 1.52602e+008x + 32326.0
Goodness of fit (r^2): 0.998954

Peak: Chlordane #5 -- ESTD -- back detector



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.006	0.01	0.02	0.05	0.08
Area	988717	1575790	2980124	7457163	12090524
RF	164786166.666667	157579000	149006200	149143260	151131550
Last Area					
Residual	-0.000267243	-0.000114341	0.000683039	0.00134494	0.000982463
Rep StDev					
Rep %RSD					
Rep 1 Area	988717	1575790	2980124	7457163	12090524
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\004.dat	C:\Instarch\Semi1\data\091318pstic\005.dat	C:\Instarch\Semi1\data\091318pstic\006.dat	C:\Instarch\Semi1\data\091318pstic\007.dat	C:\Instarch\Semi1\data\091318pstic\008.dat
Rep 1 Sample ID	TC ICAL 1 PP5710	TC ICAL 2 PP5711	TC ICAL 3 PP5712	TC ICAL 4 PP5713	TC ICAL 5 PP5714
Rep 1 Calib. Time	09/13/2018 11:43:14	09/13/2018 11:43:25	09/13/2018 11:43:34	09/13/2018 11:43:43	09/13/2018 11:43:53

	Level 6
Amount	0.12
Area	18768276

Calibration Report

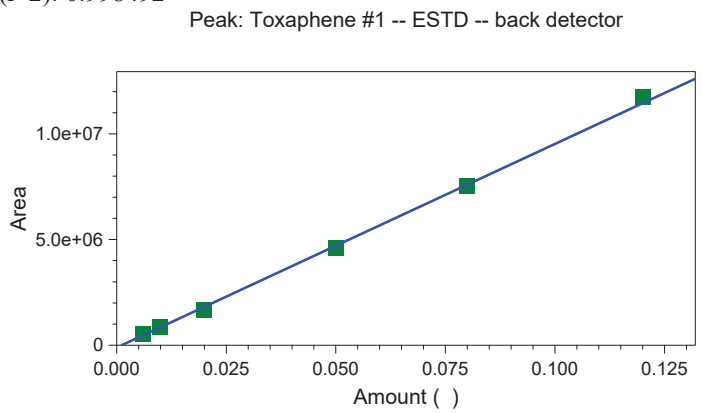
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
Print Time: 09/13/2018 11:48:48
User: JJY
Instrument: Semi 1 (Offline)

RF	156402300
Last Area	
Residual	-0.00277694
Rep StDev	
Rep %RSD	
Rep 1 Area	18768276
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\009.dat
Rep 1 Sample ID	TC ICAL 6 PP5715
Rep 1 Calib. Time	09/13/2018 11:44:02

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
Print Time: 09/13/2018 11:48:50
User: JJY
Instrument: Semi 1 (Offline)

Toxaphene #1 (back detector)
Average RF: 8.98758e+007 RF StDev: 5.88826e+006 RF %RSD: 6.55155
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 9.63077e+007x - 109895.
Goodness of fit (r^2): 0.998492



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.006	0.01	0.02	0.05	0.08
Area	530506	837141	1664559	4579888	7537950
RF	88417666.6666667	83714100	83227950	91597760	94224375
Last Area					
Residual	-0.000649532	0.000166561	0.00157516	0.00130419	0.000589509
Rep StDev					
Rep %RSD					
Rep 1 Area	530506	837141	1664559	4579888	7537950
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\004.dat	C:\Instarch\Semi1\data\091318pstic\005.dat	C:\Instarch\Semi1\data\091318pstic\006.dat	C:\Instarch\Semi1\data\091318pstic\007.dat	C:\Instarch\Semi1\data\091318pstic\008.dat
Rep 1 Sample ID	TC ICAL 1 PP5710	TC ICAL 2 PP5711	TC ICAL 3 PP5712	TC ICAL 4 PP5713	TC ICAL 5 PP5714
Rep 1 Calib. Time	09/13/2018 11:43:14	09/13/2018 11:43:25	09/13/2018 11:43:34	09/13/2018 11:43:43	09/13/2018 11:43:53

	Level 6
Amount	0.12
Area	11768776

Calibration Report

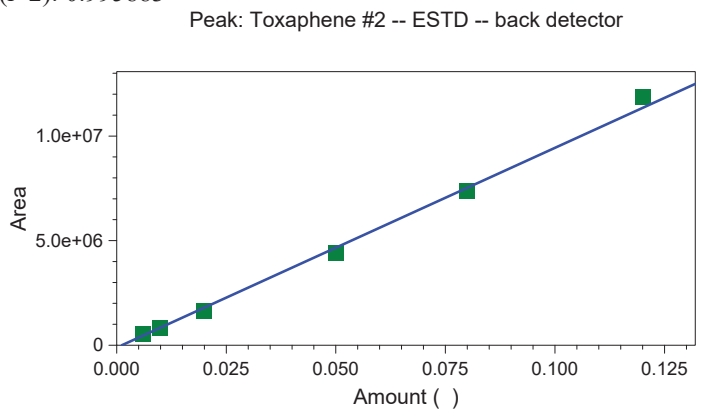
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
Print Time: 09/13/2018 11:48:50
User: JJY
Instrument: Semi 1 (Offline)

RF	98073133.3333333
Last Area	
Residual	-0.00334077
Rep StDev	
Rep %RSD	
Rep 1 Area	11768776
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\009.dat
Rep 1 Sample ID	TC ICAL 6 PP5715
Rep 1 Calib. Time	09/13/2018 11:44:02

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
Print Time: 09/13/2018 11:48:52
User: JJY
Instrument: Semi 1 (Offline)

Toxaphene #2 (back detector)
Average RF: 8.89286e+007 RF StDev: 6.08404e+006 RF %RSD: 6.84149
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 9.54563e+007x - 112132.
Goodness of fit (r^2): 0.995883



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.006	0.01	0.02	0.05	0.08
Area	528410	832020	1655000	4422021	7359879
RF	88068333.3333333	83202000	82750000	88440420	91998487.5
Last Area					
Residual	-0.000710315	0.000109067	0.00148753	0.00250023	0.00172323
Rep StDev					
Rep %RSD					
Rep 1 Area	528410	832020	1655000	4422021	7359879
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\004.dat	C:\Instarch\Semi1\data\091318pstic\005.dat	C:\Instarch\Semi1\data\091318pstic\006.dat	C:\Instarch\Semi1\data\091318pstic\007.dat	C:\Instarch\Semi1\data\091318pstic\008.dat
Rep 1 Sample ID	TC ICAL 1 PP5710	TC ICAL 2 PP5711	TC ICAL 3 PP5712	TC ICAL 4 PP5713	TC ICAL 5 PP5714
Rep 1 Calib. Time	09/13/2018 11:43:14	09/13/2018 11:43:25	09/13/2018 11:43:34	09/13/2018 11:43:43	09/13/2018 11:43:53

	Level 6
Amount	0.12
Area	11893465

Calibration Report

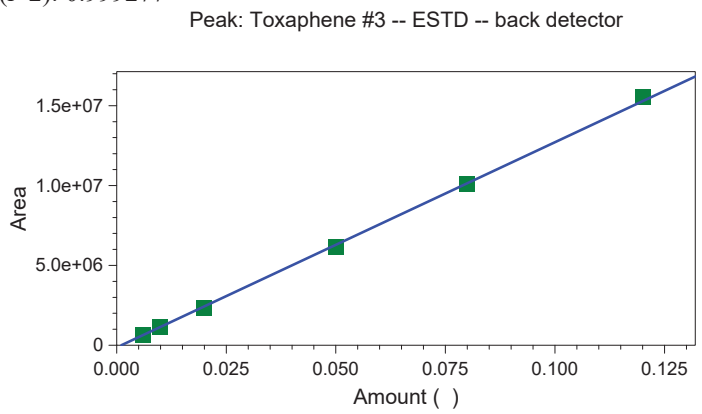
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
Print Time: 09/13/2018 11:48:52
User: JJY
Instrument: Semi 1 (Offline)

RF	99112208.3333333
Last Area	
Residual	-0.0057706
Rep StDev	
Rep %RSD	
Rep 1 Area	11893465
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\009.dat
Rep 1 Sample ID	TC ICAL 6 PP5715
Rep 1 Calib. Time	09/13/2018 11:44:02

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
Print Time: 09/13/2018 11:48:54
User: JJY
Instrument: Semi 1 (Offline)

Toxaphene #3 (back detector)
Average RF: 1.20422e+008 RF StDev: 7.04946e+006 RF %RSD: 5.85396
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 1.28489e+008x - 134916.
Goodness of fit (r^2): 0.999277



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.006	0.01	0.02	0.05	0.08
Area	665286	1169948	2317627	6154378	10069479
RF	110881000	116994800	115881350	123087560	125868487.5
Last Area					
Residual	-0.000227777	-0.00015544	0.00091245	0.00105194	0.000581648
Rep StDev					
Rep %RSD					
Rep 1 Area	665286	1169948	2317627	6154378	10069479
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\004.dat	C:\Instarch\Semi1\data\091318pstic\005.dat	C:\Instarch\Semi1\data\091318pstic\006.dat	C:\Instarch\Semi1\data\091318pstic\007.dat	C:\Instarch\Semi1\data\091318pstic\008.dat
Rep 1 Sample ID	TC ICAL 1 PP5710	TC ICAL 2 PP5711	TC ICAL 3 PP5712	TC ICAL 4 PP5713	TC ICAL 5 PP5714
Rep 1 Calib. Time	09/13/2018 11:43:14	09/13/2018 11:43:25	09/13/2018 11:43:34	09/13/2018 11:43:43	09/13/2018 11:43:53

	Level 6
Amount	0.12
Area	15578330

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
Print Time: 09/13/2018 11:48:54
User: JJY
Instrument: Semi 1 (Offline)

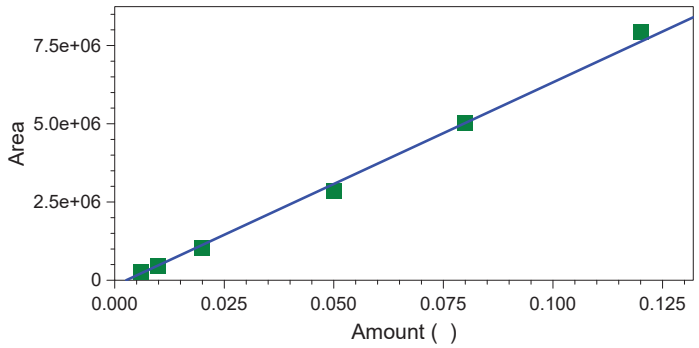
RF	129819416.666667
Last Area	
Residual	-0.00229242
Rep StDev	
Rep %RSD	
Rep 1 Area	15578330
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\009.dat
Rep 1 Sample ID	TC ICAL 6 PP5715
Rep 1 Calib. Time	09/13/2018 11:44:02

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
Print Time: 09/13/2018 11:48:56
User: JJY
Instrument: Semi 1 (Offline)

Toxaphene #4 (back detector)
Average RF: 5.46381e+007 RF StDev: 9.09707e+006 RF %RSD: 16.6497
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 6.49626e+007x - 170668.
Goodness of fit (r^2): 0.996469

Peak: Toxaphene #4 -- ESTD -- back detector



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.006	0.01	0.02	0.05	0.08
Area	260887	461300	1037807	2859803	5029997
RF	43481166.6666667	46130000	51890350	57196060	62874962.5
Last Area					
Residual	-0.000643128	0.00027182	0.00139738	0.00335053	-5.62869e-005
Rep StDev					
Rep %RSD					
Rep 1 Area	260887	461300	1037807	2859803	5029997
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\004.dat	C:\Instarch\Semi1\data\091318pstic\005.dat	C:\Instarch\Semi1\data\091318pstic\006.dat	C:\Instarch\Semi1\data\091318pstic\007.dat	C:\Instarch\Semi1\data\091318pstic\008.dat
Rep 1 Sample ID	TC ICAL 1 PP5710	TC ICAL 2 PP5711	TC ICAL 3 PP5712	TC ICAL 4 PP5713	TC ICAL 5 PP5714
Rep 1 Calib. Time	09/13/2018 11:43:14	09/13/2018 11:43:25	09/13/2018 11:43:34	09/13/2018 11:43:43	09/13/2018 11:43:53

	Level 6
Amount	0.12
Area	7950737

Calibration Report

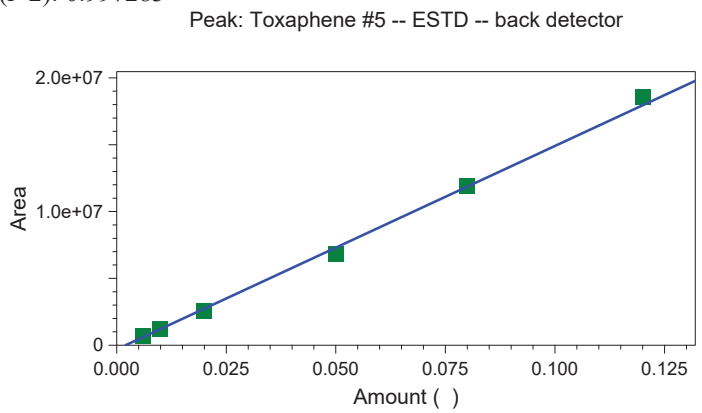
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
Print Time: 09/13/2018 11:48:56
User: JJY
Instrument: Semi 1 (Offline)

RF	66256141.6666667
Last Area	
Residual	-0.00501661
Rep StDev	
Rep %RSD	
Rep 1 Area	7950737
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\009.dat
Rep 1 Sample ID	TC ICAL 6 PP5715
Rep 1 Calib. Time	09/13/2018 11:44:02

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
Print Time: 09/13/2018 11:48:58
User: JJY
Instrument: Semi 1 (Offline)

Toxaphene #5 (back detector)
Average RF: 1.33730e+008 RF StDev: 1.59190e+007 RF %RSD: 11.9038
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 1.52170e+008x - 306725.
Goodness of fit (r^2): 0.997283



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.006	0.01	0.02	0.05	0.08
Area	691718	1196298	2540618	6843447	11879871
RF	115286333.333333	119629800	127030900	136868940	148498387.5
Last Area					
Residual	-0.00056137	0.000122732	0.0012884	0.00301192	-8.54471e-005
Rep StDev					
Rep %RSD					
Rep 1 Area	691718	1196298	2540618	6843447	11879871
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\004.dat	C:\Instarch\Semi1\data\091318pstic\005.dat	C:\Instarch\Semi1\data\091318pstic\006.dat	C:\Instarch\Semi1\data\091318pstic\007.dat	C:\Instarch\Semi1\data\091318pstic\008.dat
Rep 1 Sample ID	TC ICAL 1 PP5710	TC ICAL 2 PP5711	TC ICAL 3 PP5712	TC ICAL 4 PP5713	TC ICAL 5 PP5714
Rep 1 Calib. Time	09/13/2018 11:43:14	09/13/2018 11:43:25	09/13/2018 11:43:34	09/13/2018 11:43:43	09/13/2018 11:43:53

	Level 6
Amount	0.12
Area	18607982

Calibration Report

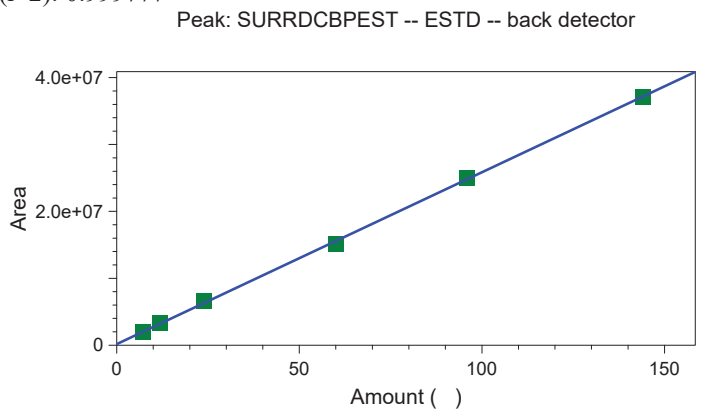
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
Print Time: 09/13/2018 11:48:58
User: JJY
Instrument: Semi 1 (Offline)

RF	155066516.666667
Last Area	
Residual	-0.00429991
Rep StDev	
Rep %RSD	
Rep 1 Area	18607982
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\009.dat
Rep 1 Sample ID	TC ICAL 6 PP5715
Rep 1 Calib. Time	09/13/2018 11:44:02

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
Print Time: 09/13/2018 11:49:00
User: JJY
Instrument: Semi 1 (Offline)

SURRDCBPEST (back detector)
Average RF: 264321. RF StDev: 8262.46 RF %RSD: 3.12592
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 256916.x + 147542.
Goodness of fit (r^2): 0.999777



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	7.2	12	24	60	96
Area	1940627	3269921	6540647	15192654	24960255
RF	269531.527777778	272493.416666667	272526.958333333	253210.9	260002.65625
Last Area					
Residual	0.220741	-0.153295	-0.884003	1.43963	-0.578988
Rep StDev					
Rep %RSD					
Rep 1 Area	1940627	3269921	6540647	15192654	24960255
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\004.dat	C:\Instarch\Semi1\data\091318pstic\005.dat	C:\Instarch\Semi1\data\091318pstic\006.dat	C:\Instarch\Semi1\data\091318pstic\007.dat	C:\Instarch\Semi1\data\091318pstic\008.dat
Rep 1 Sample ID	TC ICAL 1 PP5710	TC ICAL 2 PP5711	TC ICAL 3 PP5712	TC ICAL 4 PP5713	TC ICAL 5 PP5714
Rep 1 Calib. Time	09/13/2018 11:43:14	09/13/2018 11:43:25	09/13/2018 11:43:34	09/13/2018 11:43:43	09/13/2018 11:43:53

	Level 6
Amount	144
Area	37174745

Calibration Report

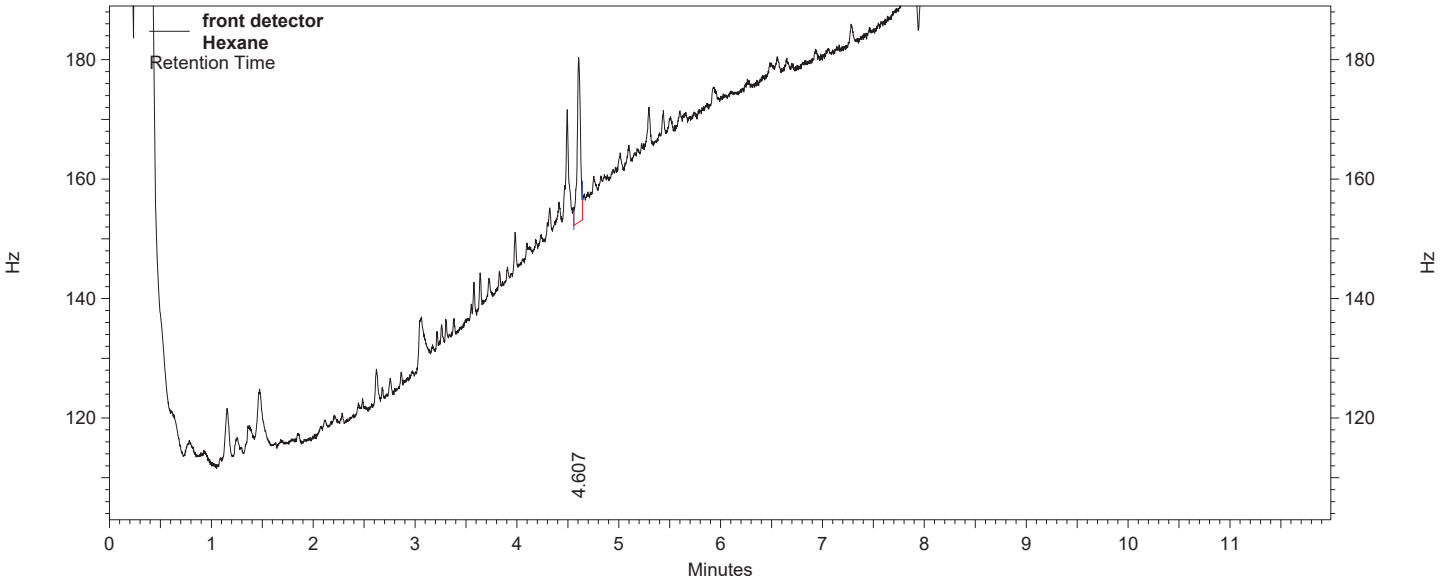
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
Print Time: 09/13/2018 11:49:00
User: JJY
Instrument: Semi 1 (Offline)

RF	258157.951388889
Last Area	
Residual	-0.121676
Rep StDev	
Rep %RSD	
Rep 1 Area	37174745
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\009.dat
Rep 1 Sample ID	TC ICAL 6 PP5715
Rep 1 Calib. Time	09/13/2018 11:44:02

Pesticide (TOX/Chlordane) Analysis Report *(Channel A)*

Data File: C:\Instarch\Semi1\data\091318pstic\003.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
User: JJY
Sample ID: Hexane
Acquired: 09/13/2018 09:34:20
Printed: 09/13/2018 11:46:05

Data Summary: {Data Description}



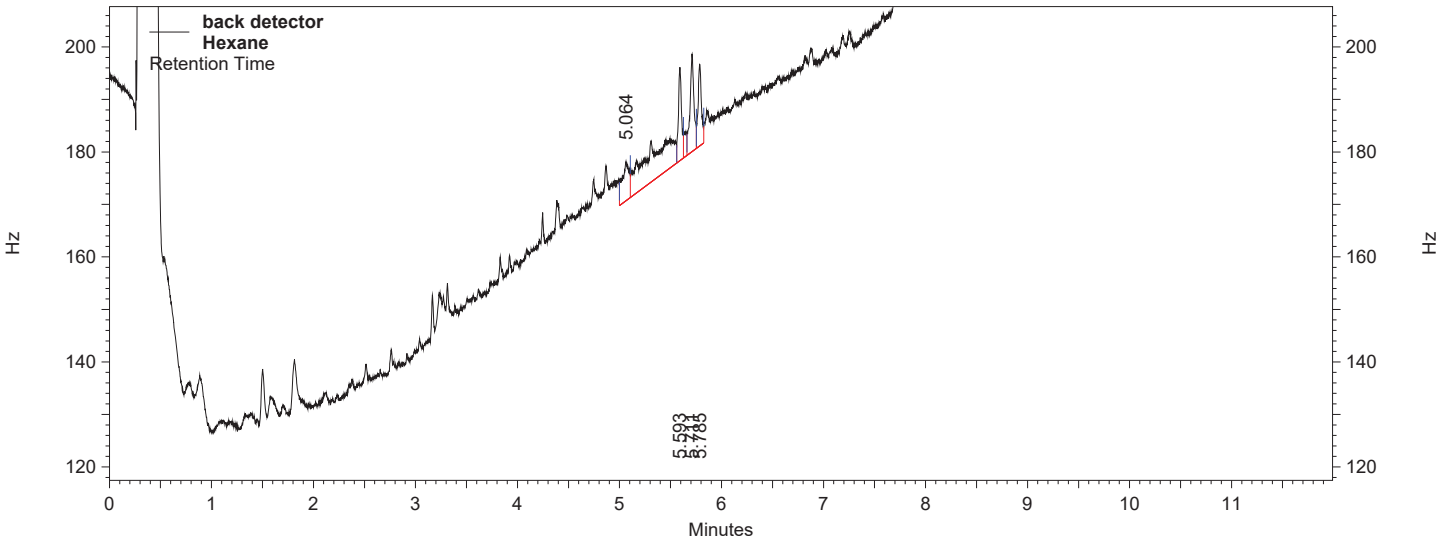
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPEST			0.0000 BDL
Chlordane #1			0.0000 BDL
Chlordane #2			0.0000 BDL
Chlordane #3			0.0000 BDL
Chlordane #4			0.0000 BDL
Chlordane #5			0.0000 BDL
Toxaphene #1			0.0000 BDL
Toxaphene #2			0.0000 BDL
Toxaphene #3			0.0000 BDL
Toxaphene #4			0.0000 BDL
Toxaphene #5			0.0000 BDL
SURRDCBPEST			0.0000 BDL
Chlordane		0	0.0000
Toxaphene		0	0.0000

Pesticide (TOX/Chlordane) Analysis Report *(Channel B)*

Data File: C:\Instarch\Semi1\data\091318pstic\003.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
User: JJY
Sample ID: Hexane
Acquired: 09/13/2018 09:34:20
Printed: 09/13/2018 11:46:05

Data Summary: {Data Description}



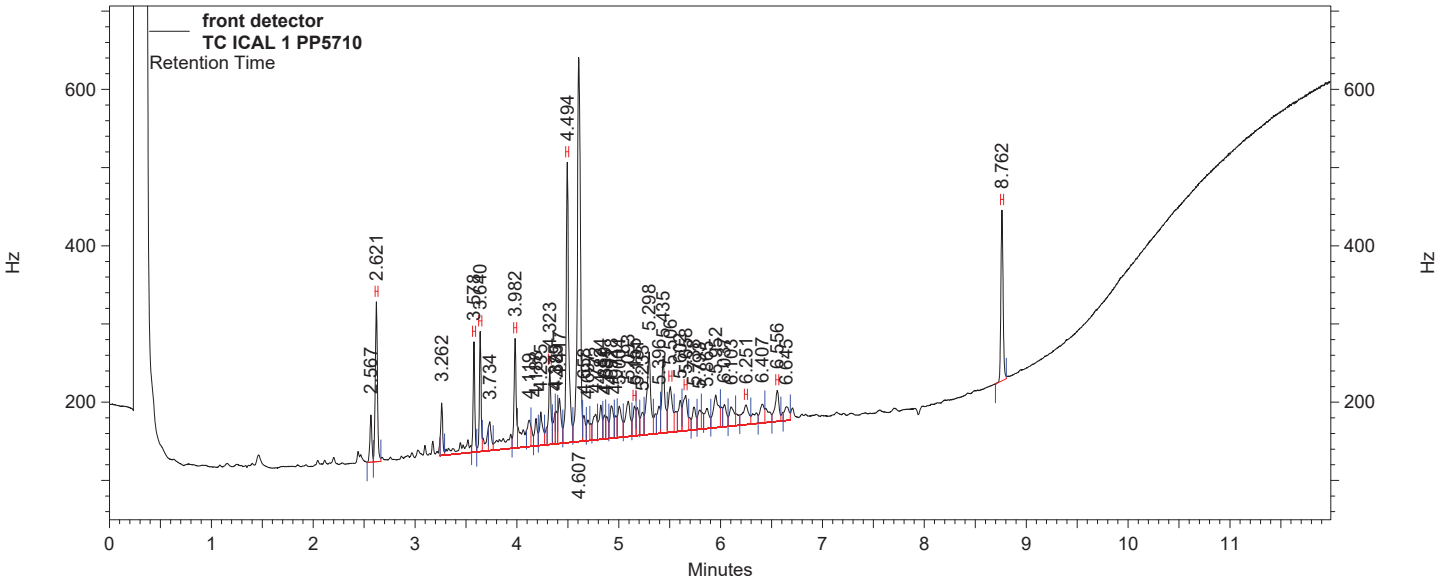
back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPEST			0.0000 BDL
Chlordane #1			0.0000 BDL
Chlordane #2			0.0000 BDL
Chlordane #3			0.0000 BDL
Chlordane #4			0.0000 BDL
Chlordane #5			0.0000 BDL
Toxaphene #1			0.0000 BDL
Toxaphene #2			0.0000 BDL
Toxaphene #3			0.0000 BDL
Toxaphene #4			0.0000 BDL
Toxaphene #5			0.0000 BDL
SURRDCBPEST			0.0000 BDL
Chlordane		0	0.0000
Toxaphene		0	0.0000

Pesticide (TOX/Chlordane) Analysis Report *(Channel A)*

Data File: C:\Instarch\Semi1\data\091318pstic\004.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
User: JJY
Sample ID: TC ICAL 1 PP5710
Acquired: 09/13/2018 09:50:29
Printed: 09/13/2018 11:46:07

Data Summary: {Data Description}



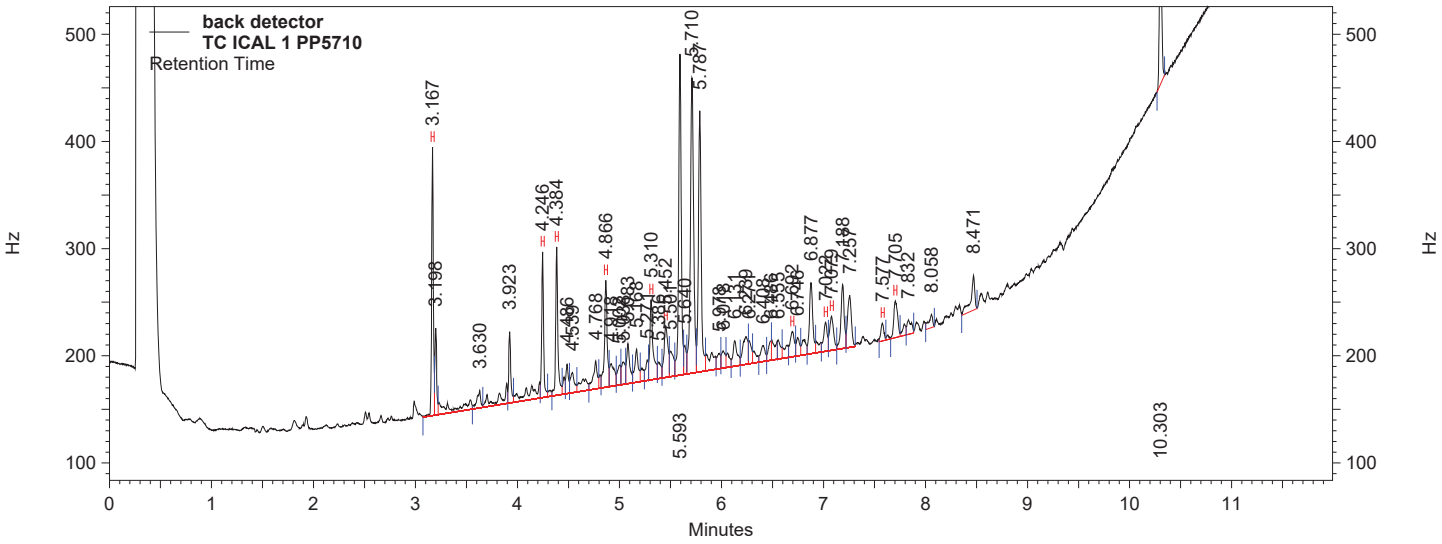
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPEST	2.621	2291246	7.2000 CAL
Chlordane #1	3.578	1248965	0.0060 CAL
Chlordane #2	3.640	1371520	0.0060 CAL
Chlordane #3	3.982	1565649	0.0060 CAL
Chlordane #4	4.323	1187770	0.0060 CAL
Chlordane #5	4.494	4847116	0.0060 CAL
Toxaphene #1	5.155	580281	0.0060 CAL
Toxaphene #2	5.506	1258238	0.0060 CAL
Toxaphene #3	5.658	1054287	0.0060 CAL
Toxaphene #4	6.251	838090	0.0060 CAL
Toxaphene #5	6.556	848530	0.0060 CAL
SURRDCBPEST	8.762	2473141	7.2000 CAL
Chlordane		10221020	0.0300 CAL
Toxaphene		4579426	0.0300 CAL

Pesticide (TOX/Chlordane) Analysis Report *(Channel B)*

Data File: C:\Instarch\Semi1\data\091318pstic\004.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
User: JJY
Sample ID: TC ICAL 1 PP5710
Acquired: 09/13/2018 09:50:29
Printed: 09/13/2018 11:46:07

Data Summary: {Data Description}



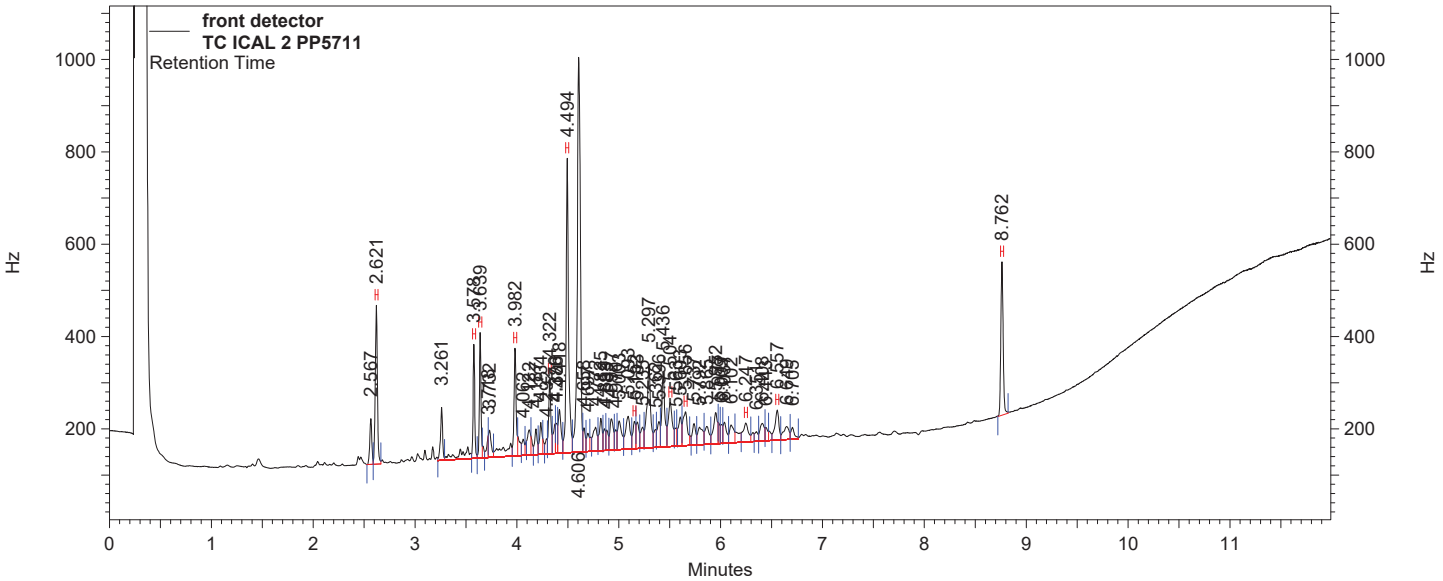
back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPEST	3.167	2220496	7.2000 CAL
Chlordane #1	4.246	1367010	0.0060 CAL
Chlordane #2	4.384	1590436	0.0060 CAL
Chlordane #3	4.866	1441561	0.0060 CAL
Chlordane #4	5.310	1269563	0.0060 CAL
Chlordane #5	5.452	988717	0.0060 CAL
Toxaphene #1	6.692	530506	0.0060 CAL
Toxaphene #2	7.022	528410	0.0060 CAL
Toxaphene #3	7.079	665286	0.0060 CAL
Toxaphene #4	7.577	260887	0.0060 CAL
Toxaphene #5	7.705	691718	0.0060 CAL
SURRDCBPEST	10.303	1940627	7.2000 CAL
Chlordane		6657287	0.0300 CAL
Toxaphene		2676807	0.0300 CAL

Pesticide (TOX/Chlordane) Analysis Report *(Channel A)*

Data File: C:\Instarch\Semi1\data\091318pstic\005.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
User: JJY
Sample ID: TC ICAL 2 PP5711
Acquired: 09/13/2018 10:06:43
Printed: 09/13/2018 11:46:10

Data Summary: {Data Description}



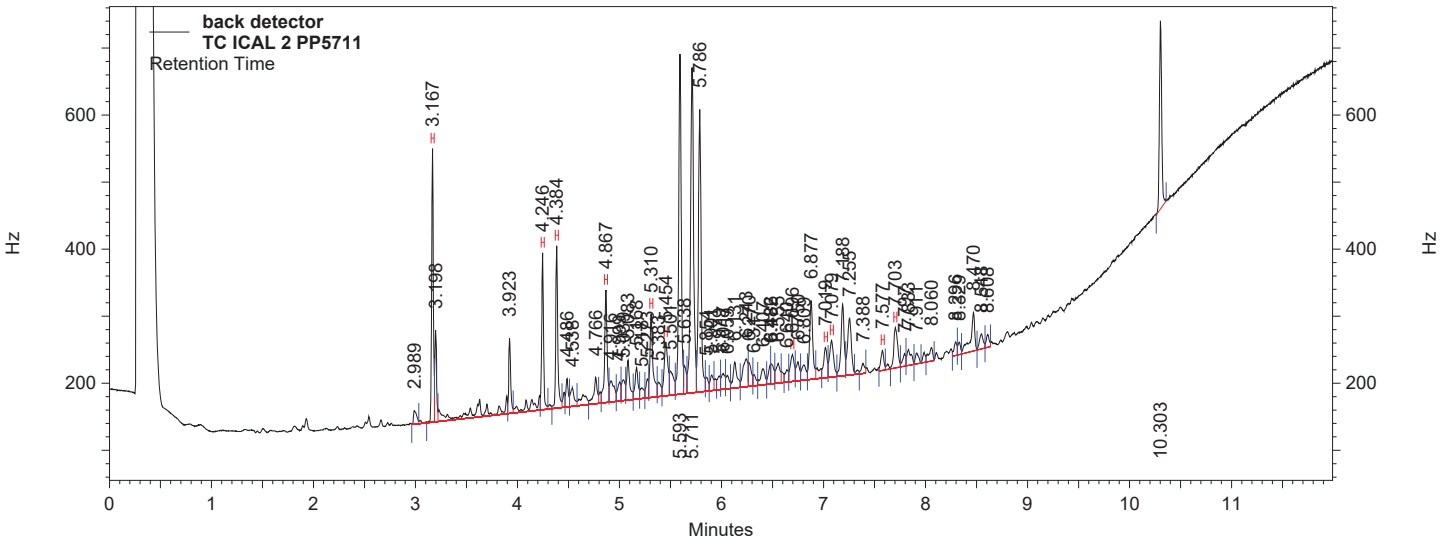
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPEST	2.621	3851398	12.0000 CAL
Chlordane #1	3.578	2127159	0.0100 CAL
Chlordane #2	3.639	2334725	0.0100 CAL
Chlordane #3	3.982	2616499	0.0100 CAL
Chlordane #4	4.322	1853731	0.0100 CAL
Chlordane #5	4.494	8080541	0.0100 CAL
Toxaphene #1	5.152	895373	0.0100 CAL
Toxaphene #2	5.504	2095556	0.0100 CAL
Toxaphene #3	5.656	1743613	0.0100 CAL
Toxaphene #4	6.247	1132554	0.0100 CAL
Toxaphene #5	6.557	1361808	0.0100 CAL
SURRDCBPEST	8.762	3962280	12.0000 CAL
Chlordane		17012655	0.0500 CAL
Toxaphene		7228904	0.0500 CAL

Pesticide (TOX/Chlordane) Analysis Report *(Channel B)*

Data File: C:\Instarch\Semi1\data\091318pstic\005.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
User: JJY
Sample ID: TC ICAL 2 PP5711
Acquired: 09/13/2018 10:06:43
Printed: 09/13/2018 11:46:10

Data Summary: {Data Description}



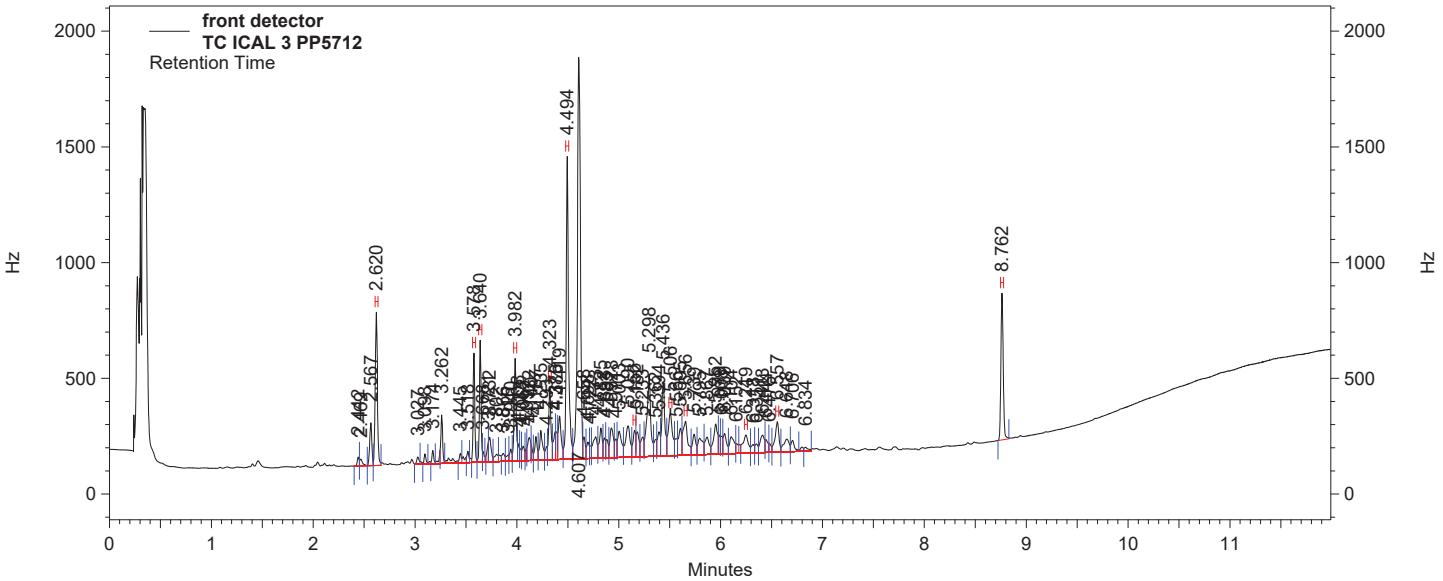
back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPEST	3.167	3667176	12.0000 CAL
Chlordane #1	4.246	2253557	0.0100 CAL
Chlordane #2	4.384	2552675	0.0100 CAL
Chlordane #3	4.867	2271374	0.0100 CAL
Chlordane #4	5.310	1964770	0.0100 CAL
Chlordane #5	5.454	1575790	0.0100 CAL
Toxaphene #1	6.696	837141	0.0100 CAL
Toxaphene #2	7.019	832020	0.0100 CAL
Toxaphene #3	7.079	1169948	0.0100 CAL
Toxaphene #4	7.577	461300	0.0100 CAL
Toxaphene #5	7.703	1196298	0.0100 CAL
SURRDCBPEST	10.303	3269921	12.0000 CAL
Chlordane		10618166	0.0500 CAL
Toxaphene		4496707	0.0500 CAL

Pesticide (TOX/Chlordane) Analysis Report *(Channel A)*

Data File: C:\Instarch\Semi1\data\091318pstic\006.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
User: JJY
Sample ID: TC ICAL 3 PP5712
Acquired: 09/13/2018 10:22:59
Printed: 09/13/2018 11:46:13

Data Summary: {Data Description}



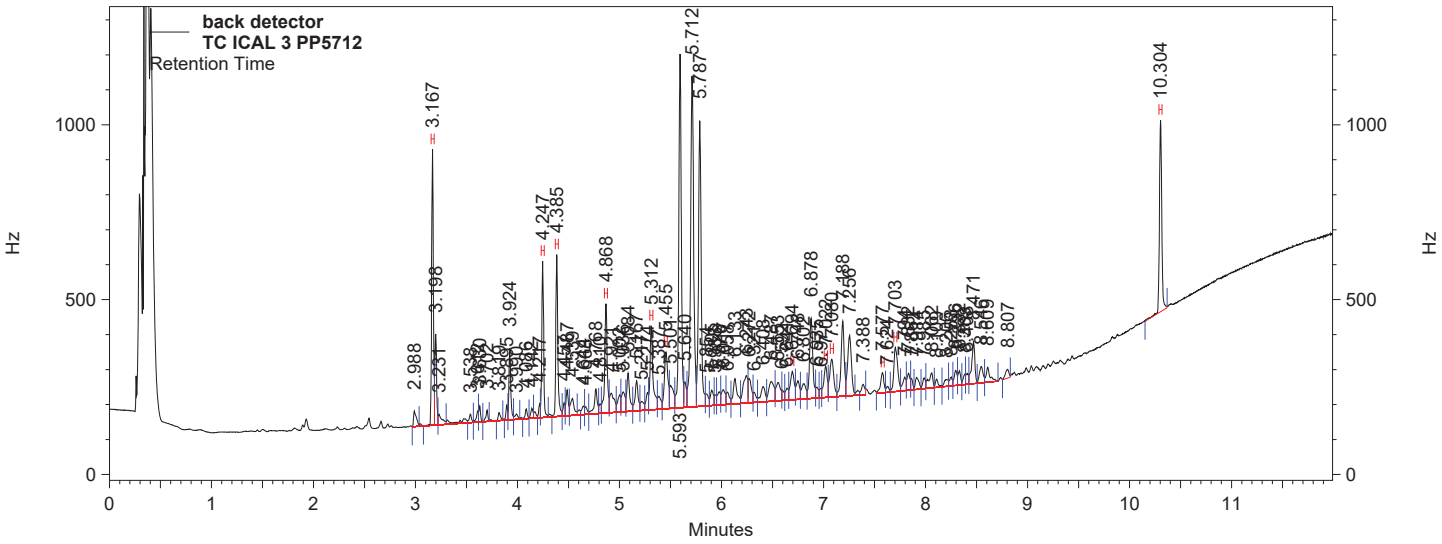
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPEST	2.620	7586604	24.0000 CAL
Chlordane #1	3.578	4054979	0.0200 CAL
Chlordane #2	3.640	4585078	0.0200 CAL
Chlordane #3	3.982	4848194	0.0200 CAL
Chlordane #4	4.323	3573667	0.0200 CAL
Chlordane #5	4.494	15941659	0.0200 CAL
Toxaphene #1	5.156	1623160	0.0200 CAL
Toxaphene #2	5.506	4105811	0.0200 CAL
Toxaphene #3	5.656	3606004	0.0200 CAL
Toxaphene #4	6.249	2213576	0.0200 CAL
Toxaphene #5	6.557	2658461	0.0200 CAL
SURRDCBPEST	8.762	7631380	24.0000 CAL
Chlordane		33003577	0.1000 CAL
Toxaphene		14207012	0.1000 CAL

Pesticide (TOX/Chlordane) Analysis Report *(Channel B)*

Data File: C:\Instarch\Semi1\data\091318pstic\006.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
User: JJY
Sample ID: TC ICAL 3 PP5712
Acquired: 09/13/2018 10:22:59
Printed: 09/13/2018 11:46:13

Data Summary: {Data Description}



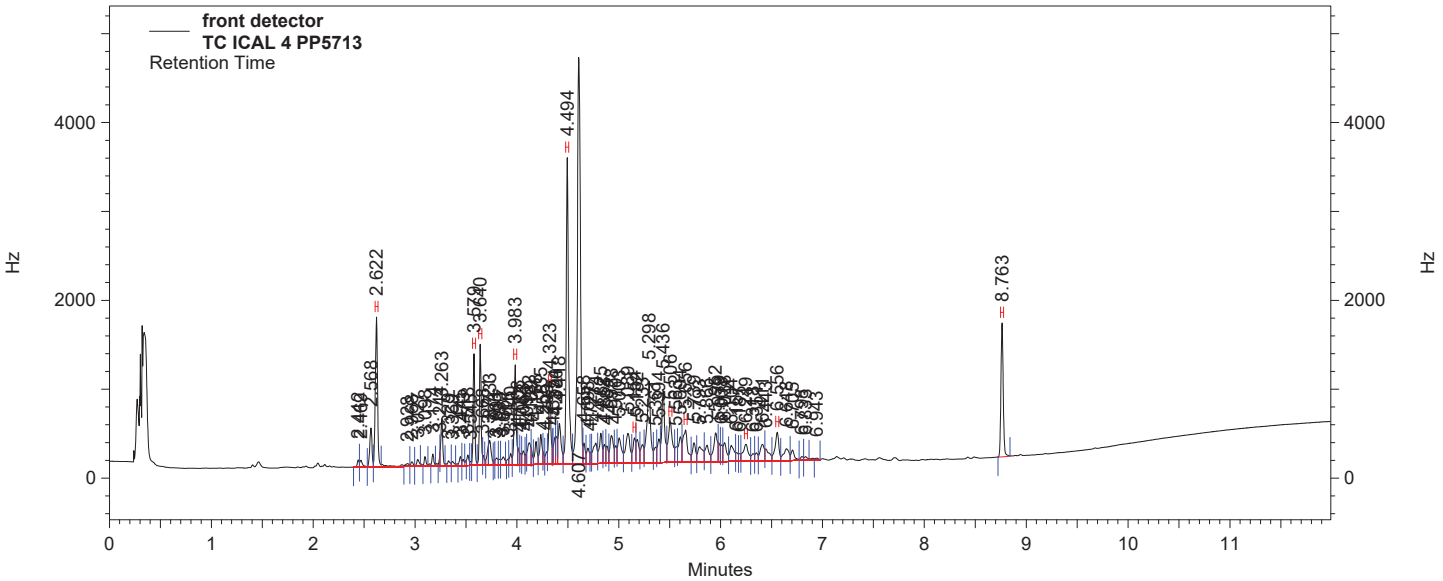
back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPEST	3.167	7109858	24.0000 CAL
Chlordane #1	4.247	4226289	0.0200 CAL
Chlordane #2	4.385	4824336	0.0200 CAL
Chlordane #3	4.868	4196848	0.0200 CAL
Chlordane #4	5.312	3737046	0.0200 CAL
Chlordane #5	5.455	2980124	0.0200 CAL
Toxaphene #1	6.694	1664559	0.0200 CAL
Toxaphene #2	7.022	1655000	0.0200 CAL
Toxaphene #3	7.080	2317627	0.0200 CAL
Toxaphene #4	7.577	1037807	0.0200 CAL
Toxaphene #5	7.703	2540618	0.0200 CAL
SURRDCBPEST	10.304	6540647	24.0000 CAL
Chlordane		19964643	0.1000 CAL
Toxaphene		9215611	0.1000 CAL

Pesticide (TOX/Chlordane) Analysis Report *(Channel A)*

Data File: C:\Instarch\Semi1\data\091318pstic\007.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
User: JJY
Sample ID: TC ICAL 4 PP5713
Acquired: 09/13/2018 10:39:08
Printed: 09/13/2018 11:46:16

Data Summary: {Data Description}



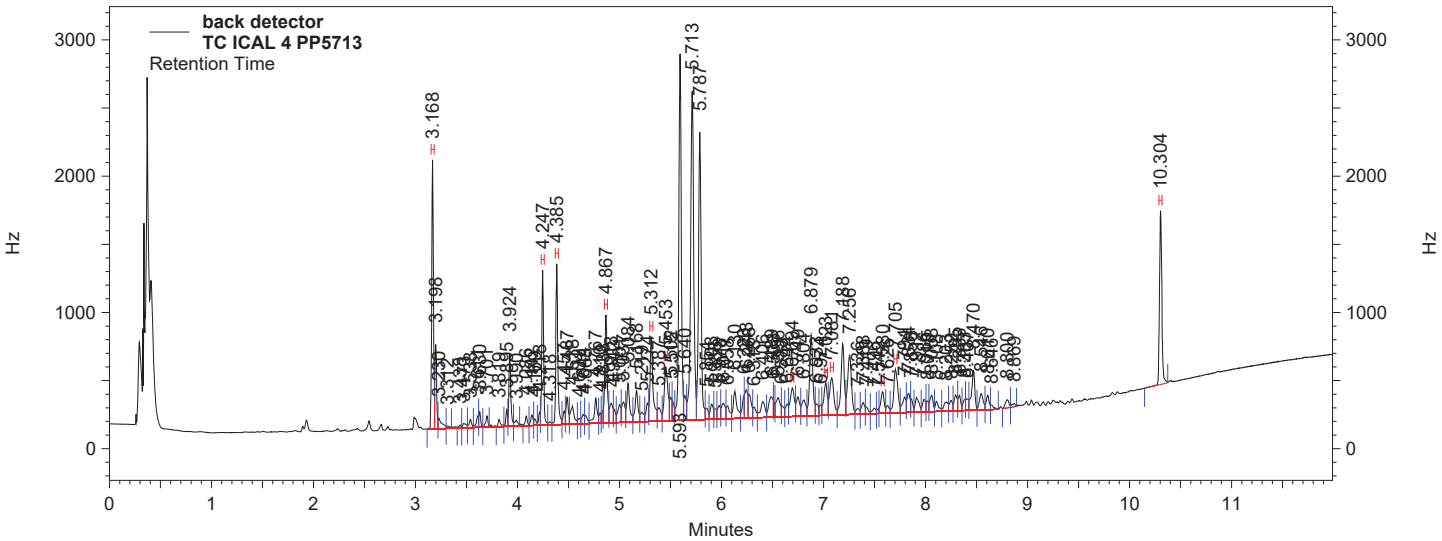
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPEST	2.622	19675234	60.0000 CAL
Chlordane #1	3.579	10721310	0.0500 CAL
Chlordane #2	3.640	11909438	0.0500 CAL
Chlordane #3	3.983	12379572	0.0500 CAL
Chlordane #4	4.323	9156505	0.0500 CAL
Chlordane #5	4.494	42056681	0.0500 CAL
Toxaphene #1	5.154	4023779	0.0500 CAL
Toxaphene #2	5.506	10133095	0.0500 CAL
Toxaphene #3	5.656	8868490	0.0500 CAL
Toxaphene #4	6.249	5177344	0.0500 CAL
Toxaphene #5	6.556	6379695	0.0500 CAL
SURRDCBPEST	8.763	17802716	60.0000 CAL
Chlordane		86223506	0.2500 CAL
Toxaphene		34582403	0.2500 CAL

Pesticide (TOX/Chlordane) Analysis Report *(Channel B)*

Data File: C:\Instarch\Semi1\data\091318pstic\007.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
User: JJY
Sample ID: TC ICAL 4 PP5713
Acquired: 09/13/2018 10:39:08
Printed: 09/13/2018 11:46:16

Data Summary: {Data Description}



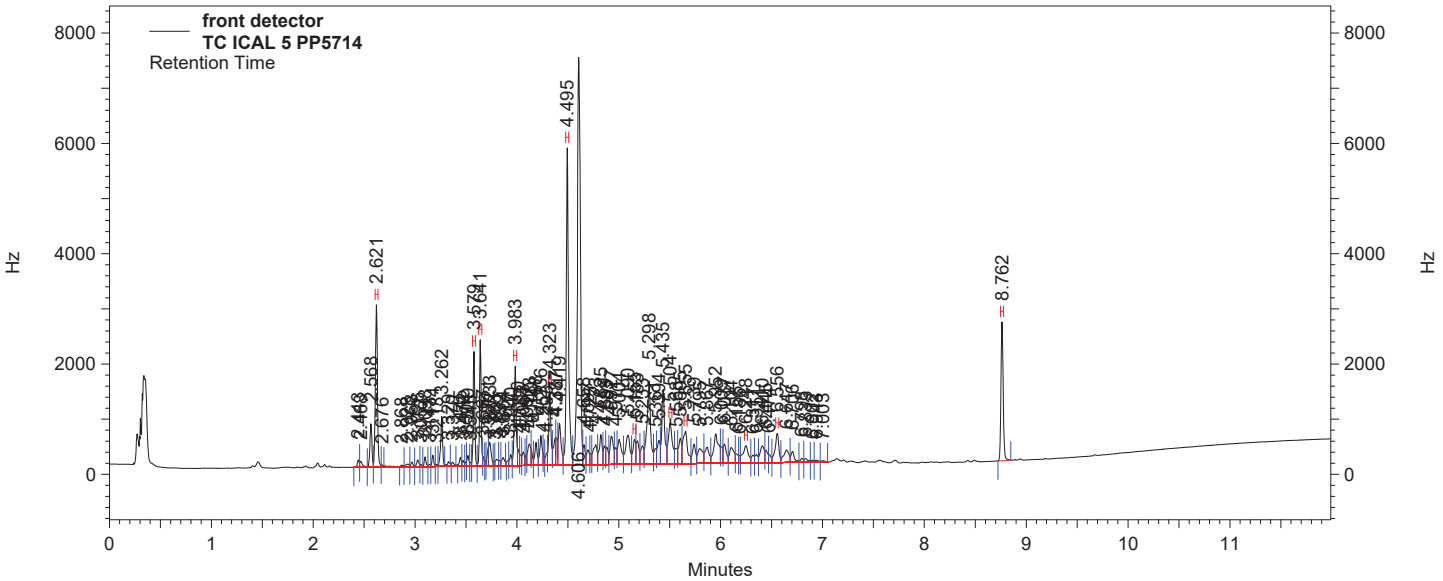
back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPEST	3.168	17946253	60.0000 CAL
Chlordane #1	4.247	10927304	0.0500 CAL
Chlordane #2	4.385	12131419	0.0500 CAL
Chlordane #3	4.867	9865898	0.0500 CAL
Chlordane #4	5.312	9599637	0.0500 CAL
Chlordane #5	5.453	7457163	0.0500 CAL
Toxaphene #1	6.694	4579888	0.0500 CAL
Toxaphene #2	7.023	4422021	0.0500 CAL
Toxaphene #3	7.081	6154378	0.0500 CAL
Toxaphene #4	7.580	2859803	0.0500 CAL
Toxaphene #5	7.705	6843447	0.0500 CAL
SURRDCBPEST	10.304	15192654	60.0000 CAL
Chlordane		49981421	0.2500 CAL
Toxaphene		24859537	0.2500 CAL

Pesticide (TOX/Chlordane) Analysis Report *(Channel A)*

Data File: C:\Instarch\Semi1\data\091318pstic\008.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
User: JJY
Sample ID: TC ICAL 5 PP5714
Acquired: 09/13/2018 10:55:24
Printed: 09/13/2018 11:46:19

Data Summary: {Data Description}



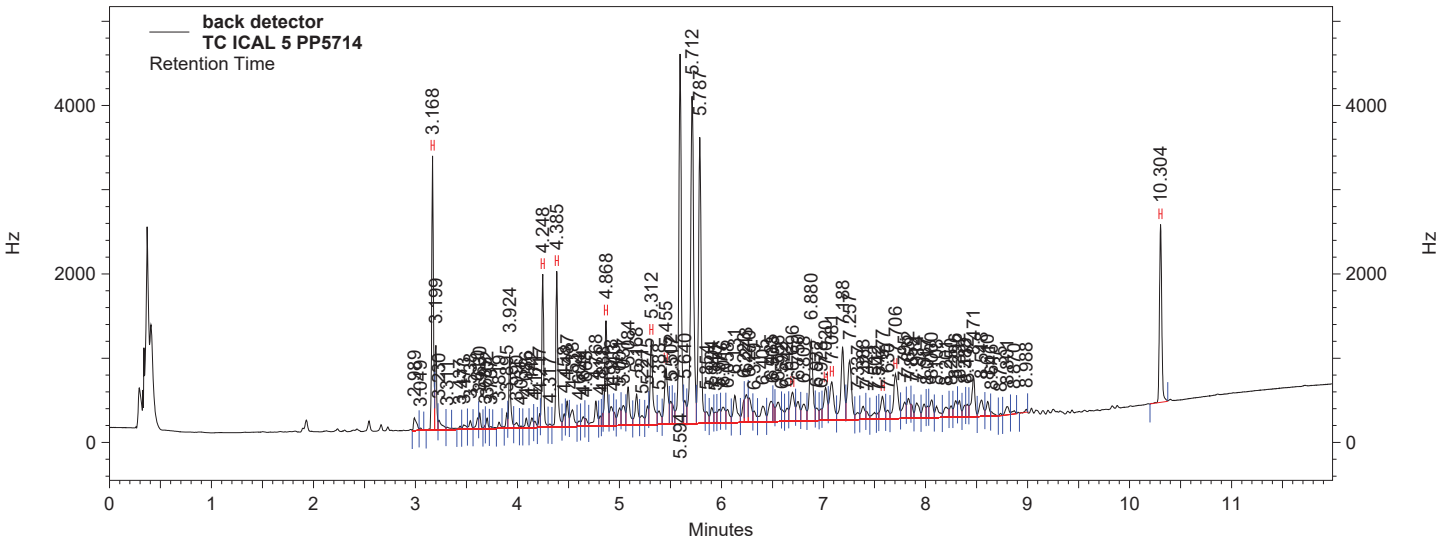
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPEST	2.621	31778483	96.0000 CAL
Chlordane #1	3.579	17246224	0.0800 CAL
Chlordane #2	3.641	19268626	0.0800 CAL
Chlordane #3	3.983	19104083	0.0800 CAL
Chlordane #4	4.323	14955039	0.0800 CAL
Chlordane #5	4.495	67933861	0.0800 CAL
Toxaphene #1	5.155	6637005	0.0800 CAL
Toxaphene #2	5.504	16041164	0.0800 CAL
Toxaphene #3	5.655	14292473	0.0800 CAL
Toxaphene #4	6.248	8948336	0.0800 CAL
Toxaphene #5	6.556	10542807	0.0800 CAL
SURRDCBPEST	8.762	29194214	96.0000 CAL
Chlordane		138507833	0.4000 CAL
Toxaphene		56461785	0.4000 CAL

Pesticide (TOX/Chlordane) Analysis Report *(Channel B)*

Data File: C:\Instarch\Semi1\data\091318pstic\008.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
User: JJY
Sample ID: TC ICAL 5 PP5714
Acquired: 09/13/2018 10:55:24
Printed: 09/13/2018 11:46:19

Data Summary: {Data Description}



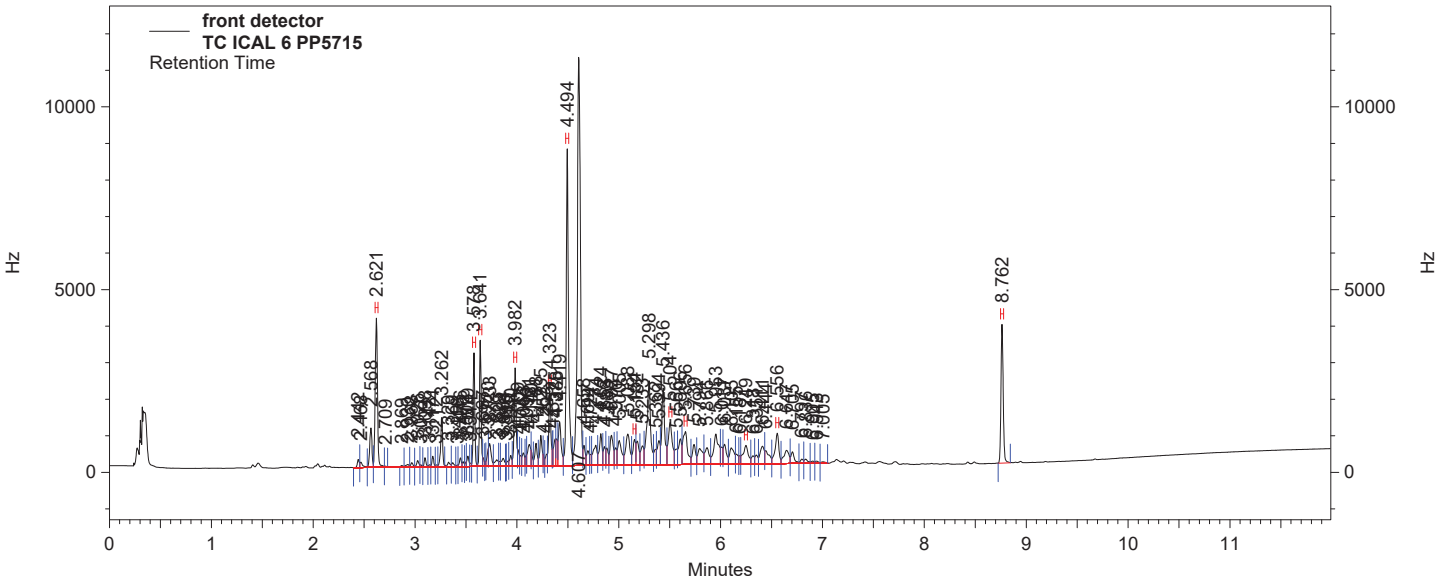
back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPEST	3.168	28437904	96.0000 CAL
Chlordane #1	4.248	17455139	0.0800 CAL
Chlordane #2	4.385	19190951	0.0800 CAL
Chlordane #3	4.868	15490021	0.0800 CAL
Chlordane #4	5.312	15234920	0.0800 CAL
Chlordane #5	5.455	12090524	0.0800 CAL
Toxaphene #1	6.696	7537950	0.0800 CAL
Toxaphene #2	7.020	7359879	0.0800 CAL
Toxaphene #3	7.081	10069479	0.0800 CAL
Toxaphene #4	7.577	5029997	0.0800 CAL
Toxaphene #5	7.706	11879871	0.0800 CAL
SURRDCBPEST	10.304	24960255	96.0000 CAL
Chlordane		79461555	0.4000 CAL
Toxaphene		41877176	0.4000 CAL

Pesticide (TOX/Chlordane) Analysis Report *(Channel A)*

Data File: C:\Instarch\Semi1\data\091318pstic\009.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
User: JJY
Sample ID: TC ICAL 6 PP5715
Acquired: 09/13/2018 11:11:39
Printed: 09/13/2018 11:46:22

Data Summary: {Data Description}



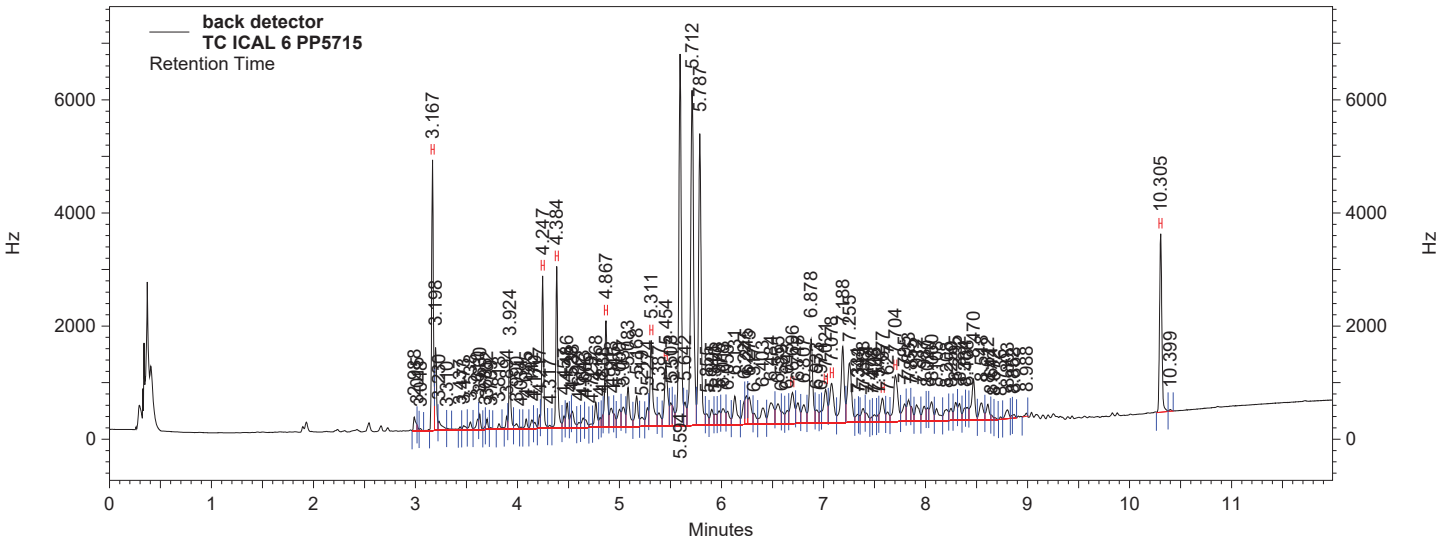
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPEST	2.621	49015457	144.0000 CAL
Chlordane #1	3.578	26150570	0.1200 CAL
Chlordane #2	3.641	29708558	0.1200 CAL
Chlordane #3	3.982	28467546	0.1200 CAL
Chlordane #4	4.323	22359955	0.1200 CAL
Chlordane #5	4.494	103121691	0.1200 CAL
Toxaphene #1	5.154	10128627	0.1200 CAL
Toxaphene #2	5.504	24543626	0.1200 CAL
Toxaphene #3	5.656	22131948	0.1200 CAL
Toxaphene #4	6.249	13774046	0.1200 CAL
Toxaphene #5	6.556	16590107	0.1200 CAL
SURRDCBPEST	8.762	44084883	144.0000 CAL
Chlordane		209808320	0.6000 CAL
Toxaphene		87168354	0.6000 CAL

Pesticide (TOX/Chlordane) Analysis Report *(Channel B)*

Data File: C:\Instarch\Semi1\data\091318pstic\009.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
User: JJY
Sample ID: TC ICAL 6 PP5715
Acquired: 09/13/2018 11:11:39
Printed: 09/13/2018 11:46:22

Data Summary: {Data Description}



back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPEST	3.167	42632356	144.0000 CAL
Chlordane #1	4.247	25952747	0.1200 CAL
Chlordane #2	4.384	29020453	0.1200 CAL
Chlordane #3	4.867	22869839	0.1200 CAL
Chlordane #4	5.311	23028609	0.1200 CAL
Chlordane #5	5.454	18768276	0.1200 CAL
Toxaphene #1	6.696	11768776	0.1200 CAL
Toxaphene #2	7.021	11893465	0.1200 CAL
Toxaphene #3	7.078	15578330	0.1200 CAL
Toxaphene #4	7.577	7950737	0.1200 CAL
Toxaphene #5	7.704	18607982	0.1200 CAL
SURRDCBPEST	10.305	37174745	144.0000 CAL
Chlordane		119639924	0.6000 CAL
Toxaphene		65799290	0.6000 CAL

QC Check Standard Report

Sequence : C:\Instarch\Semi1\Sequence\091318pstic.seq
User : JJY
Printed : 09/13/2018 11:46:27

File	Sample ID	Acquired
C:\Instarch\Semi1\data\091318pstic\010.dat	TC ICV PP5716	09/13/2018 11:46:27

front detector

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
SURRTCMXPEST	60.000	59.318	1.136	20.000	Passed
Chlordane #1	0.050	0.048	4.964	20.000	Passed
Chlordane #2	0.050	0.047	5.097	20.000	Passed
Chlordane #3	0.050	0.048	3.765	20.000	Passed
Chlordane #4	0.050	0.047	6.061	20.000	Passed
Chlordane #5	0.050	0.048	4.741	20.000	Passed
Toxaphene #1	0.050	0.050	0.354	20.000	Passed
Toxaphene #2	0.050	0.051	2.186	20.000	Passed
Toxaphene #3	0.050	0.051	1.581	20.000	Passed
Toxaphene #4	0.050	0.051	2.227	20.000	Passed
Toxaphene #5	0.050	0.052	4.261	20.000	Passed
SURRDCBPEST	60.000	62.053	3.421	20.000	Passed
Chlordane	0.250	0.238	4.926	20.000	Passed
Toxaphene	0.250	0.255	2.122	20.000	Passed

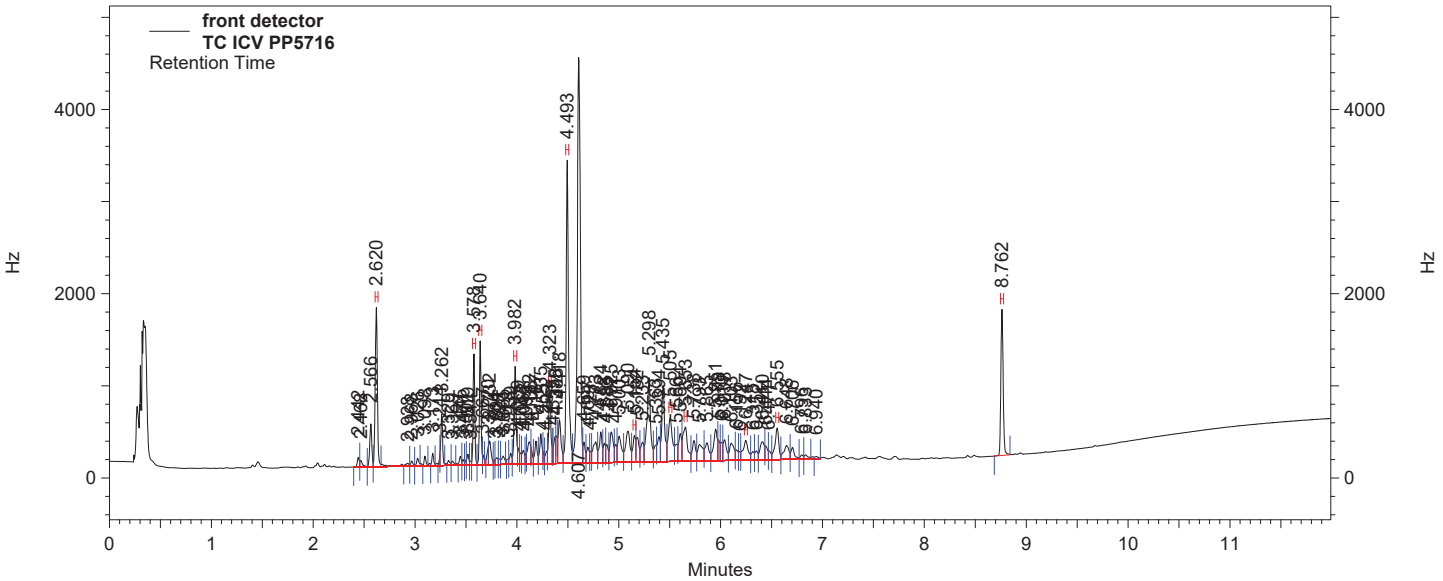
back detector

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
SURRTCMXPEST	60.000	60.502	0.837	20.000	Passed
Chlordane #1	0.050	0.048	3.794	20.000	Passed
Chlordane #2	0.050	0.048	3.369	20.000	Passed
Chlordane #3	0.050	0.048	4.135	20.000	Passed
Chlordane #4	0.050	0.048	4.859	20.000	Passed
Chlordane #5	0.050	0.049	2.006	20.000	Passed
Toxaphene #1	0.050	0.050	0.676	20.000	Passed
Toxaphene #2	0.050	0.048	3.590	20.000	Passed
Toxaphene #3	0.050	0.050	0.994	20.000	Passed
Toxaphene #4	0.050	0.049	2.759	20.000	Passed
Toxaphene #5	0.050	0.050	0.827	20.000	Passed
SURRDCBPEST	60.000	62.801	4.668	20.000	Passed
Chlordane	0.250	0.241	3.633	20.000	Passed
Toxaphene	0.250	0.247	1.372	20.000	Passed

Pesticide (TOX/Chlordane) Analysis Report *(Channel A)*

Data File: C:\Instarch\Semi1\data\091318pstic\010.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
User: JJY
Sample ID: TC ICV PP5716
Acquired: 09/13/2018 11:27:54
Printed: 09/13/2018 11:46:25

Data Summary: {Data Description}



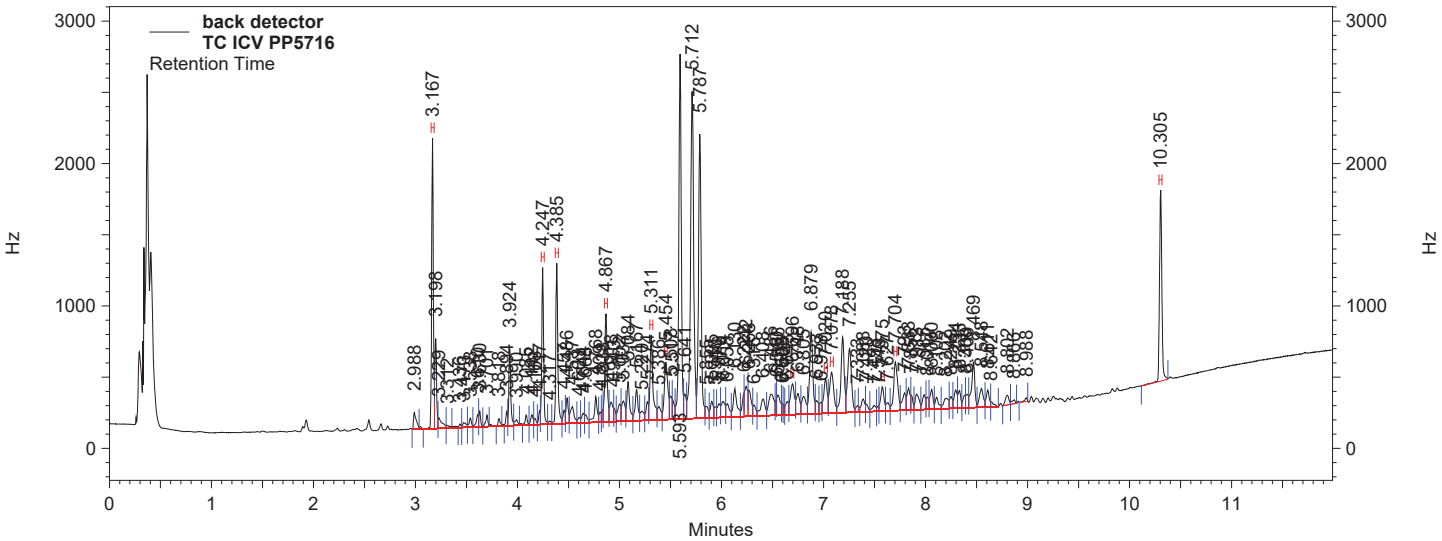
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPEST	2.620	19740187	59.3183
Chlordane #1	3.578	10223707	0.0475
Chlordane #2	3.640	11473584	0.0475
Chlordane #3	3.982	11601574	0.0481
Chlordane #4	4.323	8716577	0.0470
Chlordane #5	4.493	40290587	0.0476
Toxaphene #1	5.154	4185364	0.0502
Toxaphene #2	5.505	10388726	0.0511
Toxaphene #3	5.653	9182331	0.0508
Toxaphene #4	6.247	5716763	0.0511
Toxaphene #5	6.555	6987988	0.0521
SURRDCBPEST	8.762	18980723	62.0526
Chlordane		82306029	0.2377
Toxaphene		36461172	0.2553

Pesticide (TOX/Chlordane) Analysis Report *(Channel B)*

Data File: C:\Instarch\Semi1\data\091318pstic\010.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318tcic.met
User: JJY
Sample ID: TC ICV PP5716
Acquired: 09/13/2018 11:27:54
Printed: 09/13/2018 11:46:25

Data Summary: {Data Description}



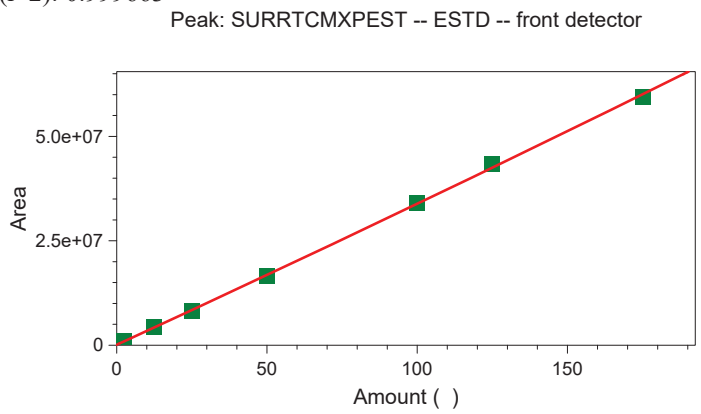
back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPEST	3.167	17978095	60.5020
Chlordane #1	4.247	10456788	0.0481
Chlordane #2	4.385	11706413	0.0483
Chlordane #3	4.867	9405409	0.0479
Chlordane #4	5.311	9119407	0.0476
Chlordane #5	5.454	7509313	0.0490
Toxaphene #1	6.696	4672958	0.0497
Toxaphene #2	7.020	4489348	0.0482
Toxaphene #3	7.078	6353392	0.0505
Toxaphene #4	7.575	2987845	0.0486
Toxaphene #5	7.704	7238811	0.0496
SURRDCBPEST	10.305	16282032	62.8006
Chlordane		48197330	0.2409
Toxaphene		25742354	0.2466

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:50:30
User: JJY
Instrument: Semi 1

SURRTCMXPEST (front detector)
Average RF: 344328. RF StDev: 16218.6 RF %RSD: 4.71021
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Quadratic
y = 68.9689x^2 + 330650.x + 108250.
Goodness of fit (r^2): 0.999663



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	2.5	12.5	25	50	100
Area	946060	4299946	8237551	16599625	33953469
RF	378424	343995.68	329502.04	331992.5	339534.69
Last Area					
Residual	-0.0324924	-0.143808	0.538958	0.632668	-0.262932
Rep StDev					
Rep %RSD					
Rep 1 Area	946060	4299946	8237551	16599625	33953469
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\013.dat	C:\Instarch\Semi1\data\091318pstic\014.dat	C:\Instarch\Semi1\data\091318pstic\015.dat	C:\Instarch\Semi1\data\091318pstic\016.dat	C:\Instarch\Semi1\data\091318pstic\017.dat
Rep 1 Sample ID	Pest ICAL 1 PP5701	Pest ICAL 2 PP5702	Pest ICAL 3 PP5703	Pest ICAL 4 PP5704	Pest ICAL 5 PP5705
Rep 1 Calib. Time	09/13/2018 14:45:00	09/13/2018 14:45:09	09/13/2018 14:45:21	09/13/2018 14:45:32	09/13/2018 14:45:43

	Level 6	Level 7
Amount	125	175
Area	43313149	59559323

Calibration Report

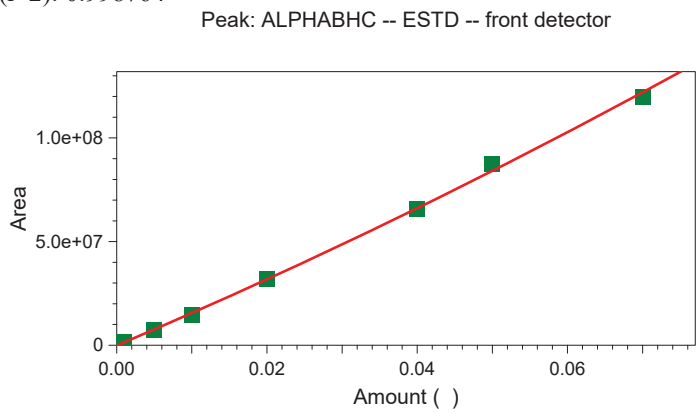
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:50:30
User: JJY
Instrument: Semi 1

RF	346505.192	340338.988571429
Last Area Residual	-2.2872	1.47956
Rep StDev		
Rep %RSD		
Rep 1 Area	43313149	59559323
Rep 1 User	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\018.dat	C:\Instarch\Semi1\data\091318pstic\019.dat
Rep 1 Sample ID	Pest ICAL 6 PP5706	Pest ICAL 7 PP5707
Rep 1 Calib. Time	09/13/2018 14:45:54	09/13/2018 14:46:05

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:50:33
User: JJY
Instrument: Semi 1

ALPHABHC (front detector)
Average RF: 1.59010e+009 RF StDev: 1.18486e+008 RF %RSD: 7.45143
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Quadratic
y = 2.96769e+009x^2 + 1.53760e+009x - 157270.
Goodness of fit (r^2): 0.998764



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.001	0.005	0.01	0.02	0.04
Area	1482575	7343961	14687100	32085968	65808257
RF	1482575000	1468792200	1468710000	1604298400	1645206425
Last Area					
Residual	-6.43092e-005	0.000166562	0.000519244	-0.000183566	0.000161629
Rep StDev					
Rep %RSD					
Rep 1 Area	1482575	7343961	14687100	32085968	65808257
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\013.dat	C:\Instarch\Semi1\data\091318pstic\014.dat	C:\Instarch\Semi1\data\091318pstic\015.dat	C:\Instarch\Semi1\data\091318pstic\016.dat	C:\Instarch\Semi1\data\091318pstic\017.dat
Rep 1 Sample ID	Pest ICAL 1 PP5701	Pest ICAL 2 PP5702	Pest ICAL 3 PP5703	Pest ICAL 4 PP5704	Pest ICAL 5 PP5705
Rep 1 Calib. Time	09/13/2018 14:45:00	09/13/2018 14:45:09	09/13/2018 14:45:21	09/13/2018 14:45:32	09/13/2018 14:45:43

	Level 6	Level 7
Amount	0.05	0.07
Area	87331514	120016342

Calibration Report

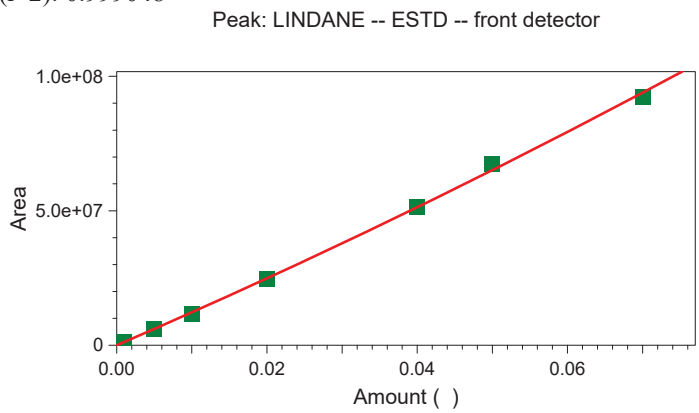
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:50:33
User: JJY
Instrument: Semi 1

RF	1746630280	1714519171.42857
Last Area Residual	-0.00173389	0.00102569
Rep StDev		
Rep %RSD		
Rep 1 Area	87331514	120016342
Rep 1 User	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\018.dat	C:\Instarch\Semi1\data\091318pstic\019.dat
Rep 1 Sample ID	Pest ICAL 6 PP5706	Pest ICAL 7 PP5707
Rep 1 Calib. Time	09/13/2018 14:45:54	09/13/2018 14:46:05

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:50:35
User: JJY
Instrument: Semi 1

LINDANE (front detector)
Average RF: 1.25887e+009 RF StDev: 6.45002e+007 RF %RSD: 5.12365
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Quadratic
y = 1.96508e+009x^2 + 1.20454e+009x - 8545.31
Goodness of fit (r^2): 0.999048



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.001	0.005	0.01	0.02	0.04
Area	1259680	5963842	11688117	24778153	51402606
RF	1259680000	1192768400	1168811700	1238907650	1285065150
Last Area					
Residual	-5.10717e-005	8.12258e-005	0.000438634	7.01981e-005	-6.28291e-005
Rep StDev					
Rep %RSD					
Rep 1 Area	1259680	5963842	11688117	24778153	51402606
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\013.dat	C:\Instarch\Semi1\data\091318pstic\014.dat	C:\Instarch\Semi1\data\091318pstic\015.dat	C:\Instarch\Semi1\data\091318pstic\016.dat	C:\Instarch\Semi1\data\091318pstic\017.dat
Rep 1 Sample ID	Pest ICAL 1 PP5701	Pest ICAL 2 PP5702	Pest ICAL 3 PP5703	Pest ICAL 4 PP5704	Pest ICAL 5 PP5705
Rep 1 Calib. Time	09/13/2018 14:45:00	09/13/2018 14:45:09	09/13/2018 14:45:21	09/13/2018 14:45:32	09/13/2018 14:45:43

	Level 6	Level 7
Amount	0.05	0.07
Area	67260606	92515552

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:50:35
User: JJY
Instrument: Semi 1

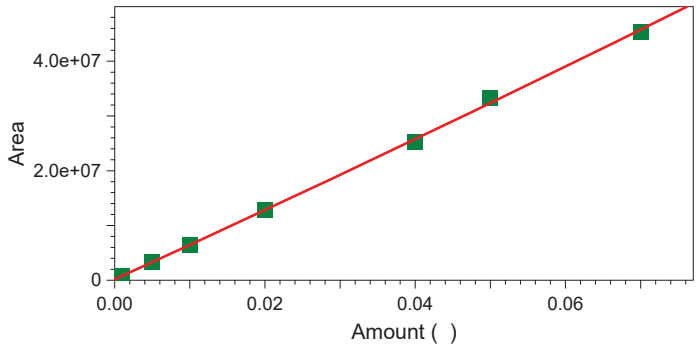
RF	1345212120	1321650742.85714
Last Area Residual	-0.0015168	0.0009625
Rep StDev		
Rep %RSD		
Rep 1 Area	67260606	92515552
Rep 1 User	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\018.dat	C:\Instarch\Semi1\data\091318pstic\019.dat
Rep 1 Sample ID	Pest ICAL 6 PP5706	Pest ICAL 7 PP5707
Rep 1 Calib. Time	09/13/2018 14:45:54	09/13/2018 14:46:05

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:50:37
User: JJY
Instrument: Semi 1

BETABHC (front detector)
Average RF: 6.70121e+008 RF StDev: 5.63971e+007 RF %RSD: 8.41596
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Quadratic
y = 3.90226e+008x^2 + 6.24023e+008x + 174100.
Goodness of fit (r^2): 0.999114

Peak: BETABHC -- ESTD -- front detector



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.001	0.005	0.01	0.02	0.04
Area	791285	3397855	6336574	12822735	25161883
RF	791285000	679571000	633657400	641136750	629047075
Last Area					
Residual	1.15682e-005	-0.000149504	0.000184842	-1.89046e-005	0.00091235
Rep StDev					
Rep %RSD					
Rep 1 Area	791285	3397855	6336574	12822735	25161883
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\013.dat	C:\Instarch\Semi1\data\091318pstic\014.dat	C:\Instarch\Semi1\data\091318pstic\015.dat	C:\Instarch\Semi1\data\091318pstic\016.dat	C:\Instarch\Semi1\data\091318pstic\017.dat
Rep 1 Sample ID	Pest ICAL 1 PP5701	Pest ICAL 2 PP5702	Pest ICAL 3 PP5703	Pest ICAL 4 PP5704	Pest ICAL 5 PP5705
Rep 1 Calib. Time	09/13/2018 14:45:00	09/13/2018 14:45:09	09/13/2018 14:45:21	09/13/2018 14:45:32	09/13/2018 14:45:43

	Level 6	Level 7
Amount	0.05	0.07
Area	33360247	45425978

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:50:37
User: JJY
Instrument: Semi 1

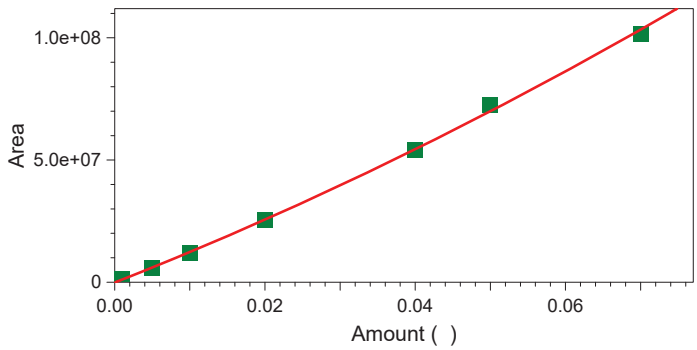
RF	667204940	648942542.857143
Last Area Residual	-0.00152108	0.00050381
Rep StDev		
Rep %RSD		
Rep 1 Area	33360247	45425978
Rep 1 User	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\018.dat	C:\Instarch\Semi1\data\091318pstic\019.dat
Rep 1 Sample ID	Pest ICAL 6 PP5706	Pest ICAL 7 PP5707
Rep 1 Calib. Time	09/13/2018 14:45:54	09/13/2018 14:46:05

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:50:39
User: JJY
Instrument: Semi 1

DELTABHC (front detector)
Average RF: 1.29555e+009 RF StDev: 1.26895e+008 RF %RSD: 9.79467
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Quadratic
y = 3.85046e+009x^2 + 1.20899e+009x - 108215.
Goodness of fit (r^2): 0.998830

Peak: DELTABHC -- ESTD -- front detector



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.001	0.005	0.01	0.02	0.04
Area	1159685	5942399	11793088	25659356	54056647
RF	1159685000	1188479800	1179308800	1282967800	1351416175
Last Area					
Residual	-4.52474e-005	7.26384e-005	0.000446662	-3.49159e-005	0.000234449
Rep StDev					
Rep %RSD					
Rep 1 Area	1159685	5942399	11793088	25659356	54056647
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\013.dat	C:\Instarch\Semi1\data\091318pstic\014.dat	C:\Instarch\Semi1\data\091318pstic\015.dat	C:\Instarch\Semi1\data\091318pstic\016.dat	C:\Instarch\Semi1\data\091318pstic\017.dat
Rep 1 Sample ID	Pest ICAL 1 PP5701	Pest ICAL 2 PP5702	Pest ICAL 3 PP5703	Pest ICAL 4 PP5704	Pest ICAL 5 PP5705
Rep 1 Calib. Time	09/13/2018 14:45:00	09/13/2018 14:45:09	09/13/2018 14:45:21	09/13/2018 14:45:32	09/13/2018 14:45:43

	Level 6	Level 7
Amount	0.05	0.07
Area	72648109	101783180

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:50:39
User: JJY
Instrument: Semi 1

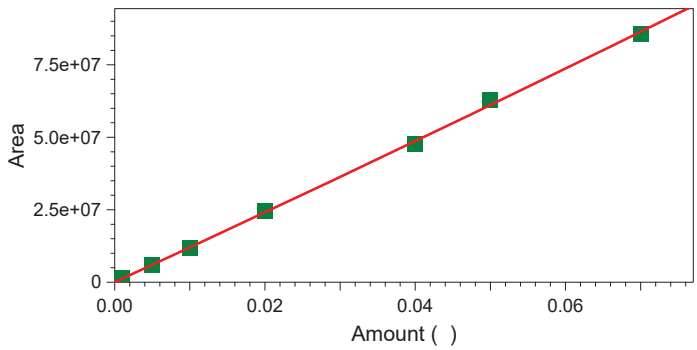
RF	1452962180	1454045428.57143
Last Area Residual	-0.00167493	0.000920094
Rep StDev		
Rep %RSD		
Rep 1 Area	72648109	101783180
Rep 1 User	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\018.dat	C:\Instarch\Semi1\data\091318pstic\019.dat
Rep 1 Sample ID	Pest ICAL 6 PP5706	Pest ICAL 7 PP5707
Rep 1 Calib. Time	09/13/2018 14:45:54	09/13/2018 14:46:05

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:50:40
User: JJY
Instrument: Semi 1

HEPTACHLOR (front detector)
Average RF: 1.22092e+009 RF StDev: 3.58600e+007 RF %RSD: 2.93714
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Quadratic
y = 6.29517e+008x^2 + 1.18960e+009x + 65370.8
Goodness of fit (r^2): 0.999316

Peak: HEPTACHLOR -- ESTD -- front detector



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.001	0.005	0.01	0.02	0.04
Area	1274716	6028488	11703270	24462747	47670152
RF	1274716000	1205697600	1170327000	1223137350	1191753800
Last Area					
Residual	-1.60485e-005	5.35607e-007	0.000267126	-0.000290946	0.000795993
Rep StDev					
Rep %RSD					
Rep 1 Area	1274716	6028488	11703270	24462747	47670152
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\013.dat	C:\Instarch\Semi1\data\091318pstic\014.dat	C:\Instarch\Semi1\data\091318pstic\015.dat	C:\Instarch\Semi1\data\091318pstic\016.dat	C:\Instarch\Semi1\data\091318pstic\017.dat
Rep 1 Sample ID	Pest ICAL 1 PP5701	Pest ICAL 2 PP5702	Pest ICAL 3 PP5703	Pest ICAL 4 PP5704	Pest ICAL 5 PP5705
Rep 1 Calib. Time	09/13/2018 14:45:00	09/13/2018 14:45:09	09/13/2018 14:45:21	09/13/2018 14:45:32	09/13/2018 14:45:43

	Level 6	Level 7
Amount	0.05	0.07
Area	62741049	85817135

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:50:40
User: JJY
Instrument: Semi 1

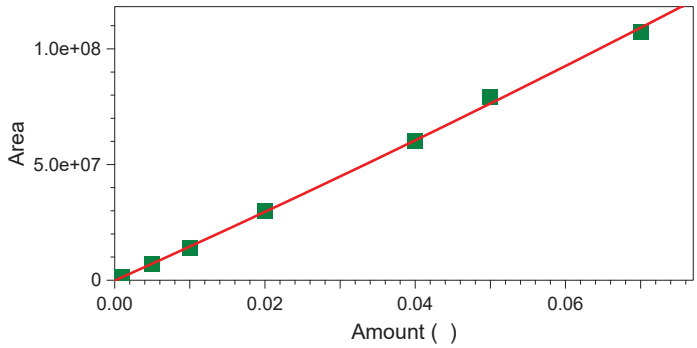
RF	1254820980	1225959071.42857
Last Area Residual	-0.00129386	0.000473718
Rep StDev		
Rep %RSD		
Rep 1 Area	62741049	85817135
Rep 1 User	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\018.dat	C:\Instarch\Semi1\data\091318pstic\019.dat
Rep 1 Sample ID	Pest ICAL 6 PP5706	Pest ICAL 7 PP5707
Rep 1 Calib. Time	09/13/2018 14:45:54	09/13/2018 14:46:05

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:50:42
User: JJY
Instrument: Semi 1

ALDRIN (front detector)
Average RF: 1.46668e+009 RF StDev: 8.10877e+007 RF %RSD: 5.52864
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Quadratic
y = 1.53589e+009x^2 + 1.45363e+009x - 151430.
Goodness of fit (r^2): 0.998874

Peak: ALDRIN -- ESTD -- front detector



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.001	0.005	0.01	0.02	0.04
Area	1374635	7003557	13845753	29759389	59995892
RF	1374635000	1400711400	1384575300	1487969450	1499897300
Last Area					
Residual	-4.86668e-005	0.000103192	0.000466913	-0.000147707	0.00028894
Rep StDev					
Rep %RSD					
Rep 1 Area	1374635	7003557	13845753	29759389	59995892
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\013.dat	C:\Instarch\Semi1\data\091318pstic\014.dat	C:\Instarch\Semi1\data\091318pstic\015.dat	C:\Instarch\Semi1\data\091318pstic\016.dat	C:\Instarch\Semi1\data\091318pstic\017.dat
Rep 1 Sample ID	Pest ICAL 1 PP5701	Pest ICAL 2 PP5702	Pest ICAL 3 PP5703	Pest ICAL 4 PP5704	Pest ICAL 5 PP5705
Rep 1 Calib. Time	09/13/2018 14:45:00	09/13/2018 14:45:09	09/13/2018 14:45:21	09/13/2018 14:45:32	09/13/2018 14:45:43

	Level 6	Level 7
Amount	0.05	0.07
Area	79146474	107525132

Calibration Report

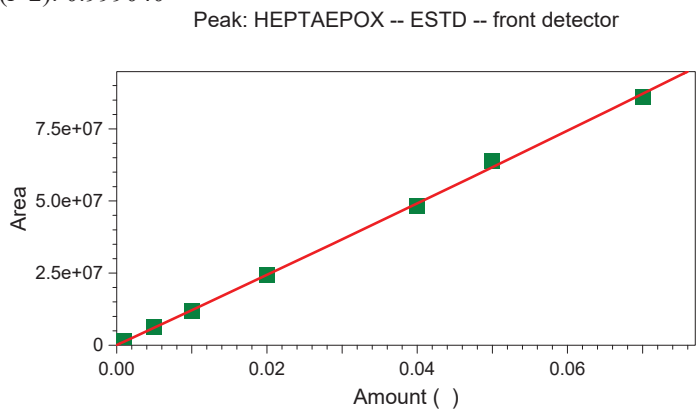
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:50:42
User: JJY
Instrument: Semi 1

RF	1582929480	1536073314.28571
Last Area Residual	-0.00172472	0.000961833
Rep StDev		
Rep %RSD		
Rep 1 Area	79146474	107525132
Rep 1 User	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\018.dat	C:\Instarch\Semi1\data\091318pstic\019.dat
Rep 1 Sample ID	Pest ICAL 6 PP5706	Pest ICAL 7 PP5707
Rep 1 Calib. Time	09/13/2018 14:45:54	09/13/2018 14:46:05

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:50:43
User: JJY
Instrument: Semi 1

HEPTAEPOX (front detector)
Average RF: 1.23104e+009 RF StDev: 3.51846e+007 RF %RSD: 2.85811
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Quadratic
y = 5.69781e+008x^2 + 1.20448e+009x + 49730.7
Goodness of fit (r^2): 0.999040



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.001	0.005	0.01	0.02	0.04
Area	1275037	6133537	11773093	24467580	48298216
RF	1275037000	1226707400	1177309300	1223379000	1207455400
Last Area					
Residual	-1.68034e-005	-3.89791e-005	0.000311257	-8.1788e-005	0.000673997
Rep StDev					
Rep %RSD					
Rep 1 Area	1275037	6133537	11773093	24467580	48298216
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\013.dat	C:\Instarch\Semi1\data\091318pstic\014.dat	C:\Instarch\Semi1\data\091318pstic\015.dat	C:\Instarch\Semi1\data\091318pstic\016.dat	C:\Instarch\Semi1\data\091318pstic\017.dat
Rep 1 Sample ID	Pest ICAL 1 PP5701	Pest ICAL 2 PP5702	Pest ICAL 3 PP5703	Pest ICAL 4 PP5704	Pest ICAL 5 PP5705
Rep 1 Calib. Time	09/13/2018 14:45:00	09/13/2018 14:45:09	09/13/2018 14:45:21	09/13/2018 14:45:32	09/13/2018 14:45:43

	Level 6	Level 7
Amount	0.05	0.07
Area	63771471	86239650

Calibration Report

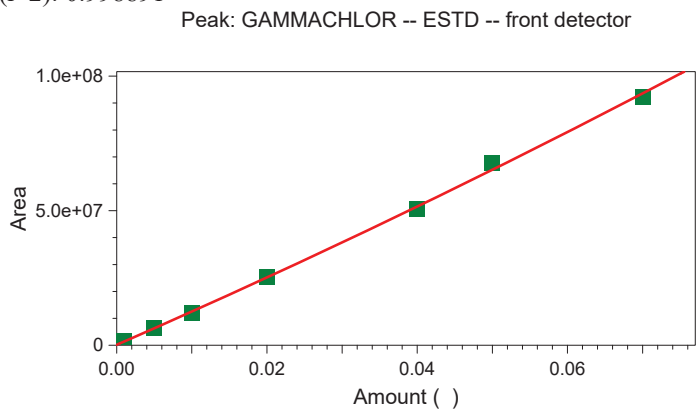
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:50:43
User: JJY
Instrument: Semi 1

RF	1275429420	1231995000
Last Area Residual	-0.00164243	0.000713061
Rep StDev		
Rep %RSD		
Rep 1 Area	63771471	86239650
Rep 1 User	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\018.dat	C:\Instarch\Semi1\data\091318pstic\019.dat
Rep 1 Sample ID	Pest ICAL 6 PP5706	Pest ICAL 7 PP5707
Rep 1 Calib. Time	09/13/2018 14:45:54	09/13/2018 14:46:05

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:50:45
User: JJY
Instrument: Semi 1

GAMMACHLOR (front detector)
Average RF: 1.30071e+009 RF StDev: 7.58853e+007 RF %RSD: 5.83414
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Quadratic
y = 1.68766e+009x^2 + 1.21624e+009x + 178225.
Goodness of fit (r^2): 0.998891



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.001	0.005	0.01	0.02	0.04
Area	1436109	6282552	12061797	25327808	50686613
RF	1436109000	1256510400	1206179700	1266390400	1267165325
Last Area					
Residual	-3.27581e-005	1.54701e-005	0.000358269	-0.000116571	0.00062329
Rep StDev					
Rep %RSD					
Rep 1 Area	1436109	6282552	12061797	25327808	50686613
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\013.dat	C:\Instarch\Semi1\data\091318pstic\014.dat	C:\Instarch\Semi1\data\091318pstic\015.dat	C:\Instarch\Semi1\data\091318pstic\016.dat	C:\Instarch\Semi1\data\091318pstic\017.dat
Rep 1 Sample ID	Pest ICAL 1 PP5701	Pest ICAL 2 PP5702	Pest ICAL 3 PP5703	Pest ICAL 4 PP5704	Pest ICAL 5 PP5705
Rep 1 Calib. Time	09/13/2018 14:45:00	09/13/2018 14:45:09	09/13/2018 14:45:21	09/13/2018 14:45:32	09/13/2018 14:45:43

	Level 6	Level 7
Amount	0.05	0.07
Area	67598994	92445040

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:50:45
User: JJY
Instrument: Semi 1

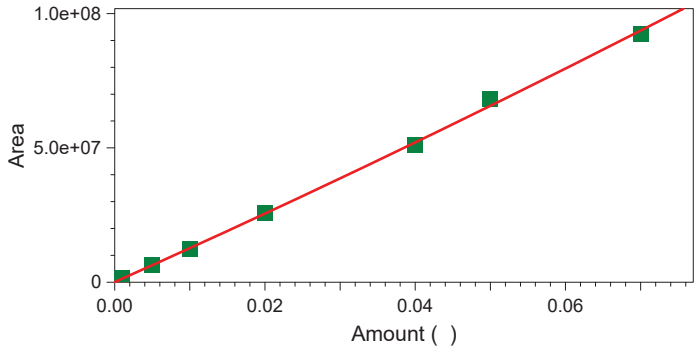
RF	1351979880	1320643428.57143
Last Area Residual	-0.00172164	0.000785358
Rep StDev		
Rep %RSD		
Rep 1 Area	67598994	92445040
Rep 1 User	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\018.dat	C:\Instarch\Semi1\data\091318pstic\019.dat
Rep 1 Sample ID	Pest ICAL 6 PP5706	Pest ICAL 7 PP5707
Rep 1 Calib. Time	09/13/2018 14:45:54	09/13/2018 14:46:05

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:50:47
User: JJY
Instrument: Semi 1

ALPHACHLOR (front detector)
Average RF: 1.29827e+009 RF StDev: 4.78649e+007 RF %RSD: 3.68683
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Quadratic
y = 1.28954e+009x^2 + 1.24706e+009x + 70999.3
Goodness of fit (r^2): 0.998931

Peak: ALPHACHLOR -- ESTD -- front detector



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.001	0.005	0.01	0.02	0.04
Area	1349439	6347545	12262467	25620894	51147832
RF	1349439000	1269509000	1226246700	1281044700	1278695800
Last Area					
Residual	-2.40772e-005	-7.14272e-006	0.000320724	-7.1492e-005	0.00064391
Rep StDev					
Rep %RSD					
Rep 1 Area	1349439	6347545	12262467	25620894	51147832
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\013.dat	C:\Instarch\Semi1\data\091318pstic\014.dat	C:\Instarch\Semi1\data\091318pstic\015.dat	C:\Instarch\Semi1\data\091318pstic\016.dat	C:\Instarch\Semi1\data\091318pstic\017.dat
Rep 1 Sample ID	Pest ICAL 1 PP5701	Pest ICAL 2 PP5702	Pest ICAL 3 PP5703	Pest ICAL 4 PP5704	Pest ICAL 5 PP5705
Rep 1 Calib. Time	09/13/2018 14:45:00	09/13/2018 14:45:09	09/13/2018 14:45:21	09/13/2018 14:45:32	09/13/2018 14:45:43

	Level 6	Level 7
Amount	0.05	0.07
Area	68009932	92591370

Calibration Report

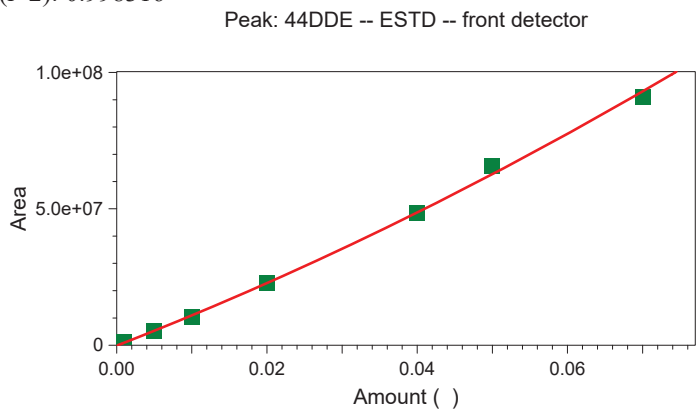
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:50:47
User: JJY
Instrument: Semi 1

RF	1360198640	1322733857.14286
Last Area Residual	-0.00171381	0.000765921
Rep StDev		
Rep %RSD		
Rep 1 Area	68009932	92591370
Rep 1 User	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\018.dat	C:\Instarch\Semi1\data\091318pstic\019.dat
Rep 1 Sample ID	Pest ICAL 6 PP5706	Pest ICAL 7 PP5707
Rep 1 Calib. Time	09/13/2018 14:45:54	09/13/2018 14:46:05

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:50:48
User: JJY
Instrument: Semi 1

44DDE (front detector)
Average RF: 1.14683e+009 RF StDev: 1.33280e+008 RF %RSD: 11.6216
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Quadratic
y = 3.71231e+009x^2 + 1.07206e+009x - 149025.
Goodness of fit (r^2): 0.998316



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.001	0.005	0.01	0.02	0.04
Area	1005673	5116756	10229766	22916690	48651445
RF	1005673000	1023351200	1022976600	1145834500	1216286125
Last Area					
Residual	-7.30985e-005	0.000168972	0.000623271	-0.000114368	1.57235e-005
Rep StDev					
Rep %RSD					
Rep 1 Area	1005673	5116756	10229766	22916690	48651445
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\013.dat	C:\Instarch\Semi1\data\091318pstic\014.dat	C:\Instarch\Semi1\data\091318pstic\015.dat	C:\Instarch\Semi1\data\091318pstic\016.dat	C:\Instarch\Semi1\data\091318pstic\017.dat
Rep 1 Sample ID	Pest ICAL 1 PP5701	Pest ICAL 2 PP5702	Pest ICAL 3 PP5703	Pest ICAL 4 PP5704	Pest ICAL 5 PP5705
Rep 1 Calib. Time	09/13/2018 14:45:00	09/13/2018 14:45:09	09/13/2018 14:45:21	09/13/2018 14:45:32	09/13/2018 14:45:43

	Level 6	Level 7
Amount	0.05	0.07
Area	65535607	91209513

Calibration Report

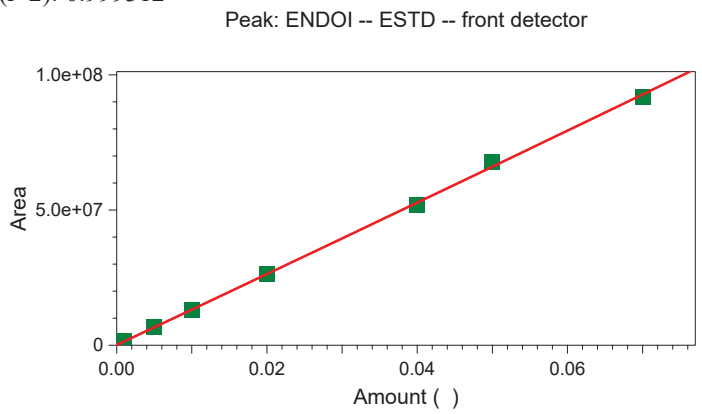
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:50:48
User: JJY
Instrument: Semi 1

RF	1310712140	1302993042.85714
Last Area		
Residual	-0.0019311	0.00118168
Rep StDev		
Rep %RSD		
Rep 1 Area	65535607	91209513
Rep 1 User	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\018.dat	C:\Instarch\Semi1\data\091318pstic\019.dat
Rep 1 Sample ID	Pest ICAL 6 PP5706	Pest ICAL 7 PP5707
Rep 1 Calib. Time	09/13/2018 14:45:54	09/13/2018 14:46:05

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:50:50
User: JJY
Instrument: Semi 1

ENDOI (front detector)
Average RF: 1.33478e+009 RF StDev: 4.91312e+007 RF %RSD: 3.68085
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Quadratic
y = 2.75793e+008x^2 + 1.30404e+009x + 111848.
Goodness of fit (r^2): 0.999312



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.001	0.005	0.01	0.02	0.04
Area	1435414	6632442	12948593	26401782	51812303
RF	1435414000	1326488400	1294859300	1320089100	1295307575
Last Area					
Residual	-1.47551e-005	4.97724e-006	0.000176586	-7.51306e-005	0.000680616
Rep StDev					
Rep %RSD					
Rep 1 Area	1435414	6632442	12948593	26401782	51812303
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\013.dat	C:\Instarch\Semi1\data\091318pstic\014.dat	C:\Instarch\Semi1\data\091318pstic\015.dat	C:\Instarch\Semi1\data\091318pstic\016.dat	C:\Instarch\Semi1\data\091318pstic\017.dat
Rep 1 Sample ID	Pest ICAL 1 PP5701	Pest ICAL 2 PP5702	Pest ICAL 3 PP5703	Pest ICAL 4 PP5704	Pest ICAL 5 PP5705
Rep 1 Calib. Time	09/13/2018 14:45:00	09/13/2018 14:45:09	09/13/2018 14:45:21	09/13/2018 14:45:32	09/13/2018 14:45:43

	Level 6	Level 7
Amount	0.05	0.07
Area	67853531	91995102

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:50:50
User: JJY
Instrument: Semi 1

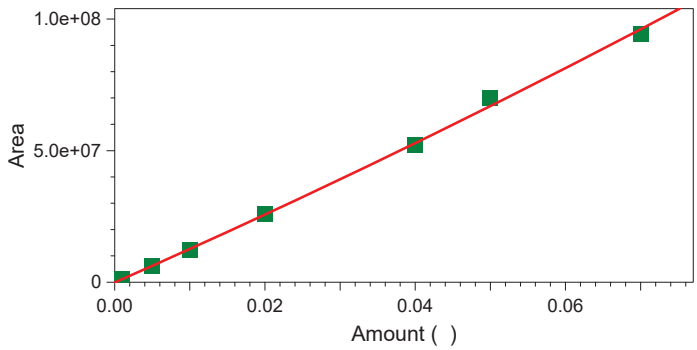
RF	1357070620	1314215742.85714
Last Area		
Residual	-0.00138901	0.000559387
Rep StDev		
Rep %RSD		
Rep 1 Area	67853531	91995102
Rep 1 User	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\018.dat	C:\Instarch\Semi1\data\091318pstic\019.dat
Rep 1 Sample ID	Pest ICAL 6 PP5706	Pest ICAL 7 PP5707
Rep 1 Calib. Time	09/13/2018 14:45:54	09/13/2018 14:46:05

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:50:52
User: JJY
Instrument: Semi 1

DIELDRIN (front detector)
Average RF: 1.28991e+009 RF StDev: 6.92983e+007 RF %RSD: 5.37233
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Quadratic
y = 1.73444e+009x^2 + 1.25306e+009x - 63692.3
Goodness of fit (r^2): 0.998374

Peak: DIELDRIN -- ESTD -- front detector



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.001	0.005	0.01	0.02	0.04
Area	1259885	6101138	12036741	25834456	52213507
RF	1259885000	1220227600	1203674100	1291722800	1305337675
Last Area					
Residual	-5.47338e-005	0.000113245	0.000469051	-0.000108205	0.000446009
Rep StDev					
Rep %RSD					
Rep 1 Area	1259885	6101138	12036741	25834456	52213507
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\013.dat	C:\Instarch\Semi1\data\091318pstic\014.dat	C:\Instarch\Semi1\data\091318pstic\015.dat	C:\Instarch\Semi1\data\091318pstic\016.dat	C:\Instarch\Semi1\data\091318pstic\017.dat
Rep 1 Sample ID	Pest ICAL 1 PP5701	Pest ICAL 2 PP5702	Pest ICAL 3 PP5703	Pest ICAL 4 PP5704	Pest ICAL 5 PP5705
Rep 1 Calib. Time	09/13/2018 14:45:00	09/13/2018 14:45:09	09/13/2018 14:45:21	09/13/2018 14:45:32	09/13/2018 14:45:43

	Level 6	Level 7
Amount	0.05	0.07
Area	69911066	94521080

Calibration Report

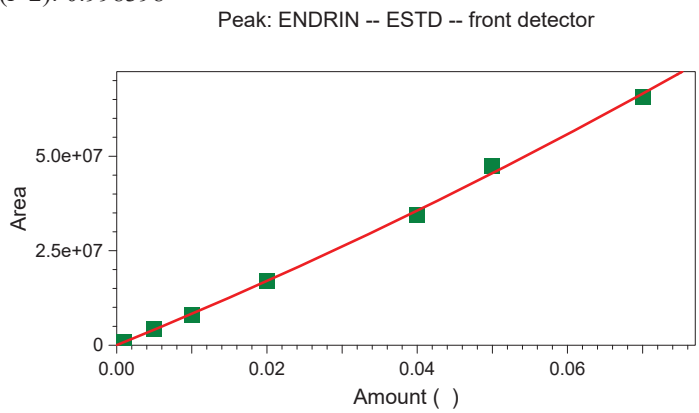
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:50:52
User: JJY
Instrument: Semi 1

RF	1398221320	1350301142.85714
Last Area		
Residual	-0.00208759	0.00108995
Rep StDev		
Rep %RSD		
Rep 1 Area	69911066	94521080
Rep 1 User	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\018.dat	C:\Instarch\Semi1\data\091318pstic\019.dat
Rep 1 Sample ID	Pest ICAL 6 PP5706	Pest ICAL 7 PP5707
Rep 1 Calib. Time	09/13/2018 14:45:54	09/13/2018 14:46:05

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:50:54
User: JJY
Instrument: Semi 1

ENDRIN (front detector)
Average RF: 8.73049e+008 RF StDev: 5.26763e+007 RF %RSD: 6.03360
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Quadratic
y = 2.04579e+009x^2 + 8.07247e+008x + 39467.1
Goodness of fit (r^2): 0.998398



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.001	0.005	0.01	0.02	0.04
Area	852041	4214957	8067635	17106357	34541804
RF	852041000	842991400	806763500	855317850	863545100
Last Area					
Residual	-4.04401e-006	-0.000106423	0.000293644	-0.000116531	0.00109512
Rep StDev					
Rep %RSD					
Rep 1 Area	852041	4214957	8067635	17106357	34541804
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\013.dat	C:\Instarch\Semi1\data\091318pstic\014.dat	C:\Instarch\Semi1\data\091318pstic\015.dat	C:\Instarch\Semi1\data\091318pstic\016.dat	C:\Instarch\Semi1\data\091318pstic\017.dat
Rep 1 Sample ID	Pest ICAL 1 PP5701	Pest ICAL 2 PP5702	Pest ICAL 3 PP5703	Pest ICAL 4 PP5704	Pest ICAL 5 PP5705
Rep 1 Calib. Time	09/13/2018 14:45:00	09/13/2018 14:45:09	09/13/2018 14:45:21	09/13/2018 14:45:32	09/13/2018 14:45:43

	Level 6	Level 7
Amount	0.05	0.07
Area	47523951	65814415

Calibration Report

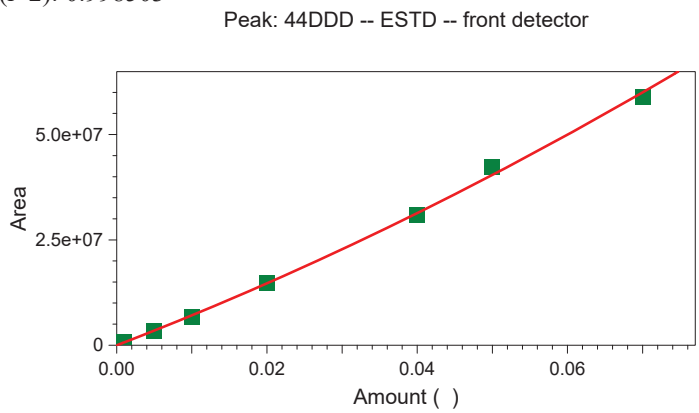
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:50:54
User: JJY
Instrument: Semi 1

RF	950479020	940205928.571429
Last Area Residual	-0.00197629	0.000692823
Rep StDev		
Rep %RSD		
Rep 1 Area	47523951	65814415
Rep 1 User	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\018.dat	C:\Instarch\Semi1\data\091318pstic\019.dat
Rep 1 Sample ID	Pest ICAL 6 PP5706	Pest ICAL 7 PP5707
Rep 1 Calib. Time	09/13/2018 14:45:54	09/13/2018 14:46:05

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:50:55
User: JJY
Instrument: Semi 1

44DDD (front detector)
Average RF: 7.50212e+008 RF StDev: 7.26829e+007 RF %RSD: 9.68831
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Quadratic
y = 2.44475e+009x^2 + 6.86629e+008x - 27444.2
Goodness of fit (r^2): 0.998503



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.001	0.005	0.01	0.02	0.04
Area	694587	3429705	6702081	14796955	30956871
RF	694587000	685941000	670208100	739847750	773921775
Last Area					
Residual	-4.76519e-005	5.22023e-005	0.000519217	-0.000145167	0.000445387
Rep StDev					
Rep %RSD					
Rep 1 Area	694587	3429705	6702081	14796955	30956871
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\013.dat	C:\Instarch\Semi1\data\091318pstic\014.dat	C:\Instarch\Semi1\data\091318pstic\015.dat	C:\Instarch\Semi1\data\091318pstic\016.dat	C:\Instarch\Semi1\data\091318pstic\017.dat
Rep 1 Sample ID	Pest ICAL 1 PP5701	Pest ICAL 2 PP5702	Pest ICAL 3 PP5703	Pest ICAL 4 PP5704	Pest ICAL 5 PP5705
Rep 1 Calib. Time	09/13/2018 14:45:00	09/13/2018 14:45:09	09/13/2018 14:45:21	09/13/2018 14:45:32	09/13/2018 14:45:43

	Level 6	Level 7
Amount	0.05	0.07
Area	42182750	59032779

Calibration Report

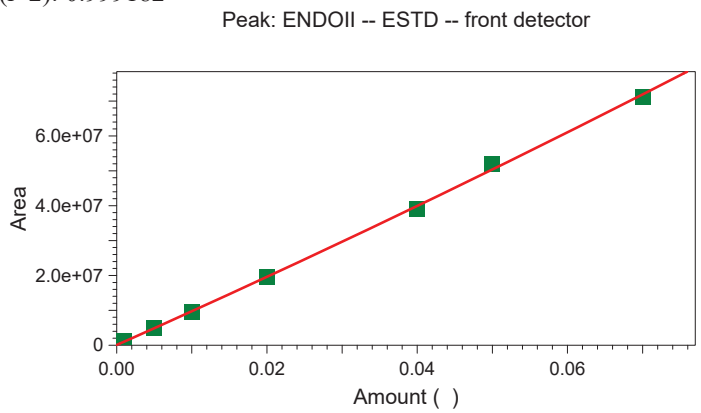
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:50:55
User: JJY
Instrument: Semi 1

RF	843655000	843325414.285714
Last Area Residual	-0.00188825	0.000957653
Rep StDev		
Rep %RSD		
Rep 1 Area	42182750	59032779
Rep 1 User	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\018.dat	C:\Instarch\Semi1\data\091318pstic\019.dat
Rep 1 Sample ID	Pest ICAL 6 PP5706	Pest ICAL 7 PP5707
Rep 1 Calib. Time	09/13/2018 14:45:54	09/13/2018 14:46:05

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:50:57
User: JJY
Instrument: Semi 1

ENDOII (front detector)
Average RF: 1.00279e+009 RF StDev: 3.62332e+007 RF %RSD: 3.61323
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Quadratic
y = 1.01105e+009x^2 + 9.55169e+008x + 94121.4
Goodness of fit (r^2): 0.999182



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.001	0.005	0.01	0.02	0.04
Area	1056281	4949565	9546693	19671232	39110881
RF	1056281000	989913000	954669300	983561600	977772025
Last Area					
Residual	-6.24729e-006	-5.62746e-005	0.000205316	-6.96181e-005	0.000780153
Rep StDev					
Rep %RSD					
Rep 1 Area	1056281	4949565	9546693	19671232	39110881
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\013.dat	C:\Instarch\Semi1\data\091318pstic\014.dat	C:\Instarch\Semi1\data\091318pstic\015.dat	C:\Instarch\Semi1\data\091318pstic\016.dat	C:\Instarch\Semi1\data\091318pstic\017.dat
Rep 1 Sample ID	Pest ICAL 1 PP5701	Pest ICAL 2 PP5702	Pest ICAL 3 PP5703	Pest ICAL 4 PP5704	Pest ICAL 5 PP5705
Rep 1 Calib. Time	09/13/2018 14:45:00	09/13/2018 14:45:09	09/13/2018 14:45:21	09/13/2018 14:45:32	09/13/2018 14:45:43

	Level 6	Level 7
Amount	0.05	0.07
Area	51932058	71309627

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:50:57
User: JJY
Instrument: Semi 1

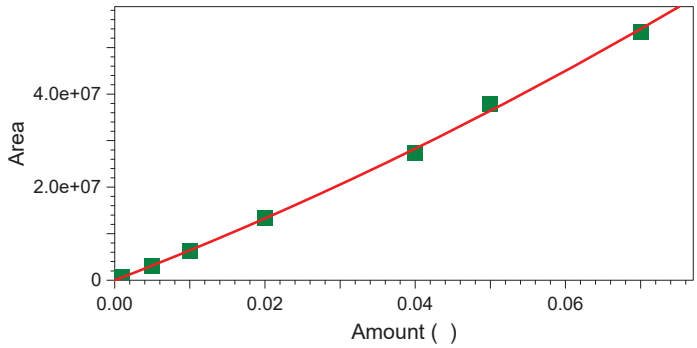
RF	1038641160	1018708957.14286
Last Area		
Residual	-0.00146715	0.000547763
Rep StDev		
Rep %RSD		
Rep 1 Area	51932058	71309627
Rep 1 User	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\018.dat	C:\Instarch\Semi1\data\091318pstic\019.dat
Rep 1 Sample ID	Pest ICAL 6 PP5706	Pest ICAL 7 PP5707
Rep 1 Calib. Time	09/13/2018 14:45:54	09/13/2018 14:46:05

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:50:59
User: JJY
Instrument: Semi 1

44DDT (front detector)
Average RF: 6.80839e+008 RF StDev: 5.89499e+007 RF %RSD: 8.65842
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Quadratic
y = 2.15776e+009x^2 + 6.20309e+008x - 1211.75
Goodness of fit (r^2): 0.998612

Peak: 44DDT -- ESTD -- front detector



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.001	0.005	0.01	0.02	0.04
Area	631370	3143708	6278813	13431687	27392862
RF	631370000	628741600	627881300	671584350	684821550
Last Area					
Residual	-1.6193e-005	1.64659e-005	0.000209408	-0.000231387	0.00110137
Rep StDev					
Rep %RSD					
Rep 1 Area	631370	3143708	6278813	13431687	27392862
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\013.dat	C:\Instarch\Semi1\data\091318pstic\014.dat	C:\Instarch\Semi1\data\091318pstic\015.dat	C:\Instarch\Semi1\data\091318pstic\016.dat	C:\Instarch\Semi1\data\091318pstic\017.dat
Rep 1 Sample ID	Pest ICAL 1 PP5701	Pest ICAL 2 PP5702	Pest ICAL 3 PP5703	Pest ICAL 4 PP5704	Pest ICAL 5 PP5705
Rep 1 Calib. Time	09/13/2018 14:45:00	09/13/2018 14:45:09	09/13/2018 14:45:21	09/13/2018 14:45:32	09/13/2018 14:45:43

	Level 6	Level 7
Amount	0.05	0.07
Area	37894688	53450454

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:50:59
User: JJY
Instrument: Semi 1

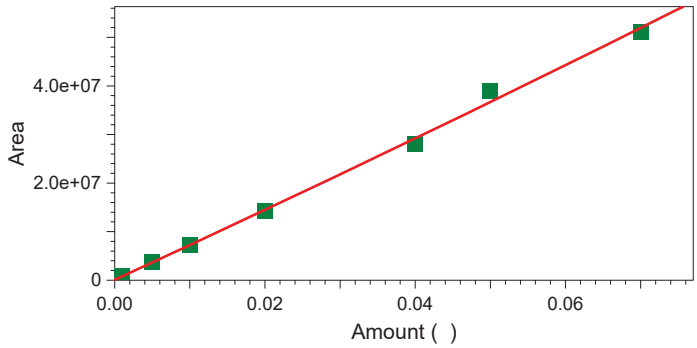
RF	757893760	763577914.285714
Last Area Residual	-0.00176933	0.000589461
Rep StDev		
Rep %RSD		
Rep 1 Area	37894688	53450454
Rep 1 User	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\018.dat	C:\Instarch\Semi1\data\091318pstic\019.dat
Rep 1 Sample ID	Pest ICAL 6 PP5706	Pest ICAL 7 PP5707
Rep 1 Calib. Time	09/13/2018 14:45:54	09/13/2018 14:46:05

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:51:01
User: JJY
Instrument: Semi 1

ENDRINALDEH (front detector)
Average RF: 7.43437e+008 RF StDev: 3.84089e+007 RF %RSD: 5.16640
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Quadratic
y = 4.45342e+008x^2 + 7.09503e+008x + 103798.
Goodness of fit (r^2): 0.996972

Peak: ENDRINALDEH -- ESTD -- front detector



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.001	0.005	0.01	0.02	0.04
Area	811484	3685612	7325340	14248688	28045151
RF	811484000	737122400	732534000	712434400	701128775
Last Area					
Residual	3.18378e-006	-3.2449e-005	-0.000114108	0.000307075	0.00154653
Rep StDev					
Rep %RSD					
Rep 1 Area	811484	3685612	7325340	14248688	28045151
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\013.dat	C:\Instarch\Semi1\data\091318pstic\014.dat	C:\Instarch\Semi1\data\091318pstic\015.dat	C:\Instarch\Semi1\data\091318pstic\016.dat	C:\Instarch\Semi1\data\091318pstic\017.dat
Rep 1 Sample ID	Pest ICAL 1 PP5701	Pest ICAL 2 PP5702	Pest ICAL 3 PP5703	Pest ICAL 4 PP5704	Pest ICAL 5 PP5705
Rep 1 Calib. Time	09/13/2018 14:45:00	09/13/2018 14:45:09	09/13/2018 14:45:21	09/13/2018 14:45:32	09/13/2018 14:45:43

	Level 6	Level 7
Amount	0.05	0.07
Area	38884097	51216954

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:51:01
User: JJY
Instrument: Semi 1

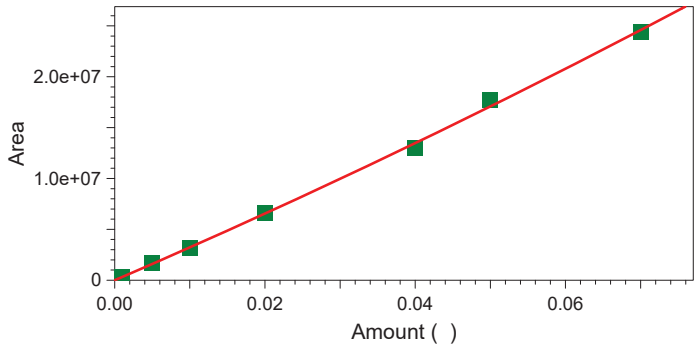
RF	777681940	731670771.428571
Last Area Residual	-0.0029018	0.000951745
Rep StDev		
Rep %RSD		
Rep 1 Area	38884097	51216954
Rep 1 User	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\018.dat	C:\Instarch\Semi1\data\091318pstic\019.dat
Rep 1 Sample ID	Pest ICAL 6 PP5706	Pest ICAL 7 PP5707
Rep 1 Calib. Time	09/13/2018 14:45:54	09/13/2018 14:46:05

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:51:02
User: JJY
Instrument: Semi 1

METHOXYCL (front detector)
Average RF: 3.32186e+008 RF StDev: 1.55840e+007 RF %RSD: 4.69134
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Quadratic
y = 4.82877e+008x^2 + 3.17358e+008x + 5004.70
Goodness of fit (r^2): 0.998687

Peak: METHOXYCL -- ESTD -- front detector



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.001	0.005	0.01	0.02	0.04
Area	313414	1689152	3163507	6605233	12976194
RF	313414000	337830400	316350700	330261650	324404850
Last Area					
Residual	2.96314e-005	-0.000264597	0.000193836	-0.000177901	0.00139524
Rep StDev					
Rep %RSD					
Rep 1 Area	313414	1689152	3163507	6605233	12976194
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\013.dat	C:\Instarch\Semi1\data\091318pstic\014.dat	C:\Instarch\Semi1\data\091318pstic\015.dat	C:\Instarch\Semi1\data\091318pstic\016.dat	C:\Instarch\Semi1\data\091318pstic\017.dat
Rep 1 Sample ID	Pest ICAL 1 PP5701	Pest ICAL 2 PP5702	Pest ICAL 3 PP5703	Pest ICAL 4 PP5704	Pest ICAL 5 PP5705
Rep 1 Calib. Time	09/13/2018 14:45:00	09/13/2018 14:45:09	09/13/2018 14:45:21	09/13/2018 14:45:32	09/13/2018 14:45:43

	Level 6	Level 7
Amount	0.05	0.07
Area	17689734	24447068

Calibration Report

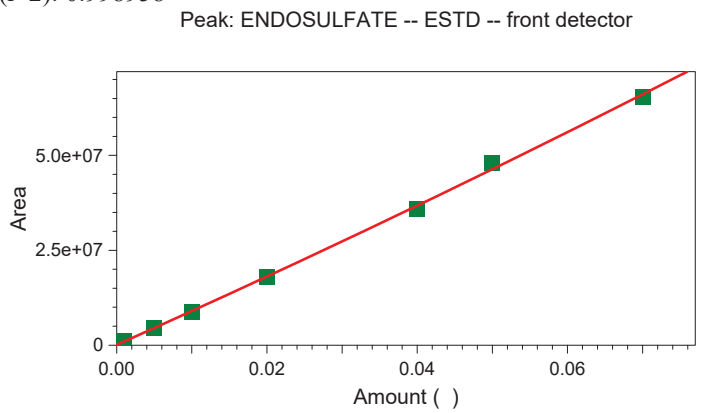
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:51:02
User: JJY
Instrument: Semi 1

RF	353794680	349243828.571429
Last Area Residual	-0.00166358	0.000361549
Rep StDev		
Rep %RSD		
Rep 1 Area	17689734	24447068
Rep 1 User	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\018.dat	C:\Instarch\Semi1\data\091318pstic\019.dat
Rep 1 Sample ID	Pest ICAL 6 PP5706	Pest ICAL 7 PP5707
Rep 1 Calib. Time	09/13/2018 14:45:54	09/13/2018 14:46:05

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:51:04
User: JJY
Instrument: Semi 1

ENDOSULFATE (front detector)
Average RF: 9.29789e+008 RF StDev: 3.90883e+007 RF %RSD: 4.20400
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Quadratic
y = 8.79475e+008x^2 + 8.80846e+008x + 119222.
Goodness of fit (r^2): 0.998958



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.001	0.005	0.01	0.02	0.04
Area	998350	4630822	8869261	18113631	35845096
RF	998350000	926164400	886926100	905681550	896127400
Last Area					
Residual	2.94295e-006	-9.59679e-005	0.000162936	-2.80636e-005	0.000962911
Rep StDev					
Rep %RSD					
Rep 1 Area	998350	4630822	8869261	18113631	35845096
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\013.dat	C:\Instarch\Semi1\data\091318pstic\014.dat	C:\Instarch\Semi1\data\091318pstic\015.dat	C:\Instarch\Semi1\data\091318pstic\016.dat	C:\Instarch\Semi1\data\091318pstic\017.dat
Rep 1 Sample ID	Pest ICAL 1 PP5701	Pest ICAL 2 PP5702	Pest ICAL 3 PP5703	Pest ICAL 4 PP5704	Pest ICAL 5 PP5705
Rep 1 Calib. Time	09/13/2018 14:45:00	09/13/2018 14:45:09	09/13/2018 14:45:21	09/13/2018 14:45:32	09/13/2018 14:45:43

	Level 6	Level 7
Amount	0.05	0.07
Area	47957394	65528967
RF	959147880	936128100

Calibration Report

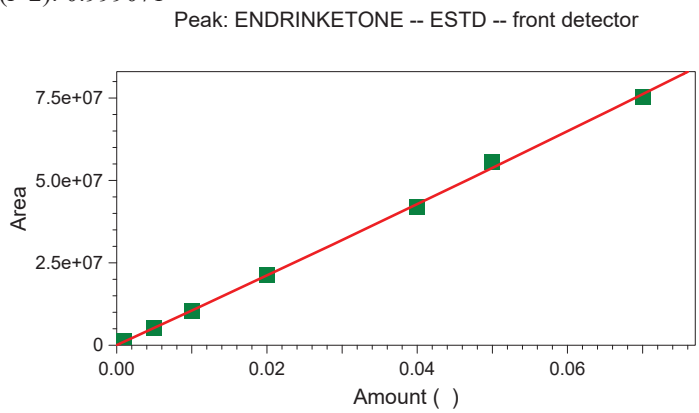
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:51:04
User: JJY
Instrument: Semi 1

Last Area Residual	-0.0016462	0.000556933
Rep StDev		
Rep %RSD		
Rep 1 Area	47957394	65528967
Rep 1 User	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\018.dat	C:\Instarch\Semi1\data\091318pstic\019.dat
Rep 1 Sample ID	Pest ICAL 6 PP5706	Pest ICAL 7 PP5707
Rep 1 Calib. Time	09/13/2018 14:45:54	09/13/2018 14:46:05

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:51:06
User: JJY
Instrument: Semi 1

ENDRINKETONE (front detector)
Average RF: 1.06953e+009 RF StDev: 2.62822e+007 RF %RSD: 2.45737
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Quadratic
y = 6.30888e+008x^2 + 1.04377e+009x + 38468.0
Goodness of fit (r^2): 0.999071



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.001	0.005	0.01	0.02	0.04
Area	1091835	5310464	10350949	21187382	41929003
RF	1091835000	1062092800	1035094900	1059369100	1048225075
Last Area					
Residual	-8.58324e-006	-3.56081e-005	0.000178241	-1.98611e-005	0.000795018
Rep StDev					
Rep %RSD					
Rep 1 Area	1091835	5310464	10350949	21187382	41929003
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\013.dat	C:\Instarch\Semi1\data\091318pstic\014.dat	C:\Instarch\Semi1\data\091318pstic\015.dat	C:\Instarch\Semi1\data\091318pstic\016.dat	C:\Instarch\Semi1\data\091318pstic\017.dat
Rep 1 Sample ID	Pest ICAL 1 PP5701	Pest ICAL 2 PP5702	Pest ICAL 3 PP5703	Pest ICAL 4 PP5704	Pest ICAL 5 PP5705
Rep 1 Calib. Time	09/13/2018 14:45:00	09/13/2018 14:45:09	09/13/2018 14:45:21	09/13/2018 14:45:32	09/13/2018 14:45:43

	Level 6	Level 7
Amount	0.05	0.07
Area	55579320	75493381

Calibration Report

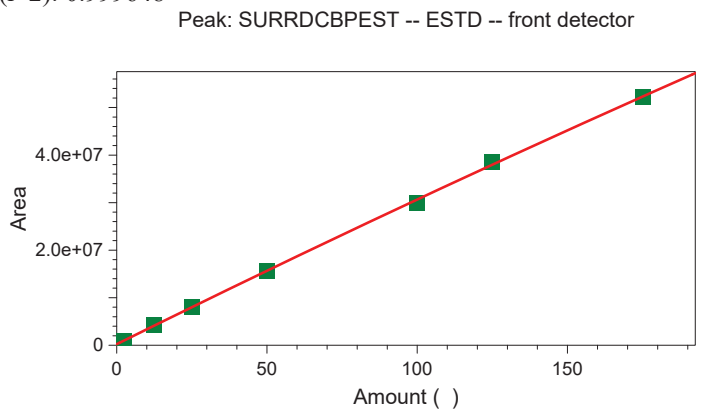
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:51:06
User: JJY
Instrument: Semi 1

RF	1111586400	1078476871.42857
Last Area Residual	-0.00160246	0.000618611
Rep StDev		
Rep %RSD		
Rep 1 Area	55579320	75493381
Rep 1 User	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\018.dat	C:\Instarch\Semi1\data\091318pstic\019.dat
Rep 1 Sample ID	Pest ICAL 6 PP5706	Pest ICAL 7 PP5707
Rep 1 Calib. Time	09/13/2018 14:45:54	09/13/2018 14:46:05

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:51:08
User: JJY
Instrument: Semi 1

SURRDCBPEST (front detector)
Average RF: 324403. RF StDev: 30445.1 RF %RSD: 9.38497
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Quadratic
y = -89.8331x^2 + 313360.x + 216978.
Goodness of fit (r^2): 0.999648



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	2.5	12.5	25	50	100
Area	953646	4366392	8035549	15589304	29982306
RF	381458.4	349311.36	321421.96	311786.08	299823.06
Last Area					
Residual	0.147545	-0.79234	-0.13184	0.233528	2.27447
Rep StDev					
Rep %RSD					
Rep 1 Area	953646	4366392	8035549	15589304	29982306
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\013.dat	C:\Instarch\Semi1\data\091318pstic\014.dat	C:\Instarch\Semi1\data\091318pstic\015.dat	C:\Instarch\Semi1\data\091318pstic\016.dat	C:\Instarch\Semi1\data\091318pstic\017.dat
Rep 1 Sample ID	Pest ICAL 1 PP5701	Pest ICAL 2 PP5702	Pest ICAL 3 PP5703	Pest ICAL 4 PP5704	Pest ICAL 5 PP5705
Rep 1 Calib. Time	09/13/2018 14:45:00	09/13/2018 14:45:09	09/13/2018 14:45:21	09/13/2018 14:45:32	09/13/2018 14:45:43

	Level 6	Level 7
Amount	125	175
Area	38500192	52328065

Calibration Report

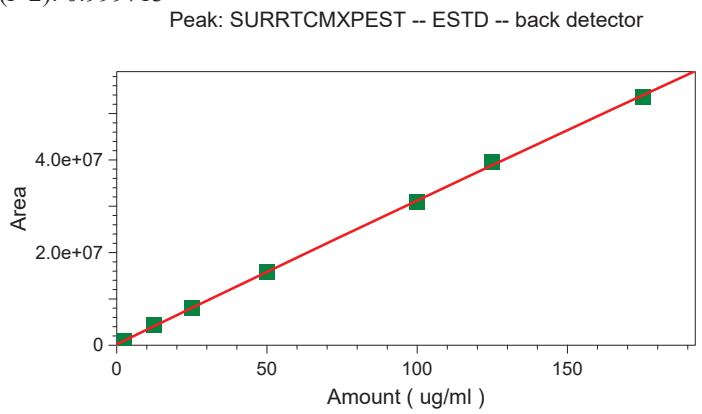
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:51:08
User: JJY
Instrument: Semi 1

RF	308001.536	299017.514285714
Last Area		
Residual	-1.77777	-0.0860061
Rep StDev		
Rep %RSD		
Rep 1 Area	38500192	52328065
Rep 1 User	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\018.dat	C:\Instarch\Semi1\data\091318pstic\019.dat
Rep 1 Sample ID	Pest ICAL 6 PP5706	Pest ICAL 7 PP5707
Rep 1 Calib. Time	09/13/2018 14:45:54	09/13/2018 14:46:05

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:51:40
User: JJY
Instrument: Semi 1

SURRTCMXPEST (back detector)
Average RF: 328660. RF StDev: 30980.6 RF %RSD: 9.42634
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Quadratic
y = -41.9710x^2 + 314390.x + 214165.
Goodness of fit (r^2): 0.999713



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	2.5	12.5	25	50	100
Area	985022	4269387	7963643	15715266	30902812
RF	394008.8	341550.96	318545.72	314305.32	309028.12
Last Area					
Residual	0.0472869	-0.420973	0.269125	0.365845	1.08049
Rep StDev					
Rep %RSD					
Rep 1 Area	985022	4269387	7963643	15715266	30902812
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\013.dat	C:\Instarch\Semi1\data\091318pstic\014.dat	C:\Instarch\Semi1\data\091318pstic\015.dat	C:\Instarch\Semi1\data\091318pstic\016.dat	C:\Instarch\Semi1\data\091318pstic\017.dat
Rep 1 Sample ID	Pest ICAL 1 PP5701	Pest ICAL 2 PP5702	Pest ICAL 3 PP5703	Pest ICAL 4 PP5704	Pest ICAL 5 PP5705
Rep 1 Calib. Time	09/13/2018 14:45:00	09/13/2018 14:45:09	09/13/2018 14:45:21	09/13/2018 14:45:32	09/13/2018 14:45:43

	Level 6	Level 7
Amount	125	175
Area	39545028	53693123

Calibration Report

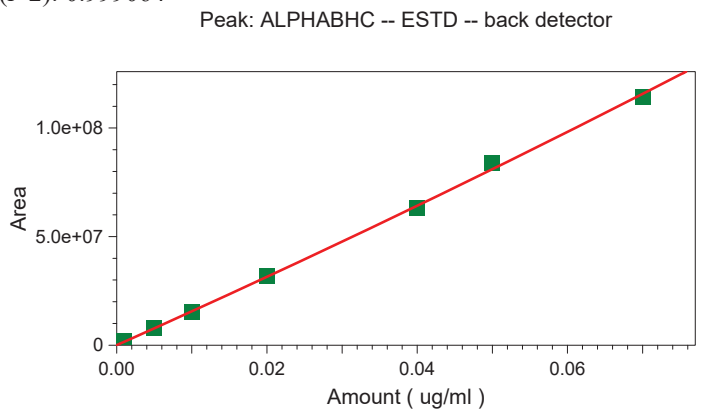
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:51:40
User: JJY
Instrument: Semi 1

RF	316360.224	306817.845714286
Last Area Residual	-2.2642	0.847374
Rep StDev		
Rep %RSD		
Rep 1 Area	39545028	53693123
Rep 1 User	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\018.dat	C:\Instarch\Semi1\data\091318pstic\019.dat
Rep 1 Sample ID	Pest ICAL 6 PP5706	Pest ICAL 7 PP5707
Rep 1 Calib. Time	09/13/2018 14:45:54	09/13/2018 14:46:05

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:51:43
User: JJY
Instrument: Semi 1

ALPHABHC (back detector)
Average RF: 1.59459e+009 RF StDev: 5.44104e+007 RF %RSD: 3.41219
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Quadratic
y = 1.60560e+009x^2 + 1.53999e+009x + 43748.7
Goodness of fit (r^2): 0.999064



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.001	0.005	0.01	0.02	0.04
Area	1619119	7793841	15088912	31766595	63045094
RF	1619119000	1558768200	1508891200	1588329750	1576127350
Last Area					
Residual	-2.18831e-005	-6.41598e-006	0.000327908	-0.000174966	0.000700141
Rep StDev					
Rep %RSD					
Rep 1 Area	1619119	7793841	15088912	31766595	63045094
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\013.dat	C:\Instarch\Semi1\data\091318pstic\014.dat	C:\Instarch\Semi1\data\091318pstic\015.dat	C:\Instarch\Semi1\data\091318pstic\016.dat	C:\Instarch\Semi1\data\091318pstic\017.dat
Rep 1 Sample ID	Pest ICAL 1 PP5701	Pest ICAL 2 PP5702	Pest ICAL 3 PP5703	Pest ICAL 4 PP5704	Pest ICAL 5 PP5705
Rep 1 Calib. Time	09/13/2018 14:45:00	09/13/2018 14:45:09	09/13/2018 14:45:21	09/13/2018 14:45:32	09/13/2018 14:45:43

	Level 6	Level 7
Amount	0.05	0.07
Area	83738610	114528218

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:51:43
User: JJY
Instrument: Semi 1

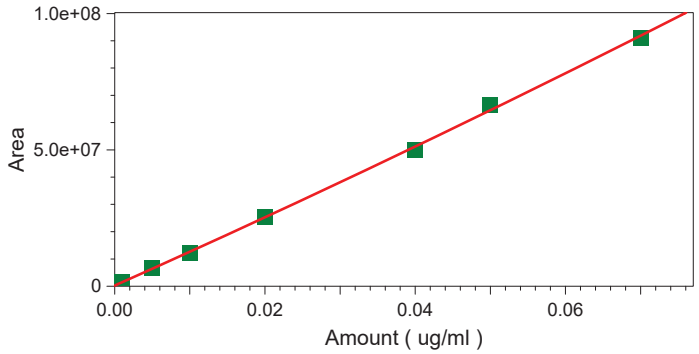
RF	1674772200	1636117400
Last Area		
Residual	-0.00157431	0.000670472
Rep StDev		
Rep %RSD		
Rep 1 Area	83738610	114528218
Rep 1 User	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\018.dat	C:\Instarch\Semi1\data\091318pstic\019.dat
Rep 1 Sample ID	Pest ICAL 6 PP5706	Pest ICAL 7 PP5707
Rep 1 Calib. Time	09/13/2018 14:45:54	09/13/2018 14:46:05

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:51:45
User: JJY
Instrument: Semi 1

LINDANE (back detector)
Average RF: 1.30852e+009 RF StDev: 7.48365e+007 RF %RSD: 5.71918
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Quadratic
y = 1.16214e+009x^2 + 1.22793e+009x + 236419.
Goodness of fit (r^2): 0.999177

Peak: LINDANE -- ESTD -- back detector



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.001	0.005	0.01	0.02	0.04
Area	1458625	6572371	12319057	25421107	50042862
RF	1458625000	1314474200	1231905700	1271055350	1251071550
Last Area					
Residual	5.59885e-006	-0.000134901	0.00025014	-0.000126468	0.000886649
Rep StDev					
Rep %RSD					
Rep 1 Area	1458625	6572371	12319057	25421107	50042862
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\013.dat	C:\Instarch\Semi1\data\091318pstic\014.dat	C:\Instarch\Semi1\data\091318pstic\015.dat	C:\Instarch\Semi1\data\091318pstic\016.dat	C:\Instarch\Semi1\data\091318pstic\017.dat
Rep 1 Sample ID	Pest ICAL 1 PP5701	Pest ICAL 2 PP5702	Pest ICAL 3 PP5703	Pest ICAL 4 PP5704	Pest ICAL 5 PP5705
Rep 1 Calib. Time	09/13/2018 14:45:00	09/13/2018 14:45:09	09/13/2018 14:45:21	09/13/2018 14:45:32	09/13/2018 14:45:43

	Level 6	Level 7
Amount	0.05	0.07
Area	66467048	91220540

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:51:45
User: JJY
Instrument: Semi 1

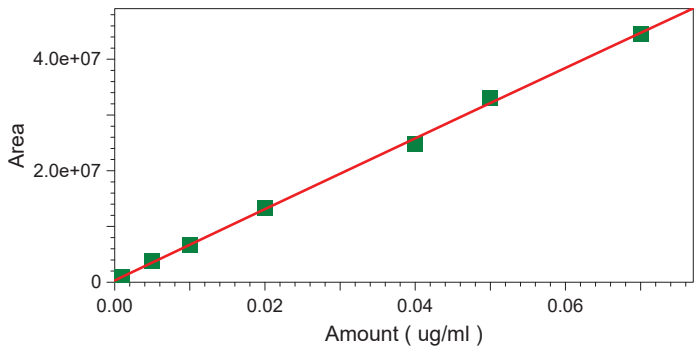
RF	1329340960	1303150571.42857
Last Area Residual	-0.00143309	0.000478832
Rep StDev		
Rep %RSD		
Rep 1 Area	66467048	91220540
Rep 1 User	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\018.dat	C:\Instarch\Semi1\data\091318pstic\019.dat
Rep 1 Sample ID	Pest ICAL 6 PP5706	Pest ICAL 7 PP5707
Rep 1 Calib. Time	09/13/2018 14:45:54	09/13/2018 14:46:05

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:51:47
User: JJY
Instrument: Semi 1

BETABHC (back detector)
Average RF: 7.02247e+008 RF StDev: 1.05001e+008 RF %RSD: 14.9521
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Quadratic
y = -9.05820e+007x^2 + 6.40985e+008x + 319581.
Goodness of fit (r^2): 0.998695

Peak: BETABHC -- ESTD -- back detector



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.001	0.005	0.01	0.02	0.04
Area	921766	3746072	6605002	13294544	24783711
RF	921766000	749214400	660500200	664727200	619592775
Last Area					
Residual	6.04067e-005	-0.000349709	0.000180496	-0.000300462	0.00162544
Rep StDev					
Rep %RSD					
Rep 1 Area	921766	3746072	6605002	13294544	24783711
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\013.dat	C:\Instarch\Semi1\data\091318pstic\014.dat	C:\Instarch\Semi1\data\091318pstic\015.dat	C:\Instarch\Semi1\data\091318pstic\016.dat	C:\Instarch\Semi1\data\091318pstic\017.dat
Rep 1 Sample ID	Pest ICAL 1 PP5701	Pest ICAL 2 PP5702	Pest ICAL 3 PP5703	Pest ICAL 4 PP5704	Pest ICAL 5 PP5705
Rep 1 Calib. Time	09/13/2018 14:45:00	09/13/2018 14:45:09	09/13/2018 14:45:21	09/13/2018 14:45:32	09/13/2018 14:45:43

	Level 6	Level 7
Amount	0.05	0.07
Area	33117452	44630314

Calibration Report

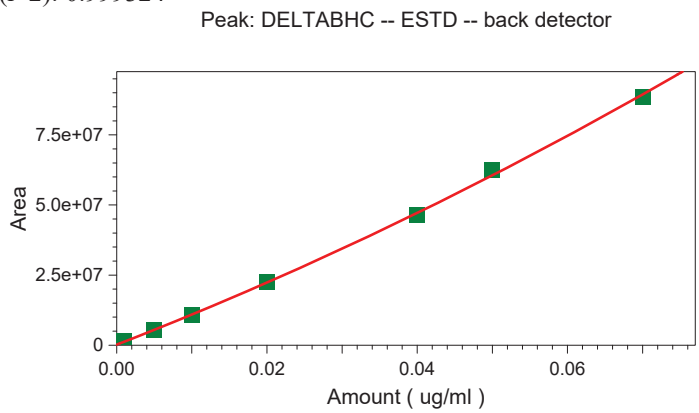
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:51:47
User: JJY
Instrument: Semi 1

RF	662349040	637575914.285714
Last Area		
Residual	-0.00154336	0.000182023
Rep StDev		
Rep %RSD		
Rep 1 Area	33117452	44630314
Rep 1 User	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\018.dat	C:\Instarch\Semi1\data\091318pstic\019.dat
Rep 1 Sample ID	Pest ICAL 6 PP5706	Pest ICAL 7 PP5707
Rep 1 Calib. Time	09/13/2018 14:45:54	09/13/2018 14:46:05

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:51:48
User: JJY
Instrument: Semi 1

DELTABHC (back detector)
Average RF: 1.17814e+009 RF StDev: 8.39966e+007 RF %RSD: 7.12961
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Quadratic
y = 3.36599e+009x^2 + 1.03891e+009x + 220147.
Goodness of fit (r^2): 0.999324



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.001	0.005	0.01	0.02	0.04
Area	1273550	5570578	10625117	22503834	46327673
RF	1273550000	1114115600	1062511700	1125191700	1158191825
Last Area					
Residual	-1.06456e-005	-6.68849e-005	0.000290148	-0.000135585	0.000638795
Rep StDev					
Rep %RSD					
Rep 1 Area	1273550	5570578	10625117	22503834	46327673
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\013.dat	C:\Instarch\Semi1\data\091318pstic\014.dat	C:\Instarch\Semi1\data\091318pstic\015.dat	C:\Instarch\Semi1\data\091318pstic\016.dat	C:\Instarch\Semi1\data\091318pstic\017.dat
Rep 1 Sample ID	Pest ICAL 1 PP5701	Pest ICAL 2 PP5702	Pest ICAL 3 PP5703	Pest ICAL 4 PP5704	Pest ICAL 5 PP5705
Rep 1 Calib. Time	09/13/2018 14:45:00	09/13/2018 14:45:09	09/13/2018 14:45:21	09/13/2018 14:45:32	09/13/2018 14:45:43

	Level 6	Level 7
Amount	0.05	0.07
Area	62316327	88695316

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:51:48
User: JJY
Instrument: Semi 1

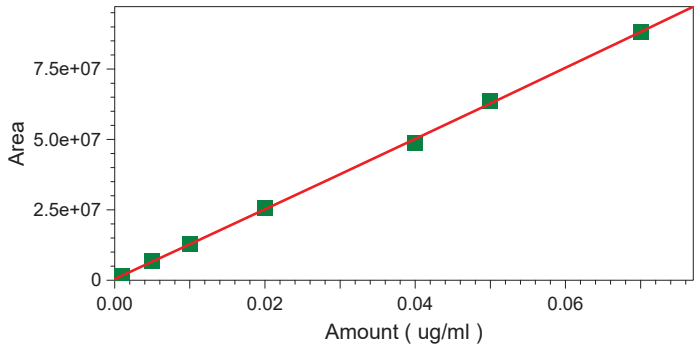
RF	1246326540	1267075942.85714
Last Area Residual	-0.00125815	0.000491614
Rep StDev		
Rep %RSD		
Rep 1 Area	62316327	88695316
Rep 1 User	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\018.dat	C:\Instarch\Semi1\data\091318pstic\019.dat
Rep 1 Sample ID	Pest ICAL 6 PP5706	Pest ICAL 7 PP5707
Rep 1 Calib. Time	09/13/2018 14:45:54	09/13/2018 14:46:05

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:51:50
User: JJY
Instrument: Semi 1

HEPTACHLOR (back detector)
Average RF: 1.32956e+009 RF StDev: 1.38065e+008 RF %RSD: 10.3843
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Quadratic
y = 3.40957e+008x^2 + 1.22963e+009x + 453708.
Goodness of fit (r^2): 0.999490

Peak: HEPTACHLOR -- ESTD -- back detector



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.001	0.005	0.01	0.02	0.04
Area	1621436	6914987	12719751	25562853	48688024
RF	1621436000	1382997400	1271975100	1278142650	1217200600
Last Area					
Residual	5.05922e-005	-0.000247018	5.20499e-005	-0.000305745	0.00119095
Rep StDev					
Rep %RSD					
Rep 1 Area	1621436	6914987	12719751	25562853	48688024
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\013.dat	C:\Instarch\Semi1\data\091318pstic\014.dat	C:\Instarch\Semi1\data\091318pstic\015.dat	C:\Instarch\Semi1\data\091318pstic\016.dat	C:\Instarch\Semi1\data\091318pstic\017.dat
Rep 1 Sample ID	Pest ICAL 1 PP5701	Pest ICAL 2 PP5702	Pest ICAL 3 PP5703	Pest ICAL 4 PP5704	Pest ICAL 5 PP5705
Rep 1 Calib. Time	09/13/2018 14:45:00	09/13/2018 14:45:09	09/13/2018 14:45:21	09/13/2018 14:45:32	09/13/2018 14:45:43

	Level 6	Level 7
Amount	0.05	0.07
Area	63639045	88364849

Calibration Report

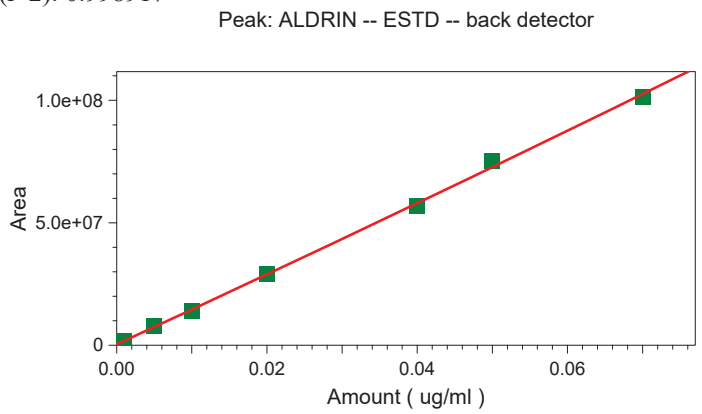
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:51:50
User: JJY
Instrument: Semi 1

RF	1272780900	1262354985.71429
Last Area Residual	-0.000673621	-0.000130206
Rep StDev		
Rep %RSD		
Rep 1 Area	63639045	88364849
Rep 1 User	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\018.dat	C:\Instarch\Semi1\data\091318pstic\019.dat
Rep 1 Sample ID	Pest ICAL 6 PP5706	Pest ICAL 7 PP5707
Rep 1 Calib. Time	09/13/2018 14:45:54	09/13/2018 14:46:05

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:51:51
User: JJY
Instrument: Semi 1

ALDRIN (back detector)
Average RF: 1.51005e+009 RF StDev: 1.34043e+008 RF %RSD: 8.87675
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Quadratic
y = 6.58295e+008x^2 + 1.41372e+009x + 382675.
Goodness of fit (r^2): 0.998917



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.001	0.005	0.01	0.02	0.04
Area	1797227	7671009	14137287	29016431	56720729
RF	1797227000	1534201800	1413728700	1450821550	1418018225
Last Area					
Residual	-1.23656e-007	-0.000143117	0.0003143	-6.67064e-005	0.000862296
Rep StDev					
Rep %RSD					
Rep 1 Area	1797227	7671009	14137287	29016431	56720729
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\013.dat	C:\Instarch\Semi1\data\091318pstic\014.dat	C:\Instarch\Semi1\data\091318pstic\015.dat	C:\Instarch\Semi1\data\091318pstic\016.dat	C:\Instarch\Semi1\data\091318pstic\017.dat
Rep 1 Sample ID	Pest ICAL 1 PP5701	Pest ICAL 2 PP5702	Pest ICAL 3 PP5703	Pest ICAL 4 PP5704	Pest ICAL 5 PP5705
Rep 1 Calib. Time	09/13/2018 14:45:00	09/13/2018 14:45:09	09/13/2018 14:45:21	09/13/2018 14:45:32	09/13/2018 14:45:43

	Level 6	Level 7
Amount	0.05	0.07
Area	75261315	101578453

Calibration Report

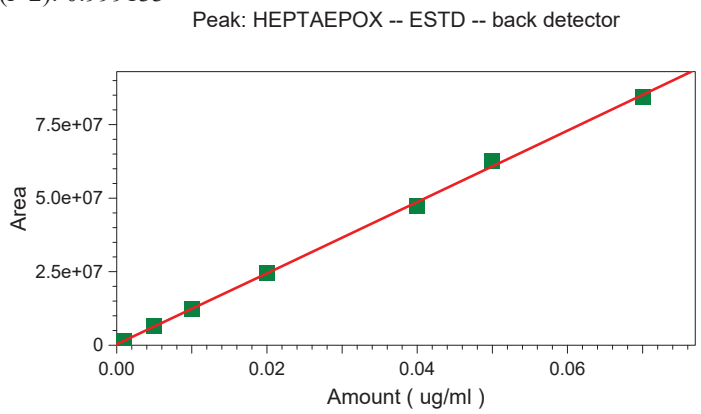
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:51:51
User: JJY
Instrument: Semi 1

RF	1505226300	1451120757.14286
Last Area Residual	-0.00172013	0.00065773
Rep StDev		
Rep %RSD		
Rep 1 Area	75261315	101578453
Rep 1 User	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\018.dat	C:\Instarch\Semi1\data\091318pstic\019.dat
Rep 1 Sample ID	Pest ICAL 6 PP5706	Pest ICAL 7 PP5707
Rep 1 Calib. Time	09/13/2018 14:45:54	09/13/2018 14:46:05

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:51:53
User: JJY
Instrument: Semi 1

HEPTAEPOX (back detector)
Average RF: 1.27344e+009 RF StDev: 1.11738e+008 RF %RSD: 8.77456
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Quadratic
y = 1.03167e+008x^2 + 1.20432e+009x + 328969.
Goodness of fit (r^2): 0.999133



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.001	0.005	0.01	0.02	0.04
Area	1511517	6534921	12267142	24418294	47474863
RF	1511517000	1306984200	1226714200	1220914700	1186871575
Last Area					
Residual	1.81582e-005	-0.000150816	9.55875e-005	3.16793e-005	0.000982998
Rep StDev					
Rep %RSD					
Rep 1 Area	1511517	6534921	12267142	24418294	47474863
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\013.dat	C:\Instarch\Semi1\data\091318pstic\014.dat	C:\Instarch\Semi1\data\091318pstic\015.dat	C:\Instarch\Semi1\data\091318pstic\016.dat	C:\Instarch\Semi1\data\091318pstic\017.dat
Rep 1 Sample ID	Pest ICAL 1 PP5701	Pest ICAL 2 PP5702	Pest ICAL 3 PP5703	Pest ICAL 4 PP5704	Pest ICAL 5 PP5705
Rep 1 Calib. Time	09/13/2018 14:45:00	09/13/2018 14:45:09	09/13/2018 14:45:21	09/13/2018 14:45:32	09/13/2018 14:45:43

	Level 6	Level 7
Amount	0.05	0.07
Area	62637485	84581299

Calibration Report

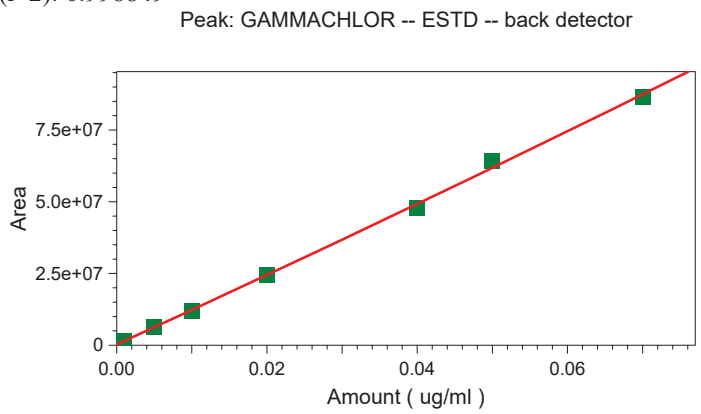
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:51:53
User: JJY
Instrument: Semi 1

RF	1252749700	1208304271.42857
Last Area Residual	-0.00151034	0.000455712
Rep StDev		
Rep %RSD		
Rep 1 Area	62637485	84581299
Rep 1 User	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\018.dat	C:\Instarch\Semi1\data\091318pstic\019.dat
Rep 1 Sample ID	Pest ICAL 6 PP5706	Pest ICAL 7 PP5707
Rep 1 Calib. Time	09/13/2018 14:45:54	09/13/2018 14:46:05

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:51:55
User: JJY
Instrument: Semi 1

GAMMACHLOR (back detector)
Average RF: 1.27484e+009 RF StDev: 1.02086e+008 RF %RSD: 8.00775
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Quadratic
y = 7.33443e+008x^2 + 1.19372e+009x + 297988.
Goodness of fit (r^2): 0.998849



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.001	0.005	0.01	0.02	0.04
Area	1495234	6376957	12062793	24605117	47917753
RF	1495234000	1275391400	1206279300	1230255850	1197943825
Last Area					
Residual	-2.33911e-006	-7.66352e-005	0.000203364	-0.000113975	0.00104059
Rep StDev					
Rep %RSD					
Rep 1 Area	1495234	6376957	12062793	24605117	47917753
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\013.dat	C:\Instarch\Semi1\data\091318pstic\014.dat	C:\Instarch\Semi1\data\091318pstic\015.dat	C:\Instarch\Semi1\data\091318pstic\016.dat	C:\Instarch\Semi1\data\091318pstic\017.dat
Rep 1 Sample ID	Pest ICAL 1 PP5701	Pest ICAL 2 PP5702	Pest ICAL 3 PP5703	Pest ICAL 4 PP5704	Pest ICAL 5 PP5705
Rep 1 Calib. Time	09/13/2018 14:45:00	09/13/2018 14:45:09	09/13/2018 14:45:21	09/13/2018 14:45:32	09/13/2018 14:45:43

	Level 6	Level 7
Amount	0.05	0.07
Area	64016577	86691583

Calibration Report

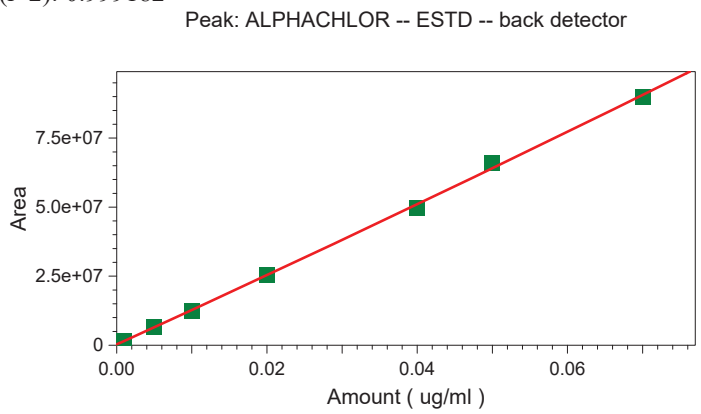
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:51:55
User: JJY
Instrument: Semi 1

RF	1280331540	1238451185.71429
Last Area Residual	-0.00173387	0.000586805
Rep StDev		
Rep %RSD		
Rep 1 Area	64016577	86691583
Rep 1 User	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\018.dat	C:\Instarch\Semi1\data\091318pstic\019.dat
Rep 1 Sample ID	Pest ICAL 6 PP5706	Pest ICAL 7 PP5707
Rep 1 Calib. Time	09/13/2018 14:45:54	09/13/2018 14:46:05

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:51:56
User: JJY
Instrument: Semi 1

ALPHACHLOR (back detector)
Average RF: 1.31925e+009 RF StDev: 9.26221e+007 RF %RSD: 7.02080
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Quadratic
y = 7.24780e+008x^2 + 1.23947e+009x + 294572.
Goodness of fit (r^2): 0.999182



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.001	0.005	0.01	0.02	0.04
Area	1513094	6727515	12524882	25493294	49750733
RF	1513094000	1345503000	1252488200	1274664700	1243768325
Last Area					
Residual	1.74684e-005	-0.000174402	0.000188947	-9.40684e-005	0.00098898
Rep StDev					
Rep %RSD					
Rep 1 Area	1513094	6727515	12524882	25493294	49750733
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\013.dat	C:\Instarch\Semi1\data\091318pstic\014.dat	C:\Instarch\Semi1\data\091318pstic\015.dat	C:\Instarch\Semi1\data\091318pstic\016.dat	C:\Instarch\Semi1\data\091318pstic\017.dat
Rep 1 Sample ID	Pest ICAL 1 PP5701	Pest ICAL 2 PP5702	Pest ICAL 3 PP5703	Pest ICAL 4 PP5704	Pest ICAL 5 PP5705
Rep 1 Calib. Time	09/13/2018 14:45:00	09/13/2018 14:45:09	09/13/2018 14:45:21	09/13/2018 14:45:32	09/13/2018 14:45:43

	Level 6	Level 7
Amount	0.05	0.07
Area	65931907	90062510

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:51:56
User: JJY
Instrument: Semi 1

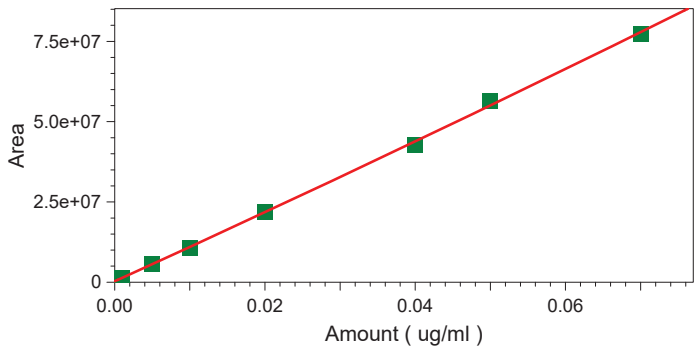
RF	1318638140	1286607285.71429
Last Area Residual	-0.0014103	0.000407765
Rep StDev		
Rep %RSD		
Rep 1 Area	65931907	90062510
Rep 1 User	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\018.dat	C:\Instarch\Semi1\data\091318pstic\019.dat
Rep 1 Sample ID	Pest ICAL 6 PP5706	Pest ICAL 7 PP5707
Rep 1 Calib. Time	09/13/2018 14:45:54	09/13/2018 14:46:05

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:51:58
User: JJY
Instrument: Semi 1

ENDOI (back detector)
Average RF: 1.14437e+009 RF StDev: 1.01704e+008 RF %RSD: 8.88731
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Quadratic
y = 6.71831e+008x^2 + 1.06117e+009x + 319593.
Goodness of fit (r^2): 0.999277

Peak: ENDOI -- ESTD -- back detector



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.001	0.005	0.01	0.02	0.04
Area	1363650	5815857	10796506	21944950	42779209
RF	1363650000	1163171400	1079650600	1097247500	1069480225
Last Area					
Residual	1.67373e-005	-0.000162573	0.000187953	-0.00012247	0.00095312
Rep StDev					
Rep %RSD					
Rep 1 Area	1363650	5815857	10796506	21944950	42779209
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\013.dat	C:\Instarch\Semi1\data\091318pstic\014.dat	C:\Instarch\Semi1\data\091318pstic\015.dat	C:\Instarch\Semi1\data\091318pstic\016.dat	C:\Instarch\Semi1\data\091318pstic\017.dat
Rep 1 Sample ID	Pest ICAL 1 PP5701	Pest ICAL 2 PP5702	Pest ICAL 3 PP5703	Pest ICAL 4 PP5704	Pest ICAL 5 PP5705
Rep 1 Calib. Time	09/13/2018 14:45:00	09/13/2018 14:45:09	09/13/2018 14:45:21	09/13/2018 14:45:32	09/13/2018 14:45:43

	Level 6	Level 7
Amount	0.05	0.07
Area	56535354	77467767

Calibration Report

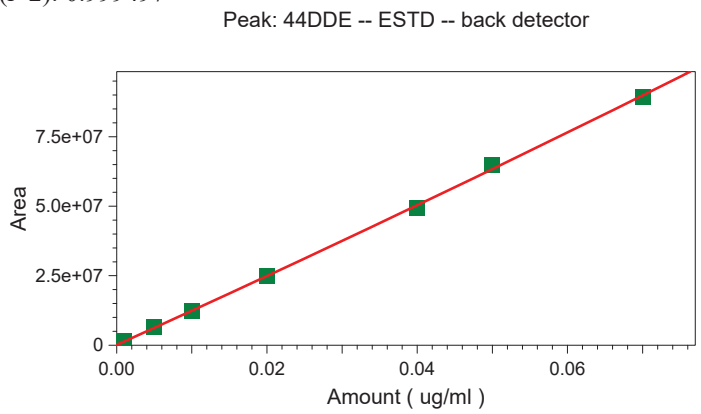
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:51:58
User: JJY
Instrument: Semi 1

RF	1130707080	1106682385.71429
Last Area Residual	-0.00130866	0.00036846
Rep StDev		
Rep %RSD		
Rep 1 Area	56535354	77467767
Rep 1 User	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\018.dat	C:\Instarch\Semi1\data\091318pstic\019.dat
Rep 1 Sample ID	Pest ICAL 6 PP5706	Pest ICAL 7 PP5707
Rep 1 Calib. Time	09/13/2018 14:45:54	09/13/2018 14:46:05

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:52:00
User: JJY
Instrument: Semi 1

44DDE (back detector)
Average RF: 1.27216e+009 RF StDev: 4.09398e+007 RF %RSD: 3.21812
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Quadratic
y = 8.95229e+008x^2 + 1.21970e+009x + 134597.
Goodness of fit (r^2): 0.999497



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.001	0.005	0.01	0.02	0.04
Area	1335587	6468549	12167982	25045345	49318863
RF	1335587000	1293709800	1216798200	1252267250	1232971575
Last Area					
Residual	1.60496e-005	-0.000173403	0.000204557	-0.000126381	0.00080276
Rep StDev					
Rep %RSD					
Rep 1 Area	1335587	6468549	12167982	25045345	49318863
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\013.dat	C:\Instarch\Semi1\data\091318pstic\014.dat	C:\Instarch\Semi1\data\091318pstic\015.dat	C:\Instarch\Semi1\data\091318pstic\016.dat	C:\Instarch\Semi1\data\091318pstic\017.dat
Rep 1 Sample ID	Pest ICAL 1 PP5701	Pest ICAL 2 PP5702	Pest ICAL 3 PP5703	Pest ICAL 4 PP5704	Pest ICAL 5 PP5705
Rep 1 Calib. Time	09/13/2018 14:45:00	09/13/2018 14:45:09	09/13/2018 14:45:21	09/13/2018 14:45:32	09/13/2018 14:45:43

	Level 6	Level 7
Amount	0.05	0.07
Area	64760367	89501845

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:52:00
User: JJY
Instrument: Semi 1

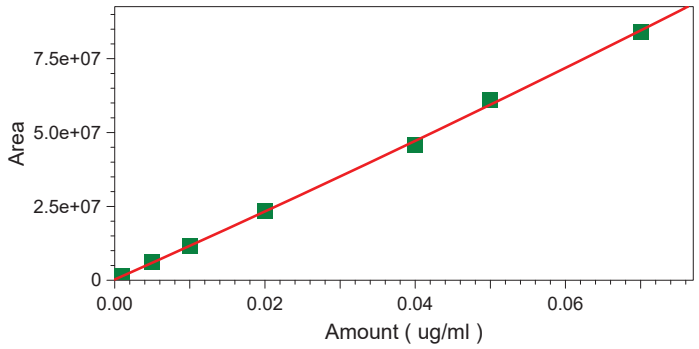
RF	1295207340	1278597785.71429
Last Area Residual	-0.00107067	0.000296162
Rep StDev		
Rep %RSD		
Rep 1 Area	64760367	89501845
Rep 1 User	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\018.dat	C:\Instarch\Semi1\data\091318pstic\019.dat
Rep 1 Sample ID	Pest ICAL 6 PP5706	Pest ICAL 7 PP5707
Rep 1 Calib. Time	09/13/2018 14:45:54	09/13/2018 14:46:05

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:52:02
User: JJY
Instrument: Semi 1

DIELDRIN (back detector)
Average RF: 1.20706e+009 RF StDev: 6.32070e+007 RF %RSD: 5.23644
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Quadratic
y = 1.05187e+009x^2 + 1.13138e+009x + 229569.
Goodness of fit (r^2): 0.999313

Peak: DIELDRIN -- ESTD -- back detector



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.001	0.005	0.01	0.02	0.04
Area	1332409	6123025	11542038	23353440	45933123
RF	1332409000	1224605000	1154203800	1167672000	1148328075
Last Area					
Residual	2.61064e-005	-0.000184105	9.24296e-005	-6.43711e-005	0.00101659
Rep StDev					
Rep %RSD					
Rep 1 Area	1332409	6123025	11542038	23353440	45933123
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\013.dat	C:\Instarch\Semi1\data\091318pstic\014.dat	C:\Instarch\Semi1\data\091318pstic\015.dat	C:\Instarch\Semi1\data\091318pstic\016.dat	C:\Instarch\Semi1\data\091318pstic\017.dat
Rep 1 Sample ID	Pest ICAL 1 PP5701	Pest ICAL 2 PP5702	Pest ICAL 3 PP5703	Pest ICAL 4 PP5704	Pest ICAL 5 PP5705
Rep 1 Calib. Time	09/13/2018 14:45:00	09/13/2018 14:45:09	09/13/2018 14:45:21	09/13/2018 14:45:32	09/13/2018 14:45:43

	Level 6	Level 7
Amount	0.05	0.07
Area	60947502	84227530

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:52:02
User: JJY
Instrument: Semi 1

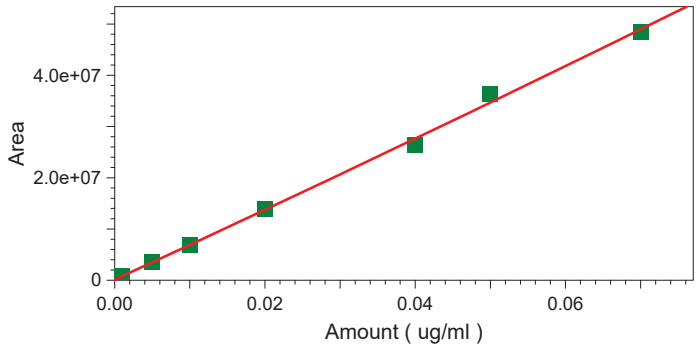
RF	1218950040	1203250428.57143
Last Area Residual	-0.00122736	0.000275946
Rep StDev		
Rep %RSD		
Rep 1 Area	60947502	84227530
Rep 1 User	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\018.dat	C:\Instarch\Semi1\data\091318pstic\019.dat
Rep 1 Sample ID	Pest ICAL 6 PP5706	Pest ICAL 7 PP5707
Rep 1 Calib. Time	09/13/2018 14:45:54	09/13/2018 14:46:05

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:52:03
User: JJY
Instrument: Semi 1

ENDRIN (back detector)
Average RF: 7.07374e+008 RF StDev: 3.71608e+007 RF %RSD: 5.25334
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Quadratic
y = 3.35817e+008x^2 + 6.74309e+008x + 115602.
Goodness of fit (r^2): 0.997853

Peak: ENDRIN -- ESTD -- back detector



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.001	0.005	0.01	0.02	0.04
Area	770613	3653951	6794202	13803238	26451204
RF	770613000	730790200	679420200	690161900	661280100
Last Area					
Residual	2.90889e-005	-0.000233729	0.000144015	-9.76057e-005	0.00167577
Rep StDev					
Rep %RSD					
Rep 1 Area	770613	3653951	6794202	13803238	26451204
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\013.dat	C:\Instarch\Semi1\data\091318pstic\014.dat	C:\Instarch\Semi1\data\091318pstic\015.dat	C:\Instarch\Semi1\data\091318pstic\016.dat	C:\Instarch\Semi1\data\091318pstic\017.dat
Rep 1 Sample ID	Pest ICAL 1 PP5701	Pest ICAL 2 PP5702	Pest ICAL 3 PP5703	Pest ICAL 4 PP5704	Pest ICAL 5 PP5705
Rep 1 Calib. Time	09/13/2018 14:45:00	09/13/2018 14:45:09	09/13/2018 14:45:21	09/13/2018 14:45:32	09/13/2018 14:45:43

	Level 6	Level 7
Amount	0.05	0.07
Area	36293979	48543032

Calibration Report

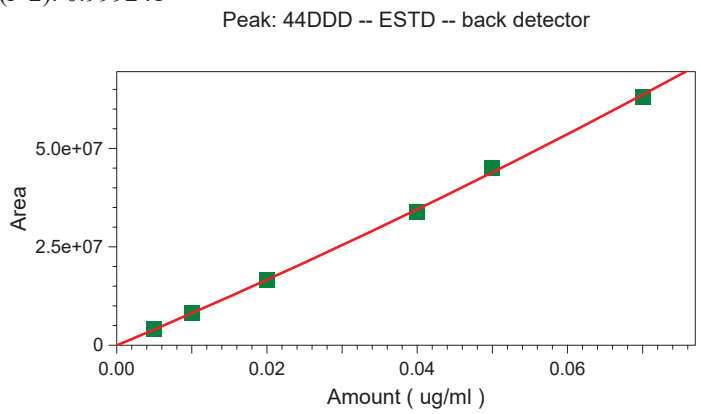
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:52:03
User: JJY
Instrument: Semi 1

RF	725879580	693471885.714286
Last Area Residual	-0.00229079	0.000582002
Rep StDev		
Rep %RSD		
Rep 1 Area	36293979	48543032
Rep 1 User	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\018.dat	C:\Instarch\Semi1\data\091318pstic\019.dat
Rep 1 Sample ID	Pest ICAL 6 PP5706	Pest ICAL 7 PP5707
Rep 1 Calib. Time	09/13/2018 14:45:54	09/13/2018 14:46:05

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:52:05
User: JJY
Instrument: Semi 1

44DDD (back detector)
Average RF: 8.50008e+008 RF StDev: 4.33174e+007 RF %RSD: 5.09611
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Quadratic
y = 1.51922e+009x^2 + 8.03494e+008x - 44661.7
Goodness of fit (r^2): 0.999241



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.001	0.005	0.01	0.02	0.04
Area		4054589	8055623	16632980	33869406
RF		810917800	805562300	831649000	846735150
Last Area					
Residual	N/A	-5.3498e-005	0.000103839	-9.63498e-008	0.000710452
Rep StDev					
Rep %RSD					
Rep 1 Area		4054589	8055623	16632980	33869406
Rep 1 User		JJY	JJY	JJY	JJY
Rep 1 Data File		C:\Instarch\Semi1\data\091318pstic\014.dat	C:\Instarch\Semi1\data\091318pstic\015.dat	C:\Instarch\Semi1\data\091318pstic\016.dat	C:\Instarch\Semi1\data\091318pstic\017.dat
Rep 1 Sample ID		Pest ICAL 2 PP5702	Pest ICAL 3 PP5703	Pest ICAL 4 PP5704	Pest ICAL 5 PP5705
Rep 1 Calib. Time		09/13/2018 14:45:09	09/13/2018 14:45:21	09/13/2018 14:45:32	09/13/2018 14:45:43

	Level 6	Level 7
Amount	0.05	0.07
Area	45109445	63209828
RF	902188900	902997542.857143

Calibration Report

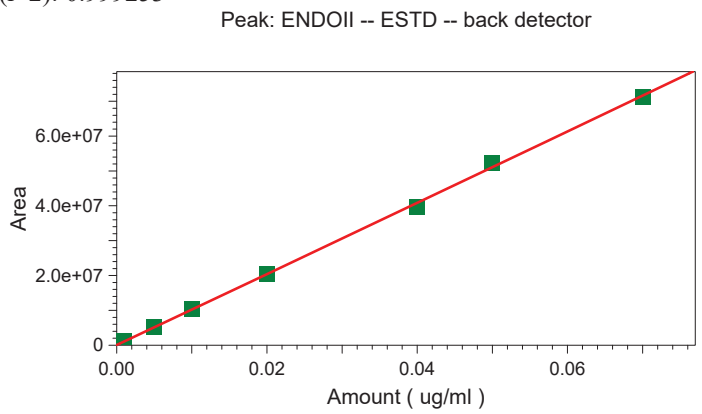
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:52:05
User: JJY
Instrument: Semi 1

Last Area Residual	-0.00123409	0.000427584
Rep StDev		
Rep %RSD		
Rep 1 Area	45109445	63209828
Rep 1 User	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\018.dat	C:\Instarch\Semi1\data\091318pstic\019.dat
Rep 1 Sample ID	Pest ICAL 6 PP5706	Pest ICAL 7 PP5707
Rep 1 Calib. Time	09/13/2018 14:45:54	09/13/2018 14:46:05

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:52:07
User: JJY
Instrument: Semi 1

ENDOII (back detector)
Average RF: 1.03142e+009 RF StDev: 2.46892e+007 RF %RSD: 2.39371
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Quadratic
y = 1.06236e+008x^2 + 1.01495e+009x + 66128.3
Goodness of fit (r^2): 0.999253



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.001	0.005	0.01	0.02	0.04
Area	1071609	5172959	10278842	20548593	39651070
RF	1071609000	1034591800	1027884200	1027429650	991276750
Last Area					
Residual	9.4369e-006	-2.89387e-005	-5.16624e-005	-0.000138224	0.00115624
Rep StDev					
Rep %RSD					
Rep 1 Area	1071609	5172959	10278842	20548593	39651070
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\013.dat	C:\Instarch\Semi1\data\091318pstic\014.dat	C:\Instarch\Semi1\data\091318pstic\015.dat	C:\Instarch\Semi1\data\091318pstic\016.dat	C:\Instarch\Semi1\data\091318pstic\017.dat
Rep 1 Sample ID	Pest ICAL 1 PP5701	Pest ICAL 2 PP5702	Pest ICAL 3 PP5703	Pest ICAL 4 PP5704	Pest ICAL 5 PP5705
Rep 1 Calib. Time	09/13/2018 14:45:00	09/13/2018 14:45:09	09/13/2018 14:45:21	09/13/2018 14:45:32	09/13/2018 14:45:43

	Level 6	Level 7
Amount	0.05	0.07
Area	52370660	71381771

Calibration Report

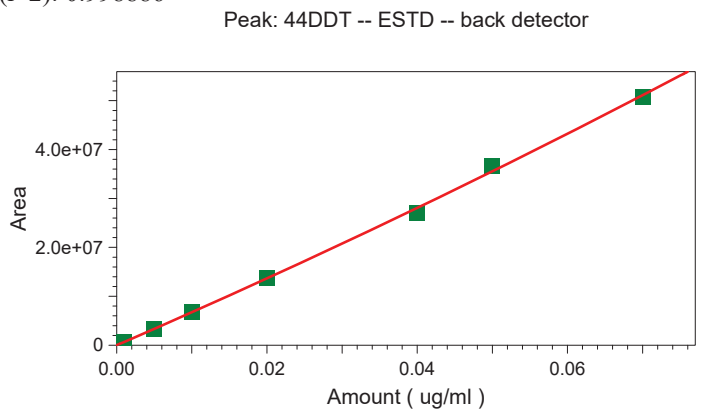
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:52:07
User: JJY
Instrument: Semi 1

RF	1047413200	1019739585.71429
Last Area Residual	-0.00125885	0.000244444
Rep StDev		
Rep %RSD		
Rep 1 Area	52370660	71381771
Rep 1 User	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\018.dat	C:\Instarch\Semi1\data\091318pstic\019.dat
Rep 1 Sample ID	Pest ICAL 6 PP5706	Pest ICAL 7 PP5707
Rep 1 Calib. Time	09/13/2018 14:45:54	09/13/2018 14:46:05

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:52:09
User: JJY
Instrument: Semi 1

44DDT (back detector)
Average RF: 6.93963e+008 RF StDev: 2.59639e+007 RF %RSD: 3.74140
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Quadratic
y = 9.59827e+008x^2 + 6.62859e+008x + 19627.6
Goodness of fit (r^2): 0.998886



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.001	0.005	0.01	0.02	0.04
Area	674011	3427294	6698704	13800888	27093310
RF	674011000	685458800	669870400	690044400	677332750
Last Area					
Residual	1.41935e-005	-0.000103153	6.67095e-005	-0.000199805	0.00132236
Rep StDev					
Rep %RSD					
Rep 1 Area	674011	3427294	6698704	13800888	27093310
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\013.dat	C:\Instarch\Semi1\data\091318pstic\014.dat	C:\Instarch\Semi1\data\091318pstic\015.dat	C:\Instarch\Semi1\data\091318pstic\016.dat	C:\Instarch\Semi1\data\091318pstic\017.dat
Rep 1 Sample ID	Pest ICAL 1 PP5701	Pest ICAL 2 PP5702	Pest ICAL 3 PP5703	Pest ICAL 4 PP5704	Pest ICAL 5 PP5705
Rep 1 Calib. Time	09/13/2018 14:45:00	09/13/2018 14:45:09	09/13/2018 14:45:21	09/13/2018 14:45:32	09/13/2018 14:45:43

	Level 6	Level 7
Amount	0.05	0.07
Area	36720784	50862404

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:52:09
User: JJY
Instrument: Semi 1

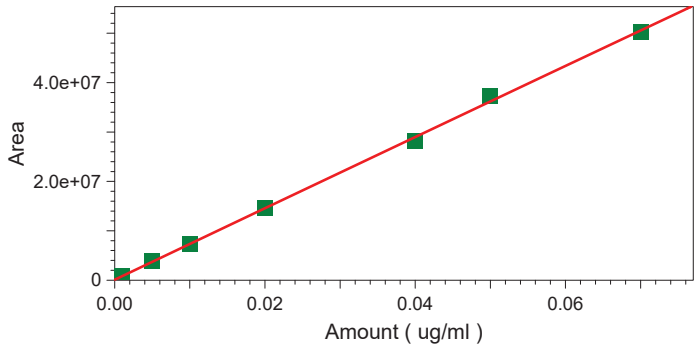
RF	734415680	726605771.428571
Last Area Residual	-0.00152392	0.000326879
Rep StDev		
Rep %RSD		
Rep 1 Area	36720784	50862404
Rep 1 User	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\018.dat	C:\Instarch\Semi1\data\091318pstic\019.dat
Rep 1 Sample ID	Pest ICAL 6 PP5706	Pest ICAL 7 PP5707
Rep 1 Calib. Time	09/13/2018 14:45:54	09/13/2018 14:46:05

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:52:10
User: JJY
Instrument: Semi 1

ENDRINALDEH (back detector)
Average RF: 7.44766e+008 RF StDev: 3.70766e+007 RF %RSD: 4.97829
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Quadratic
y = -4.46098e+007x^2 + 7.23800e+008x + 110051.
Goodness of fit (r^2): 0.999081

Peak: ENDRINALDEH -- ESTD -- back detector



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.001	0.005	0.01	0.02	0.04
Area	815720	3831171	7345463	14618572	28089166
RF	815720000	766234200	734546300	730928600	702229150
Last Area					
Residual	2.49919e-005	-0.000142717	-2.58792e-006	-6.97508e-005	0.00125161
Rep StDev					
Rep %RSD					
Rep 1 Area	815720	3831171	7345463	14618572	28089166
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\013.dat	C:\Instarch\Semi1\data\091318pstic\014.dat	C:\Instarch\Semi1\data\091318pstic\015.dat	C:\Instarch\Semi1\data\091318pstic\016.dat	C:\Instarch\Semi1\data\091318pstic\017.dat
Rep 1 Sample ID	Pest ICAL 1 PP5701	Pest ICAL 2 PP5702	Pest ICAL 3 PP5703	Pest ICAL 4 PP5704	Pest ICAL 5 PP5705
Rep 1 Calib. Time	09/13/2018 14:45:00	09/13/2018 14:45:09	09/13/2018 14:45:21	09/13/2018 14:45:32	09/13/2018 14:45:43

	Level 6	Level 7
Amount	0.05	0.07
Area	37219077	50352730

Calibration Report

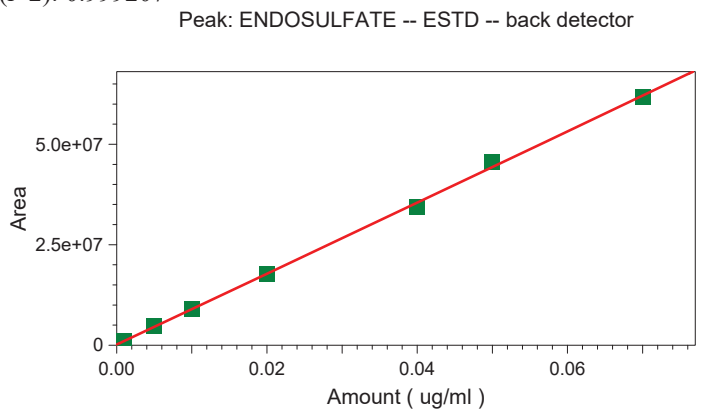
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:52:10
User: JJY
Instrument: Semi 1

RF	744381540	719324714.285714
Last Area Residual	-0.00143275	0.000285333
Rep StDev		
Rep %RSD		
Rep 1 Area	37219077	50352730
Rep 1 User	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\018.dat	C:\Instarch\Semi1\data\091318pstic\019.dat
Rep 1 Sample ID	Pest ICAL 6 PP5706	Pest ICAL 7 PP5707
Rep 1 Calib. Time	09/13/2018 14:45:54	09/13/2018 14:46:05

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:52:12
User: JJY
Instrument: Semi 1

ENDOSULFATE (back detector)
Average RF: 9.15319e+008 RF StDev: 5.31628e+007 RF %RSD: 5.80812
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Quadratic
y = 8.48280e+007x^2 + 8.78748e+008x + 169925.
Goodness of fit (r^2): 0.999207



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.001	0.005	0.01	0.02	0.04
Area	1018811	4747347	8940187	17820642	34410666
RF	1018811000	949469400	894018700	891032100	860266650
Last Area					
Residual	3.40721e-005	-0.000206412	2.91876e-005	-4.74201e-005	0.00118009
Rep StDev					
Rep %RSD					
Rep 1 Area	1018811	4747347	8940187	17820642	34410666
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\013.dat	C:\Instarch\Semi1\data\091318pstic\014.dat	C:\Instarch\Semi1\data\091318pstic\015.dat	C:\Instarch\Semi1\data\091318pstic\016.dat	C:\Instarch\Semi1\data\091318pstic\017.dat
Rep 1 Sample ID	Pest ICAL 1 PP5701	Pest ICAL 2 PP5702	Pest ICAL 3 PP5703	Pest ICAL 4 PP5704	Pest ICAL 5 PP5705
Rep 1 Calib. Time	09/13/2018 14:45:00	09/13/2018 14:45:09	09/13/2018 14:45:21	09/13/2018 14:45:32	09/13/2018 14:45:43

	Level 6	Level 7
Amount	0.05	0.07
Area	45475097	61889151

Calibration Report

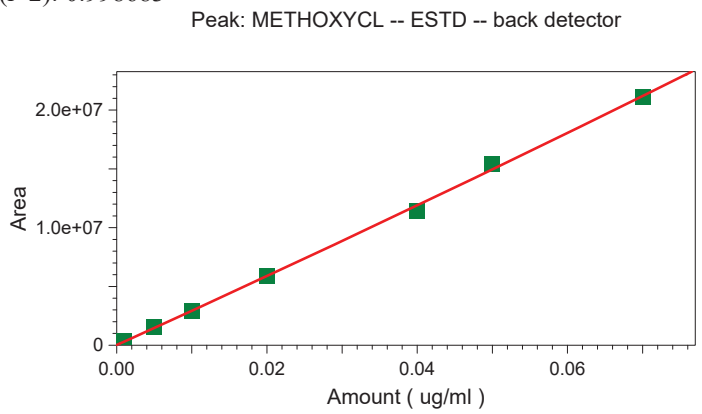
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:52:12
User: JJY
Instrument: Semi 1

RF	909501940	884130728.571429
Last Area Residual	-0.00130245	0.000234416
Rep StDev		
Rep %RSD		
Rep 1 Area	45475097	61889151
Rep 1 User	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\018.dat	C:\Instarch\Semi1\data\091318pstic\019.dat
Rep 1 Sample ID	Pest ICAL 6 PP5706	Pest ICAL 7 PP5707
Rep 1 Calib. Time	09/13/2018 14:45:54	09/13/2018 14:46:05

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:52:14
User: JJY
Instrument: Semi 1

METHOXYCL (back detector)
Average RF: 2.99612e+008 RF StDev: 9.34593e+006 RF %RSD: 3.11935
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Quadratic
y = 1.93378e+008x^2 + 2.88967e+008x + 24806.9
Goodness of fit (r^2): 0.998683



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.001	0.005	0.01	0.02	0.04
Area	299221	1563169	2938544	5921353	11388290
RF	299221000	312633800	293854400	296067650	284707250
Last Area					
Residual	5.0965e-005	-0.000304826	-1.6146e-005	-0.000134307	0.00165925
Rep StDev					
Rep %RSD					
Rep 1 Area	299221	1563169	2938544	5921353	11388290
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\013.dat	C:\Instarch\Semi1\data\091318pstic\014.dat	C:\Instarch\Semi1\data\091318pstic\015.dat	C:\Instarch\Semi1\data\091318pstic\016.dat	C:\Instarch\Semi1\data\091318pstic\017.dat
Rep 1 Sample ID	Pest ICAL 1 PP5701	Pest ICAL 2 PP5702	Pest ICAL 3 PP5703	Pest ICAL 4 PP5704	Pest ICAL 5 PP5705
Rep 1 Calib. Time	09/13/2018 14:45:00	09/13/2018 14:45:09	09/13/2018 14:45:21	09/13/2018 14:45:32	09/13/2018 14:45:43

	Level 6	Level 7
Amount	0.05	0.07
Area	15426111	21159391

Calibration Report

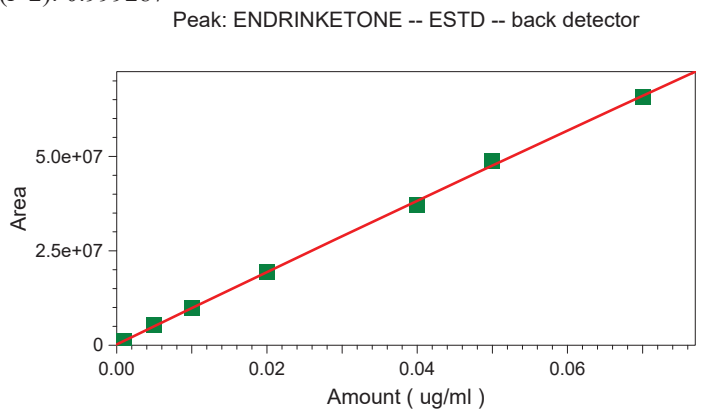
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:52:14
User: JJY
Instrument: Semi 1

RF	308522220	302277014.285714
Last Area Residual	-0.00152141	0.000128678
Rep StDev		
Rep %RSD		
Rep 1 Area	15426111	21159391
Rep 1 User	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\018.dat	C:\Instarch\Semi1\data\091318pstic\019.dat
Rep 1 Sample ID	Pest ICAL 6 PP5706	Pest ICAL 7 PP5707
Rep 1 Calib. Time	09/13/2018 14:45:54	09/13/2018 14:46:05

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:52:15
User: JJY
Instrument: Semi 1

ENDRINKETONE (back detector)
Average RF: 9.95145e+008 RF StDev: 6.85542e+007 RF %RSD: 6.88887
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Quadratic
y = -3.69885e+008x^2 + 9.66126e+008x + 196104.
Goodness of fit (r^2): 0.999287



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.001	0.005	0.01	0.02	0.04
Area	1126880	5213145	9818167	19431629	37136238
RF	1126880000	1042629000	981816700	971581450	928405950
Last Area					
Residual	3.62339e-005	-0.000203311	2.30707e-006	-6.40719e-005	0.00118798
Rep StDev					
Rep %RSD					
Rep 1 Area	1126880	5213145	9818167	19431629	37136238
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\013.dat	C:\Instarch\Semi1\data\091318pstic\014.dat	C:\Instarch\Semi1\data\091318pstic\015.dat	C:\Instarch\Semi1\data\091318pstic\016.dat	C:\Instarch\Semi1\data\091318pstic\017.dat
Rep 1 Sample ID	Pest ICAL 1 PP5701	Pest ICAL 2 PP5702	Pest ICAL 3 PP5703	Pest ICAL 4 PP5704	Pest ICAL 5 PP5705
Rep 1 Calib. Time	09/13/2018 14:45:00	09/13/2018 14:45:09	09/13/2018 14:45:21	09/13/2018 14:45:32	09/13/2018 14:45:43

	Level 6	Level 7
Amount	0.05	0.07
Area	48693313	65858499
RF	973866260	940835700

Calibration Report

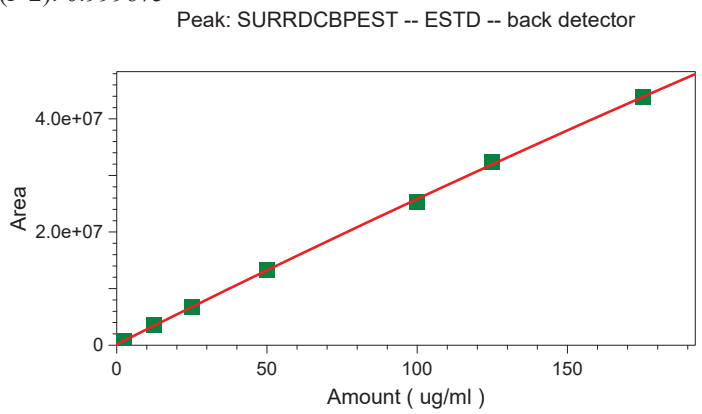
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:52:15
User: JJY
Instrument: Semi 1

Last Area Residual	-0.00120126	0.000168429
Rep StDev		
Rep %RSD		
Rep 1 Area	48693313	65858499
Rep 1 User	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\018.dat	C:\Instarch\Semi1\data\091318pstic\019.dat
Rep 1 Sample ID	Pest ICAL 6 PP5706	Pest ICAL 7 PP5707
Rep 1 Calib. Time	09/13/2018 14:45:54	09/13/2018 14:46:05

Calibration Report

Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:52:17
User: JJY
Instrument: Semi 1

SURRDCBPEST (back detector)
Average RF: 272808. RF StDev: 24073.2 RF %RSD: 8.82421
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Quadratic
y = -94.1441x^2 + 266210.x + 165169.
Goodness of fit (r^2): 0.999675



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	2.5	12.5	25	50	100
Area	790812	3667484	6838977	13212346	25251316
RF	316324.8	293398.72	273559.08	264246.92	252513.16
Last Area					
Residual	0.147856	-0.717999	-0.296004	0.108891	2.3966
Rep StDev					
Rep %RSD					
Rep 1 Area	790812	3667484	6838977	13212346	25251316
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\013.dat	C:\Instarch\Semi1\data\091318pstic\014.dat	C:\Instarch\Semi1\data\091318pstic\015.dat	C:\Instarch\Semi1\data\091318pstic\016.dat	C:\Instarch\Semi1\data\091318pstic\017.dat
Rep 1 Sample ID	Pest ICAL 1 PP5701	Pest ICAL 2 PP5702	Pest ICAL 3 PP5703	Pest ICAL 4 PP5704	Pest ICAL 5 PP5705
Rep 1 Calib. Time	09/13/2018 14:45:00	09/13/2018 14:45:09	09/13/2018 14:45:21	09/13/2018 14:45:32	09/13/2018 14:45:43

	Level 6	Level 7
Amount	125	175
Area	32298936	43964285

Calibration Report

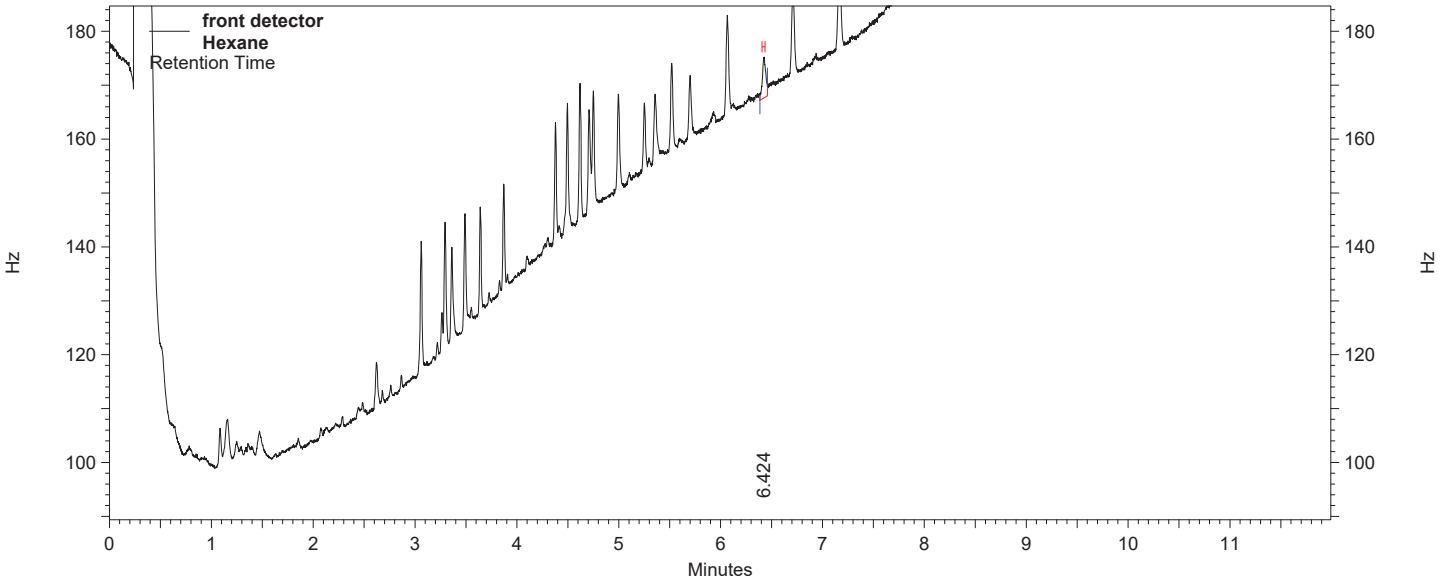
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
Print Time: 09/13/2018 14:52:17
User: JJY
Instrument: Semi 1

RF	258391.488	251224.485714286
Last Area Residual	-1.35444	-0.409581
Rep StDev		
Rep %RSD		
Rep 1 Area	32298936	43964285
Rep 1 User	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi1\data\091318pstic\018.dat	C:\Instarch\Semi1\data\091318pstic\019.dat
Rep 1 Sample ID	Pest ICAL 6 PP5706	Pest ICAL 7 PP5707
Rep 1 Calib. Time	09/13/2018 14:45:54	09/13/2018 14:46:05

Pesticide Analysis Report *(Channel A)*

Data File: C:\Instarch\Semi1\data\091318pstic\012.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
User: JJY
Sample ID: Hexane
Acquired: 09/13/2018 12:00:30
Printed: 09/13/2018 14:48:58

Data Summary: {Data Description}



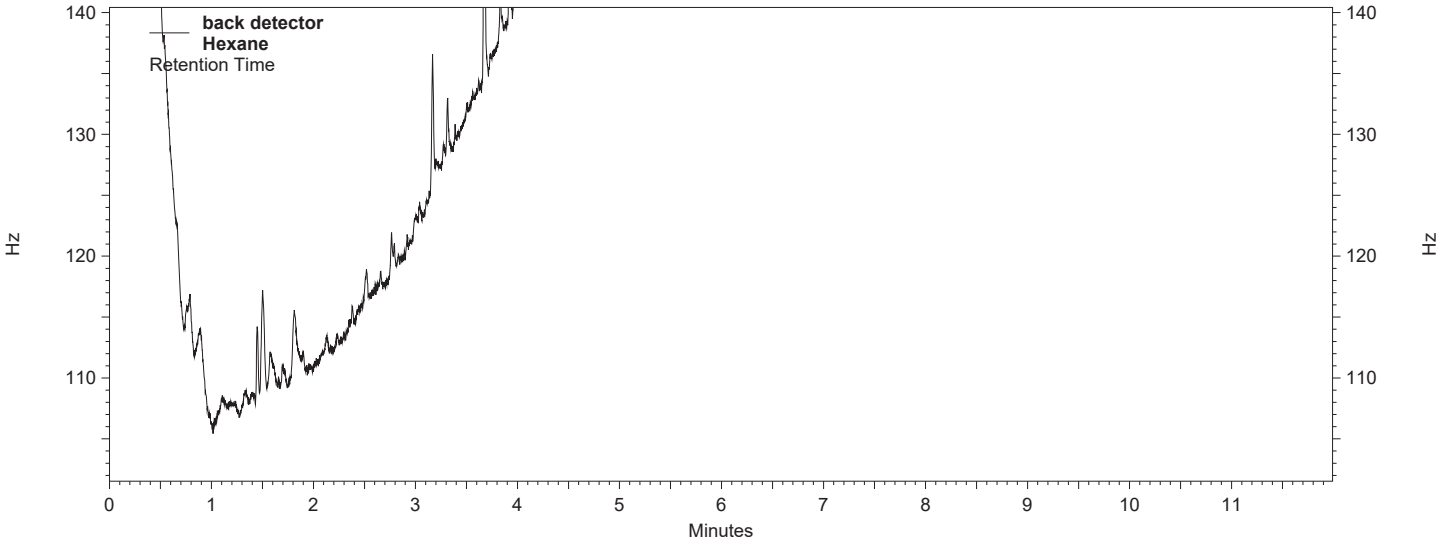
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPEST			0.0000 BDL
ALPHABHC			0.0000 BDL
LINDANE			0.0000 BDL
BETABHC			0.0000 BDL
DELTABHC			0.0000 BDL
HEPTACHLOR			0.0000 BDL
ALDRIN			0.0000 BDL
HEPTAEPOX			0.0000 BDL
GAMMACHLOR			0.0000 BDL
ALPHACHLOR			0.0000 BDL
44DDE			0.0000 BDL
ENDOI			0.0000 BDL
DIELDRIN			0.0000 BDL
ENDRIN			0.0000 BDL
44DDD			0.0000 BDL
ENDOII			0.0000 BDL
44DDT			0.0000 BDL
ENDRINALDEH			0.0000 BDL
METHOXYCL	6.424	133866	0.0004
ENDOSULFATE			0.0000 BDL
ENDRINKETONE			0.0000 BDL
SURRDCBPEST			0.0000 BDL

Pesticide Analysis Report *(Channel B)*

Data File: C:\Instarch\Semi1\data\091318pstic\012.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
User: JJY
Sample ID: Hexane
Acquired: 09/13/2018 12:00:30
Printed: 09/13/2018 14:48:58

Data Summary: {Data Description}



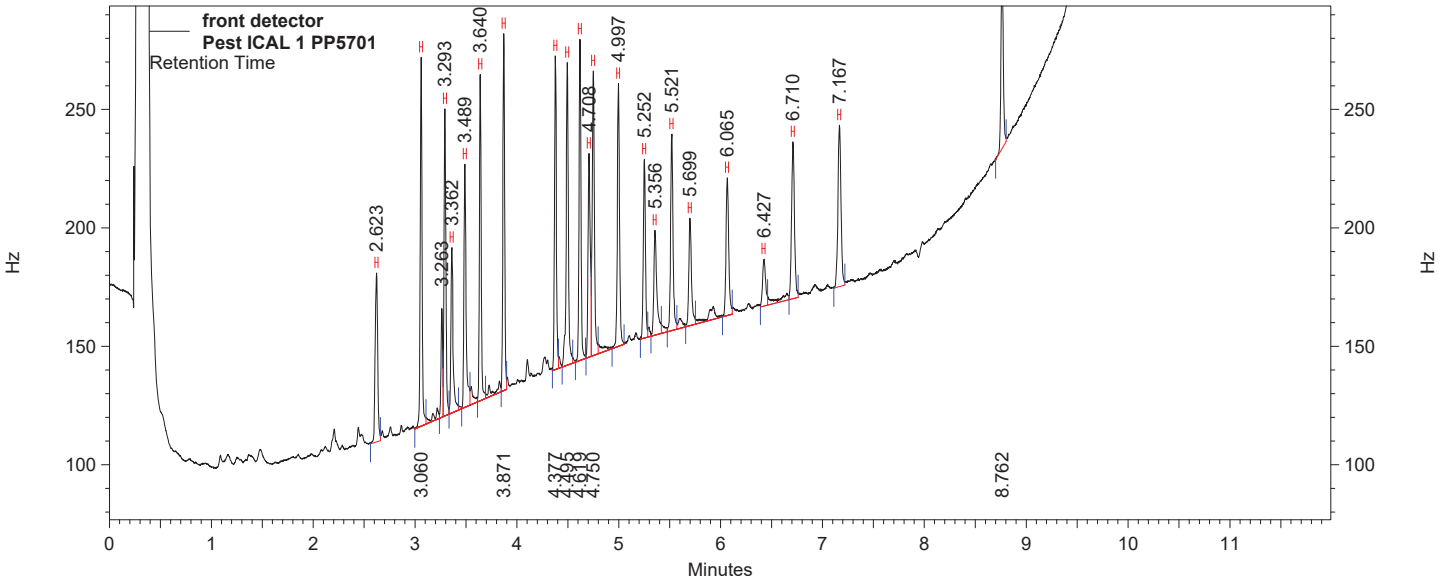
back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPEST			0.0000 BDL
ALPHABHC			0.0000 BDL
LINDANE			0.0000 BDL
BETABHC			0.0000 BDL
DELTABHC			0.0000 BDL
HEPTACHLOR			0.0000 BDL
ALDRIN			0.0000 BDL
HEPTAEPOX			0.0000 BDL
GAMMACHLOR			0.0000 BDL
ALPHACHLOR			0.0000 BDL
ENDOI			0.0000 BDL
44DDE			0.0000 BDL
DIELDRIN			0.0000 BDL
ENDRIN			0.0000 BDL
44DDD			0.0000 BDL
ENDOII			0.0000 BDL
44DDT			0.0000 BDL
ENDRINALDEH			0.0000 BDL
ENDOSULFATE			0.0000 BDL
METHOXYCL			0.0000 BDL
ENDRINKETONE			0.0000 BDL
SURRDCBPEST			0.0000 BDL

Pesticide Analysis Report *(Channel A)*

Data File: C:\Instarch\Semi1\data\091318pstic\013.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
User: JJY
Sample ID: Pest ICAL 1 PP5701
Acquired: 09/13/2018 12:16:46
Printed: 09/13/2018 14:49:19

Data Summary: {Data Description}



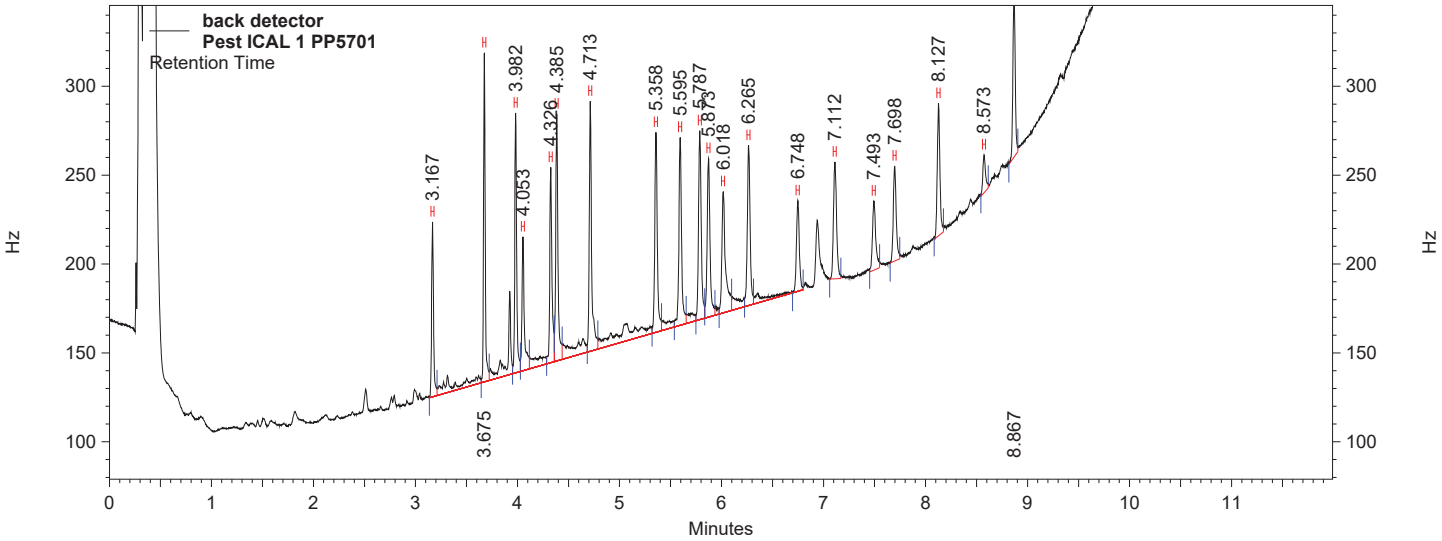
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPEST	2.623	946060	2.5000 CAL
ALPHABHC	3.060	1482575	0.0010 CAL
LINDANE	3.293	1259680	0.0010 CAL
BETABHC	3.362	791285	0.0010 CAL
DELTABHC	3.489	1159685	0.0010 CAL
HEPTACHLOR	3.640	1274716	0.0010 CAL
ALDRIN	3.871	1374635	0.0010 CAL
HEPTAEPOX	4.377	1275037	0.0010 CAL
GAMMACHLOR	4.495	1436109	0.0010 CAL
ALPHACHLOR	4.619	1349439	0.0010 CAL
44DDE	4.708	1005673	0.0010 CAL
ENDOI	4.750	1435414	0.0010 CAL
DIELDRIN	4.997	1259885	0.0010 CAL
ENDRIN	5.252	852041	0.0010 CAL
44DDD	5.356	694587	0.0010 CAL
ENDOII	5.521	1056281	0.0010 CAL
44DDT	5.699	631370	0.0010 CAL
ENDRINALDEH	6.065	811484	0.0010 CAL
METHOXYCL	6.427	313414	0.0010 CAL
ENDOSULFATE	6.710	998350	0.0010 CAL
ENDRINKETONE	7.167	1091835	0.0010 CAL
SURRDCBPEST	8.762	953646	2.5000 CAL

Pesticide Analysis Report *(Channel B)*

Data File: C:\Instarch\Semi1\data\091318pstic\013.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
User: JJY
Sample ID: Pest ICAL 1 PP5701
Acquired: 09/13/2018 12:16:46
Printed: 09/13/2018 14:49:19

Data Summary: {Data Description}



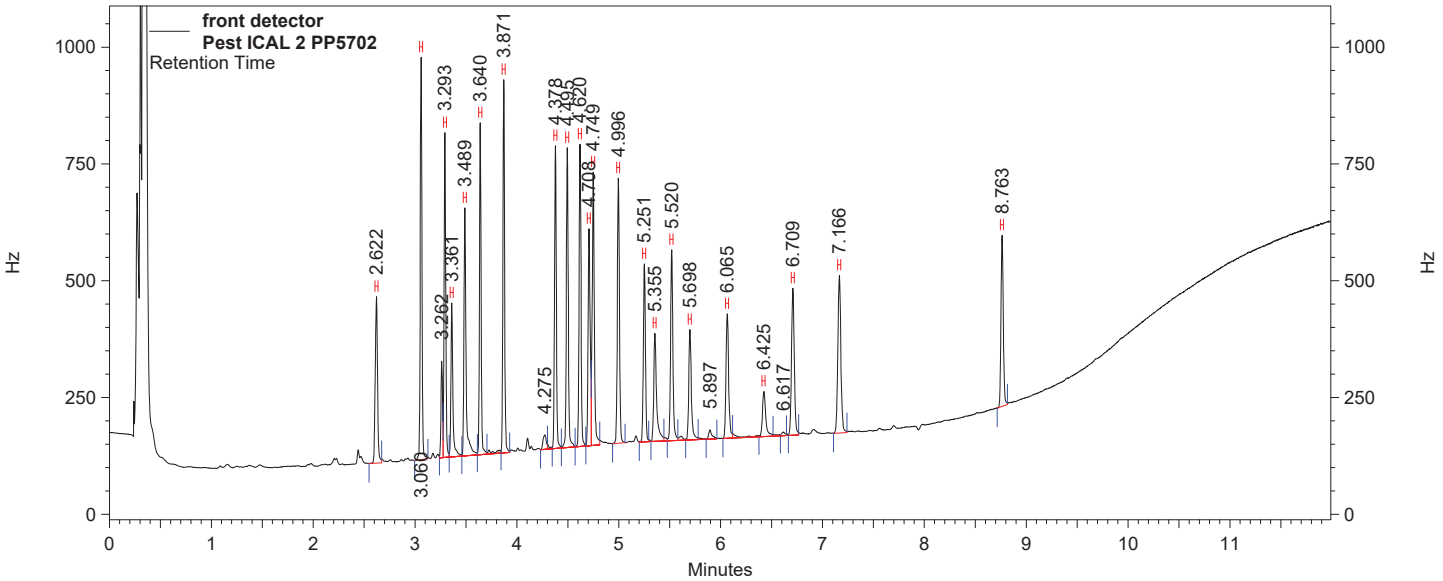
back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPEST	3.167	985022	2.5000 CAL
ALPHABHC	3.675	1619119	0.0010 CAL
LINDANE	3.982	1458625	0.0010 CAL
BETABHC	4.053	921766	0.0010 CAL
DELTABHC	4.326	1273550	0.0010 CAL
HEPTACHLOR	4.385	1621436	0.0010 CAL
ALDRIN	4.713	1797227	0.0010 CAL
HEPTAEPOX	5.358	1511517	0.0010 CAL
GAMMACHLOR	5.595	1495234	0.0010 CAL
ALPHACHLOR	5.787	1513094	0.0010 CAL
ENDOI	5.873	1363650	0.0010 CAL
44DDE	6.018	1335587	0.0010 CAL
DIELDRIN	6.265	1332409	0.0010 CAL
ENDRIN	6.748	770613	0.0010 CAL
44DDD			0.0000 BDL
ENDOII	7.112	1071609	0.0010 CAL
44DDT	7.493	674011	0.0010 CAL
ENDRINALDEH	7.698	815720	0.0010 CAL
ENDOSULFATE	8.127	1018811	0.0010 CAL
METHOXYCL	8.573	299221	0.0010 CAL
ENDRINKETONE	8.867	1126880	0.0010 CAL
SURRDCBPEST	10.304	790812	2.5000 CAL

Pesticide Analysis Report *(Channel A)*

Data File: C:\Instarch\Semi1\data\091318pstic\014.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
User: JJY
Sample ID: Pest ICAL 2 PP5702
Acquired: 09/13/2018 12:33:04
Printed: 09/13/2018 14:49:22

Data Summary: {Data Description}



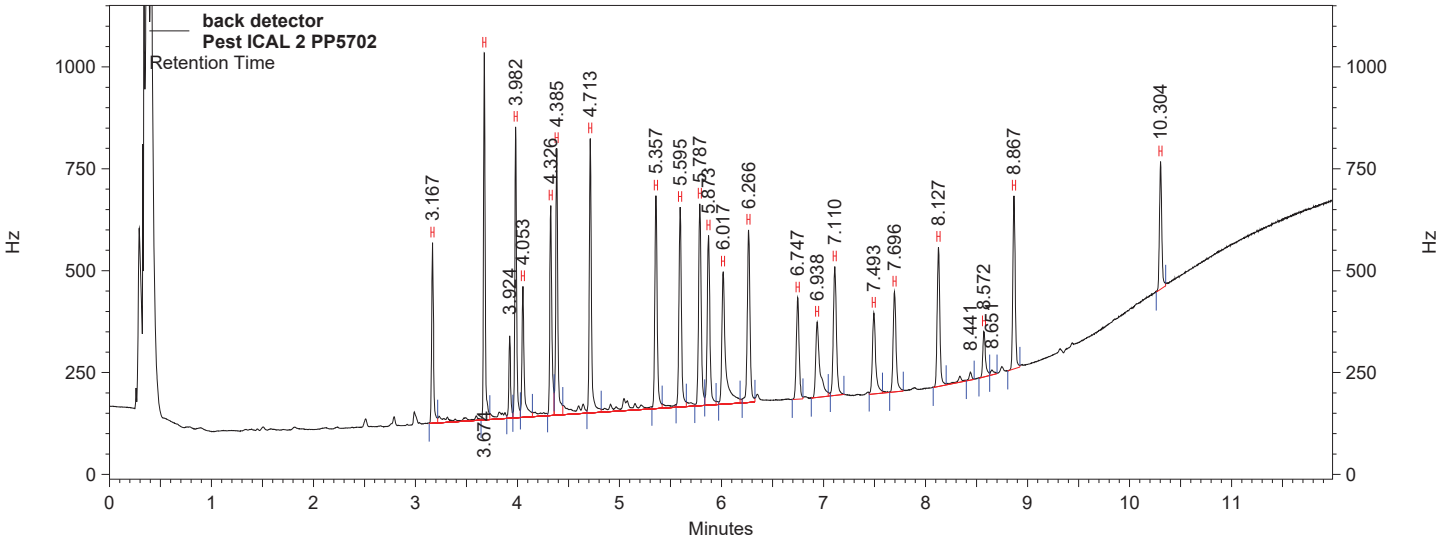
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPEST	2.622	4299946	12.5000 CAL
ALPHABHC	3.060	7343961	0.0050 CAL
LINDANE	3.293	5963842	0.0050 CAL
BETABHC	3.361	3397855	0.0050 CAL
DELTABHC	3.489	5942399	0.0050 CAL
HEPTACHLOR	3.640	6028488	0.0050 CAL
ALDRIN	3.871	7003557	0.0050 CAL
HEPTAEPOX	4.378	6133537	0.0050 CAL
GAMMACHLOR	4.495	6282552	0.0050 CAL
ALPHACHLOR	4.620	6347545	0.0050 CAL
44DDE	4.708	5116756	0.0050 CAL
ENDOI	4.749	6632442	0.0050 CAL
DIELDRIN	4.996	6101138	0.0050 CAL
ENDRIN	5.251	4214957	0.0050 CAL
44DDD	5.355	3429705	0.0050 CAL
ENDOII	5.520	4949565	0.0050 CAL
44DDT	5.698	3143708	0.0050 CAL
ENDRINALDEH	6.065	3685612	0.0050 CAL
METHOXYCL	6.425	1689152	0.0050 CAL
ENDOSULFATE	6.709	4630822	0.0050 CAL
ENDRINKETONE	7.166	5310464	0.0050 CAL
SURRDCBPEST	8.763	4366392	12.5000 CAL

Pesticide Analysis Report *(Channel B)*

Data File: C:\Instarch\Semi1\data\091318pstic\014.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
User: JJY
Sample ID: Pest ICAL 2 PP5702
Acquired: 09/13/2018 12:33:04
Printed: 09/13/2018 14:49:22

Data Summary: {Data Description}



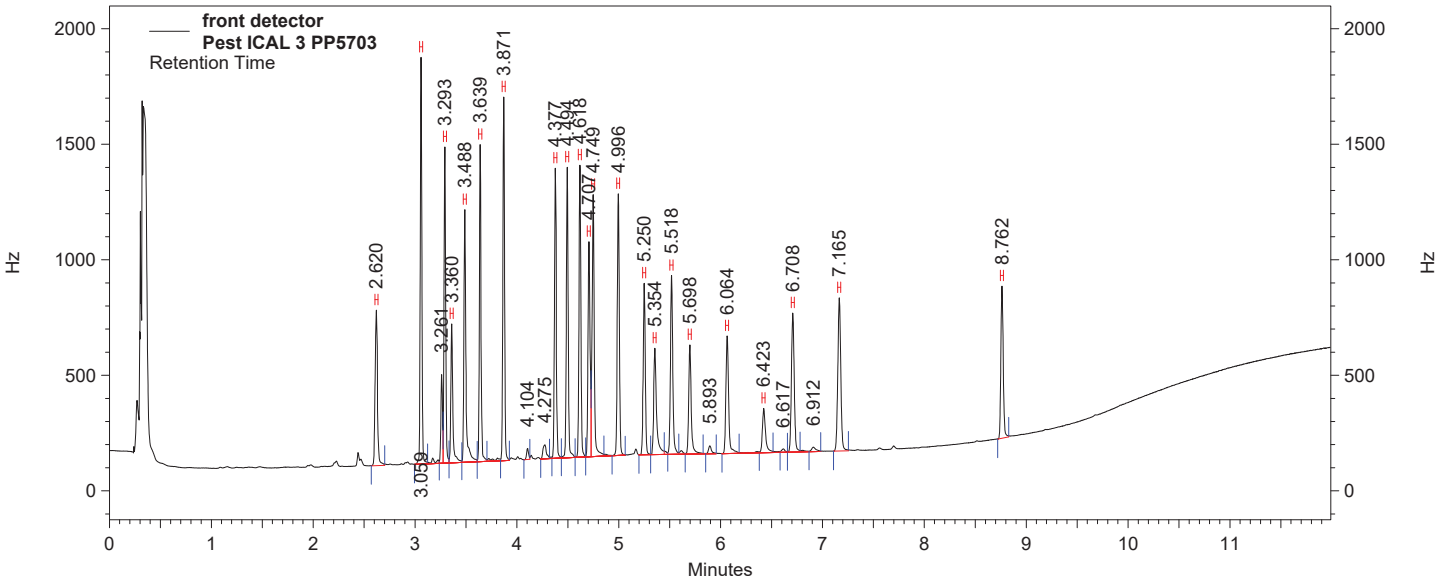
back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPEST	3.167	4269387	12.5000 CAL
ALPHABHC	3.674	7793841	0.0050 CAL
LINDANE	3.982	6572371	0.0050 CAL
BETABHC	4.053	3746072	0.0050 CAL
DELTABHC	4.326	5570578	0.0050 CAL
HEPTACHLOR	4.385	6914987	0.0050 CAL
ALDRIN	4.713	7671009	0.0050 CAL
HEPTAEPOX	5.357	6534921	0.0050 CAL
GAMMACHLOR	5.595	6376957	0.0050 CAL
ALPHACHLOR	5.787	6727515	0.0050 CAL
ENDOI	5.873	5815857	0.0050 CAL
44DDE	6.017	6468549	0.0050 CAL
DIELDRIN	6.266	6123025	0.0050 CAL
ENDRIN	6.747	3653951	0.0050 CAL
44DDD	6.938	4054589	0.0050 CAL
ENDOII	7.110	5172959	0.0050 CAL
44DDT	7.493	3427294	0.0050 CAL
ENDRINALDEH	7.696	3831171	0.0050 CAL
ENDOSULFATE	8.127	4747347	0.0050 CAL
METHOXYCL	8.572	1563169	0.0050 CAL
ENDRINKETONE	8.867	5213145	0.0050 CAL
SURRDCBPEST	10.304	3667484	12.5000 CAL

Pesticide Analysis Report *(Channel A)*

Data File: C:\Instarch\Semi1\data\091318pstic\015.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
User: JJY
Sample ID: Pest ICAL 3 PP5703
Acquired: 09/13/2018 12:49:26
Printed: 09/13/2018 14:49:24

Data Summary: {Data Description}



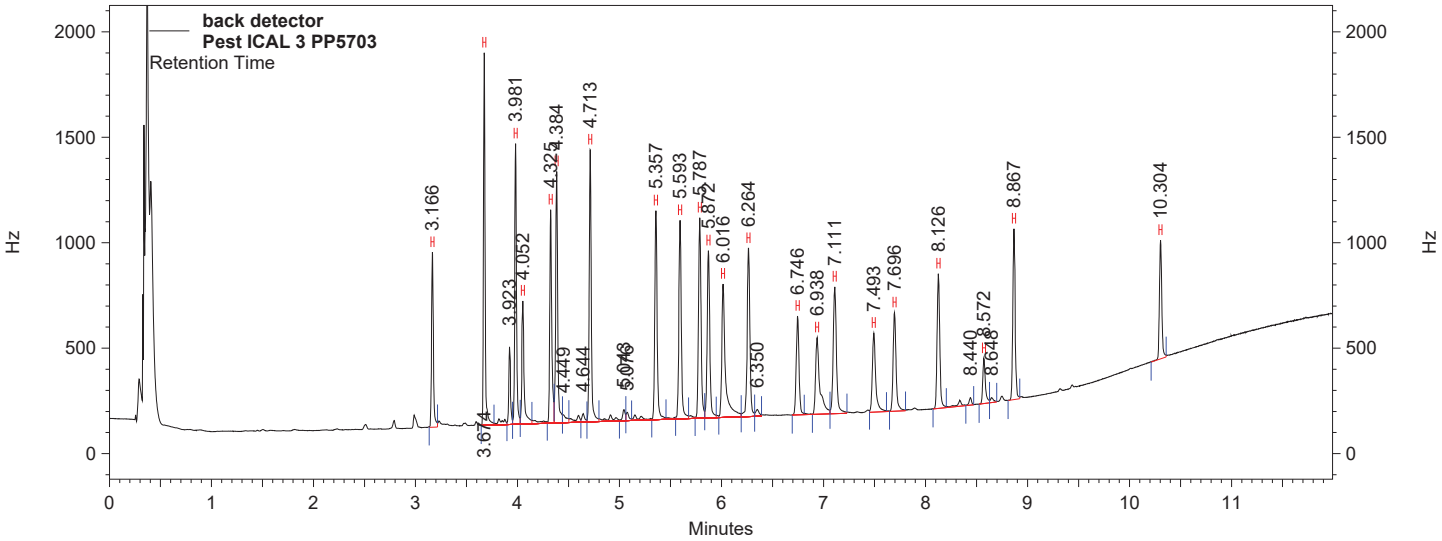
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPEST	2.620	8237551	25.0000 CAL
ALPHABHC	3.059	14687100	0.0100 CAL
LINDANE	3.293	11688117	0.0100 CAL
BETABHC	3.360	6336574	0.0100 CAL
DELTABHC	3.488	11793088	0.0100 CAL
HEPTACHLOR	3.639	11703270	0.0100 CAL
ALDRIN	3.871	13845753	0.0100 CAL
HEPTAEPOX	4.377	11773093	0.0100 CAL
GAMMACHLOR	4.494	12061797	0.0100 CAL
ALPHACHLOR	4.618	12262467	0.0100 CAL
44DDE	4.707	10229766	0.0100 CAL
ENDOI	4.749	12948593	0.0100 CAL
DIELDRIN	4.996	12036741	0.0100 CAL
ENDRIN	5.250	8067635	0.0100 CAL
44DDD	5.354	6702081	0.0100 CAL
ENDOII	5.518	9546693	0.0100 CAL
44DDT	5.698	6278813	0.0100 CAL
ENDRINALDEH	6.064	7325340	0.0100 CAL
METHOXYCL	6.423	3163507	0.0100 CAL
ENDOSULFATE	6.708	8869261	0.0100 CAL
ENDRINKETONE	7.165	10350949	0.0100 CAL
SURRDCBPEST	8.762	8035549	25.0000 CAL

Pesticide Analysis Report *(Channel B)*

Data File: C:\Instarch\Semi1\data\091318pstic\015.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
User: JJY
Sample ID: Pest ICAL 3 PP5703
Acquired: 09/13/2018 12:49:26
Printed: 09/13/2018 14:49:24

Data Summary: {Data Description}



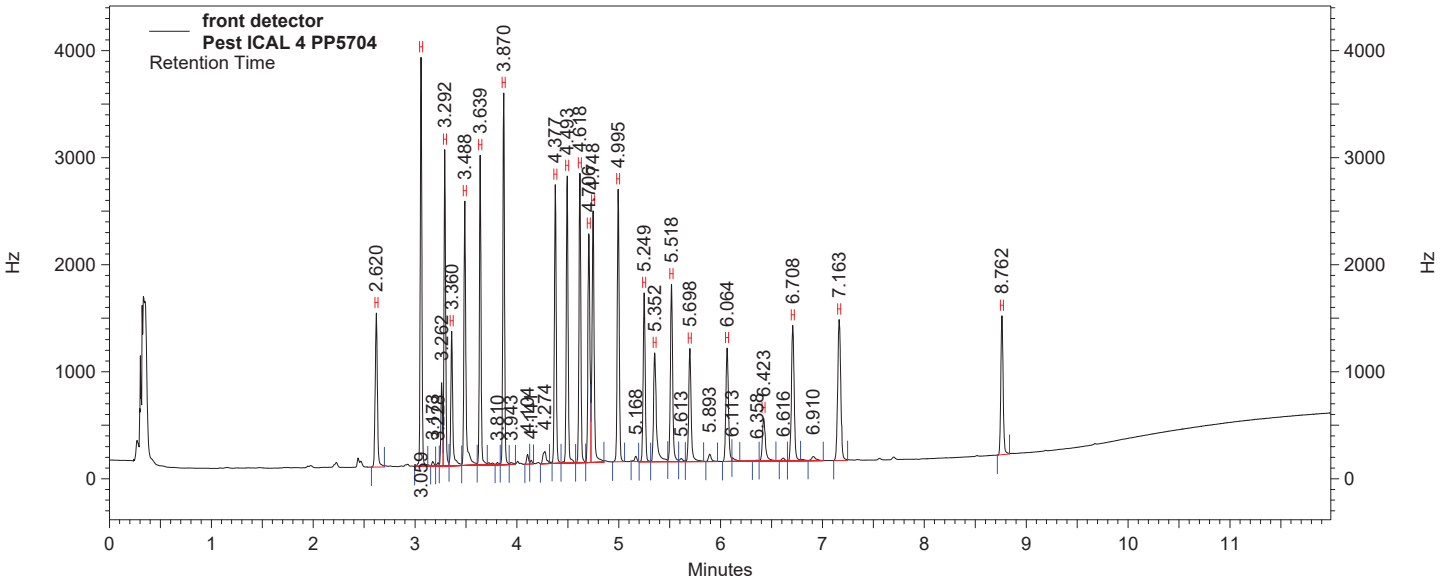
back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPEST	3.166	7963643	25.0000 CAL
ALPHABHC	3.674	15088912	0.0100 CAL
LINDANE	3.981	12319057	0.0100 CAL
BETABHC	4.052	6605002	0.0100 CAL
DELTABHC	4.325	10625117	0.0100 CAL
HEPTACHLOR	4.384	12719751	0.0100 CAL
ALDRIN	4.713	14137287	0.0100 CAL
HEPTAEPOX	5.357	12267142	0.0100 CAL
GAMMACHLOR	5.593	12062793	0.0100 CAL
ALPHACHLOR	5.787	12524882	0.0100 CAL
ENDOI	5.872	10796506	0.0100 CAL
44DDE	6.016	12167982	0.0100 CAL
DIELDRIN	6.264	11542038	0.0100 CAL
ENDRIN	6.746	6794202	0.0100 CAL
44DDD	6.938	8055623	0.0100 CAL
ENDOII	7.111	10278842	0.0100 CAL
44DDT	7.493	6698704	0.0100 CAL
ENDRINALDEH	7.696	7345463	0.0100 CAL
ENDOSULFATE	8.126	8940187	0.0100 CAL
METHOXYCL	8.572	2938544	0.0100 CAL
ENDRINKETONE	8.867	9818167	0.0100 CAL
SURRDCBPEST	10.304	6838977	25.0000 CAL

Pesticide Analysis Report *(Channel A)*

Data File: C:\Instarch\Semi1\data\091318pstic\016.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
User: JJY
Sample ID: Pest ICAL 4 PP5704
Acquired: 09/13/2018 13:05:36
Printed: 09/13/2018 14:49:27

Data Summary: {Data Description}



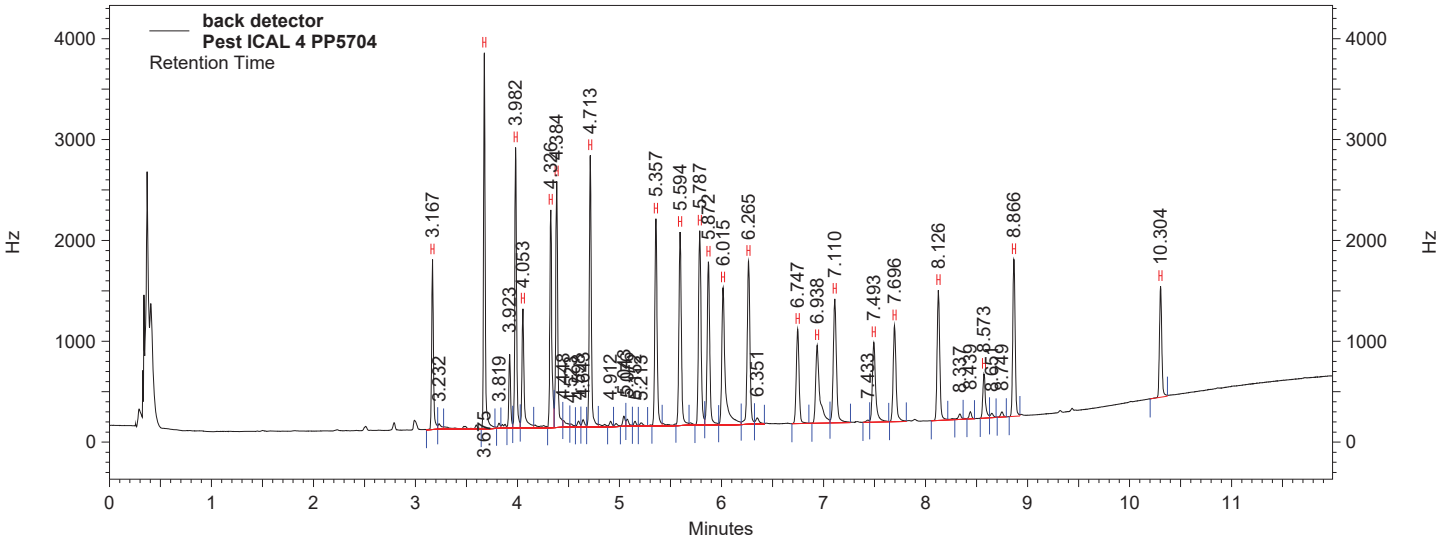
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPEST	2.620	16599625	50.0000 CAL
ALPHABHC	3.059	32085968	0.0200 CAL
LINDANE	3.292	24778153	0.0200 CAL
BETABHC	3.360	12822735	0.0200 CAL
DELTABHC	3.488	25659356	0.0200 CAL
HEPTACHLOR	3.639	24462747	0.0200 CAL
ALDRIN	3.870	29759389	0.0200 CAL
HEPTAEPOX	4.377	24467580	0.0200 CAL
GAMMACHLOR	4.493	25327808	0.0200 CAL
ALPHACHLOR	4.618	25620894	0.0200 CAL
44DDE	4.706	22916690	0.0200 CAL
ENDOI	4.748	26401782	0.0200 CAL
DIELDRIN	4.995	25834456	0.0200 CAL
ENDRIN	5.249	17106357	0.0200 CAL
44DDD	5.352	14796955	0.0200 CAL
ENDOII	5.518	19671232	0.0200 CAL
44DDT	5.698	13431687	0.0200 CAL
ENDRINALDEH	6.064	14248688	0.0200 CAL
METHOXYCL	6.423	6605233	0.0200 CAL
ENDOSULFATE	6.708	18113631	0.0200 CAL
ENDRINKETONE	7.163	21187382	0.0200 CAL
SURRDCBPEST	8.762	15589304	50.0000 CAL

Pesticide Analysis Report *(Channel B)*

Data File: C:\Instarch\Semi1\data\091318pstic\016.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
User: JJY
Sample ID: Pest ICAL 4 PP5704
Acquired: 09/13/2018 13:05:36
Printed: 09/13/2018 14:49:27

Data Summary: {Data Description}



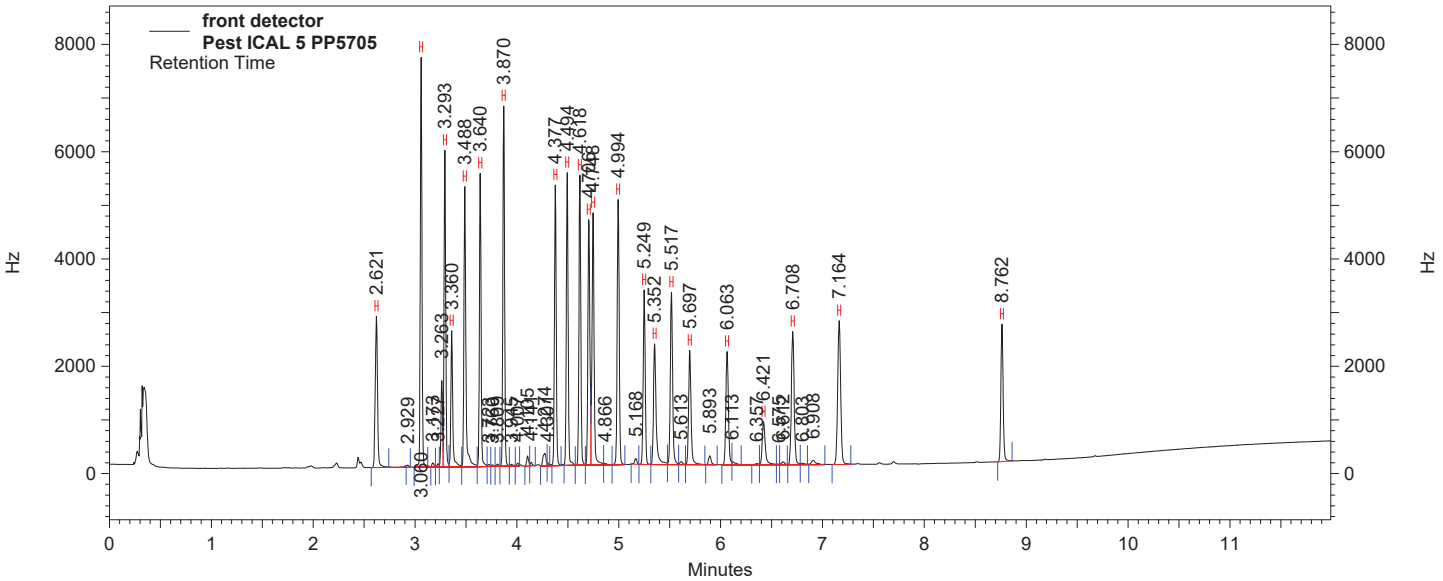
back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPEST	3.167	15715266	50.0000 CAL
ALPHABHC	3.675	31766595	0.0200 CAL
LINDANE	3.982	25421107	0.0200 CAL
BETABHC	4.053	13294544	0.0200 CAL
DELTABHC	4.326	22503834	0.0200 CAL
HEPTACHLOR	4.384	25562853	0.0200 CAL
ALDRIN	4.713	29016431	0.0200 CAL
HEPTAEPOX	5.357	24418294	0.0200 CAL
GAMMACHLOR	5.594	24605117	0.0200 CAL
ALPHACHLOR	5.787	25493294	0.0200 CAL
ENDOI	5.872	21944950	0.0200 CAL
44DDE	6.015	25045345	0.0200 CAL
DIELDRIN	6.265	23353440	0.0200 CAL
ENDRIN	6.747	13803238	0.0200 CAL
44DDD	6.938	16632980	0.0200 CAL
ENDOII	7.110	20548593	0.0200 CAL
44DDT	7.493	13800888	0.0200 CAL
ENDRINALDEH	7.696	14618572	0.0200 CAL
ENDOSULFATE	8.126	17820642	0.0200 CAL
METHOXYCL	8.573	5921353	0.0200 CAL
ENDRINKETONE	8.866	19431629	0.0200 CAL
SURRDCBPEST	10.304	13212346	50.0000 CAL

Pesticide Analysis Report *(Channel A)*

Data File: C:\Instarch\Semi1\data\091318pstic\017.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
User: JJY
Sample ID: Pest ICAL 5 PP5705
Acquired: 09/13/2018 13:21:48
Printed: 09/13/2018 14:49:29

Data Summary: {Data Description}



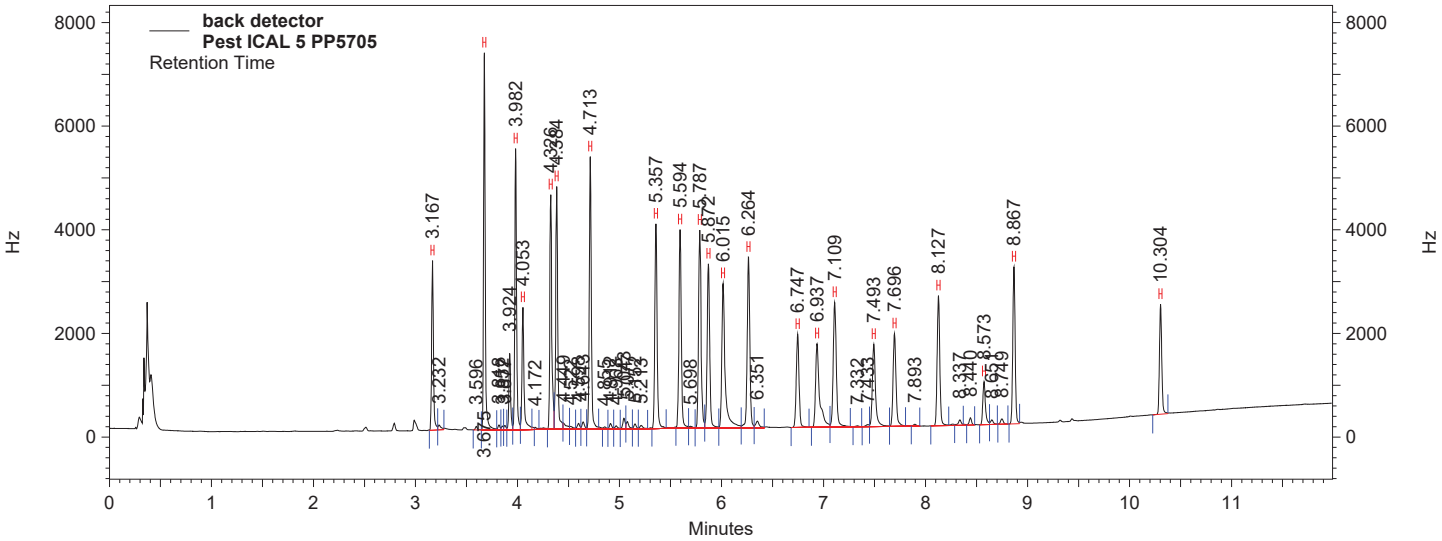
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPEST	2.621	33953469	100.0000 CAL
ALPHABHC	3.060	65808257	0.0400 CAL
LINDANE	3.293	51402606	0.0400 CAL
BETABHC	3.360	25161883	0.0400 CAL
DELTABHC	3.488	54056647	0.0400 CAL
HEPTACHLOR	3.640	47670152	0.0400 CAL
ALDRIN	3.870	59995892	0.0400 CAL
HEPTAEPOX	4.377	48298216	0.0400 CAL
GAMMACHLOR	4.494	50686613	0.0400 CAL
ALPHACHLOR	4.618	51147832	0.0400 CAL
44DDE	4.706	48651445	0.0400 CAL
ENDOI	4.748	51812303	0.0400 CAL
DIELDRIN	4.994	52213507	0.0400 CAL
ENDRIN	5.249	34541804	0.0400 CAL
44DDD	5.352	30956871	0.0400 CAL
ENDOII	5.517	39110881	0.0400 CAL
44DDT	5.697	27392862	0.0400 CAL
ENDRINALDEH	6.063	28045151	0.0400 CAL
METHOXYCL	6.421	12976194	0.0400 CAL
ENDOSULFATE	6.708	35845096	0.0400 CAL
ENDRINKETONE	7.164	41929003	0.0400 CAL
SURRDCBPEST	8.762	29982306	100.0000 CAL

Pesticide Analysis Report *(Channel B)*

Data File: C:\Instarch\Semi1\data\091318pstic\017.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
User: JJY
Sample ID: Pest ICAL 5 PP5705
Acquired: 09/13/2018 13:21:48
Printed: 09/13/2018 14:49:29

Data Summary: {Data Description}



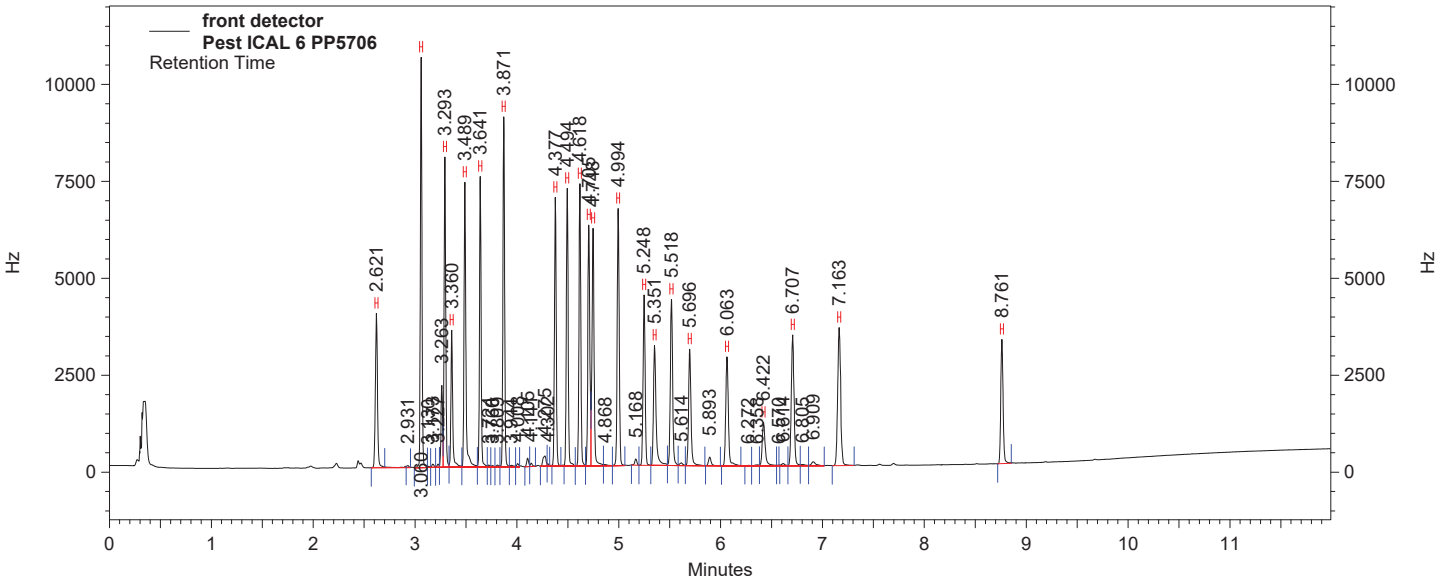
back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPEST	3.167	30902812	100.0000 CAL
ALPHABHC	3.675	63045094	0.0400 CAL
LINDANE	3.982	50042862	0.0400 CAL
BETABHC	4.053	24783711	0.0400 CAL
DELTABHC	4.326	46327673	0.0400 CAL
HEPTACHLOR	4.384	48688024	0.0400 CAL
ALDRIN	4.713	56720729	0.0400 CAL
HEPTAEPOX	5.357	47474863	0.0400 CAL
GAMMACHLOR	5.594	47917753	0.0400 CAL
ALPHACHLOR	5.787	49750733	0.0400 CAL
ENDOI	5.872	42779209	0.0400 CAL
44DDE	6.015	49318863	0.0400 CAL
DIELDRIN	6.264	45933123	0.0400 CAL
ENDRIN	6.747	26451204	0.0400 CAL
44DDD	6.937	33869406	0.0400 CAL
ENDOII	7.109	39651070	0.0400 CAL
44DDT	7.493	27093310	0.0400 CAL
ENDRINALDEH	7.696	28089166	0.0400 CAL
ENDOSULFATE	8.127	34410666	0.0400 CAL
METHOXYCL	8.573	11388290	0.0400 CAL
ENDRINKETONE	8.867	37136238	0.0400 CAL
SURRDCBPEST	10.304	25251316	100.0000 CAL

Pesticide Analysis Report *(Channel A)*

Data File: C:\Instarch\Semi1\data\091318pstic\018.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
User: JJY
Sample ID: Pest ICAL 6 PP5706
Acquired: 09/13/2018 13:38:02
Printed: 09/13/2018 14:49:32

Data Summary: {Data Description}



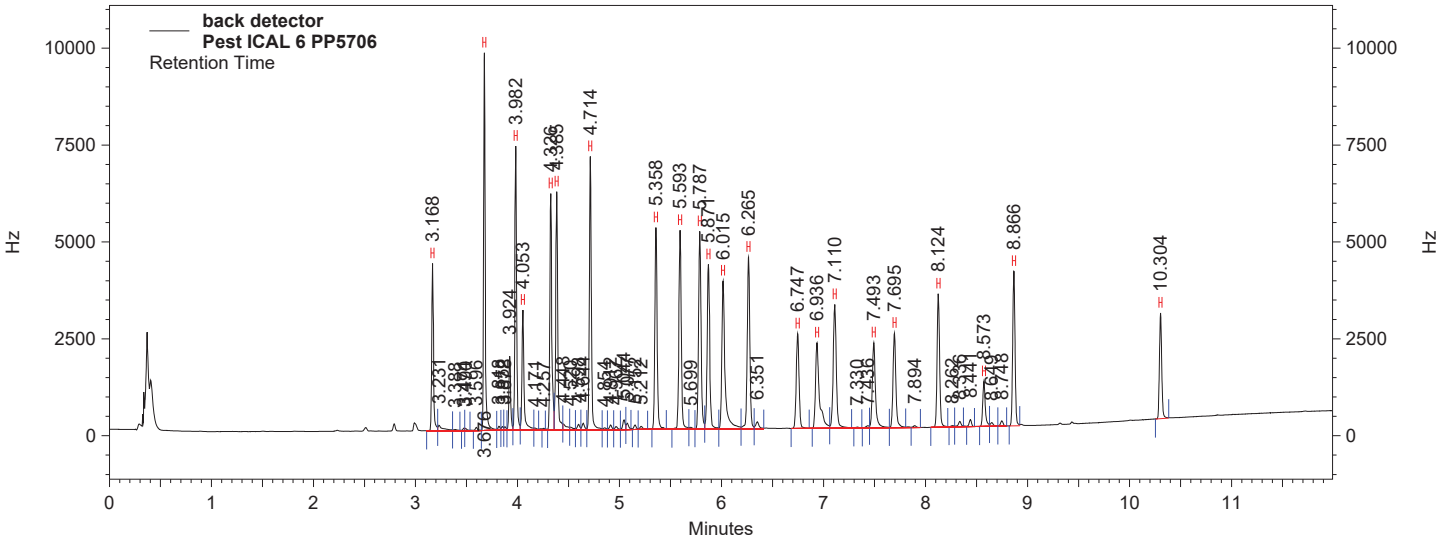
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPEST	2.621	43313149	125.0000 CAL
ALPHABHC	3.060	87331514	0.0500 CAL
LINDANE	3.293	67260606	0.0500 CAL
BETABHC	3.360	33360247	0.0500 CAL
DELTABHC	3.489	72648109	0.0500 CAL
HEPTACHLOR	3.641	62741049	0.0500 CAL
ALDRIN	3.871	79146474	0.0500 CAL
HEPTAEPOX	4.377	63771471	0.0500 CAL
GAMMACHLOR	4.494	67598994	0.0500 CAL
ALPHACHLOR	4.618	68009932	0.0500 CAL
44DDE	4.705	65535607	0.0500 CAL
ENDOI	4.748	67853531	0.0500 CAL
DIELDRIN	4.994	69911066	0.0500 CAL
ENDRIN	5.248	47523951	0.0500 CAL
44DDD	5.351	42182750	0.0500 CAL
ENDOII	5.518	51932058	0.0500 CAL
44DDT	5.696	37894688	0.0500 CAL
ENDRINALDEH	6.063	38884097	0.0500 CAL
METHOXYCL	6.422	17689734	0.0500 CAL
ENDOSULFATE	6.707	47957394	0.0500 CAL
ENDRINKETONE	7.163	55579320	0.0500 CAL
SURRDCBPEST	8.761	38500192	125.0000 CAL

Pesticide Analysis Report *(Channel B)*

Data File: C:\Instarch\Semi1\data\091318pstic\018.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
User: JJY
Sample ID: Pest ICAL 6 PP5706
Acquired: 09/13/2018 13:38:02
Printed: 09/13/2018 14:49:32

Data Summary: {Data Description}



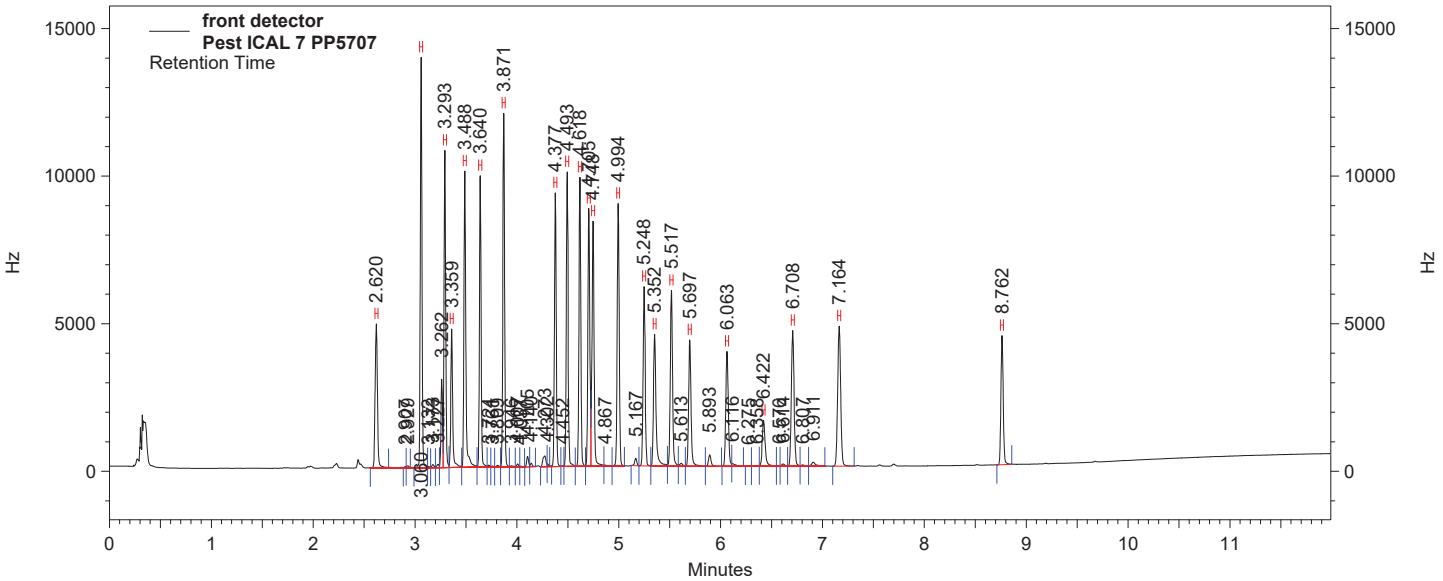
back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPEST	3.168	39545028	125.0000 CAL
ALPHABHC	3.676	83738610	0.0500 CAL
LINDANE	3.982	66467048	0.0500 CAL
BETABHC	4.053	33117452	0.0500 CAL
DELTABHC	4.326	62316327	0.0500 CAL
HEPTACHLOR	4.385	63639045	0.0500 CAL
ALDRIN	4.714	75261315	0.0500 CAL
HEPTAEPOX	5.358	62637485	0.0500 CAL
GAMMACHLOR	5.593	64016577	0.0500 CAL
ALPHACHLOR	5.787	65931907	0.0500 CAL
ENDOI	5.871	56535354	0.0500 CAL
44DDE	6.015	64760367	0.0500 CAL
DIELDRIN	6.265	60947502	0.0500 CAL
ENDRIN	6.747	36293979	0.0500 CAL
44DDD	6.936	45109445	0.0500 CAL
ENDOII	7.110	52370660	0.0500 CAL
44DDT	7.493	36720784	0.0500 CAL
ENDRINALDEH	7.695	37219077	0.0500 CAL
ENDOSULFATE	8.124	45475097	0.0500 CAL
METHOXYCL	8.573	15426111	0.0500 CAL
ENDRINKETONE	8.866	48693313	0.0500 CAL
SURRDCBPEST	10.304	32298936	125.0000 CAL

Pesticide Analysis Report *(Channel A)*

Data File: C:\Instarch\Semi1\data\091318pstic\019.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
User: JJY
Sample ID: Pest ICAL 7 PP5707
Acquired: 09/13/2018 13:54:17
Printed: 09/13/2018 14:49:34

Data Summary: {Data Description}



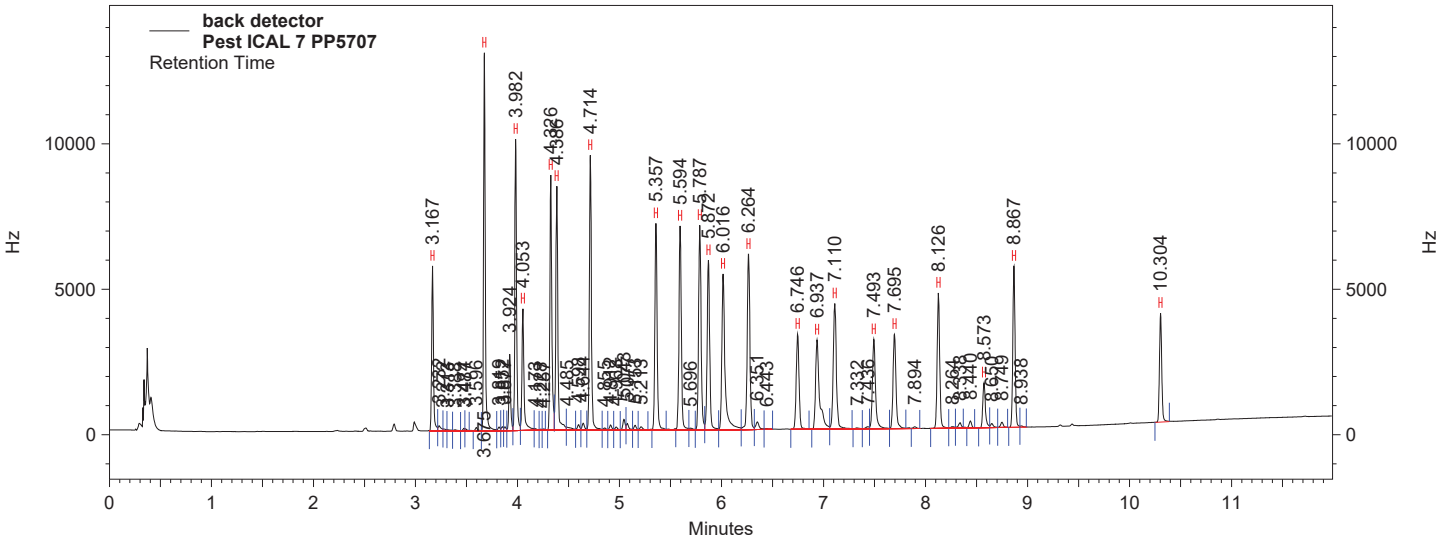
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPEST	2.620	59559323	175.0000 CAL
ALPHABHC	3.060	120016342	0.0700 CAL
LINDANE	3.293	92515552	0.0700 CAL
BETABHC	3.359	45425978	0.0700 CAL
DELTABHC	3.488	101783180	0.0700 CAL
HEPTACHLOR	3.640	85817135	0.0700 CAL
ALDRIN	3.871	107525132	0.0700 CAL
HEPTAEPOX	4.377	86239650	0.0700 CAL
GAMMACHLOR	4.493	92445040	0.0700 CAL
ALPHACHLOR	4.618	92591370	0.0700 CAL
44DDE	4.705	91209513	0.0700 CAL
ENDOI	4.748	91995102	0.0700 CAL
DIELDRIN	4.994	94521080	0.0700 CAL
ENDRIN	5.248	65814415	0.0700 CAL
44DDD	5.352	59032779	0.0700 CAL
ENDOII	5.517	71309627	0.0700 CAL
44DDT	5.697	53450454	0.0700 CAL
ENDRINALDEH	6.063	51216954	0.0700 CAL
METHOXYCL	6.422	24447068	0.0700 CAL
ENDOSULFATE	6.708	65528967	0.0700 CAL
ENDRINKETONE	7.164	75493381	0.0700 CAL
SURRDCBPEST	8.762	52328065	175.0000 CAL

Pesticide Analysis Report *(Channel B)*

Data File: C:\Instarch\Semi1\data\091318pstic\019.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
User: JJY
Sample ID: Pest ICAL 7 PP5707
Acquired: 09/13/2018 13:54:17
Printed: 09/13/2018 14:49:34

Data Summary: {Data Description}



back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPEST	3.167	53693123	175.0000 CAL
ALPHABHC	3.675	114528218	0.0700 CAL
LINDANE	3.982	91220540	0.0700 CAL
BETABHC	4.053	44630314	0.0700 CAL
DELTABHC	4.326	88695316	0.0700 CAL
HEPTACHLOR	4.386	88364849	0.0700 CAL
ALDRIN	4.714	101578453	0.0700 CAL
HEPTAEPOX	5.357	84581299	0.0700 CAL
GAMMACHLOR	5.594	86691583	0.0700 CAL
ALPHACHLOR	5.787	90062510	0.0700 CAL
ENDOI	5.872	77467767	0.0700 CAL
44DDE	6.016	89501845	0.0700 CAL
DIELDRIN	6.264	84227530	0.0700 CAL
ENDRIN	6.746	48543032	0.0700 CAL
44DDD	6.937	63209828	0.0700 CAL
ENDOII	7.110	71381771	0.0700 CAL
44DDT	7.493	50862404	0.0700 CAL
ENDRINALDEH	7.695	50352730	0.0700 CAL
ENDOSULFATE	8.126	61889151	0.0700 CAL
METHOXYCL	8.573	21159391	0.0700 CAL
ENDRINKETONE	8.867	65858499	0.0700 CAL
SURRDCBPEST	10.304	43964285	175.0000 CAL

QC Check Standard Report

Sequence : C:\Instarch\Semi1\Sequence\091318pstic.seq
User : JJY
Printed : 09/13/2018 14:49:39

File	Sample ID	Acquired
C:\Instarch\Semi1\data\091318pstic\020.dat	Pest ICV 1 PP5708	09/13/2018 14:49:39

front detector

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
SURRTCMXPEST	50.000	49.859	0.282	20.000	Passed
ALPHABHC	0.020	0.021	4.127	20.000	Passed
LINDANE	0.020	0.021	2.783	20.000	Passed
BETABHC	0.020	0.020	1.978	20.000	Passed
DELTABHC	0.020	0.021	5.160	20.000	Passed
HEPTACHLOR	0.020	0.021	3.810	20.000	Passed
ALDRIN	0.020	0.020	2.193	20.000	Passed
HEPTAEPOX	0.020	0.021	3.147	20.000	Passed
GAMMACHLOR	0.020	0.021	2.651	20.000	Passed
ALPHACHLOR	0.020	0.020	2.497	20.000	Passed
44DDE	0.020	0.020	1.419	20.000	Passed
ENDOI	0.020	0.021	3.040	20.000	Passed
DIELDRIN	0.020	0.021	2.841	20.000	Passed
ENDRIN	0.020	0.020	1.342	20.000	Passed
44DDD	0.020	0.021	2.572	20.000	Passed
ENDOII	0.020	0.020	1.759	20.000	Passed
44DDT	0.020	0.021	3.101	20.000	Passed
ENDRINALDEH	0.020	0.021	5.156	20.000	Passed
METHOXYCL	0.020	0.020	2.263	20.000	Passed
ENDOSULFATE	0.020	0.020	2.406	20.000	Passed
ENDRINKETONE	0.020	0.021	4.057	20.000	Passed
SURRDCBPEST	50.000	50.290	0.580	20.000	Passed

back detector

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
SURRTCMXPEST	50.000	50.016	0.031	20.000	Passed
ALPHABHC	0.020	0.021	4.344	20.000	Passed
LINDANE	0.020	0.020	2.424	20.000	Passed
BETABHC	0.020	0.021	4.209	20.000	Passed
DELTABHC	0.020	0.021	6.377	20.000	Passed
HEPTACHLOR	0.020	0.021	4.923	20.000	Passed
ALDRIN	0.020	0.021	2.895	20.000	Passed
HEPTAEPOX	0.020	0.021	3.578	20.000	Passed
GAMMACHLOR	0.020	0.020	2.070	20.000	Passed
ALPHACHLOR	0.020	0.020	2.351	20.000	Passed
ENDOI	0.020	0.020	1.934	20.000	Passed
44DDE	0.020	0.020	1.112	20.000	Passed
DIELDRIN	0.020	0.021	2.920	20.000	Passed
ENDRIN	0.020	0.020	0.599	20.000	Passed
44DDD	0.020	0.021	3.052	20.000	Passed
ENDOII	0.020	0.020	2.156	20.000	Passed
44DDT	0.020	0.021	3.192	20.000	Passed
ENDRINALDEH	0.020	0.021	3.770	20.000	Passed
ENDOSULFATE	0.020	0.021	2.835	20.000	Passed

QC Check Standard Report

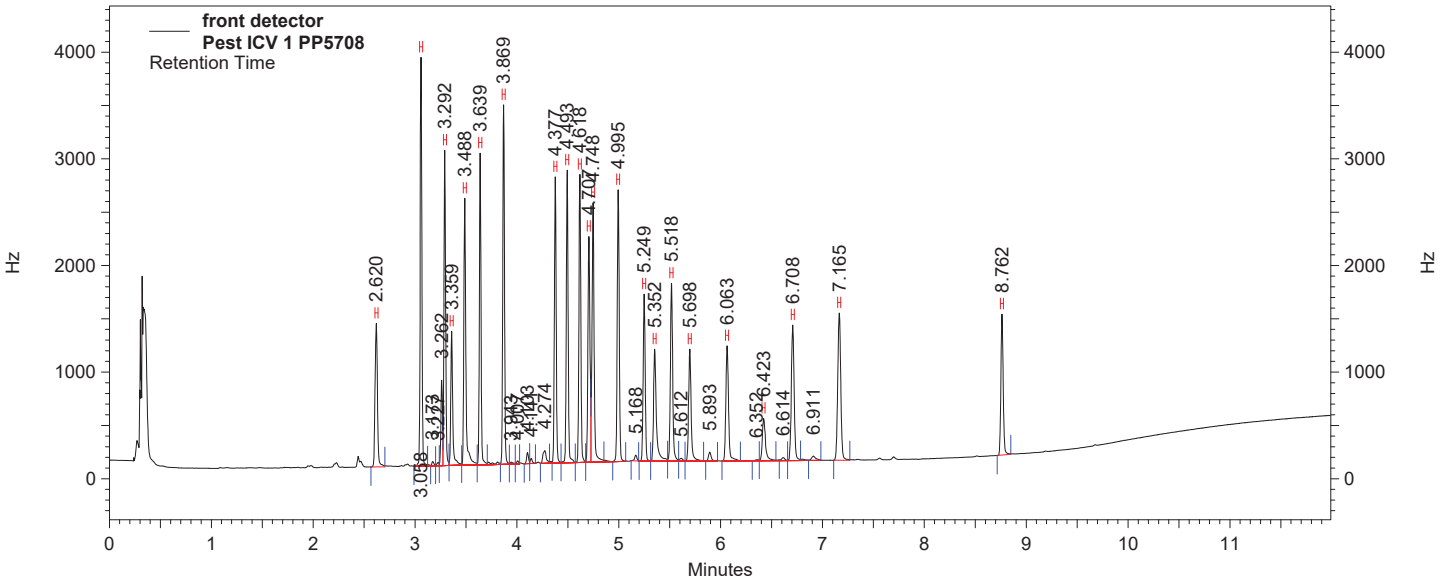
Sequence : C:\Instarch\Semi1\Sequence\091318pstic.seq
User : JJY
Printed : 09/13/2018 14:49:39

METHOXYCL	0.020	0.020	2.411	20.000	**Passed**
ENDRINKETONE	0.020	0.021	4.056	20.000	**Passed**
SURRDCBPEST	50.000	50.385	0.771	20.000	**Passed**

Pesticide Analysis Report *(Channel A)*

Data File: C:\Instarch\Semi1\data\091318pstic\020.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
User: JJY
Sample ID: Pest ICV 1 PP5708
Acquired: 09/13/2018 14:10:31
Printed: 09/13/2018 14:49:37

Data Summary: {Data Description}



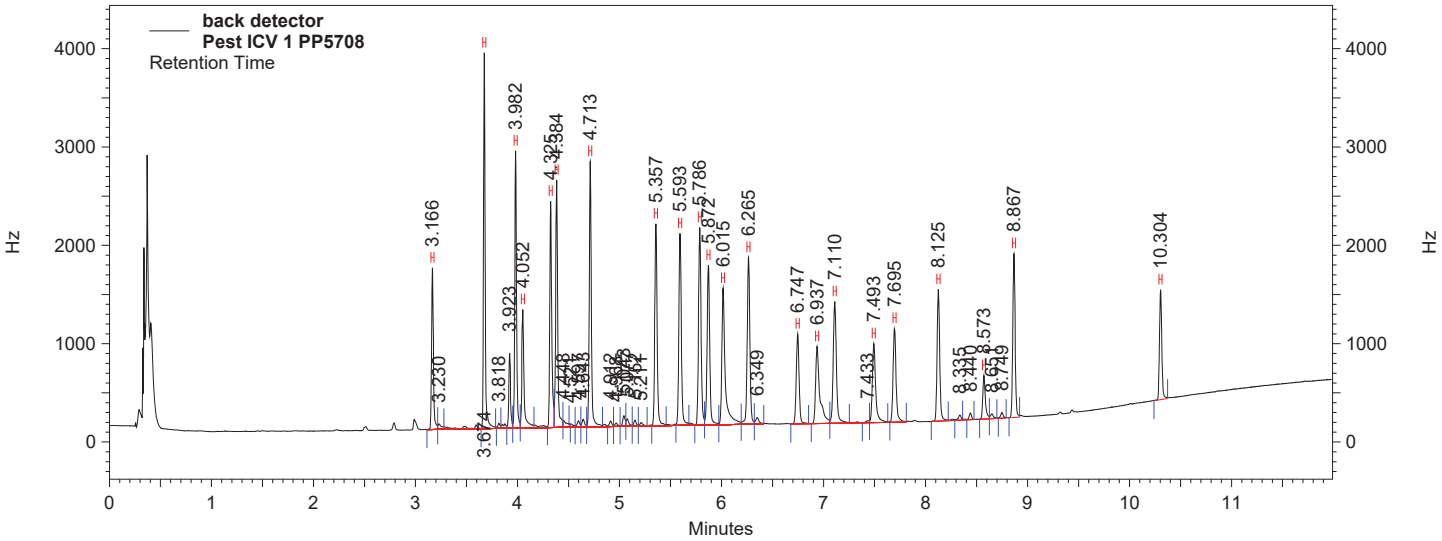
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPEST	2.620	16765513	49.8589
ALPHABHC	3.058	33150952	0.0208
LINDANE	3.292	25582903	0.0206
BETABHC	3.359	13063759	0.0204
DELTABHC	3.488	27022516	0.0210
HEPTACHLOR	3.639	25035359	0.0208
ALDRIN	3.869	30200403	0.0204
HEPTAEPOX	4.377	25139827	0.0206
GAMMACHLOR	4.493	25859366	0.0205
ALPHACHLOR	4.618	26177005	0.0205
44DDE	4.707	23123793	0.0203
ENDOI	4.748	27102662	0.0206
DIELDRIN	4.995	26443422	0.0206
ENDRIN	5.249	16764244	0.0197
44DDD	5.352	15087165	0.0205
ENDOII	5.518	19952294	0.0204
44DDT	5.698	13707115	0.0206
ENDRINALDEH	6.063	15222490	0.0210
METHOXYCL	6.423	6697816	0.0205
ENDOSULFATE	6.708	18528891	0.0205
ENDRINKETONE	7.165	22033939	0.0208
SURRDCBPEST	8.762	15748618	50.2899

Pesticide Analysis Report *(Channel B)*

Data File: C:\Instarch\Semi1\data\091318pstic\020.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
User: JJY
Sample ID: Pest ICV 1 PP5708
Acquired: 09/13/2018 14:10:31
Printed: 09/13/2018 14:49:37

Data Summary: {Data Description}



back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPEST	3.166	15833615	50.0157
ALPHABHC	3.674	32880727	0.0209
LINDANE	3.982	25878001	0.0205
BETABHC	4.052	13639550	0.0208
DELTABHC	4.325	23846889	0.0213
HEPTACHLOR	4.384	26407078	0.0210
ALDRIN	4.713	29754494	0.0206
HEPTAEPOX	5.357	25321432	0.0207
GAMMACHLOR	5.593	24972125	0.0204
ALPHACHLOR	5.786	25970544	0.0205
ENDOI	5.872	22232538	0.0204
44DDE	6.015	25166032	0.0202
DIELDRIN	6.265	23963523	0.0206
ENDRIN	6.747	13653759	0.0199
44DDD	6.937	17161043	0.0206
ENDOII	7.110	20847256	0.0204
44DDT	7.493	14108851	0.0206
ENDRINALDEH	7.695	15112548	0.0208
ENDOSULFATE	8.125	18278985	0.0206
METHOXYCL	8.573	6024606	0.0205
ENDRINKETONE	8.867	20142124	0.0208
SURRDCBPEST	10.304	13339240	50.3853

QC Check Standard Report

Sequence : C:\Instarch\Semi1\Sequence\091318pstic.seq
User : JJY
Printed : 09/13/2018 14:49:43

File	Sample ID	Acquired
C:\Instarch\Semi1\data\091318pstic\021.dat	Pest ICV 2 PP5709	09/13/2018 14:49:43

front detector

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
SURRTCMXPEST	100.000	102.105	2.105	20.000	Passed
ALPHABHC	0.040	0.043	6.325	20.000	Passed
LINDANE	0.040	0.041	2.180	20.000	Passed
BETABHC	0.040	0.041	2.742	20.000	Passed
DELTABHC	0.040	0.043	7.123	20.000	Passed
HEPTACHLOR	0.040	0.041	3.505	20.000	Passed
ALDRIN	0.040	0.042	4.780	20.000	Passed
HEPTAEPOX	0.040	0.042	4.716	20.000	Passed
GAMMACHLOR	0.040	0.042	4.038	20.000	Passed
ALPHACHLOR	0.040	0.042	4.277	20.000	Passed
44DDE	0.040	0.043	6.672	20.000	Passed
ENDOI	0.040	0.041	2.204	20.000	Passed
DIELDRIN	0.040	0.042	5.489	20.000	Passed
ENDRIN	0.040	0.043	6.340	20.000	Passed
44DDD	0.040	0.041	3.552	20.000	Passed
ENDOII	0.040	0.041	2.466	20.000	Passed
44DDT	0.040	0.042	4.320	20.000	Passed
ENDRINALDEH	0.040	0.042	4.743	20.000	Passed
METHOXYCL	0.040	0.042	3.871	20.000	Passed
ENDOSULFATE	0.040	0.041	3.452	20.000	Passed
ENDRINKETONE	0.040	0.041	3.316	20.000	Passed
SURRDCBPEST	100.000	102.065	2.065	20.000	Passed

back detector

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
SURRTCMXPEST	100.000	101.491	1.491	20.000	Passed
ALPHABHC	0.040	0.042	5.759	20.000	Passed
LINDANE	0.040	0.041	2.684	20.000	Passed
BETABHC	0.040	0.041	3.201	20.000	Passed
DELTABHC	0.040	0.043	7.384	20.000	Passed
HEPTACHLOR	0.040	0.041	2.361	20.000	Passed
ALDRIN	0.040	0.042	4.398	20.000	Passed
HEPTAEPOX	0.040	0.042	4.299	20.000	Passed
GAMMACHLOR	0.040	0.041	3.334	20.000	Passed
ALPHACHLOR	0.040	0.042	4.124	20.000	Passed
ENDOI	0.040	0.041	2.164	20.000	Passed
44DDE	0.040	0.042	3.875	20.000	Passed
DIELDRIN	0.040	0.042	4.304	20.000	Passed
ENDRIN	0.040	0.043	6.503	20.000	Passed
44DDD	0.040	0.042	4.388	20.000	Passed
ENDOII	0.040	0.041	1.734	20.000	Passed
44DDT	0.040	0.041	3.681	20.000	Passed
ENDRINALDEH	0.040	0.041	2.302	20.000	Passed
ENDOSULFATE	0.040	0.041	2.959	20.000	Passed

QC Check Standard Report

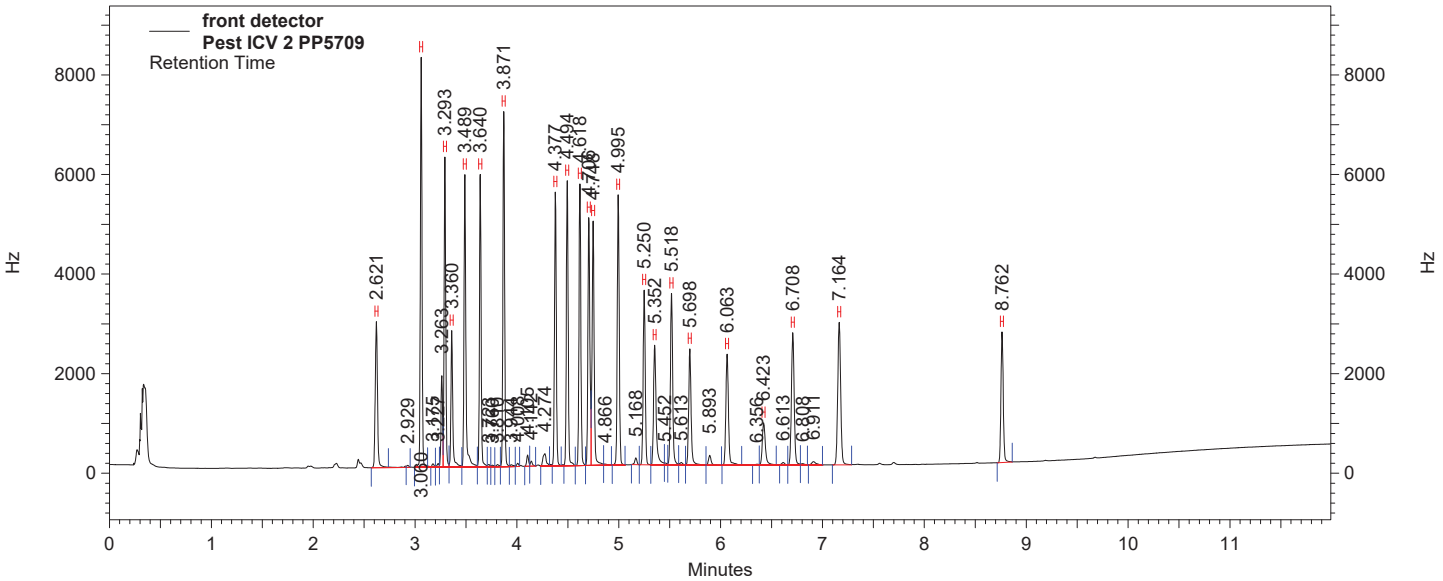
Sequence : C:\Instarch\Semi1\Sequence\091318pstic.seq
User : JJY
Printed : 09/13/2018 14:49:43

METHOXYCL	0.040	0.041	3.417	20.000	**Passed**
ENDRINKETONE	0.040	0.041	2.375	20.000	**Passed**
SURRDCBPEST	100.000	102.416	2.416	20.000	**Passed**

Pesticide Analysis Report *(Channel A)*

Data File: C:\Instarch\Semi1\data\091318pstic\021.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
User: JJY
Sample ID: Pest ICV 2 PP5709
Acquired: 09/13/2018 14:26:45
Printed: 09/13/2018 14:49:41

Data Summary: {Data Description}



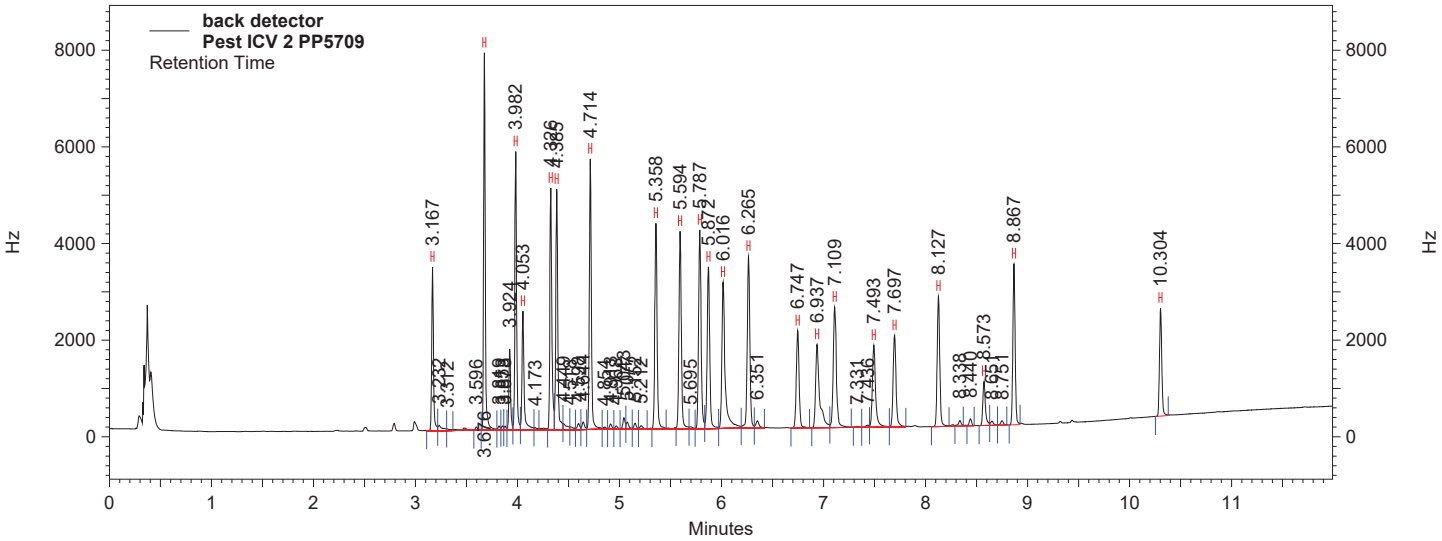
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPEST	2.621	34588427	102.1055
ALPHABHC	3.060	70604776	0.0425
LINDANE	3.293	52506088	0.0409
BETABHC	3.360	26478515	0.0411
DELTABHC	3.489	58765462	0.0428
HEPTACHLOR	3.640	50396432	0.0414
ALDRIN	3.871	63471441	0.0419
HEPTAEPOX	4.377	51500644	0.0419
GAMMACHLOR	4.494	53715244	0.0416
ALPHACHLOR	4.618	54330356	0.0417
44DDE	4.706	52353198	0.0427
ENDOI	4.748	53884213	0.0409
DIELDRIN	4.995	55898149	0.0422
ENDRIN	5.250	38078177	0.0425
44DDD	5.352	32607698	0.0414
ENDOII	5.518	40941665	0.0410
44DDT	5.698	29640184	0.0417
ENDRINALDEH	6.063	30611835	0.0419
METHOXYCL	6.423	14024341	0.0415
ENDOSULFATE	6.708	38075121	0.0414
ENDRINKETONE	7.164	44251199	0.0413
SURRDCBPEST	8.762	31264261	102.0651

Pesticide Analysis Report *(Channel B)*

Data File: C:\Instarch\Semi1\data\091318pstic\021.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\091318pstic.met
User: JJY
Sample ID: Pest ICV 2 PP5709
Acquired: 09/13/2018 14:26:45
Printed: 09/13/2018 14:49:41

Data Summary: {Data Description}



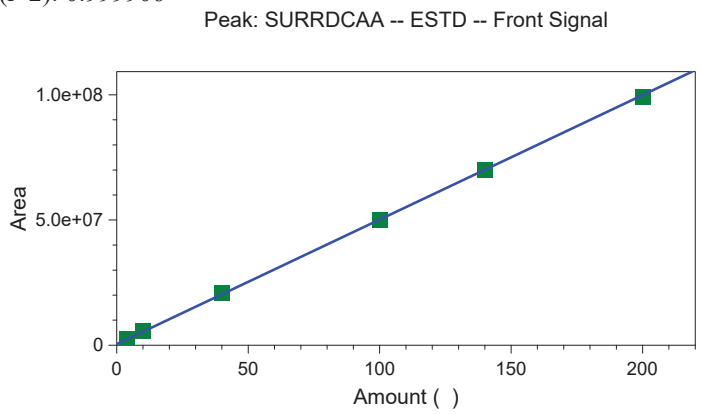
back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPEST	3.167	31689605	101.4909
ALPHABHC	3.676	68064698	0.0423
LINDANE	3.982	52632440	0.0411
BETABHC	4.053	26625260	0.0413
DELTABHC	4.326	51055092	0.0430
HEPTACHLOR	4.385	51371541	0.0409
ALDRIN	4.714	60566654	0.0418
HEPTAEPOX	5.358	50752297	0.0417
GAMMACHLOR	5.594	50891813	0.0413
ALPHACHLOR	5.787	53175213	0.0416
ENDOI	5.872	44807011	0.0409
44DDE	6.016	52358372	0.0415
DIELDRIN	6.265	49263531	0.0417
ENDRIN	6.747	29451563	0.0426
44DDD	6.937	36154231	0.0418
ENDOII	7.109	41544056	0.0407
44DDT	7.493	29160839	0.0415
ENDRINALDEH	7.697	29653864	0.0409
ENDOSULFATE	8.127	36503799	0.0412
METHOXYCL	8.573	12309388	0.0414
ENDRINKETONE	8.867	39138814	0.0410
SURRDCBPEST	10.304	26441858	102.4160

Calibration Report

Method: C:\Instarch\Semi6\Methods\Herb\080218hrbic\080218hrbic.met
Print Time: 08/02/2018 15:56:04
User: JJY
Instrument: Semi 6 (Offline)

SURRDCAA (Front Signal)
Average RF: 523512. RF StDev: 30382.7 RF %RSD: 5.80363
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 497647.x + 394228.
Goodness of fit (r^2): 0.999906



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	4	10	40	100	140
Area	2280278	5501827	20886898	50134765	70076315
RF	570069.5	550182.7	522172.45	501347.65	500545.107142857
Last Area					
Residual	0.210062	-0.263505	-1.17916	0.0484857	-0.0232191
Rep StDev					
Rep %RSD					
Rep 1 Area	2280278	5501827	20886898	50134765	70076315
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi6\Data\080218hrbic\004.dat	C:\Instarch\Semi6\Data\080218hrbic\005.dat	C:\Instarch\Semi6\Data\080218hrbic\006.dat	C:\Instarch\Semi6\Data\080218hrbic\007.dat	C:\Instarch\Semi6\Data\080218hrbic\008.dat
Rep 1 Sample ID	AH ICAL 1 PP5721	AH ICAL 2 PP5722	AH ICAL 3 PP5723	AH ICAL 4 PP5724	AH ICAL 5 PP5725
Rep 1 Calib. Time	08/02/2018 15:53:17	08/02/2018 15:53:26	08/02/2018 15:53:36	08/02/2018 15:53:45	08/02/2018 15:53:55

	Level 6
Amount	200
Area	99350457

Calibration Report

Method: C:\Instarch\Semi6\Methods\Herb\080218hrbic\080218hrbic.met
Print Time: 08/02/2018 15:56:04
User: JJY
Instrument: Semi 6 (Offline)

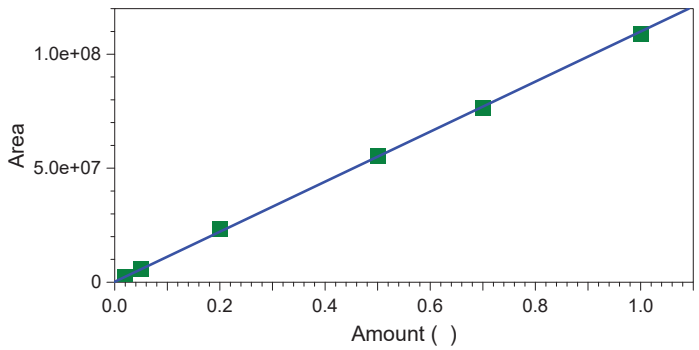
RF	496752.285
Last Area	
Residual	1.15163
Rep StDev	
Rep %RSD	
Rep 1 Area	99350457
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi6\Data\080218hrbic\009.dat
Rep 1 Sample ID	AH ICAL 6 PP5726
Rep 1 Calib. Time	08/02/2018 15:54:17

Calibration Report

Method: C:\Instarch\Semi6\Methods\Herb\080218hrbic\080218hrbic.met
Print Time: 08/02/2018 15:56:06
User: JJY
Instrument: Semi 6 (Offline)

2,4-D (Front Signal)
Average RF: 1.12144e+008 RF StDev: 4.23419e+006 RF %RSD: 3.77565
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 1.09803e+008x + 166565.
Goodness of fit (r^2): 0.999724

Peak: 2,4-D -- ESTD -- Front Signal



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.02	0.05	0.2	0.5	0.7
Area	2178795	5917607	23344206	55145474	76617952
RF	108939750	118352140	116721030	110290948	109454217.142857
Last Area					
Residual	0.00167418	-0.00237601	-0.0110839	-0.000705047	0.00374036
Rep StDev					
Rep %RSD					
Rep 1 Area	2178795	5917607	23344206	55145474	76617952
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi6\Data\080218hrbic\004.dat	C:\Instarch\Semi6\Data\080218hrbic\005.dat	C:\Instarch\Semi6\Data\080218hrbic\006.dat	C:\Instarch\Semi6\Data\080218hrbic\007.dat	C:\Instarch\Semi6\Data\080218hrbic\008.dat
Rep 1 Sample ID	AH ICAL 1 PP5721	AH ICAL 2 PP5722	AH ICAL 3 PP5723	AH ICAL 4 PP5724	AH ICAL 5 PP5725
Rep 1 Calib. Time	08/02/2018 15:53:17	08/02/2018 15:53:26	08/02/2018 15:53:36	08/02/2018 15:53:45	08/02/2018 15:53:55

	Level 6
Amount	1
Area	109108301

Calibration Report

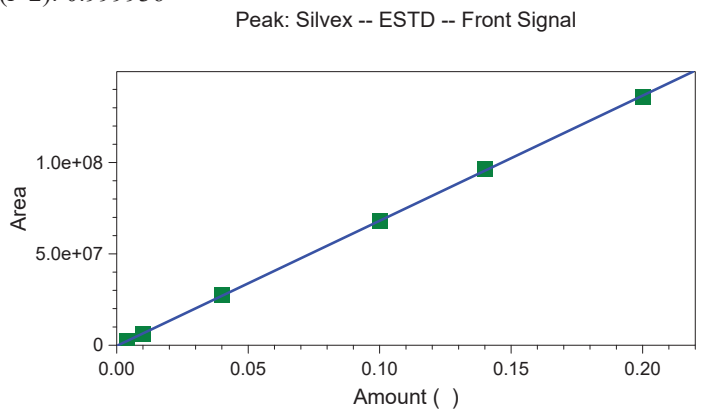
Method: C:\Instarch\Semi6\Methods\Herb\080218hrbic\080218hrbic.met
Print Time: 08/02/2018 15:56:06
User: JJY
Instrument: Semi 6 (Offline)

RF	109108301
Last Area	
Residual	0.00784359
Rep StDev	
Rep %RSD	
Rep 1 Area	109108301
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi6\Data\080218hrbic\009.dat
Rep 1 Sample ID	AH ICAL 6 PP5726
Rep 1 Calib. Time	08/02/2018 15:54:17

Calibration Report

Method: C:\Instarch\Semi6\Methods\Herb\080218hrbic\080218hrbic.met
Print Time: 08/02/2018 15:56:08
User: JJY
Instrument: Semi 6 (Offline)

Silvex (Front Signal)
Average RF: 6.60857e+008 RF StDev: 3.48446e+007 RF %RSD: 5.27264
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 6.85082e+008x - 366500.
Goodness of fit (r^2): 0.999936



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.004	0.01	0.04	0.1	0.14
Area	2418939	6297370	27398397	67789839	96173794
RF	604734750	629737000	684959925	677898390	686955671.428571
Last Area					
Residual	-6.58495e-005	0.000272883	-0.000527859	0.00051357	-0.000917916
Rep StDev					
Rep %RSD					
Rep 1 Area	2418939	6297370	27398397	67789839	96173794
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi6\Data\080218hrbic\004.dat	C:\Instarch\Semi6\Data\080218hrbic\005.dat	C:\Instarch\Semi6\Data\080218hrbic\006.dat	C:\Instarch\Semi6\Data\080218hrbic\007.dat	C:\Instarch\Semi6\Data\080218hrbic\008.dat
Rep 1 Sample ID	AH ICAL 1 PP5721	AH ICAL 2 PP5722	AH ICAL 3 PP5723	AH ICAL 4 PP5724	AH ICAL 5 PP5725
Rep 1 Calib. Time	08/02/2018 15:53:17	08/02/2018 15:53:26	08/02/2018 15:53:36	08/02/2018 15:53:45	08/02/2018 15:53:55

	Level 6
Amount	0.2

Calibration Report

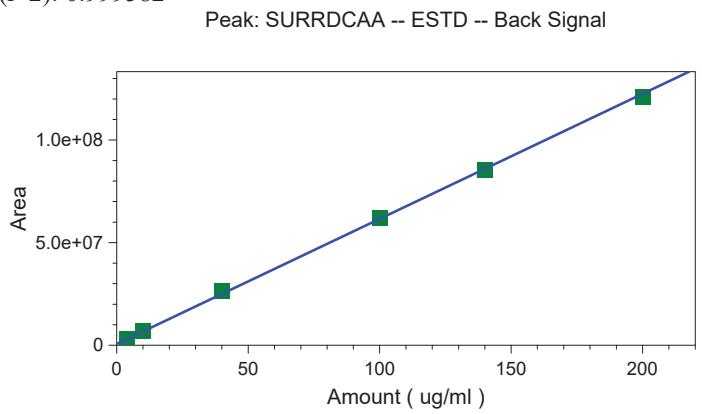
Method: C:\Instarch\Semi6\Methods\Herb\080218hrbic\080218hrbic.met
Print Time: 08/02/2018 15:56:08
User: JJY
Instrument: Semi 6 (Offline)

Area	136171831
RF	680859155
Last Area	
Residual	0.000697759
Rep StDev	
Rep %RSD	
Rep 1 Area	136171831
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi6\Data\080218hrbic\009.dat
Rep 1 Sample ID	AH ICAL 6 PP5726
Rep 1 Calib. Time	08/02/2018 15:54:17

Calibration Report

Method: C:\Instarch\Semi6\Methods\Herb\080218hrbic\080218hrbic.met
Print Time: 08/02/2018 15:56:14
User: JJY
Instrument: Semi 6 (Offline)

SURRDCAA (Back Signal)
Average RF: 649228. RF StDev: 42723.3 RF %RSD: 6.58064
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 609862.x + 598827.
Goodness of fit (r^2): 0.999582



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	4	10	40	100	140
Area	2810299	6934355	26475973	62092666	85453978
RF	702574.75	693435.5	661899.325	620926.66	610385.557142857
Last Area					
Residual	0.373816	-0.388461	-2.43115	-0.83238	0.861723
Rep StDev					
Rep %RSD					
Rep 1 Area	2810299	6934355	26475973	62092666	85453978
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi6\Data\080218hrbic\004.dat	C:\Instarch\Semi6\Data\080218hrbic\005.dat	C:\Instarch\Semi6\Data\080218hrbic\006.dat	C:\Instarch\Semi6\Data\080218hrbic\007.dat	C:\Instarch\Semi6\Data\080218hrbic\008.dat
Rep 1 Sample ID	AH ICAL 1 PP5721	AH ICAL 2 PP5722	AH ICAL 3 PP5723	AH ICAL 4 PP5724	AH ICAL 5 PP5725
Rep 1 Calib. Time	08/02/2018 15:53:17	08/02/2018 15:53:26	08/02/2018 15:53:36	08/02/2018 15:53:45	08/02/2018 15:53:55

	Level 6
Amount	200
Area	121229382

Calibration Report

Method: C:\Instarch\Semi6\Methods\Herb\080218hrbic\080218hrbic.met
Print Time: 08/02/2018 15:56:14
User: JJY
Instrument: Semi 6 (Offline)

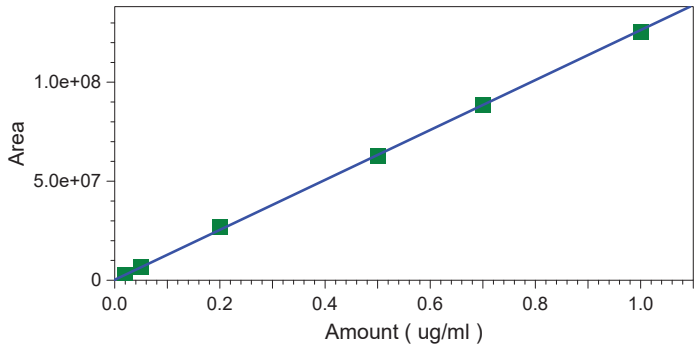
RF	606146.91
Last Area	
Residual	2.20025
Rep StDev	
Rep %RSD	
Rep 1 Area	121229382
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi6\Data\080218hrbic\009.dat
Rep 1 Sample ID	AH ICAL 6 PP5726
Rep 1 Calib. Time	08/02/2018 15:54:17

Calibration Report

Method: C:\Instarch\Semi6\Methods\Herb\080218hrbic\080218hrbic.met
Print Time: 08/02/2018 15:56:16
User: JJY
Instrument: Semi 6 (Offline)

2,4-D (Back Signal)
Average RF: 1.29163e+008 RF StDev: 4.36125e+006 RF %RSD: 3.37656
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 1.26132e+008x + 221588.
Goodness of fit (r^2): 0.999741

Peak: 2,4-D -- ESTD -- Back Signal



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.02	0.05	0.2	0.5	0.7
Area	2566615	6729067	26939303	62752309	88349399
RF	128330750	134581340	134696515	125504618	126213427.142857
Last Area Residual	0.00140818	-0.00159253	-0.0118231	0.00424457	0.00130598
Rep StDev					
Rep %RSD					
Rep 1 Area	2566615	6729067	26939303	62752309	88349399
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi6\Data\080218hrbic\004.dat	C:\Instarch\Semi6\Data\080218hrbic\005.dat	C:\Instarch\Semi6\Data\080218hrbic\006.dat	C:\Instarch\Semi6\Data\080218hrbic\007.dat	C:\Instarch\Semi6\Data\080218hrbic\008.dat
Rep 1 Sample ID	AH ICAL 1 PP5721	AH ICAL 2 PP5722	AH ICAL 3 PP5723	AH ICAL 4 PP5724	AH ICAL 5 PP5725
Rep 1 Calib. Time	08/02/2018 15:53:17	08/02/2018 15:53:26	08/02/2018 15:53:36	08/02/2018 15:53:45	08/02/2018 15:53:55

	Level 6
Amount	1
Area	125649026

Calibration Report

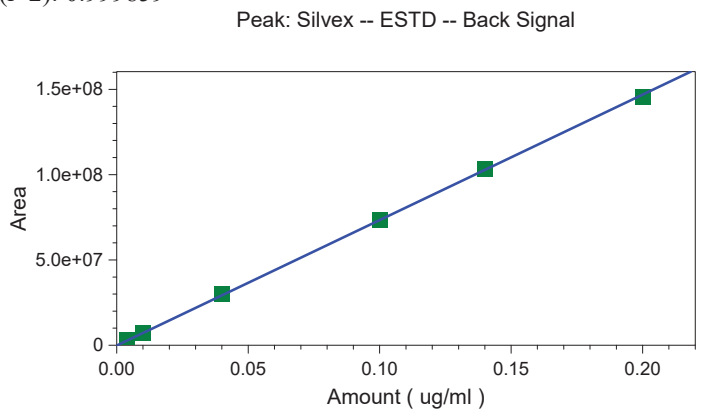
Method: C:\Instarch\Semi6\Methods\Herb\080218hrbic\080218hrbic.met
Print Time: 08/02/2018 15:56:16
User: JJY
Instrument: Semi 6 (Offline)

RF	125649026
Last Area	
Residual	0.00558745
Rep StDev	
Rep %RSD	
Rep 1 Area	125649026
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi6\Data\080218hrbic\009.dat
Rep 1 Sample ID	AH ICAL 6 PP5726
Rep 1 Calib. Time	08/02/2018 15:54:17

Calibration Report

Method: C:\Instarch\Semi6\Methods\Herb\080218hrbic\080218hrbic.met
Print Time: 08/02/2018 15:56:18
User: JJY
Instrument: Semi 6 (Offline)

Silvex (Back Signal)
Average RF: 7.24405e+008 RF StDev: 2.64719e+007 RF %RSD: 3.65430
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 7.35614e+008x - 174432.
Goodness of fit (r^2): 0.999859



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.004	0.01	0.04	0.1	0.14
Area	2706843	7159589	30172647	73303024	103223597
RF	676710750	715958900	754316175	733030240	737311407.142857
Last Area					
Residual	8.31695e-005	3.00674e-005	-0.00125409	0.0001141	-0.000560191
Rep StDev					
Rep %RSD					
Rep 1 Area	2706843	7159589	30172647	73303024	103223597
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi6\Data\080218hrbic\004.dat	C:\Instarch\Semi6\Data\080218hrbic\005.dat	C:\Instarch\Semi6\Data\080218hrbic\006.dat	C:\Instarch\Semi6\Data\080218hrbic\007.dat	C:\Instarch\Semi6\Data\080218hrbic\008.dat
Rep 1 Sample ID	AH ICAL 1 PP5721	AH ICAL 2 PP5722	AH ICAL 3 PP5723	AH ICAL 4 PP5724	AH ICAL 5 PP5725
Rep 1 Calib. Time	08/02/2018 15:53:17	08/02/2018 15:53:26	08/02/2018 15:53:36	08/02/2018 15:53:45	08/02/2018 15:53:55

	Level 6
Amount	0.2
Area	145821084

Calibration Report

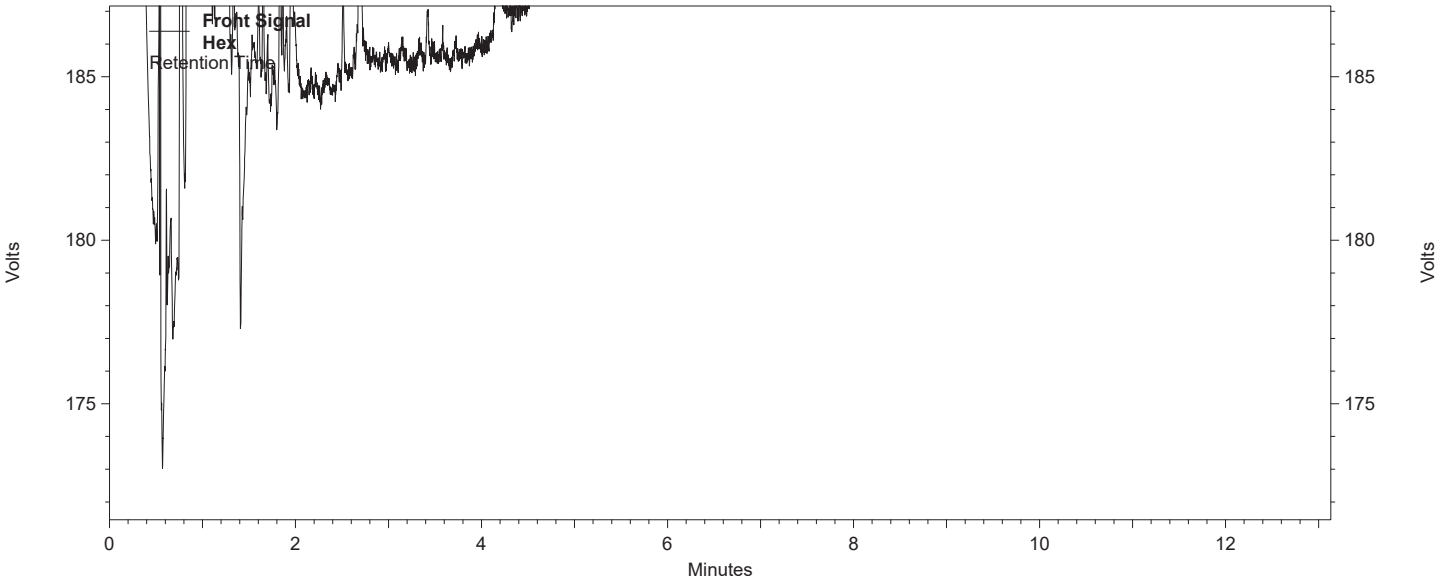
Method: C:\Instarch\Semi6\Methods\Herb\080218hrbic\080218hrbic.met
Print Time: 08/02/2018 15:56:18
User: JJY
Instrument: Semi 6 (Offline)

RF	729105420
Last Area	
Residual	0.00153241
Rep StDev	
Rep %RSD	
Rep 1 Area	145821084
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi6\Data\080218hrbic\009.dat
Rep 1 Sample ID	AH ICAL 6 PP5726
Rep 1 Calib. Time	08/02/2018 15:54:17

Pesticide Analysis Report *(Channel A)*

Data File: C:\Instarch\Semi6\Data\080218hrbic\003.dat
Method: C:\Instarch\Semi6\Methods\Herb\080218hrbic\080218hrbic.met
User: JJY
Sample ID: Hex
Acquired: 08/02/2018 13:59:40
Printed: 08/02/2018 15:55:55

Data Summary: {Data Description}



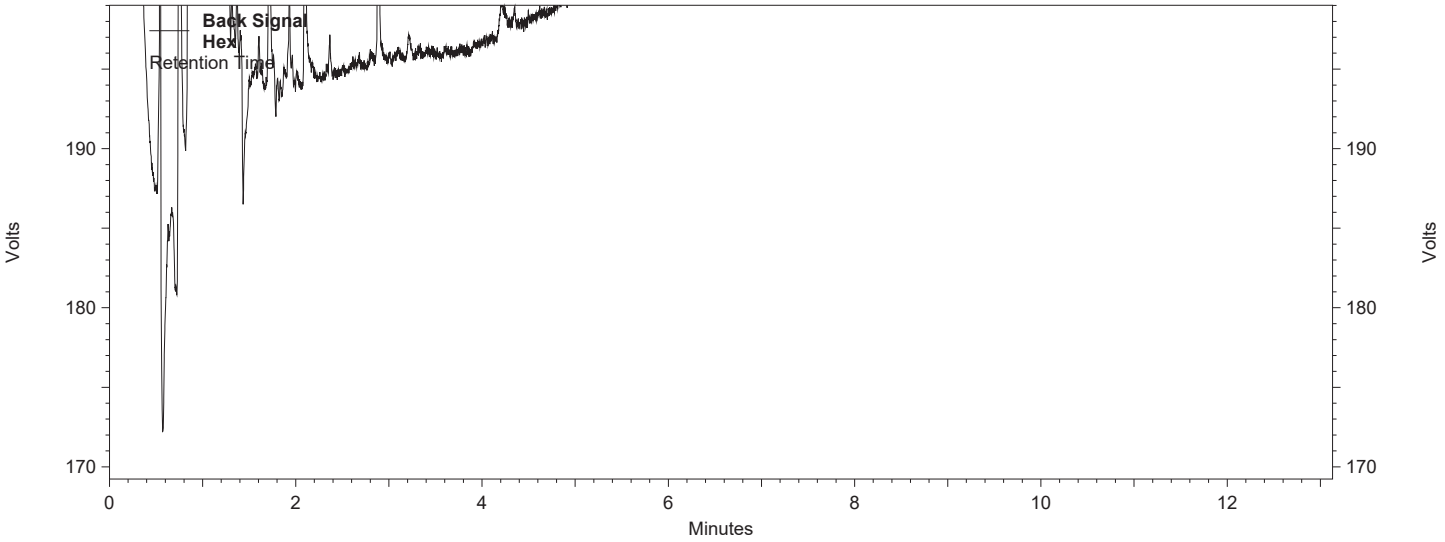
Front Signal Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRDCAA			0.0000 BDL
2,4-D			0.0000 BDL
Silvex			0.0000 BDL

Pesticide Analysis Report *(Channel B)*

Data File: C:\Instarch\Semi6\Data\080218hrbic\003.dat
Method: C:\Instarch\Semi6\Methods\Herb\080218hrbic\080218hrbic.met
User: JJY
Sample ID: Hex
Acquired: 08/02/2018 13:59:40
Printed: 08/02/2018 15:55:55

Data Summary: {Data Description}



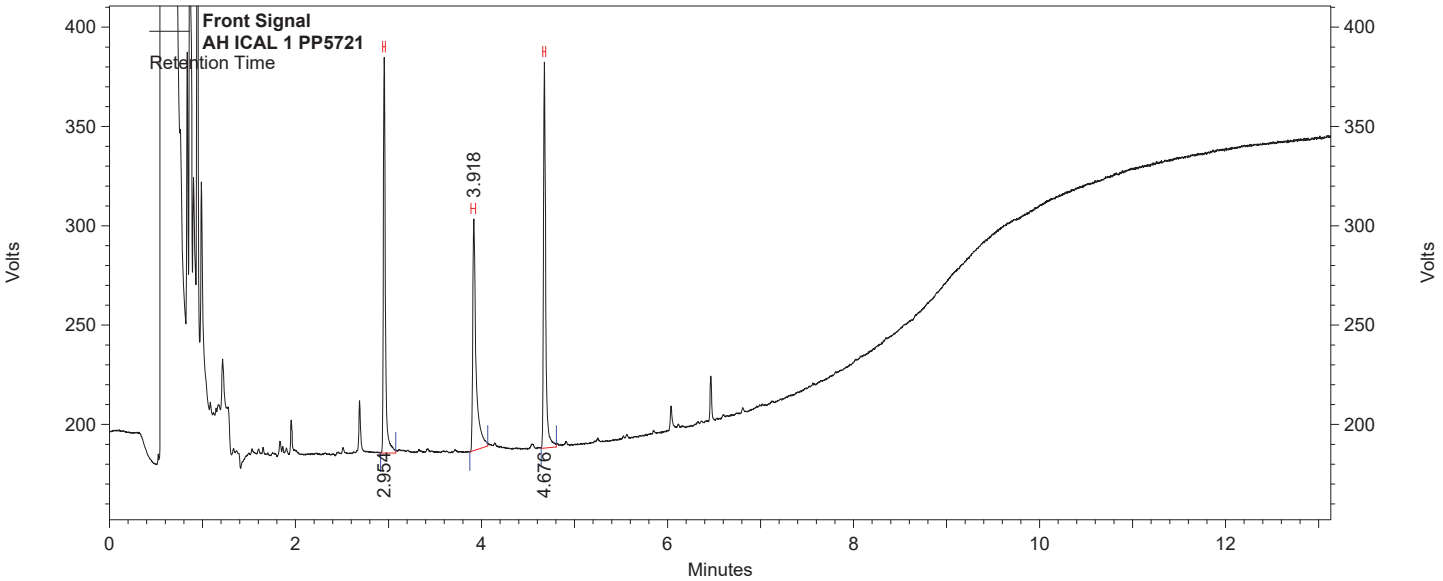
Back Signal Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRDCAA			0.0000 BDL
2,4-D			0.0000 BDL
Silvex			0.0000 BDL

Pesticide Analysis Report *(Channel A)*

Data File: C:\Instarch\Semi6\Data\080218hrbic\004.dat
Method: C:\Instarch\Semi6\Methods\Herb\080218hrbic\080218hrbic.met
User: JJY
Sample ID: AH ICAL 1 PP5721
Acquired: 08/02/2018 14:16:35
Printed: 08/02/2018 15:55:06

Data Summary: {Data Description}



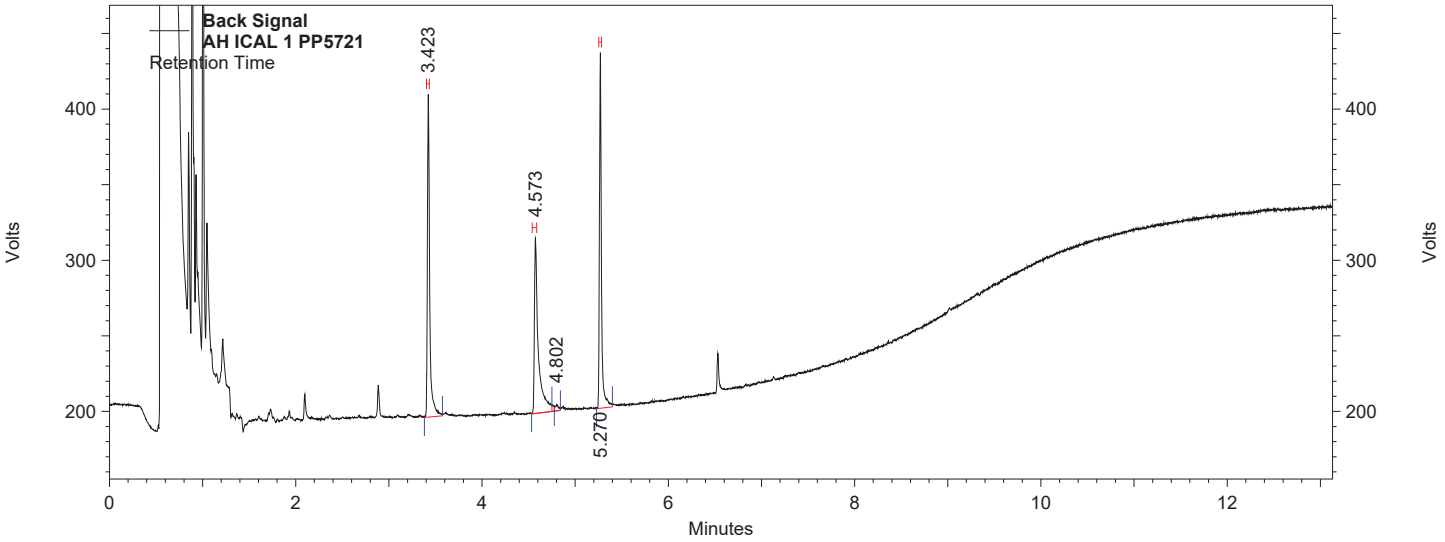
Front Signal Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRDCAA	2.954	2280278	4.0000 CAL
2,4-D	3.918	2178795	0.0200 CAL
Silvex	4.676	2418939	0.0040 CAL

Pesticide Analysis Report *(Channel B)*

Data File: C:\Instarch\Semi6\Data\080218hrbic\004.dat
Method: C:\Instarch\Semi6\Methods\Herb\080218hrbic\080218hrbic.met
User: JJY
Sample ID: AH ICAL 1 PP5721
Acquired: 08/02/2018 14:16:35
Printed: 08/02/2018 15:55:06

Data Summary: {Data Description}



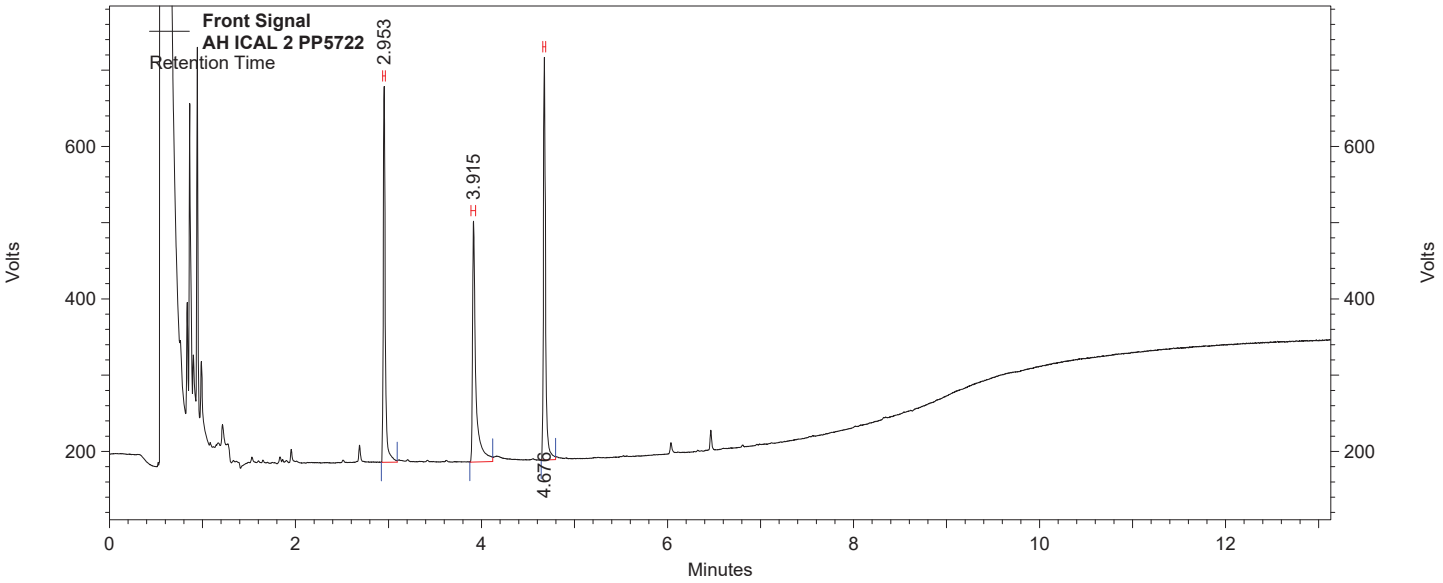
Back Signal Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRDCAA	3.423	2810299	4.0000 CAL
2,4-D	4.573	2566615	0.0200 CAL
Silvex	5.270	2706843	0.0040 CAL

Pesticide Analysis Report *(Channel A)*

Data File: C:\Instarch\Semi6\Data\080218hrbic\005.dat
Method: C:\Instarch\Semi6\Methods\Herb\080218hrbic\080218hrbic.met
User: JJY
Sample ID: AH ICAL 2 PP5722
Acquired: 08/02/2018 14:33:27
Printed: 08/02/2018 15:55:24

Data Summary: {Data Description}



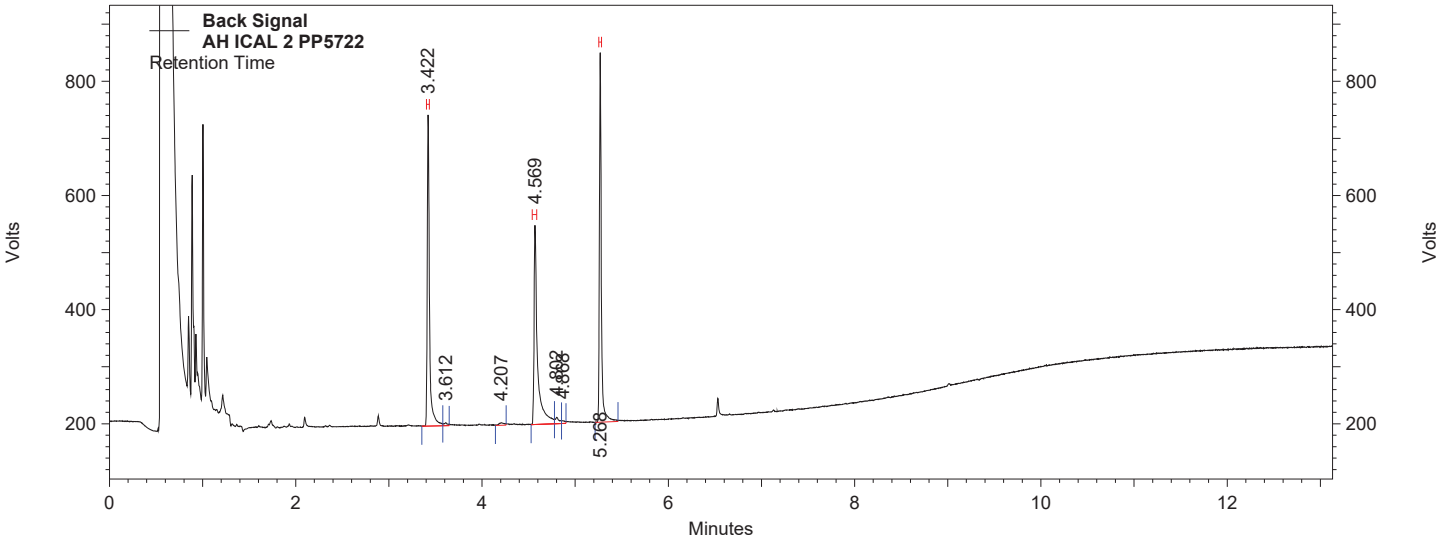
Front Signal Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRDCAA	2.953	5501827	10.0000 CAL
2,4-D	3.915	5917607	0.0500 CAL
Silvex	4.676	6297370	0.0100 CAL

Pesticide Analysis Report *(Channel B)*

Data File: C:\Instarch\Semi6\Data\080218hrbic\005.dat
Method: C:\Instarch\Semi6\Methods\Herb\080218hrbic\080218hrbic.met
User: JJY
Sample ID: AH ICAL 2 PP5722
Acquired: 08/02/2018 14:33:27
Printed: 08/02/2018 15:55:24

Data Summary: {Data Description}



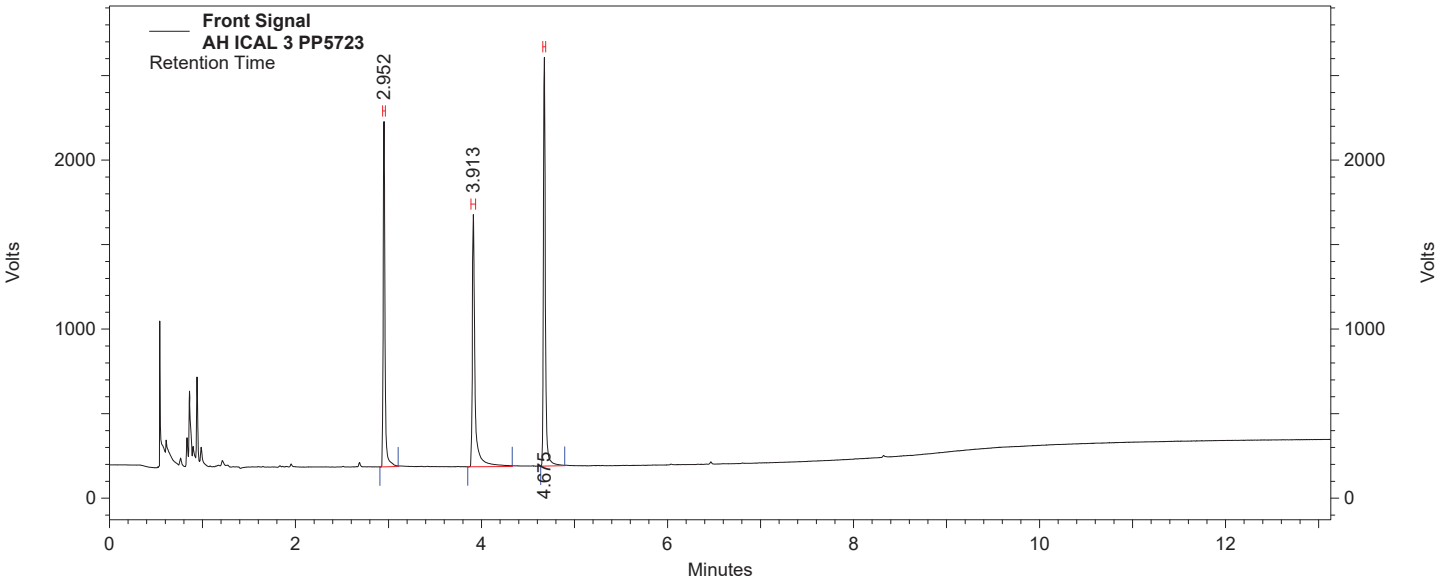
Back Signal Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRDCAA	3.422	6934355	10.0000 CAL
2,4-D	4.569	6729067	0.0500 CAL
Silvex	5.268	7159589	0.0100 CAL

Pesticide Analysis Report *(Channel A)*

Data File: C:\Instarch\Semi6\Data\080218hrbic\006.dat
Method: C:\Instarch\Semi6\Methods\Herb\080218hrbic\080218hrbic.met
User: JJY
Sample ID: AH ICAL 3 PP5723
Acquired: 08/02/2018 14:50:14
Printed: 08/02/2018 15:55:27

Data Summary: {Data Description}



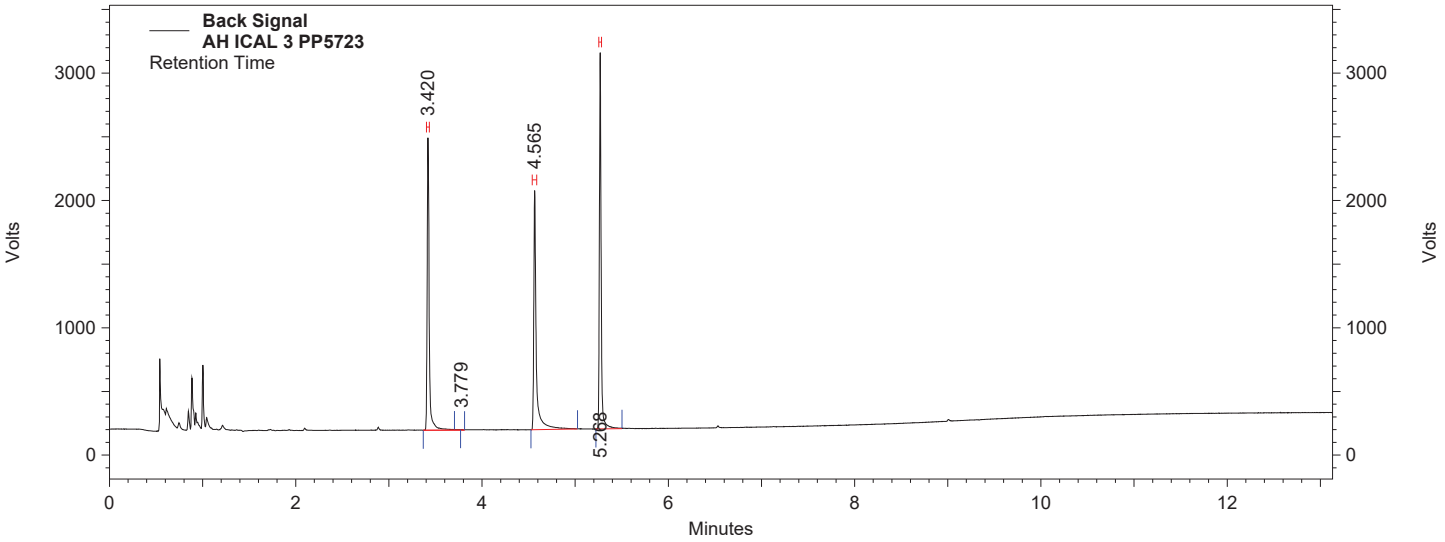
Front Signal Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRDCAA	2.952	20886898	40.0000 CAL
2,4-D	3.913	23344206	0.2000 CAL
Silvex	4.675	27398397	0.0400 CAL

Pesticide Analysis Report *(Channel B)*

Data File: C:\Instarch\Semi6\Data\080218hrbic\006.dat
Method: C:\Instarch\Semi6\Methods\Herb\080218hrbic\080218hrbic.met
User: JJY
Sample ID: AH ICAL 3 PP5723
Acquired: 08/02/2018 14:50:14
Printed: 08/02/2018 15:55:27

Data Summary: {Data Description}



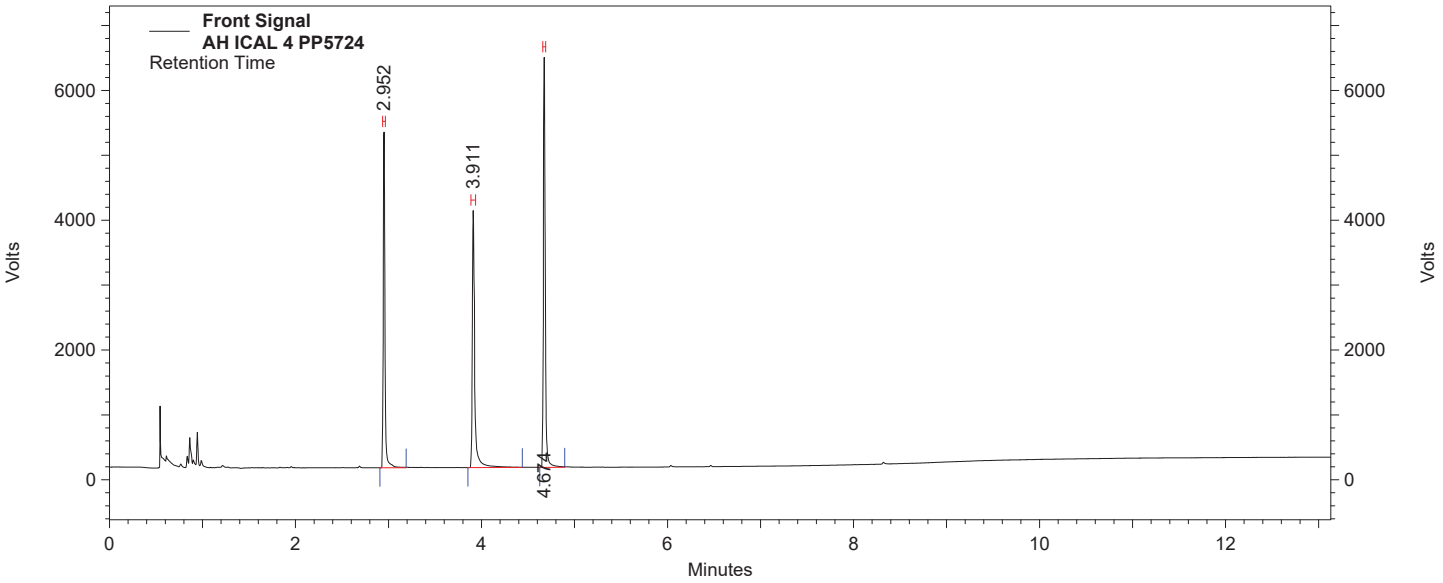
Back Signal Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRDCAA	3.420	26475973	40.0000 CAL
2,4-D	4.565	26939303	0.2000 CAL
Silvex	5.268	30172647	0.0400 CAL

Pesticide Analysis Report *(Channel A)*

Data File: C:\Instarch\Semi6\Data\080218hrbic\007.dat
Method: C:\Instarch\Semi6\Methods\Herb\080218hrbic\080218hrbic.met
User: JJY
Sample ID: AH ICAL 4 PP5724
Acquired: 08/02/2018 15:07:02
Printed: 08/02/2018 15:55:29

Data Summary: {Data Description}



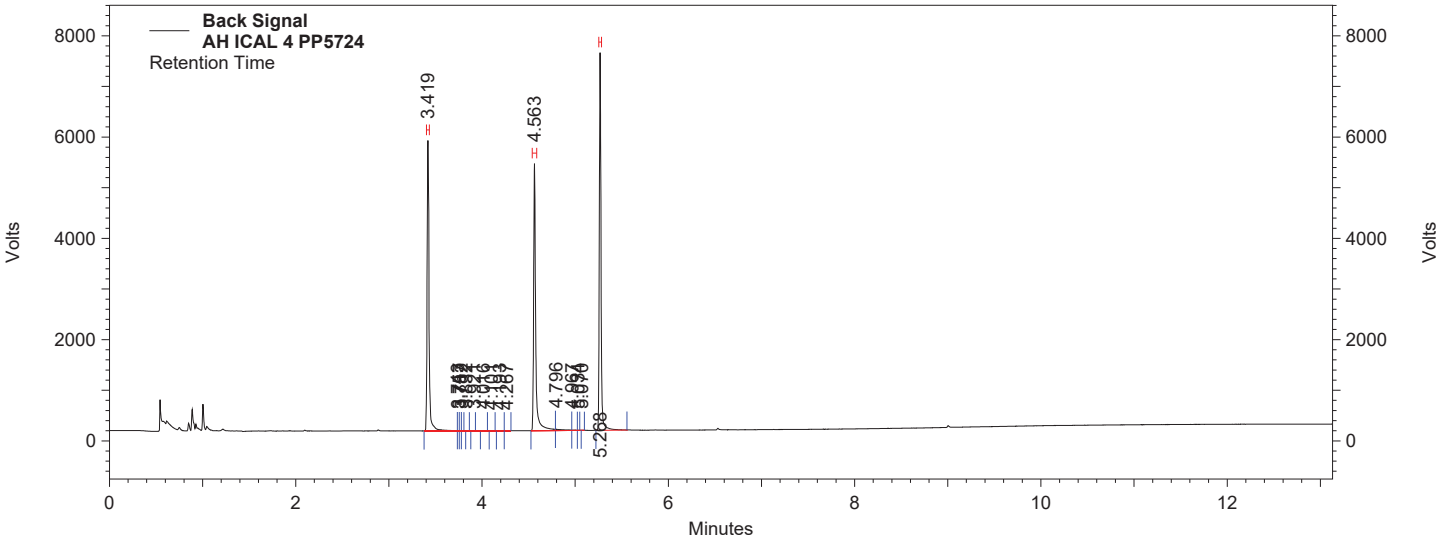
Front Signal Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRDCAA	2.952	50134765	100.0000 CAL
2,4-D	3.911	55145474	0.5000 CAL
Silvex	4.674	67789839	0.1000 CAL

Pesticide Analysis Report *(Channel B)*

Data File: C:\Instarch\Semi6\Data\080218hrbic\007.dat
Method: C:\Instarch\Semi6\Methods\Herb\080218hrbic\080218hrbic.met
User: JJY
Sample ID: AH ICAL 4 PP5724
Acquired: 08/02/2018 15:07:02
Printed: 08/02/2018 15:55:29

Data Summary: {Data Description}



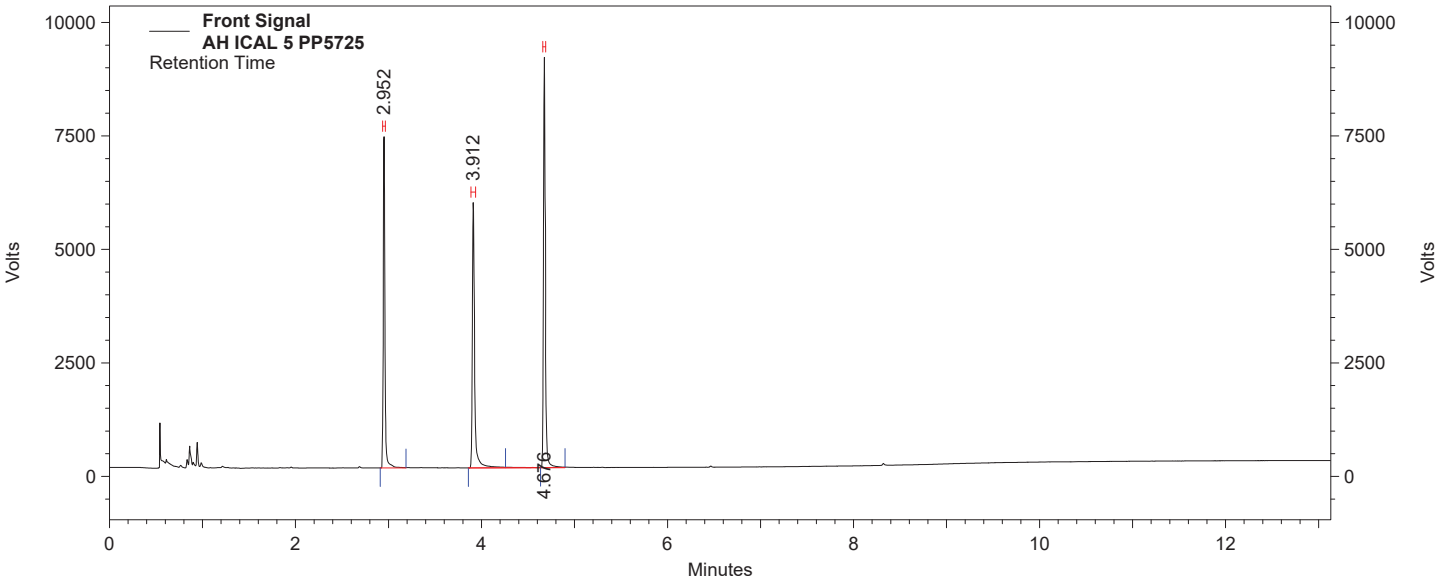
Back Signal Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRDCAA	3.419	62092666	100.0000 CAL
2,4-D	4.563	62752309	0.5000 CAL
Silvex	5.268	73303024	0.1000 CAL

Pesticide Analysis Report *(Channel A)*

Data File: C:\Instarch\Semi6\Data\080218hrbic\008.dat
Method: C:\Instarch\Semi6\Methods\Herb\080218hrbic\080218hrbic.met
User: JJY
Sample ID: AH ICAL 5 PP5725
Acquired: 08/02/2018 15:23:58
Printed: 08/02/2018 15:55:32

Data Summary: {Data Description}



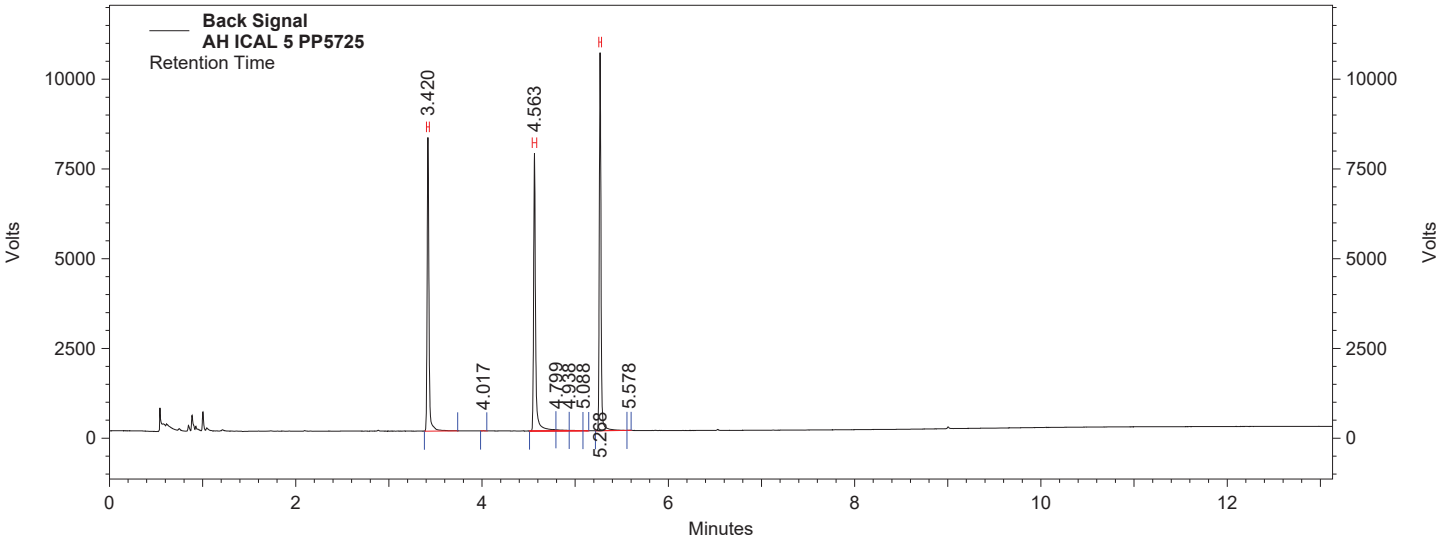
Front Signal Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRDCAA	2.952	70076315	140.0000 CAL
2,4-D	3.912	76617952	0.7000 CAL
Silvex	4.676	96173794	0.1400 CAL

Pesticide Analysis Report *(Channel B)*

Data File: C:\Instarch\Semi6\Data\080218hrbic\008.dat
Method: C:\Instarch\Semi6\Methods\Herb\080218hrbic\080218hrbic.met
User: JJY
Sample ID: AH ICAL 5 PP5725
Acquired: 08/02/2018 15:23:58
Printed: 08/02/2018 15:55:32

Data Summary: {Data Description}



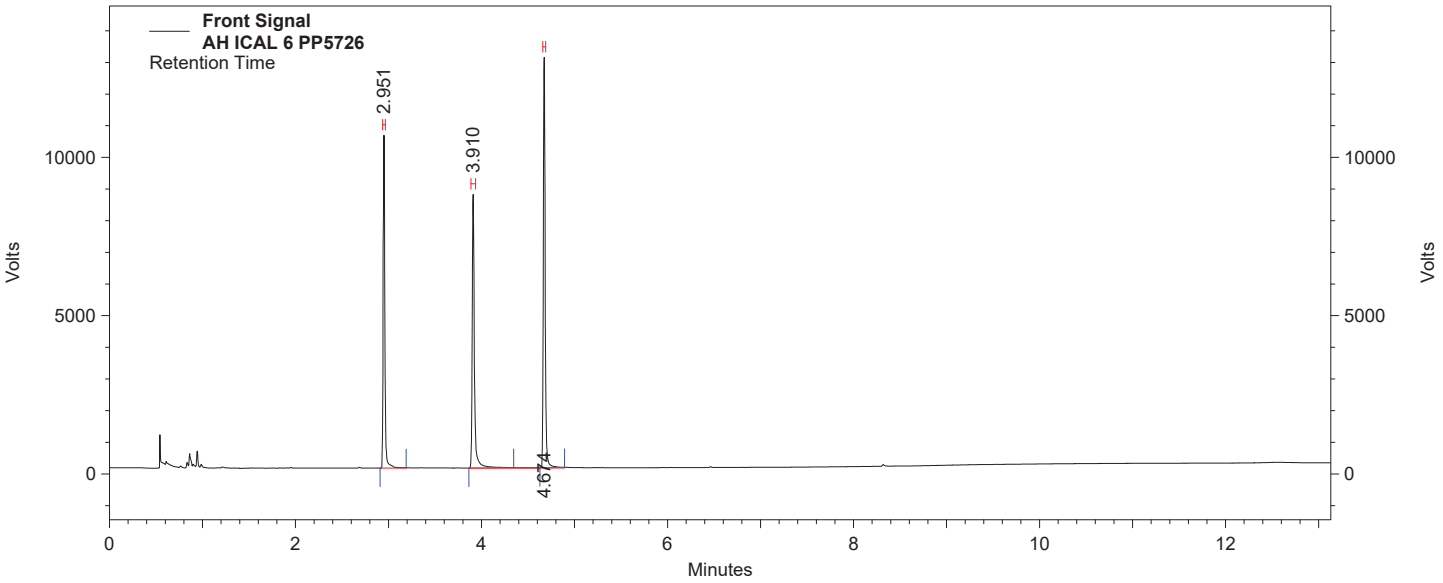
Back Signal Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRDCAA	3.420	85453978	140.0000 CAL
2,4-D	4.563	88349399	0.7000 CAL
Silvex	5.268	103223597	0.1400 CAL

Pesticide Analysis Report *(Channel A)*

Data File: C:\Instarch\Semi6\Data\080218hrbic\009.dat
Method: C:\Instarch\Semi6\Methods\Herb\080218hrbic\080218hrbic.met
User: JJY
Sample ID: AH ICAL 6 PP5726
Acquired: 08/02/2018 15:40:50
Printed: 08/02/2018 15:55:34

Data Summary: {Data Description}



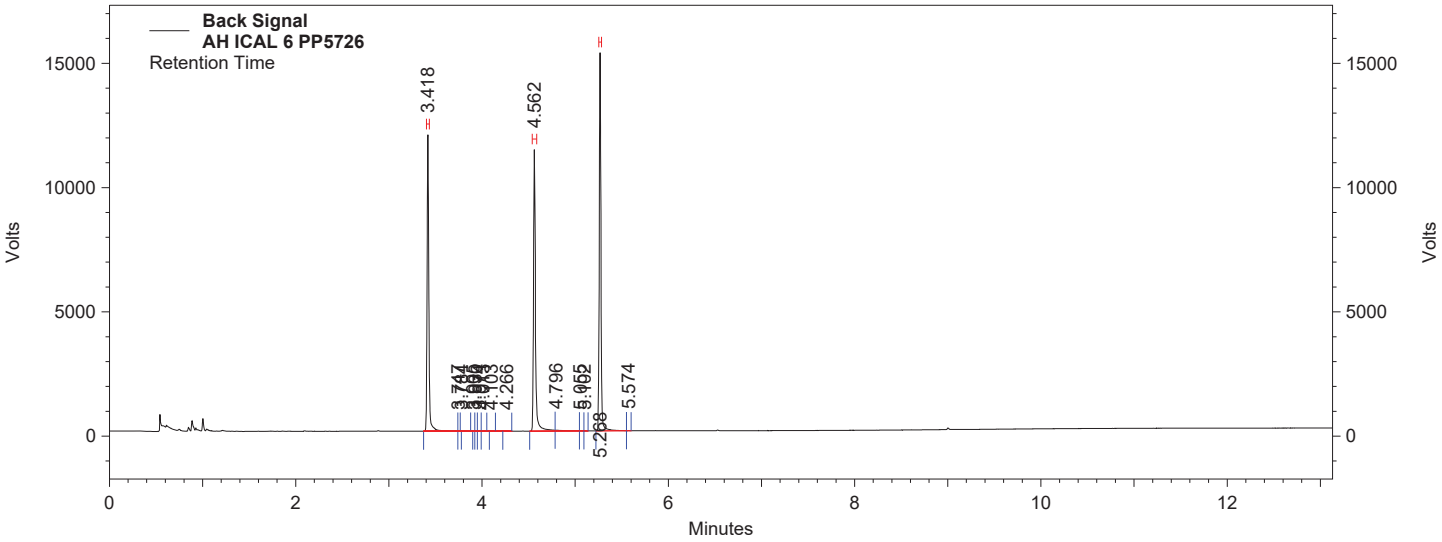
Front Signal Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRDCAA	2.951	99350457	200.0000 CAL
2,4-D	3.910	109108301	1.0000 CAL
Silvex	4.674	136171831	0.2000 CAL

Pesticide Analysis Report *(Channel B)*

Data File: C:\Instarch\Semi6\Data\080218hrbic\009.dat
Method: C:\Instarch\Semi6\Methods\Herb\080218hrbic\080218hrbic.met
User: JJY
Sample ID: AH ICAL 6 PP5726
Acquired: 08/02/2018 15:40:50
Printed: 08/02/2018 15:55:34

Data Summary: {Data Description}



Back Signal Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRDCAA	3.418	121229382	200.0000 CAL
2,4-D	4.562	125649026	1.0000 CAL
Silvex	5.268	145821084	0.2000 CAL

QC Check Standard Report

Sequence : C:\Instarch\Semi6\Sequence\080218hrbic.seq
User : JJY
Printed : 08/03/2018 08:57:47

File	Sample ID	Acquired
C:\Instarch\Semi6\Data\080218hrbic\010.dat	AH ICV PP5727	08/03/2018 08:57:47

Front Signal

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
SURRDCAA	100.000	99.120	0.880	20.000	Passed
2,4-D	0.500	0.495	0.979	20.000	Passed
Silvex	0.100	0.099	1.073	20.000	Passed

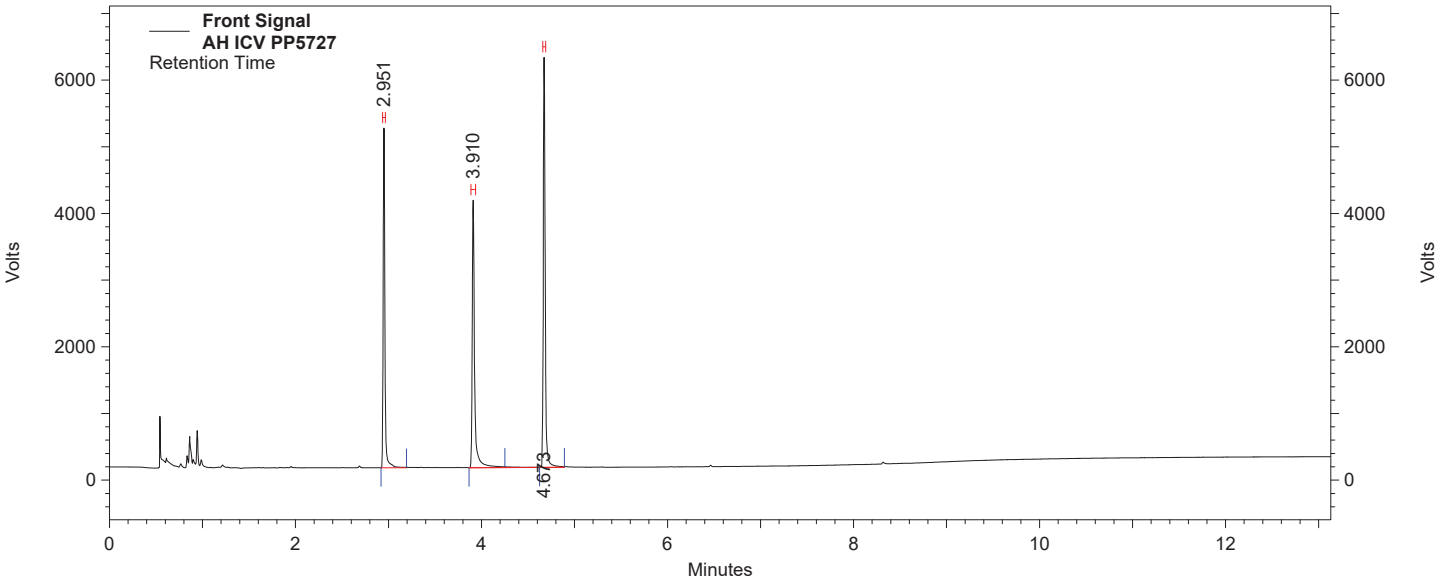
Back Signal

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
SURRDCAA	100.000	99.635	0.365	20.000	Passed
2,4-D	0.500	0.506	1.164	20.000	Passed
Silvex	0.100	0.100	0.245	20.000	Passed

Pesticide Analysis Report *(Channel A)*

Data File: C:\Instarch\Semi6\Data\080218hrbic\010.dat
Method: C:\Instarch\Semi6\Methods\Herb\080218hrbic\080218hrbic.met
User: JJY
Sample ID: AH ICV PP5727
Acquired: 08/02/2018 15:57:38
Printed: 08/03/2018 08:57:41

Data Summary: {Data Description}



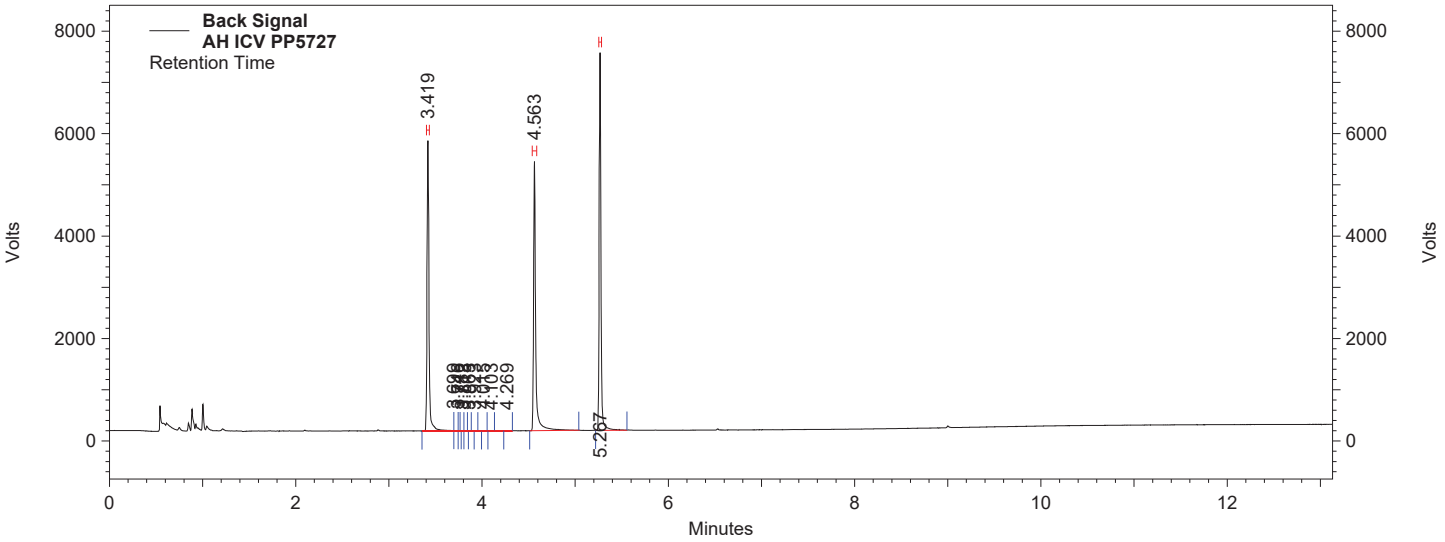
Front Signal Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRDCAA	2.951	49721095	99.1203
2,4-D	3.910	54530481	0.4951
Silvex	4.673	67406867	0.0989

Pesticide Analysis Report *(Channel B)*

Data File: C:\Instarch\Semi6\Data\080218hrbic\010.dat
Method: C:\Instarch\Semi6\Methods\Herb\080218hrbic\080218hrbic.met
User: JJY
Sample ID: AH ICV PP5727
Acquired: 08/02/2018 15:57:38
Printed: 08/03/2018 08:57:41

Data Summary: {Data Description}



Back Signal Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRDCAA	3.419	61362163	99.6346
2,4-D	4.563	64021838	0.5058
Silvex	5.267	73206824	0.0998

PESTICIDE/HERBICIDE
CONTINUING AND ENDING STANDARDS
DOCUMENTS

Pesticide Analysis Breakdown Report

Data File: C:\Instarch\Semi1\data\092418pst\001.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\eval.met
User: JJY
Instrument: Semi 1
Sample ID: EVAL PP5784
Acquired: 09/24/2018 14:19:53
Printed: 09/25/2018 08:27:52

Channel A:	**DDT Breakdown**	**1.5**	**%**	**Endrin Breakdown**	**6.9**	**%**
Channel B:	**DDT Breakdown**	**1.3**	**%**	**Endrin Breakdown**	**8.1**	**%**

Channel A

Compound	Area	Compound	Area
44DDT	30744286	ENDRIN	36482873
44DDD	354204	ENDRINALDEH	850241
44DDE	123404	ENDRINKETONE	1833906

Channel B

Compound	Area	Compound	Area
44DDT	27800124	ENDRIN	29941024
44DDD	248418	ENDRINALDEH	760368
44DDE	130126	ENDRINKETONE	1864998

DDT Breakdown

$$\frac{44DDD + 44DDE}{44DDD + 44DDE + 44DDT} \times 100 \ \%$$

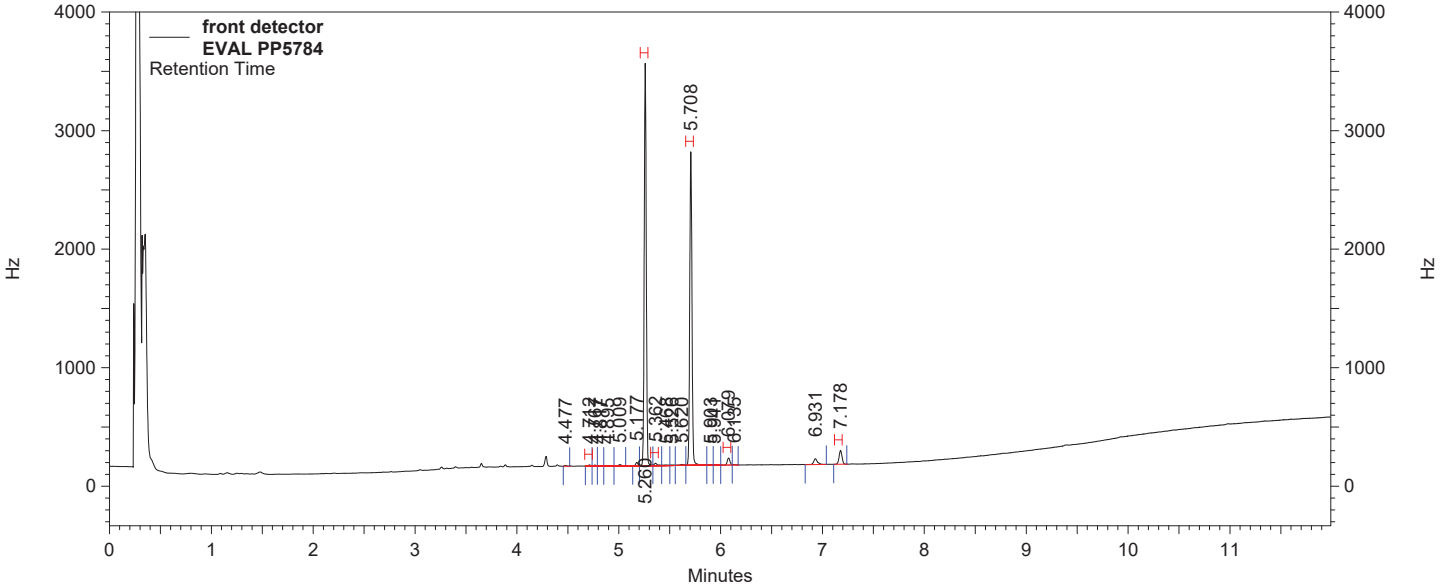
Endrin Breakdown

$$\frac{\text{Endrin aldehyde + Endrin ketone}}{\text{Endrin + Endrin aldehyde + Endrin ketone}} \times 1... \ \%$$

Pesticide Analysis Report *(Channel A)*

Data File: C:\Instarch\Semi1\data\092418pst\001.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\eval.met
User: JJY
Sample ID: EVAL PP5784
Acquired: 09/24/2018 14:19:53
Printed: 09/25/2018 08:27:53

Data Summary: {Data Description}



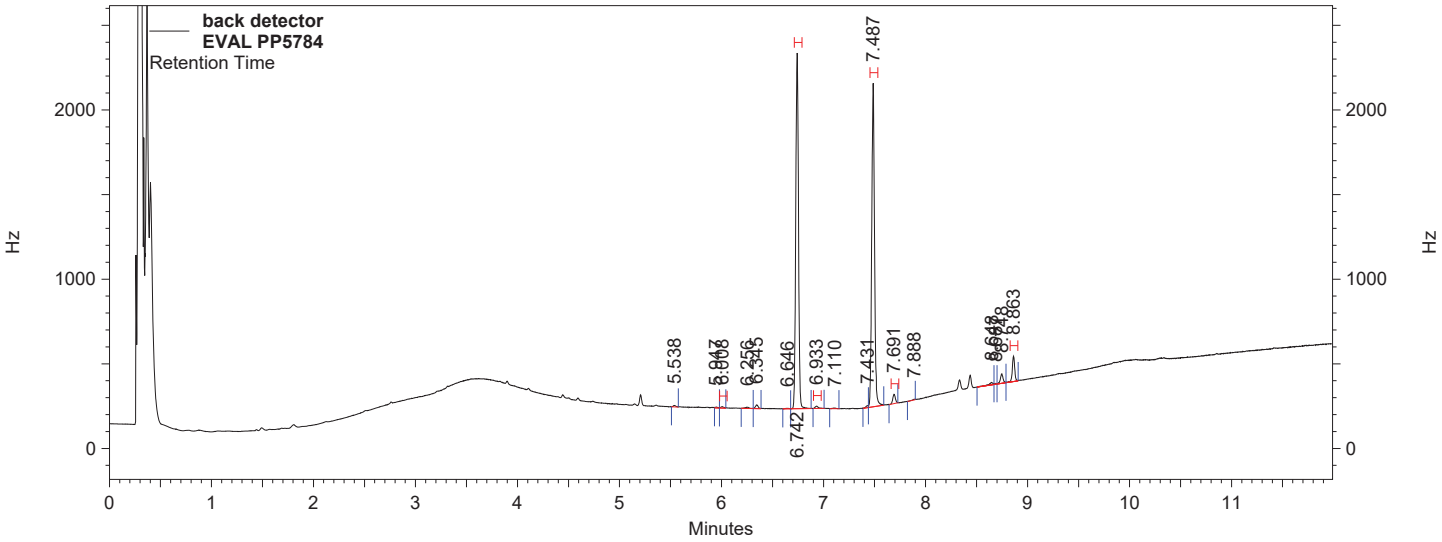
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
44DDE	4.712	123404	0.0003
ENDRIN	5.260	36482873	0.0126
44DDD	5.362	354204	0.0004
44DDT	5.708	30744286	0.0117
ENDRINALDEH	6.079	850241	0.0005
ENDRINKETONE	7.178	1833906	0.0007

Pesticide Analysis Report *(Channel B)*

Data File: C:\Instarch\Semi1\data\092418pst\001.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\eval.met
User: JJY
Sample ID: EVAL PP5784
Acquired: 09/24/2018 14:19:53
Printed: 09/25/2018 08:27:53

Data Summary: {Data Description}



back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
44DDE	6.008	130126	0.0001
ENDRIN	6.742	29941024	0.0075
44DDD	6.933	248418	0.0003
44DDT	7.487	27800124	0.0067
ENDRINALDEH	7.691	760368	0.0001
ENDRINKETONE	8.863	1864998	0.0003

QC Check Standard Report

Sequence : C:\Instarch\Semi1\Sequence\092418pst.seq
User : JJY
Printed : 09/25/2018 08:28:49

File	Sample ID	Acquired
C:\Instarch\Semi1\data\092418pst\010.dat	Pest CCV PP5805	09/25/2018 08:28:49

front detector

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
SURRTCMXPEST	100.000	99.907	0.093	20.000	Passed
ALPHABHC	0.040	0.040	0.530	20.000	Passed
LINDANE	0.040	0.040	0.908	20.000	Passed
BETABHC	0.040	0.039	1.747	20.000	Passed
DELTABHC	0.040	0.041	2.740	20.000	Passed
HEPTACHLOR	0.040	0.042	3.956	20.000	Passed
ALDRIN	0.040	0.039	3.206	20.000	Passed
HEPTAEPOX	0.040	0.040	0.583	20.000	Passed
GAMMACHLOR	0.040	0.040	1.131	20.000	Passed
ALPHACHLOR	0.040	0.040	1.181	20.000	Passed
44DDE	0.040	0.039	2.618	20.000	Passed
ENDOI	0.040	0.039	1.670	20.000	Passed
DIELDRIN	0.040	0.040	0.442	20.000	Passed
ENDRIN	0.040	0.038	5.853	20.000	Passed
44DDD	0.040	0.040	0.971	20.000	Passed
ENDOII	0.040	0.038	5.643	20.000	Passed
44DDT	0.040	0.040	0.055	20.000	Passed
ENDRINALDEH	0.040	0.043	7.948	20.000	Passed
METHOXYCL	0.040	0.037	6.959	20.000	Passed
ENDOSULFATE	0.040	0.042	4.198	20.000	Passed
ENDRINKETONE	0.040	0.039	1.820	20.000	Passed
SURRDCBPEST	100.000	89.265	10.735	20.000	Passed

back detector

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
SURRTCMXPEST	100.000	96.292	3.708	20.000	Passed
ALPHABHC	0.040	0.039	3.560	20.000	Passed
LINDANE	0.040	0.039	2.191	20.000	Passed
BETABHC	0.040	0.038	5.978	20.000	Passed
DELTABHC	0.040	0.040	0.215	20.000	Passed
HEPTACHLOR	0.040	0.042	4.398	20.000	Passed
ALDRIN	0.040	0.038	5.997	20.000	Passed
HEPTAEPOX	0.040	0.038	4.433	20.000	Passed
GAMMACHLOR	0.040	0.038	4.859	20.000	Passed
ALPHACHLOR	0.040	0.038	5.579	20.000	Passed
ENDOI	0.040	0.038	5.608	20.000	Passed
44DDE	0.040	0.037	6.618	20.000	Passed
DIELDRIN	0.040	0.038	4.030	20.000	Passed
ENDRIN	0.040	0.036	10.110	20.000	Passed
44DDD	0.040	0.038	4.694	20.000	Passed
ENDOII	0.040	0.036	10.955	20.000	Passed
44DDT	0.040	0.038	4.650	20.000	Passed
ENDRINALDEH	0.040	0.041	3.412	20.000	Passed
ENDOSULFATE	0.040	0.040	0.965	20.000	Passed
METHOXYCL	0.040	0.036	9.353	20.000	Passed

QC Check Standard Report

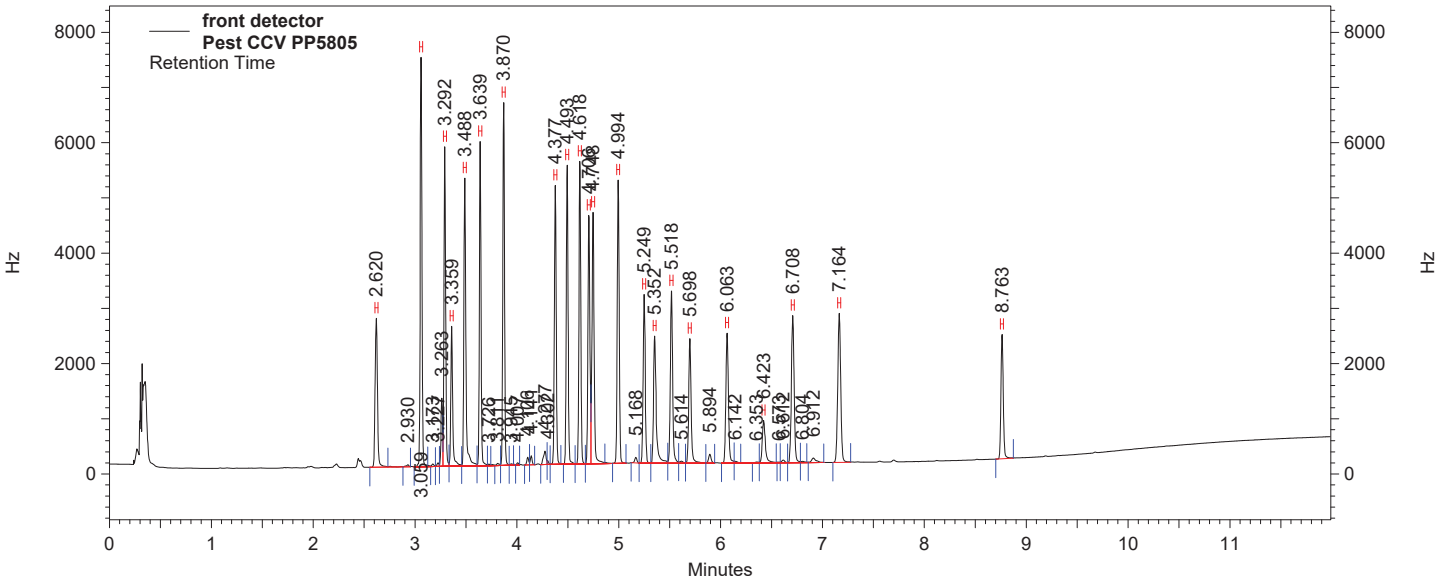
Sequence : C:\Instarch\Semi1\Sequence\092418pst.seq
User : JJY
Printed : 09/25/2018 08:28:49

ENDRINKETONE	0.040	0.037	7.207	20.000	**Passed**
SURRDCBPEST	100.000	87.080	12.920	20.000	**Passed**

Pesticide Analysis Report *(Channel A)*

Data File: C:\Instarch\Semi1\data\092418pst\010.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\092418pst.met
User: JJY
Sample ID: Pest CCV PP5805
Acquired: 09/24/2018 16:46:03
Printed: 09/25/2018 08:28:47

Data Summary: {Data Description}



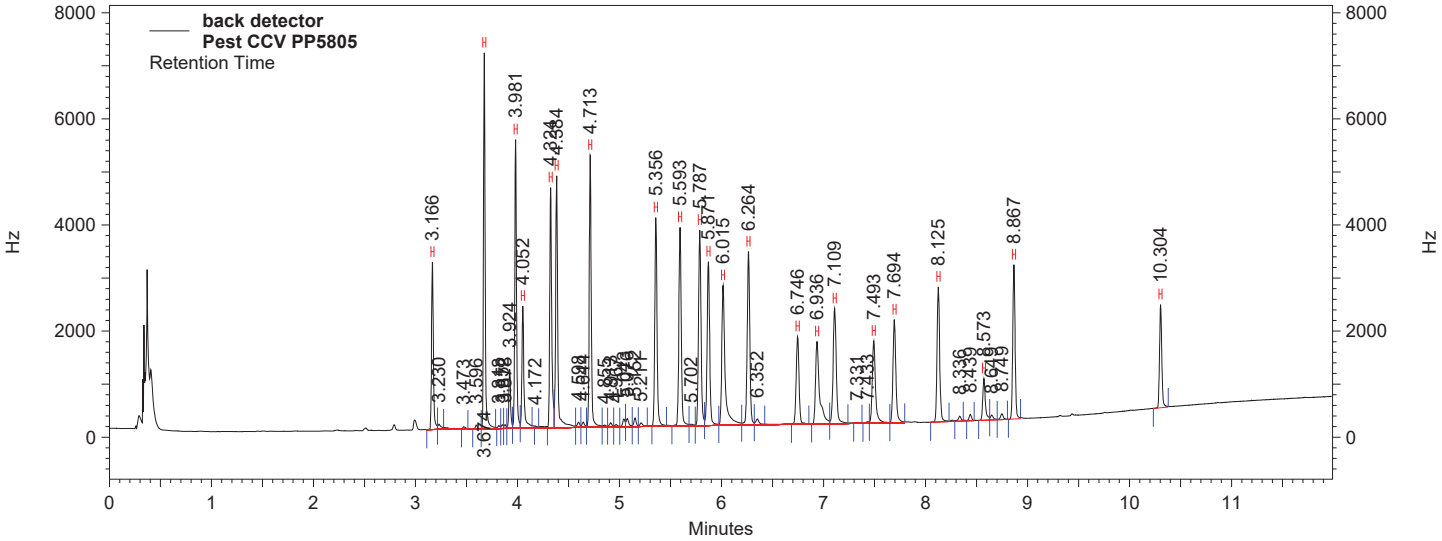
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPEST	2.620	33830948	99.9072
ALPHABHC	3.059	66471220	0.0402
LINDANE	3.292	50822684	0.0396
BETABHC	3.359	25301605	0.0393
DELTABHC	3.488	56079654	0.0411
HEPTACHLOR	3.639	50620378	0.0416
ALDRIN	3.870	58431850	0.0387
HEPTAEPOX	4.377	48848879	0.0398
GAMMACHLOR	4.493	50917144	0.0395
ALPHACHLOR	4.618	51379331	0.0395
44DDE	4.706	47243305	0.0390
ENDOI	4.748	51829234	0.0393
DIELDRIN	4.994	53080331	0.0402
ENDRIN	5.249	33340668	0.0377
44DDD	5.352	31692385	0.0404
ENDOII	5.518	37584961	0.0377
44DDT	5.698	28246268	0.0400
ENDRINALDEH	6.063	31569799	0.0432
METHOXYCL	6.423	12484770	0.0372
ENDOSULFATE	6.708	38359770	0.0417
ENDRINKETONE	7.164	42002239	0.0393
SURRDCBPEST	8.763	27473270	89.2651

Pesticide Analysis Report *(Channel B)*

Data File: C:\Instarch\Semi1\data\092418pst\010.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\092418pst.met
User: JJY
Sample ID: Pest CCV PP5805
Acquired: 09/24/2018 16:46:03
Printed: 09/25/2018 08:28:47

Data Summary: {Data Description}



back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPEST	3.166	30098204	96.2918
ALPHABHC	3.674	61839814	0.0386
LINDANE	3.981	50056361	0.0391
BETABHC	4.052	24298039	0.0376
DELTABHC	4.324	47049500	0.0399
HEPTACHLOR	4.384	52396474	0.0418
ALDRIN	4.713	54470896	0.0376
HEPTAEPOX	5.356	46516932	0.0382
GAMMACHLOR	5.593	46788815	0.0381
ALPHACHLOR	5.787	48141201	0.0378
ENDOI	5.871	41343734	0.0378
44DDE	6.015	46942845	0.0374
DIELDRIN	6.264	45211084	0.0384
ENDRIN	6.746	24795250	0.0360
44DDD	6.936	32794524	0.0381
ENDOII	7.109	36351413	0.0356
44DDT	7.493	26697405	0.0381
ENDRINALDEH	7.694	29973553	0.0414
ENDOSULFATE	8.125	35113928	0.0396
METHOXYCL	8.573	10756663	0.0363
ENDRINKETONE	8.867	35546323	0.0371
SURRDCBPEST	10.304	22632819	87.0799

QC Check Standard Report

Sequence : C:\Instarch\Semi1\Sequence\092418pst.seq
User : JJY
Printed : 09/25/2018 08:28:57

File	Sample ID	Acquired
C:\Instarch\Semi1\data\092418pst\011.dat	TC CCV PP5806	09/25/2018 08:28:56

front detector

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
SURRTCMXPEST	60.000	59.656	0.574	20.000	Passed
Chlordane #1	0.050	0.047	6.864	20.000	Passed
Chlordane #2	0.050	0.049	2.522	20.000	Passed
Chlordane #3	0.050	0.048	4.721	20.000	Passed
Chlordane #4	0.050	0.046	8.381	20.000	Passed
Chlordane #5	0.050	0.047	6.062	20.000	Passed
Toxaphene #1	0.050	0.051	1.805	20.000	Passed
Toxaphene #2	0.050	0.051	2.556	20.000	Passed
Toxaphene #3	0.050	0.047	5.430	20.000	Passed
Toxaphene #4	0.050	0.055	10.933	20.000	Passed
Toxaphene #5	0.050	0.052	4.770	20.000	Passed
SURRDCBPEST	60.000	57.021	4.966	20.000	Passed
Chlordane	0.250	0.236	5.710	20.000	Passed
Toxaphene	0.250	0.257	2.927	20.000	Passed

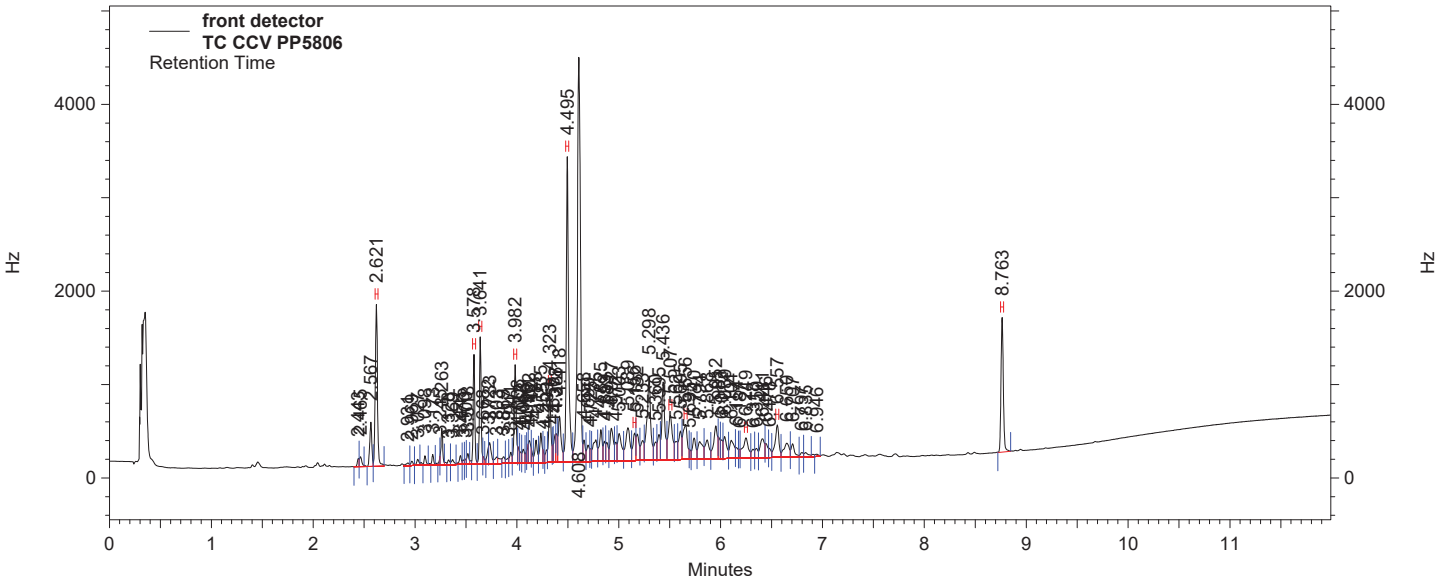
back detector

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
SURRTCMXPEST	60.000	57.791	3.681	20.000	Passed
Chlordane #1	0.050	0.046	8.568	20.000	Passed
Chlordane #2	0.050	0.047	5.026	20.000	Passed
Chlordane #3	0.050	0.045	10.014	20.000	Passed
Chlordane #4	0.050	0.046	8.886	20.000	Passed
Chlordane #5	0.050	0.048	4.120	20.000	Passed
Toxaphene #1	0.050	0.048	3.688	20.000	Passed
Toxaphene #2	0.050	0.047	5.761	20.000	Passed
Toxaphene #3	0.050	0.048	3.690	20.000	Passed
Toxaphene #4	0.050	0.046	8.147	20.000	Passed
Toxaphene #5	0.050	0.047	5.939	20.000	Passed
SURRDCBPEST	60.000	56.528	5.787	20.000	Passed
Chlordane	0.250	0.232	7.323	20.000	Passed
Toxaphene	0.250	0.236	5.445	20.000	Passed

Pesticide (TOX/Chlordane) Analysis Report *(Channel A)*

Data File: C:\Instarch\Semi1\data\092418pst\011.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\092418tc.met
User: JJY
Sample ID: TC CCV PP5806
Acquired: 09/24/2018 17:02:22
Printed: 09/25/2018 08:28:54

Data Summary: {Data Description}



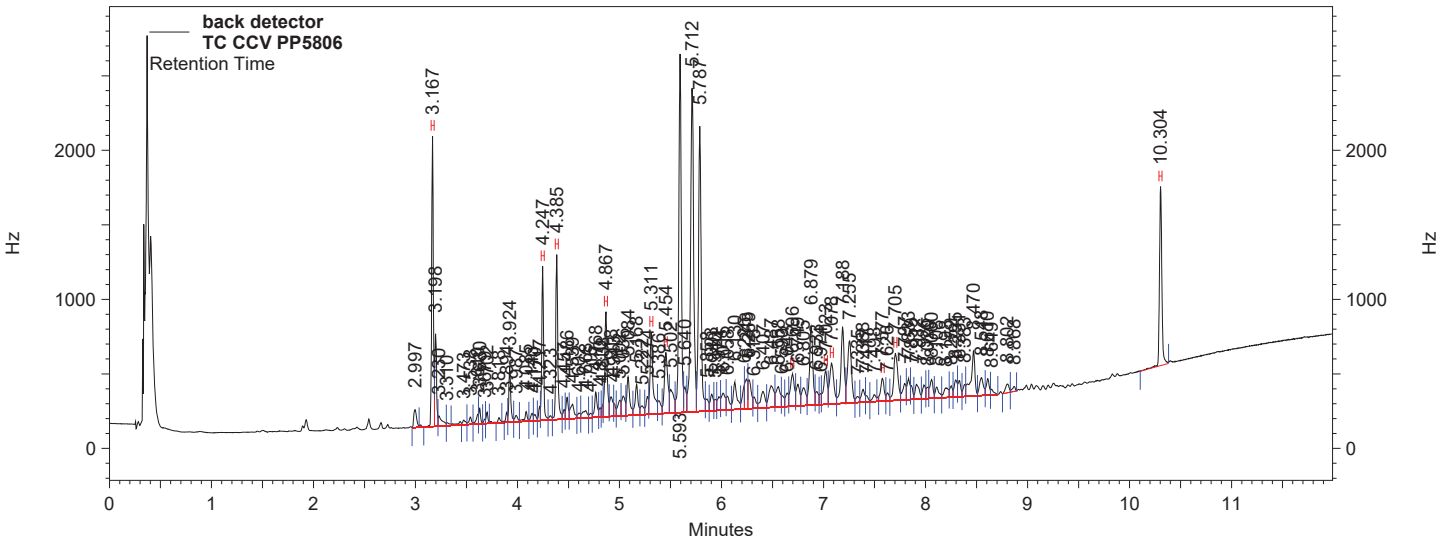
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPEST	2.621	19853722	59.6558
Chlordane #1	3.578	10017651	0.0466
Chlordane #2	3.641	11788765	0.0487
Chlordane #3	3.982	11488070	0.0476
Chlordane #4	4.323	8501713	0.0458
Chlordane #5	4.495	39725208	0.0470
Toxaphene #1	5.156	4245063	0.0509
Toxaphene #2	5.507	10426182	0.0513
Toxaphene #3	5.656	8544549	0.0473
Toxaphene #4	6.249	6197011	0.0555
Toxaphene #5	6.557	7022052	0.0524
SURRDCBPEST	8.763	17466778	57.0205
Chlordane		81521407	0.2357
Toxaphene		36434857	0.2573

Pesticide (TOX/Chlordane) Analysis Report *(Channel B)*

Data File: C:\Instarch\Semi1\data\092418pst\011.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\092418tc.met
User: JJY
Sample ID: TC CCV PP5806
Acquired: 09/24/2018 17:02:22
Printed: 09/25/2018 08:28:54

Data Summary: {Data Description}



back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPEST	3.167	17176871	57.7915
Chlordane #1	4.247	9940606	0.0457
Chlordane #2	4.385	11508012	0.0475
Chlordane #3	4.867	8850297	0.0450
Chlordane #4	5.311	8736708	0.0456
Chlordane #5	5.454	7348037	0.0479
Toxaphene #1	6.696	4527883	0.0482
Toxaphene #2	7.023	4385699	0.0471
Toxaphene #3	7.078	6052450	0.0482
Toxaphene #4	7.577	2812844	0.0459
Toxaphene #5	7.705	6849933	0.0470
SURRDCBPEST	10.304	14670441	56.5278
Chlordane		46383660	0.2317
Toxaphene		24628809	0.2364

QC Check Standard Report

Sequence : C:\Instarch\Semi1\Sequence\092418pst.seq
User : JJY
Printed : 09/25/2018 08:29:28

File	Sample ID	Acquired
C:\Instarch\Semi1\data\092418pst\020.dat	Pest CCV PP5805	09/25/2018 08:29:28

front detector

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
SURRTCMXPEST	100.000	104.023	4.023	20.000	Passed
ALPHABHC	0.040	0.044	9.117	20.000	Passed
LINDANE	0.040	0.045	13.290	20.000	Passed
BETABHC	0.040	0.044	9.223	20.000	Passed
DELTABHC	0.040	0.045	11.313	20.000	Passed
HEPTACHLOR	0.040	0.046	15.510	20.000	Passed
ALDRIN	0.040	0.042	4.591	20.000	Passed
HEPTAEPOX	0.040	0.044	9.756	20.000	Passed
GAMMACHLOR	0.040	0.044	9.184	20.000	Passed
ALPHACHLOR	0.040	0.043	8.001	20.000	Passed
44DDE	0.040	0.042	5.992	20.000	Passed
ENDOI	0.040	0.042	5.981	20.000	Passed
DIELDRIN	0.040	0.045	12.218	20.000	Passed
ENDRIN	0.040	0.043	7.168	20.000	Passed
44DDD	0.040	0.046	14.949	20.000	Passed
ENDOII	0.040	0.042	5.002	20.000	Passed
44DDT	0.040	0.046	16.164	20.000	Passed
ENDRINALDEH	0.040	0.047	17.086	20.000	Passed
METHOXYCL	0.040	0.046	13.910	20.000	Passed
ENDOSULFATE	0.040	0.048	19.337	20.000	Passed
ENDRINKETONE	0.040	0.045	12.195	20.000	Passed
SURRDCBPEST	100.000	101.906	1.906	20.000	Passed

back detector

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
SURRTCMXPEST	100.000	100.689	0.689	20.000	Passed
ALPHABHC	0.040	0.042	5.157	20.000	Passed
LINDANE	0.040	0.043	8.697	20.000	Passed
BETABHC	0.040	0.042	6.199	20.000	Passed
DELTABHC	0.040	0.043	7.470	20.000	Passed
HEPTACHLOR	0.040	0.045	12.696	20.000	Passed
ALDRIN	0.040	0.040	0.813	20.000	Passed
HEPTAEPOX	0.040	0.042	5.617	20.000	Passed
GAMMACHLOR	0.040	0.042	5.041	20.000	Passed
ALPHACHLOR	0.040	0.041	2.444	20.000	Passed
ENDOI	0.040	0.041	2.990	20.000	Passed
44DDE	0.040	0.040	1.223	20.000	Passed
DIELDRIN	0.040	0.043	7.110	20.000	Passed
ENDRIN	0.040	0.041	3.323	20.000	Passed
44DDD	0.040	0.043	6.423	20.000	Passed
ENDOII	0.040	0.040	0.087	20.000	Passed
44DDT	0.040	0.043	8.052	20.000	Passed
ENDRINALDEH	0.040	0.046	13.895	20.000	Passed
ENDOSULFATE	0.040	0.046	13.905	20.000	Passed
METHOXYCL	0.040	0.043	8.710	20.000	Passed

QC Check Standard Report

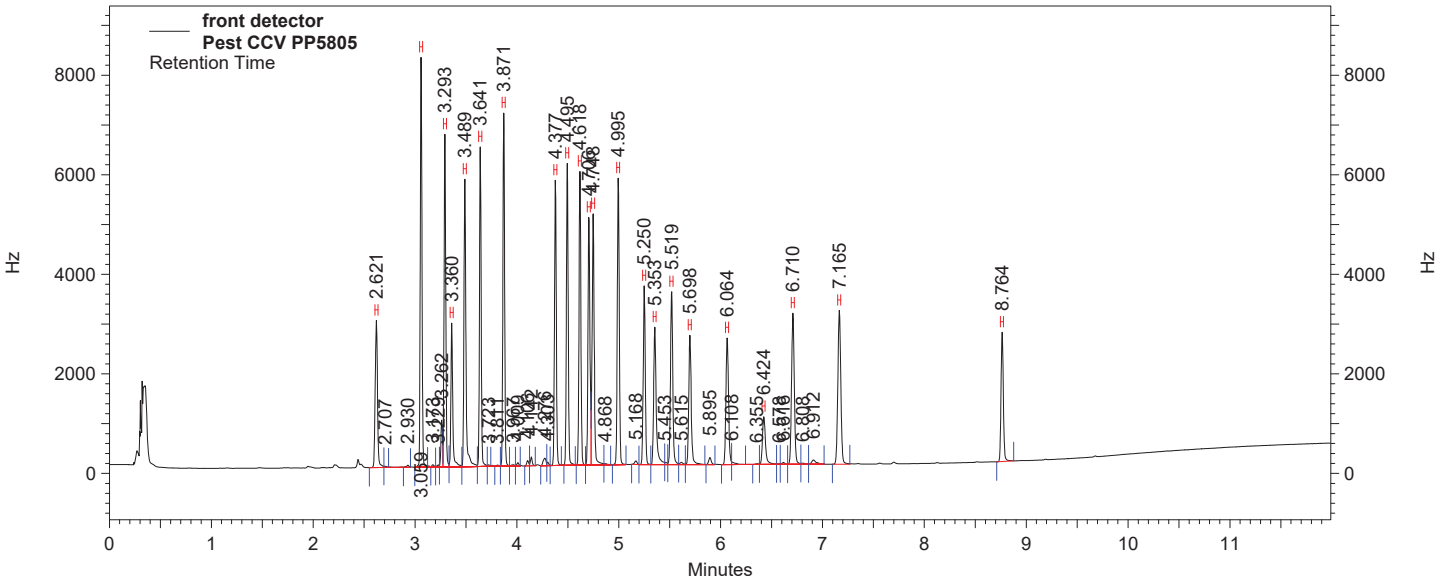
Sequence : C:\Instarch\Semi1\Sequence\092418pst.seq
User : JJY
Printed : 09/25/2018 08:29:28

ENDRINKETONE	0.040	0.043	7.051	20.000	**Passed**
SURRDCBPEST	100.000	99.265	0.735	20.000	**Passed**

Pesticide Analysis Report *(Channel A)*

Data File: C:\Instarch\Semi1\data\092418pst\020.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\092418pst.met
User: JJY
Sample ID: Pest CCV PP5805
Acquired: 09/24/2018 19:28:49
Printed: 09/25/2018 08:29:26

Data Summary: {Data Description}



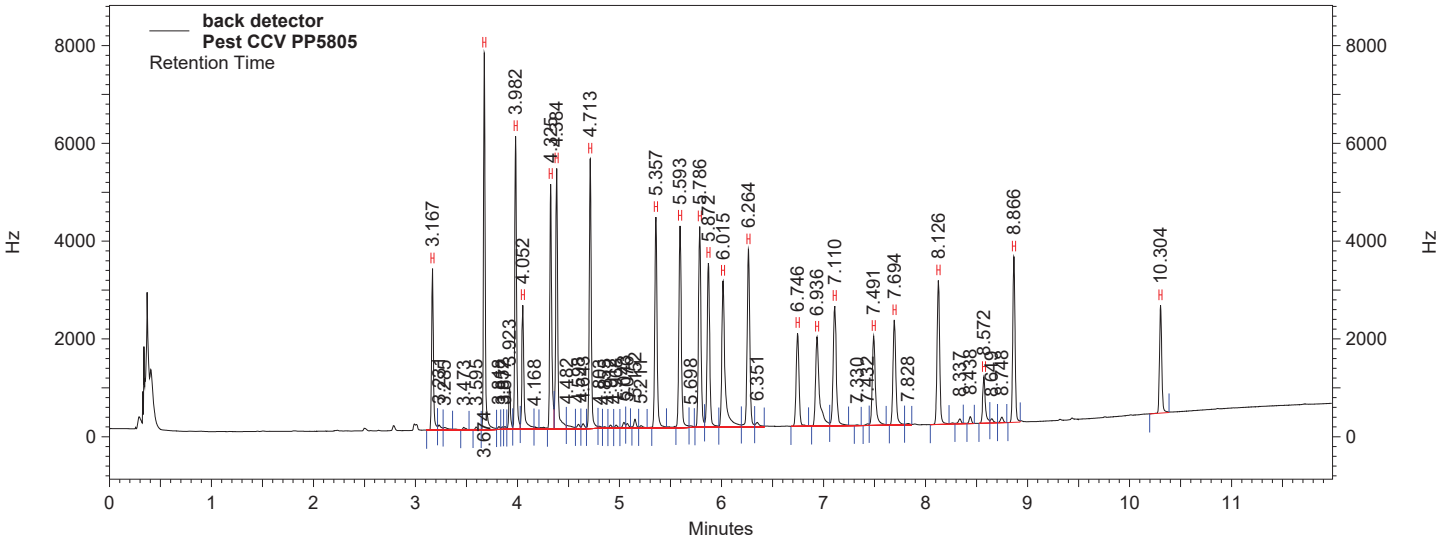
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPEST	2.621	35249792	104.0232
ALPHABHC	3.059	72607854	0.0436
LINDANE	3.293	58611667	0.0453
BETABHC	3.360	28182106	0.0437
DELTABHC	3.489	61355529	0.0445
HEPTACHLOR	3.641	56373936	0.0462
ALDRIN	3.871	63351304	0.0418
HEPTAEPOX	4.377	54027310	0.0439
GAMMACHLOR	4.495	56514953	0.0437
ALPHACHLOR	4.618	56350938	0.0432
44DDE	4.706	51975411	0.0424
ENDOI	4.748	55888662	0.0424
DIELDRIN	4.995	59677197	0.0449
ENDRIN	5.250	38403130	0.0429
44DDD	5.353	36712109	0.0460
ENDOII	5.519	41995456	0.0420
44DDT	5.698	33480633	0.0465
ENDRINALDEH	6.064	34309762	0.0468
METHOXYCL	6.424	15467600	0.0456
ENDOSULFATE	6.710	44170341	0.0477
ENDRINKETONE	7.165	48151446	0.0449
SURRDCBPEST	8.764	31217284	101.9058

Pesticide Analysis Report *(Channel B)*

Data File: C:\Instarch\Semi1\data\092418pst\020.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\092418pst.met
User: JJY
Sample ID: Pest CCV PP5805
Acquired: 09/24/2018 19:28:49
Printed: 09/25/2018 08:29:26

Data Summary: {Data Description}



back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPEST	3.167	31444282	100.6889
ALPHABHC	3.674	67660698	0.0421
LINDANE	3.982	55822476	0.0435
BETABHC	4.052	27384865	0.0425
DELTABHC	4.325	51100700	0.0430
HEPTACHLOR	4.384	56576547	0.0451
ALDRIN	4.713	58461708	0.0403
HEPTAEPOX	5.357	51391471	0.0422
GAMMACHLOR	5.593	51748593	0.0420
ALPHACHLOR	5.786	52302216	0.0410
ENDOI	5.872	45175659	0.0412
44DDE	6.015	50986966	0.0405
DIELDRIN	6.264	50633031	0.0428
ENDRIN	6.746	28557933	0.0413
44DDD	6.936	36912433	0.0426
ENDOII	7.110	40869757	0.0400
44DDT	7.491	30461943	0.0432
ENDRINALDEH	7.694	32992369	0.0456
ENDOSULFATE	8.126	40383628	0.0456
METHOXYCL	8.572	12955963	0.0435
ENDRINKETONE	8.866	40887658	0.0428
SURRDCBPEST	10.304	25662842	99.2649

QC Check Standard Report

Sequence : C:\Instarch\Semi1\Sequence\092418pst.seq
User : JJY
Printed : 09/25/2018 08:29:34

File	Sample ID	Acquired
C:\Instarch\Semi1\data\092418pst\021.dat	TC CCV PP5806	09/25/2018 08:29:34

front detector

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
SURRTCMXPEST	60.000	61.067	1.778	20.000	Passed
Chlordane #1	0.050	0.048	4.165	20.000	Passed
Chlordane #2	0.050	0.053	6.793	20.000	Passed
Chlordane #3	0.050	0.051	2.595	20.000	Passed
Chlordane #4	0.050	0.049	2.858	20.000	Passed
Chlordane #5	0.050	0.051	1.972	20.000	Passed
Toxaphene #1	0.050	0.055	10.593	20.000	Passed
Toxaphene #2	0.050	0.058	16.254	20.000	Passed
Toxaphene #3	0.050	0.058	16.094	20.000	Passed
Toxaphene #4	0.050	0.058	15.526	20.000	Passed
Toxaphene #5	0.050	0.058	16.344	20.000	Passed
SURRDCBPEST	60.000	61.781	2.968	20.000	Passed
Chlordane	0.250	0.252	0.867	20.000	Passed
Toxaphene	0.250	0.287	14.962	20.000	Passed

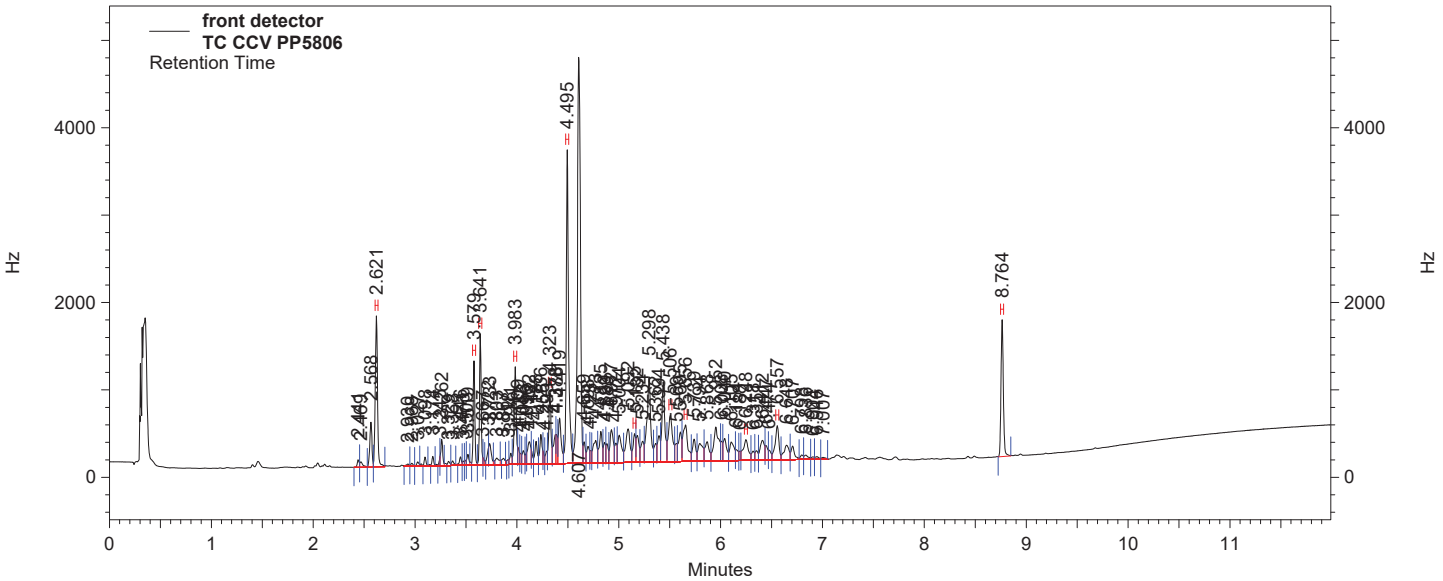
back detector

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
SURRTCMXPEST	60.000	58.999	1.669	20.000	Passed
Chlordane #1	0.050	0.047	5.774	20.000	Passed
Chlordane #2	0.050	0.052	3.757	20.000	Passed
Chlordane #3	0.050	0.050	0.530	20.000	Passed
Chlordane #4	0.050	0.050	0.768	20.000	Passed
Chlordane #5	0.050	0.053	5.869	20.000	Passed
Toxaphene #1	0.050	0.056	11.225	20.000	Passed
Toxaphene #2	0.050	0.054	7.141	20.000	Passed
Toxaphene #3	0.050	0.057	14.163	20.000	Passed
Toxaphene #4	0.050	0.055	10.840	20.000	Passed
Toxaphene #5	0.050	0.055	10.792	20.000	Passed
SURRDCBPEST	60.000	61.190	1.984	20.000	Passed
Chlordane	0.250	0.252	0.818	20.000	Passed
Toxaphene	0.250	0.277	10.832	20.000	Passed

Pesticide (TOX/Chlordane) Analysis Report *(Channel A)*

Data File: C:\Instarch\Semi1\data\092418pst\021.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\092418tc.met
User: JJY
Sample ID: TC CCV PP5806
Acquired: 09/24/2018 19:45:07
Printed: 09/25/2018 08:29:32

Data Summary: {Data Description}



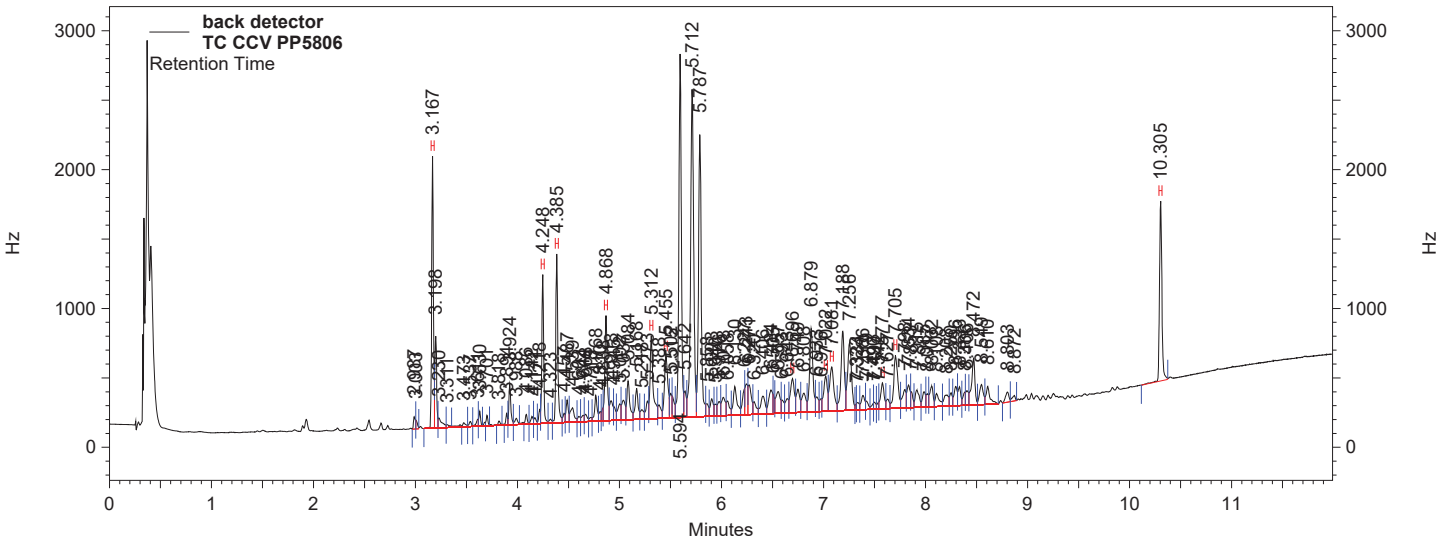
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPEST	2.621	20328303	61.0666
Chlordane #1	3.579	10310396	0.0479
Chlordane #2	3.641	12929010	0.0534
Chlordane #3	3.983	12356430	0.0513
Chlordane #4	4.323	9013232	0.0486
Chlordane #5	4.495	43164433	0.0510
Toxaphene #1	5.155	4606501	0.0553
Toxaphene #2	5.506	11811985	0.0581
Toxaphene #3	5.656	10502653	0.0580
Toxaphene #4	6.248	6450336	0.0578
Toxaphene #5	6.557	7796370	0.0582
SURRDCBPEST	8.764	18898948	61.7808
Chlordane		87773501	0.2522
Toxaphene		41167845	0.2874

Pesticide (TOX/Chlordane) Analysis Report *(Channel B)*

Data File: C:\Instarch\Semi1\data\092418pst\021.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\092418tc.met
User: JJY
Sample ID: TC CCV PP5806
Acquired: 09/24/2018 19:45:07
Printed: 09/25/2018 08:29:32

Data Summary: {Data Description}



back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPEST	3.167	17533672	58.9985
Chlordane #1	4.248	10242713	0.0471
Chlordane #2	4.385	12559709	0.0519
Chlordane #3	4.868	9745804	0.0497
Chlordane #4	5.312	9654143	0.0504
Chlordane #5	5.455	8110191	0.0529
Toxaphene #1	6.696	5246031	0.0556
Toxaphene #2	7.022	5001513	0.0536
Toxaphene #3	7.081	7199412	0.0571
Toxaphene #4	7.577	3429559	0.0554
Toxaphene #5	7.705	8122853	0.0554
SURRDCBPEST	10.305	15868310	61.1902
Chlordane		50312560	0.2520
Toxaphene		28999368	0.2771

QC Check Standard Report

Sequence : C:\Instarch\Semi6\Sequence\092518hrb.seq
User : JJY
Printed : 09/26/2018 08:48:20

File	Sample ID	Acquired
C:\Instarch\Semi6\Data\092518hrb\004.dat	AH CCV PP5728	09/26/2018 08:48:20

Front Signal

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
SURRDCAA	100.000	90.964	9.036	20.000	Passed
2,4-D	0.500	0.469	6.266	20.000	Passed
Silvex	0.100	0.093	6.633	20.000	Passed

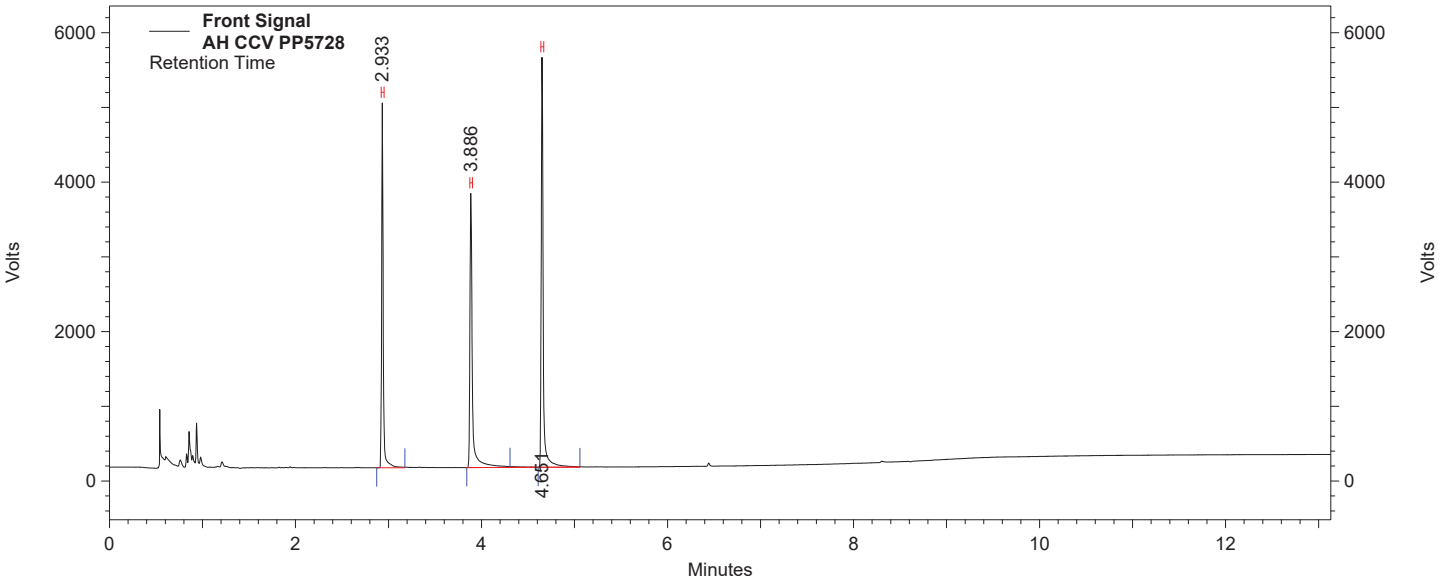
Back Signal

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
SURRDCAA	100.000	101.565	1.565	20.000	Passed
2,4-D	0.500	0.523	4.506	20.000	Passed
Silvex	0.100	0.104	3.653	20.000	Passed

Pesticide Analysis Report *(Channel A)*

Data File: C:\Instarch\Semi6\Data\092518hrb\004.dat
Method: C:\Instarch\Semi6\Methods\Herb\080218hrbic\090718hrb.met
User: JJY
Sample ID: AH CCV PP5728
Acquired: 09/25/2018 13:10:42
Printed: 09/26/2018 08:48:18

Data Summary: {Data Description}



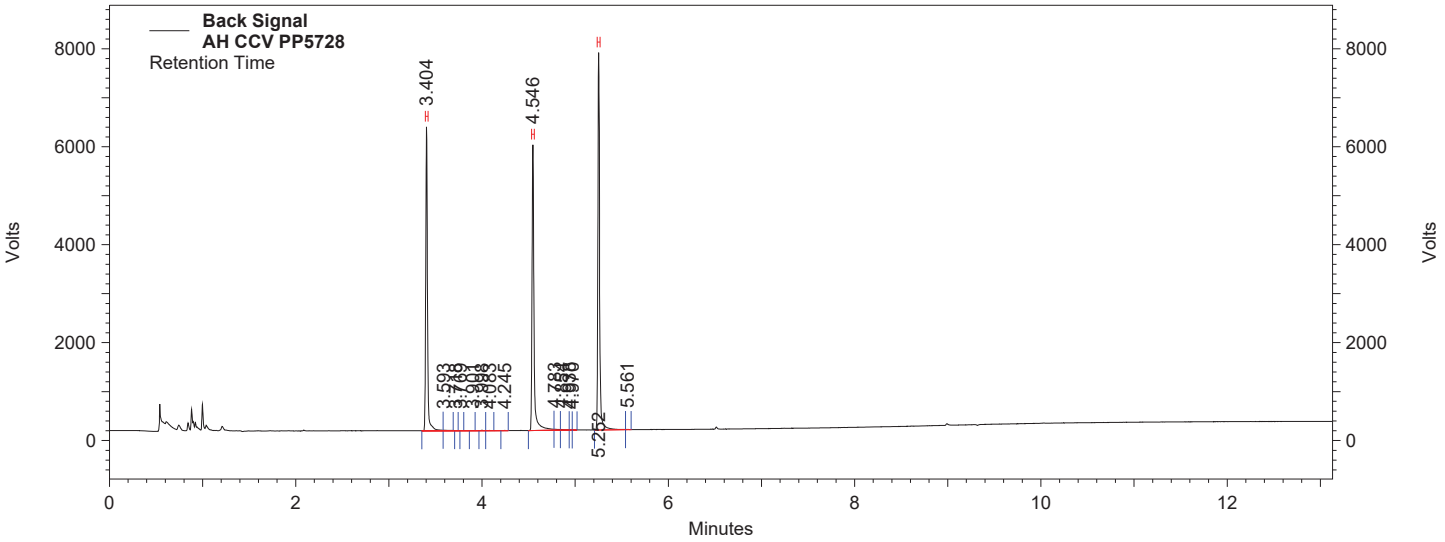
Front Signal Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRDCAA	2.933	45661976	90.9636
2,4-D	3.886	51627824	0.4687
Silvex	4.651	63597852	0.0934

Pesticide Analysis Report *(Channel B)*

Data File: C:\Instarch\Semi6\Data\092518hrb\004.dat
Method: C:\Instarch\Semi6\Methods\Herb\080218hrbic\090718hrb.met
User: JJY
Sample ID: AH CCV PP5728
Acquired: 09/25/2018 13:10:42
Printed: 09/26/2018 08:48:18

Data Summary: {Data Description}



Back Signal Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRDCAA	3.404	62539269	101.5647
2,4-D	4.546	66129731	0.5225
Silvex	5.252	76074162	0.1037

QC Check Standard Report

Sequence : C:\Instarch\Semi6\Sequence\092518hrb.seq
User : JJY
Printed : 09/26/2018 08:48:49

File	Sample ID	Acquired
C:\Instarch\Semi6\Data\092518hrb\013.dat	AH CCV PP5728	09/26/2018 08:48:49

Front Signal

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
SURRDCAA	100.000	95.882	4.118	20.000	Passed
2,4-D	0.500	0.512	2.486	20.000	Passed
Silvex	0.100	0.100	0.060	20.000	Passed

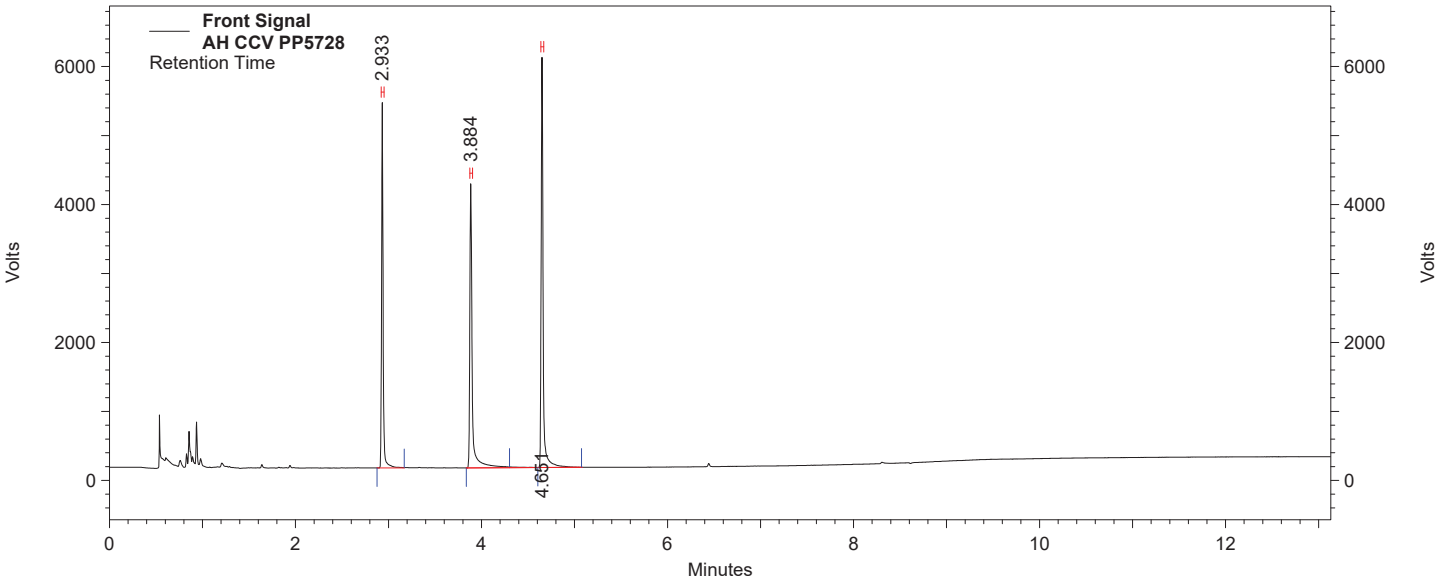
Back Signal

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
SURRDCAA	100.000	105.988	5.988	20.000	Passed
2,4-D	0.500	0.574	14.780	20.000	Passed
Silvex	0.100	0.112	11.744	20.000	Passed

Pesticide Analysis Report *(Channel A)*

Data File: C:\Instarch\Semi6\Data\092518hrb\013.dat
Method: C:\Instarch\Semi6\Methods\Herb\080218hrbic\090718hrb.met
User: JJY
Sample ID: AH CCV PP5728
Acquired: 09/25/2018 16:56:34
Printed: 09/26/2018 08:48:47

Data Summary: {Data Description}



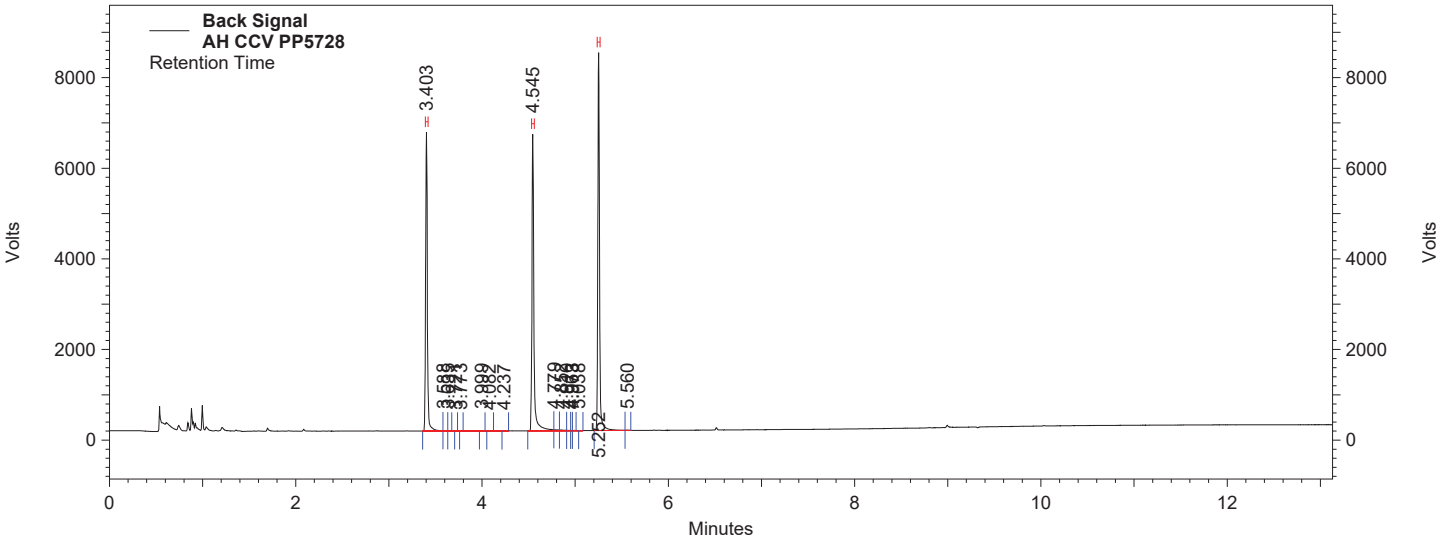
Front Signal Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRDCAA	2.933	48109503	95.8818
2,4-D	3.884	56432728	0.5124
Silvex	4.651	68182841	0.1001

Pesticide Analysis Report *(Channel B)*

Data File: C:\Instarch\Semi6\Data\092518hrb\013.dat
Method: C:\Instarch\Semi6\Methods\Herb\080218hrbic\090718hrb.met
User: JJY
Sample ID: AH CCV PP5728
Acquired: 09/25/2018 16:56:34
Printed: 09/26/2018 08:48:47

Data Summary: {Data Description}



Back Signal Results

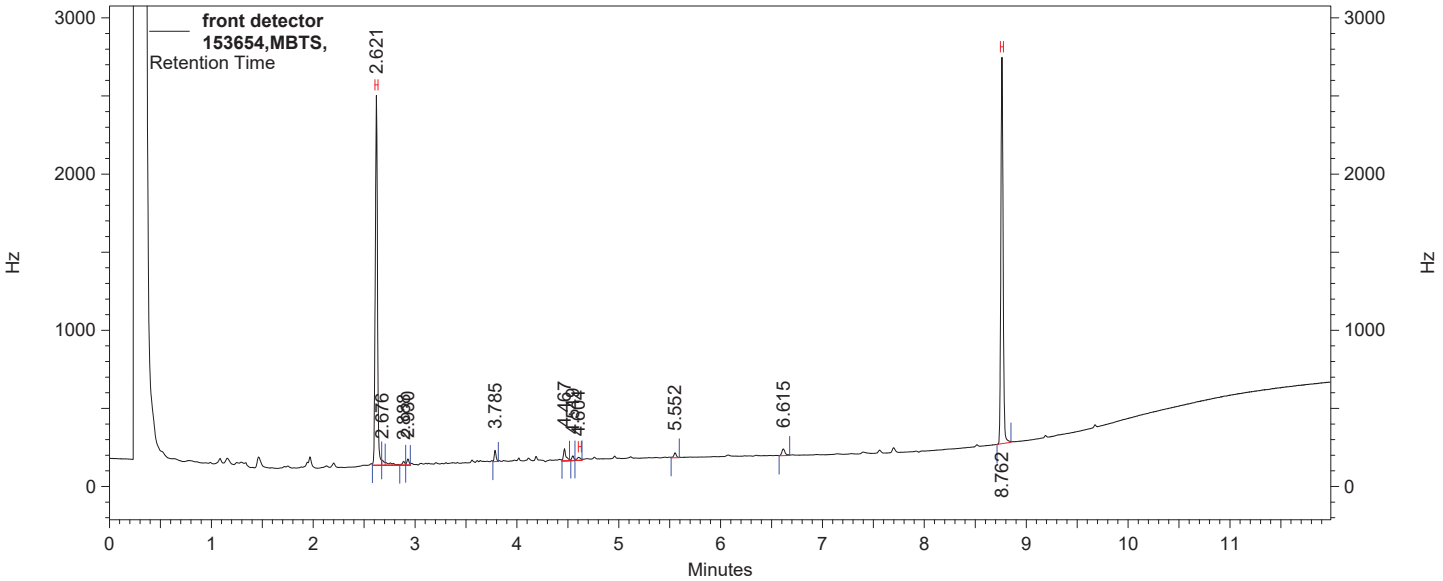
Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRDCAA	3.403	65236733	105.9878
2,4-D	4.545	72608919	0.5739
Silvex	5.252	82025941	0.1117

PESTICIDE/HERBICIDE QUALITY CONTROL DOCUMENTS

Pesticide Analysis Report *(Channel A)*

Data File: C:\Instarch\Semi1\data\092418pst\012.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\092418pst.met
User: JJY
Sample ID: 153654,MBTS,
Acquired: 09/24/2018 17:18:35
Printed: 09/25/2018 08:29:00

Data Summary: {Data Description}



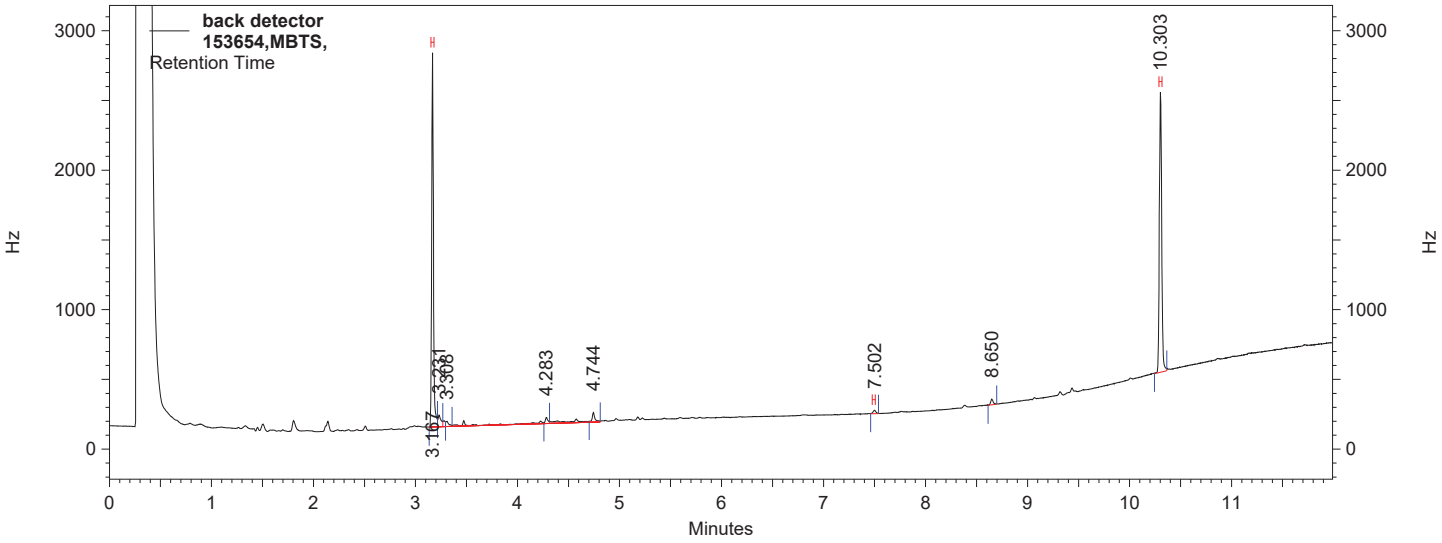
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPEST	2.621	26989723	79.9652
ALPHABHC			0.0000 BDL
LINDANE			0.0000 BDL
BETABHC			0.0000 BDL
DELTABHC			0.0000 BDL
HEPTACHLOR			0.0000 BDL
ALDRIN			0.0000 BDL
HEPTAEPOX			0.0000 BDL
GAMMACHLOR			0.0000 BDL
ALPHACHLOR	4.604	375184	0.0002
44DDE			0.0000 BDL
ENDOI			0.0000 BDL
DIELDRIN			0.0000 BDL
ENDRIN			0.0000 BDL
44DDD			0.0000 BDL
ENDOII			0.0000 BDL
44DDT			0.0000 BDL
ENDRINALDEH			0.0000 BDL
METHOXYCL			0.0000 BDL
ENDOSULFATE			0.0000 BDL
ENDRINKETONE			0.0000 BDL
SURRDCBPEST	8.762	28781994	93.6727

Pesticide Analysis Report *(Channel B)*

Data File: C:\Instarch\Semi1\data\092418pst\012.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\092418pst.met
User: JJY
Sample ID: 153654,MBTS,
Acquired: 09/24/2018 17:18:35
Printed: 09/25/2018 08:29:00

Data Summary: {Data Description}



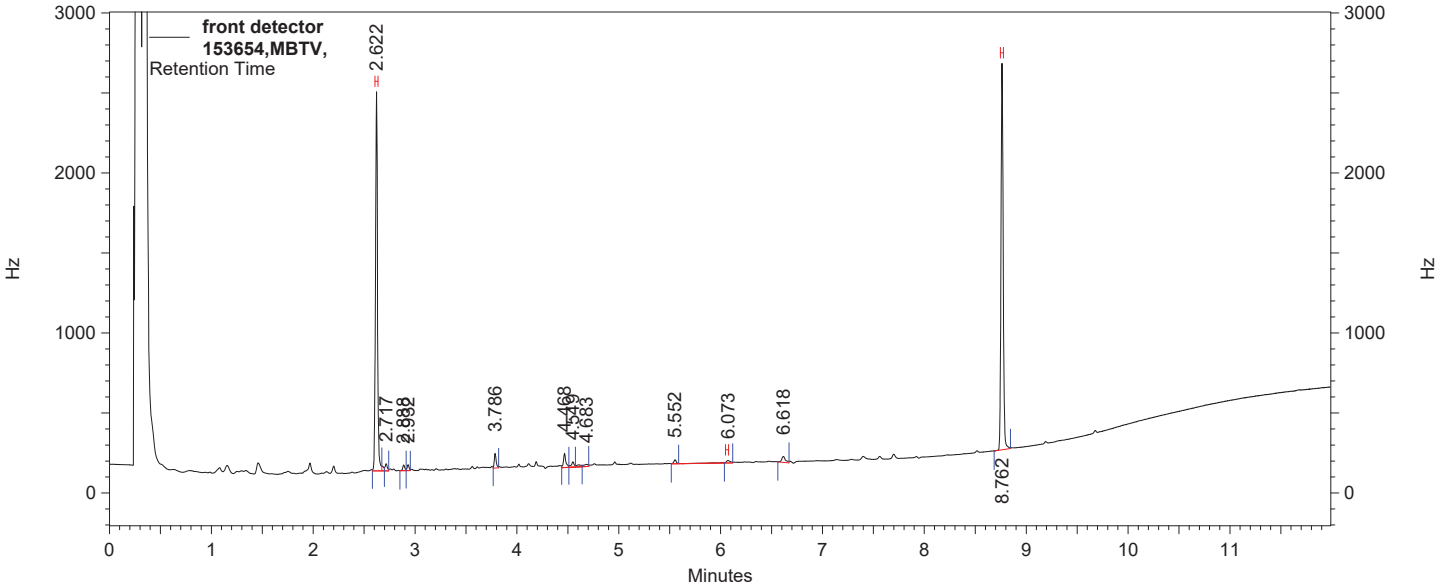
back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPEST	3.167	24769982	78.9380
ALPHABHC			0.0000 BDL
LINDANE			0.0000 BDL
BETABHC			0.0000 BDL
DELTABHC			0.0000 BDL
HEPTACHLOR			0.0000 BDL
ALDRIN			0.0000 BDL
HEPTAEPOX			0.0000 BDL
GAMMACHLOR			0.0000 BDL
ALPHACHLOR			0.0000 BDL
ENDOI			0.0000 BDL
44DDE			0.0000 BDL
DIELDRIN			0.0000 BDL
ENDRIN			0.0000 BDL
44DDD			0.0000 BDL
ENDOII			0.0000 BDL
44DDT	7.502	400815	0.0006
ENDRINALDEH			0.0000 BDL
ENDOSULFATE			0.0000 BDL
METHOXYCL			0.0000 BDL
ENDRINKETONE			0.0000 BDL
SURRDCBPEST	10.303	23928843	92.2780

Pesticide Analysis Report *(Channel A)*

Data File: C:\Instarch\Semi1\data\092418pst\013.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\092418pst.met
User: JJY
Sample ID: 153654,MBTV,
Acquired: 09/24/2018 17:34:51
Printed: 09/25/2018 08:29:03

Data Summary: {Data Description}



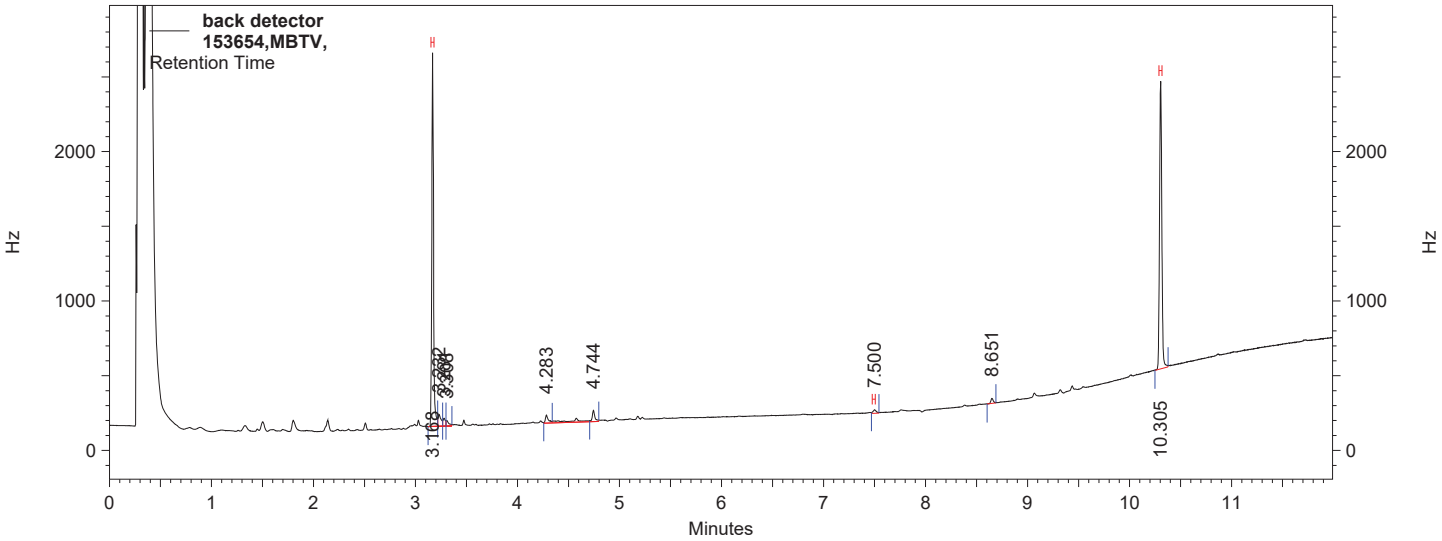
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPEST	2.622	24713339	73.2939
ALPHABHC			0.0000 BDL
LINDANE			0.0000 BDL
BETABHC			0.0000 BDL
DELTABHC			0.0000 BDL
HEPTACHLOR			0.0000 BDL
ALDRIN			0.0000 BDL
HEPTAEPOX			0.0000 BDL
GAMMACHLOR			0.0000 BDL
ALPHACHLOR			0.0000 BDL
44DDE			0.0000 BDL
ENDOI			0.0000 BDL
DIELDRIN			0.0000 BDL
ENDRIN			0.0000 BDL
44DDD			0.0000 BDL
ENDOII			0.0000 BDL
44DDT			0.0000 BDL
ENDRINALDEH	6.073	324009	0.0003
METHOXYCL			0.0000 BDL
ENDOSULFATE			0.0000 BDL
ENDRINKETONE			0.0000 BDL
SURRDCBPEST	8.762	27523785	89.4350

Pesticide Analysis Report *(Channel B)*

Data File: C:\Instarch\Semi1\data\092418pst\013.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\092418pst.met
User: JJY
Sample ID: 153654,MBTV,
Acquired: 09/24/2018 17:34:51
Printed: 09/25/2018 08:29:03

Data Summary: {Data Description}



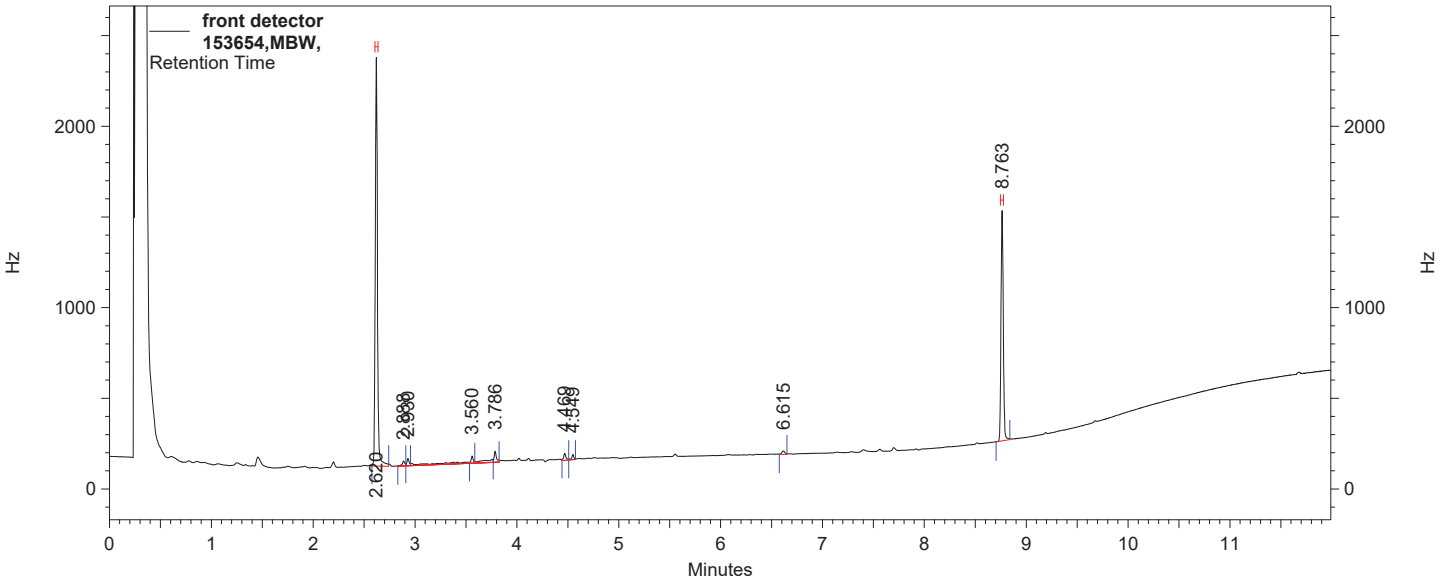
back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPEST	3.168	22691561	72.1909
ALPHABHC			0.0000 BDL
LINDANE			0.0000 BDL
BETABHC			0.0000 BDL
DELTABHC			0.0000 BDL
HEPTACHLOR			0.0000 BDL
ALDRIN			0.0000 BDL
HEPTAEPOX			0.0000 BDL
GAMMACHLOR			0.0000 BDL
ALPHACHLOR			0.0000 BDL
ENDOI			0.0000 BDL
44DDE			0.0000 BDL
DIELDRIN			0.0000 BDL
ENDRIN			0.0000 BDL
44DDD			0.0000 BDL
ENDOII			0.0000 BDL
44DDT	7.500	405365	0.0006
ENDRINALDEH			0.0000 BDL
ENDOSULFATE			0.0000 BDL
METHOXYCL			0.0000 BDL
ENDRINKETONE			0.0000 BDL
SURRDCBPEST	10.305	22651026	87.1528

Pesticide Analysis Report *(Channel A)*

Data File: C:\Instarch\Semi1\data\092418pst\014.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\092418pst.met
User: JJY
Sample ID: 153654,MBW,
Acquired: 09/24/2018 17:51:06
Printed: 09/25/2018 08:29:06

Data Summary: {Data Description}



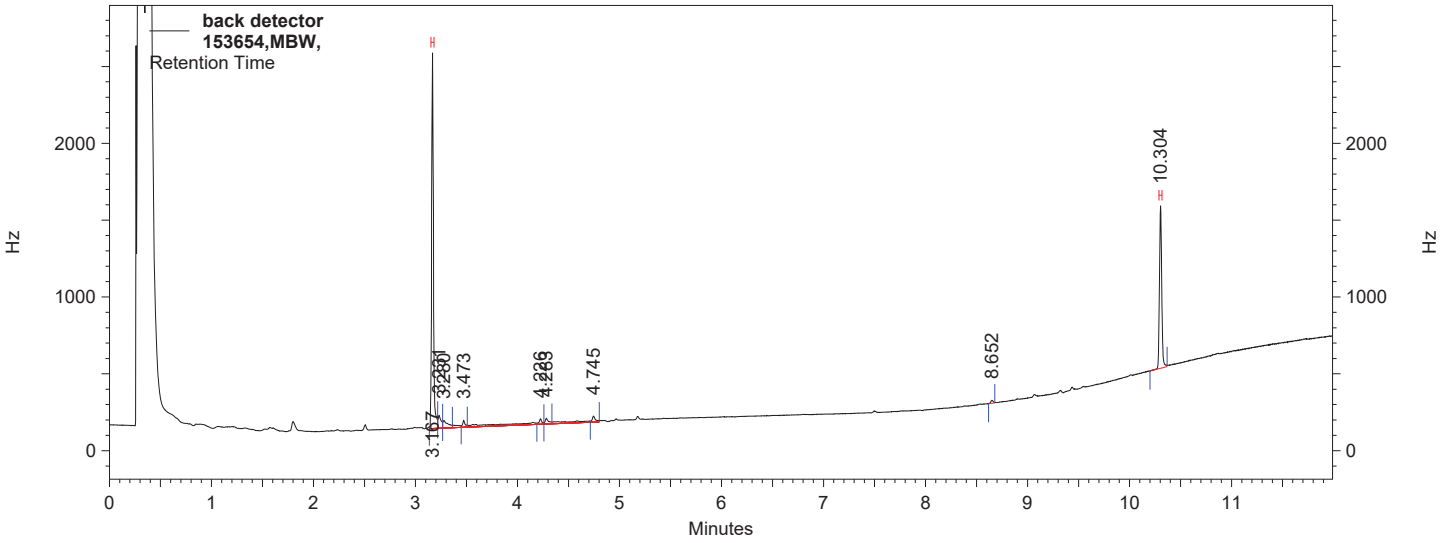
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPEST	2.620	25555178	75.7631
ALPHABHC			0.0000 BDL
LINDANE			0.0000 BDL
BETABHC			0.0000 BDL
DELTABHC			0.0000 BDL
HEPTACHLOR			0.0000 BDL
ALDRIN			0.0000 BDL
HEPTAEPOX			0.0000 BDL
GAMMACHLOR			0.0000 BDL
ALPHACHLOR			0.0000 BDL
44DDE			0.0000 BDL
ENDOI			0.0000 BDL
DIELDRIN			0.0000 BDL
ENDRIN			0.0000 BDL
44DDD			0.0000 BDL
ENDOII			0.0000 BDL
44DDT			0.0000 BDL
ENDRINALDEH			0.0000 BDL
METHOXYCL			0.0000 BDL
ENDOSULFATE			0.0000 BDL
ENDRINKETONE			0.0000 BDL
SURRDCBPEST	8.763	15065492	48.0466

Pesticide Analysis Report *(Channel B)*

Data File: C:\Instarch\Semi1\data\092418pst\014.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\092418pst.met
User: JJY
Sample ID: 153654,MBW,
Acquired: 09/24/2018 17:51:06
Printed: 09/25/2018 08:29:06

Data Summary: {Data Description}



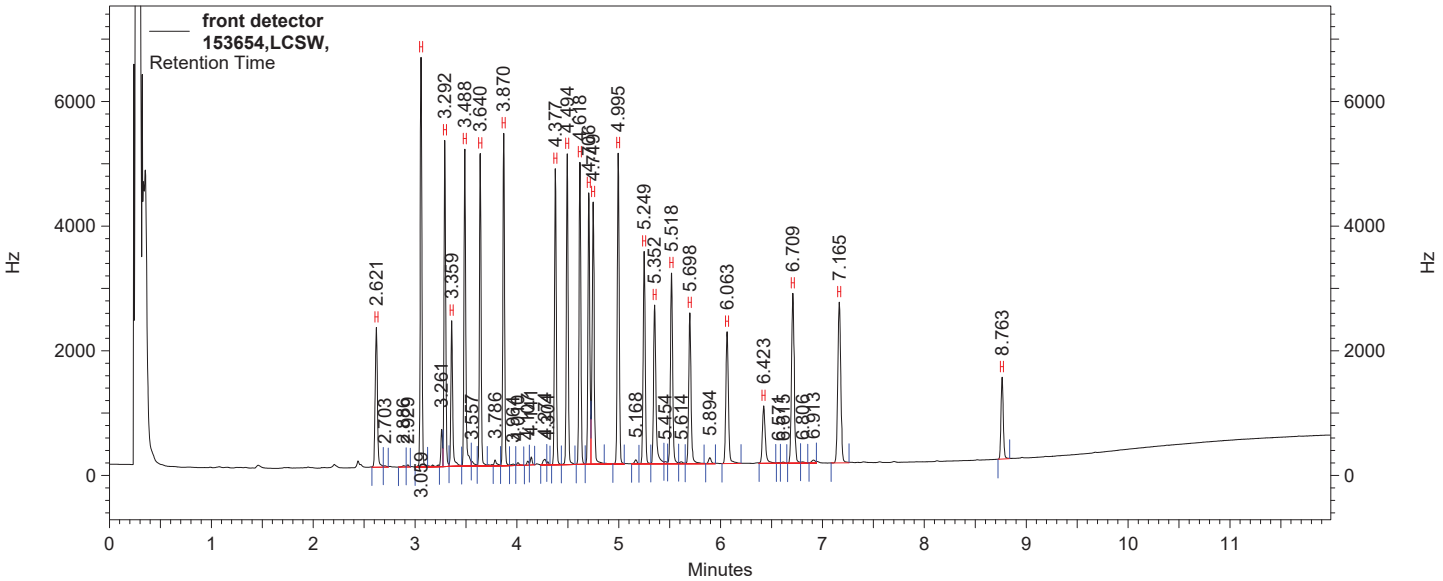
back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPEST	3.167	22683742	72.1656
ALPHABHC			0.0000 BDL
LINDANE			0.0000 BDL
BETABHC			0.0000 BDL
DELTABHC			0.0000 BDL
HEPTACHLOR			0.0000 BDL
ALDRIN			0.0000 BDL
HEPTAEPOX			0.0000 BDL
GAMMACHLOR			0.0000 BDL
ALPHACHLOR			0.0000 BDL
ENDOI			0.0000 BDL
44DDE			0.0000 BDL
DIELDRIN			0.0000 BDL
ENDRIN			0.0000 BDL
44DDD			0.0000 BDL
ENDOII			0.0000 BDL
44DDT			0.0000 BDL
ENDRINALDEH			0.0000 BDL
ENDOSULFATE			0.0000 BDL
METHOXYCL			0.0000 BDL
ENDRINKETONE			0.0000 BDL
SURRDCBPEST	10.304	12400675	46.7342

Pesticide Analysis Report *(Channel A)*

Data File: C:\Instarch\Semi1\data\092418pst\015.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\092418pst.met
User: JJY
Sample ID: 153654,LCSW,
Acquired: 09/24/2018 18:07:20
Printed: 09/25/2018 08:29:09

Data Summary: {Data Description}



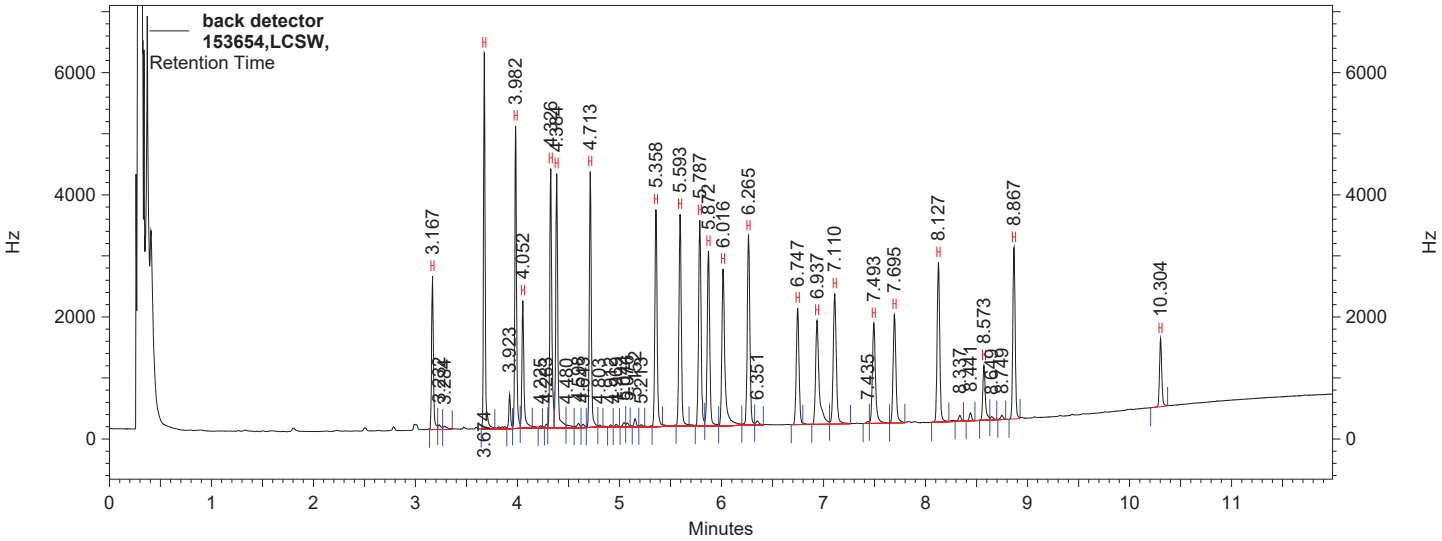
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPEST	2.621	26224738	77.7253
ALPHABHC	3.059	55827414	0.0342
LINDANE	3.292	45154664	0.0354
BETABHC	3.359	22672077	0.0353
DELTABHC	3.488	49103441	0.0365
HEPTACHLOR	3.640	43567382	0.0359
ALDRIN	3.870	46642768	0.0312
HEPTAEPOX	4.377	44175476	0.0360
GAMMACHLOR	4.494	46241169	0.0361
ALPHACHLOR	4.618	45989348	0.0355
44DDE	4.706	43202534	0.0360
ENDOI	4.749	44969652	0.0342
DIELDRIN	4.995	50142260	0.0381
ENDRIN	5.249	36889977	0.0413
44DDD	5.352	31754595	0.0405
ENDOII	5.518	36057843	0.0363
44DDT	5.698	29518218	0.0416
ENDRINALDEH	6.063	28741773	0.0394
METHOXYCL	6.423	14193972	0.0420
ENDOSULFATE	6.709	38885046	0.0422
ENDRINKETONE	7.165	40544916	0.0379
SURRDCBPEST	8.763	15697926	50.1233

Pesticide Analysis Report *(Channel B)*

Data File: C:\Instarch\Semi1\data\092418pst\015.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\092418pst.met
User: JJY
Sample ID: 153654,LCSW,
Acquired: 09/24/2018 18:07:20
Printed: 09/25/2018 08:29:09

Data Summary: {Data Description}



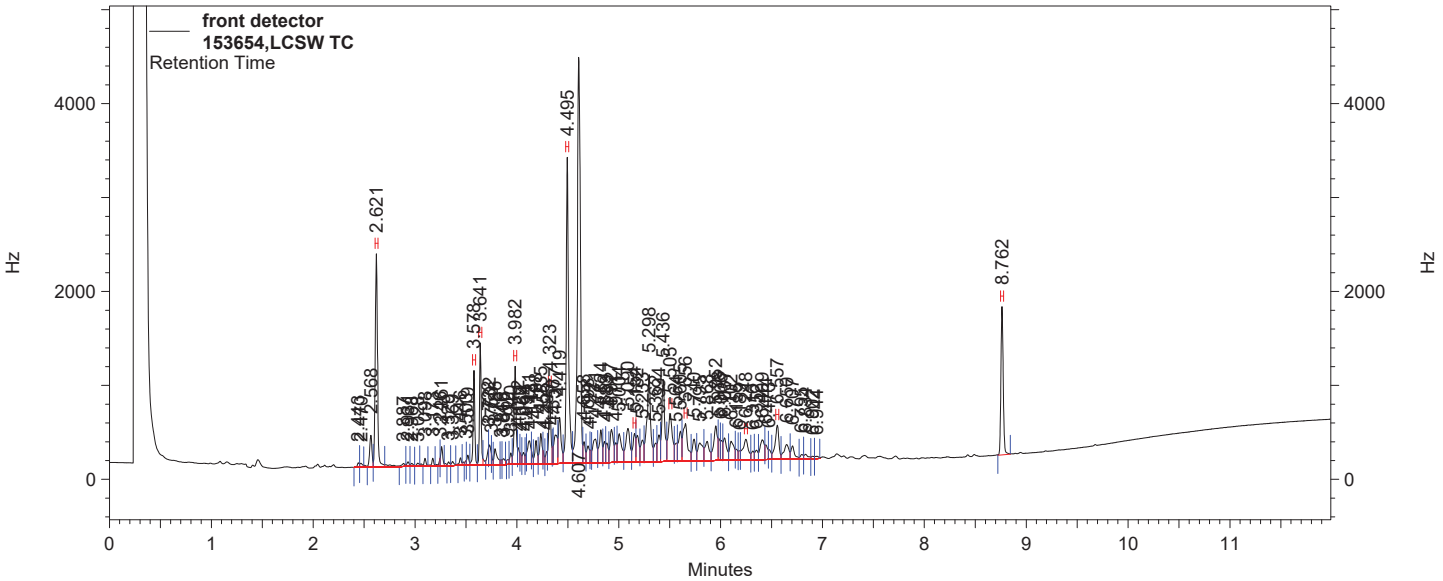
back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPEST	3.167	23722030	75.5345
ALPHABHC	3.674	52673725	0.0330
LINDANE	3.982	45112690	0.0354
BETABHC	4.052	21934698	0.0339
DELTABHC	4.326	43739545	0.0374
HEPTACHLOR	4.384	43157266	0.0344
ALDRIN	4.713	44174163	0.0305
HEPTAEPOX	5.358	42218064	0.0347
GAMMACHLOR	5.593	42778503	0.0348
ALPHACHLOR	5.787	42973997	0.0338
ENDOI	5.872	37686334	0.0345
44DDE	6.016	41949223	0.0335
DIELDRIN	6.265	42537387	0.0362
ENDRIN	6.747	27449168	0.0397
44DDD	6.937	32165605	0.0374
ENDOII	7.110	35005644	0.0343
44DDT	7.493	27060186	0.0386
ENDRINALDEH	7.695	26852573	0.0370
ENDOSULFATE	8.127	35643241	0.0402
METHOXYCL	8.573	11987769	0.0403
ENDRINKETONE	8.867	34445543	0.0359
SURRDCBPEST	10.304	13189359	49.8016

Pesticide (TOX/Chlordane) Analysis Report *(Channel A)*

Data File: C:\Instarch\Semi1\data\092418pst\016.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\092418tc.met
User: JJY
Sample ID: 153654,LCSW TC
Acquired: 09/24/2018 18:23:36
Printed: 09/25/2018 08:29:13

Data Summary: {Data Description}



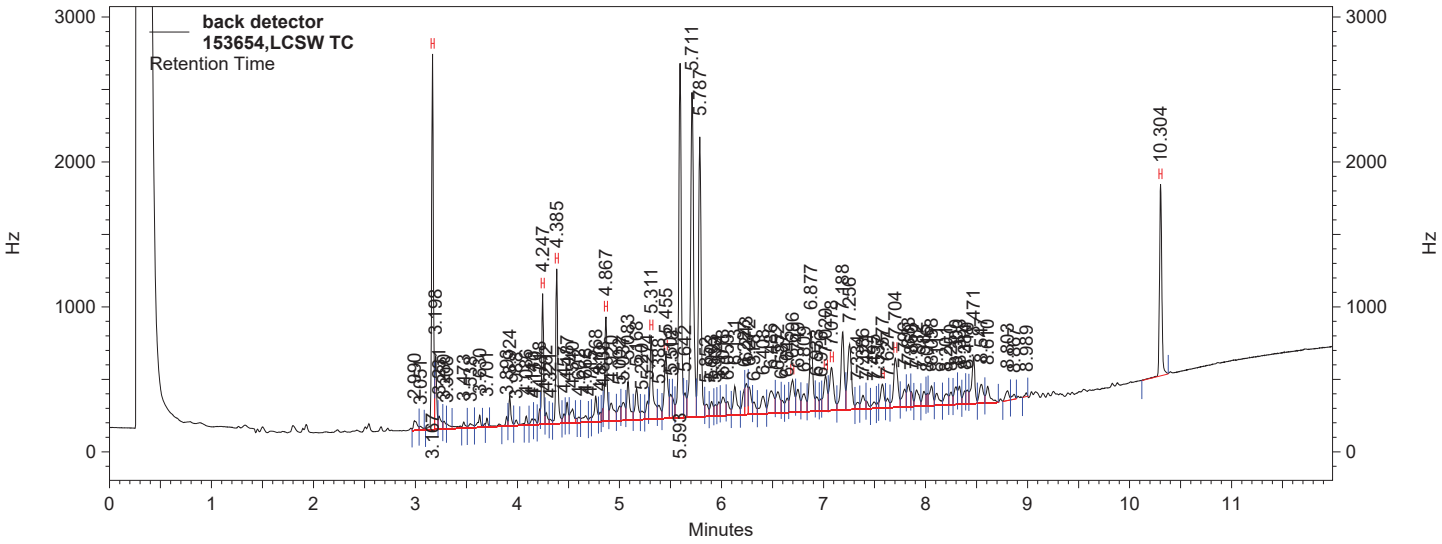
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPEST	2.621	26915037	80.6463
Chlordane #1	3.578	9033816	0.0420
Chlordane #2	3.641	11160575	0.0462
Chlordane #3	3.982	11093375	0.0460
Chlordane #4	4.323	8370448	0.0451
Chlordane #5	4.495	39808027	0.0471
Toxaphene #1	5.154	4468701	0.0536
Toxaphene #2	5.505	11018133	0.0542
Toxaphene #3	5.656	9827152	0.0543
Toxaphene #4	6.248	6303421	0.0564
Toxaphene #5	6.557	7310960	0.0545
SURRDCBPEST	8.762	18803979	61.4651
Chlordane		79466241	0.2263
Toxaphene		38928367	0.2731

Pesticide (TOX/Chlordane) Analysis Report *(Channel B)*

Data File: C:\Instarch\Semi1\data\092418pst\016.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\092418tc.met
User: JJY
Sample ID: 153654,LCSW TC
Acquired: 09/24/2018 18:23:36
Printed: 09/25/2018 08:29:13

Data Summary: {Data Description}



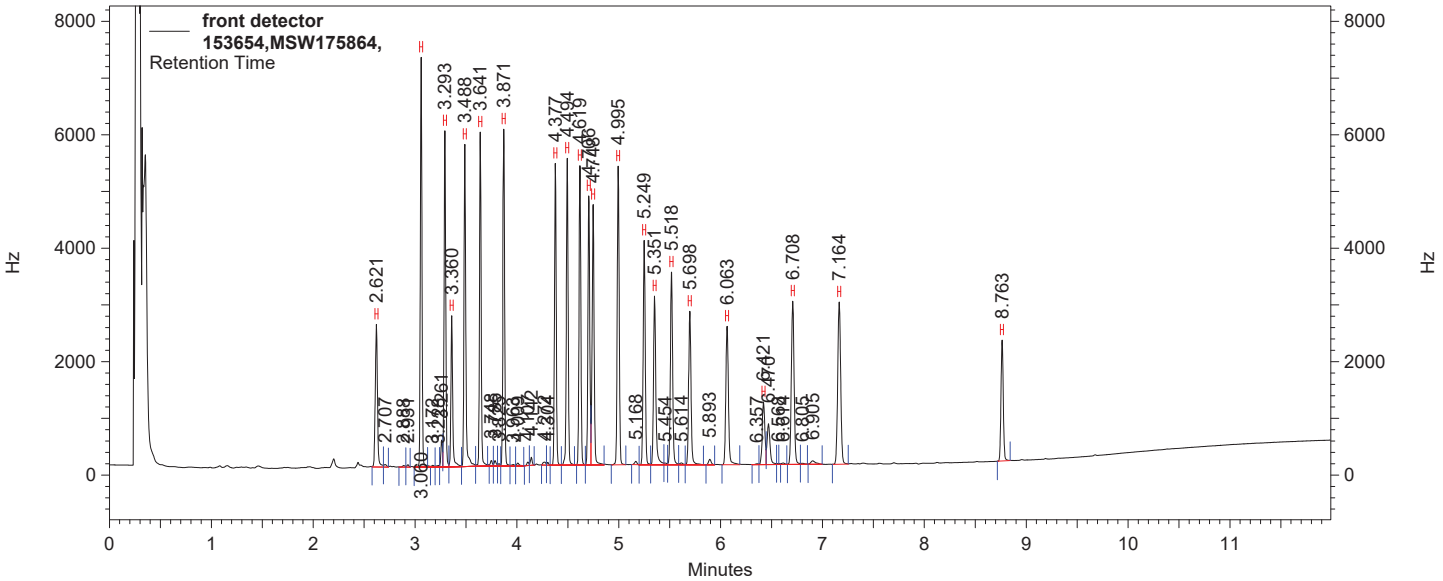
back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPEST	3.167	23541790	79.3240
Chlordane #1	4.247	8508781	0.0391
Chlordane #2	4.385	11123411	0.0459
Chlordane #3	4.867	8806697	0.0448
Chlordane #4	5.311	8927457	0.0466
Chlordane #5	5.455	7910688	0.0516
Toxaphene #1	6.696	4789192	0.0509
Toxaphene #2	7.020	4626218	0.0496
Toxaphene #3	7.078	6511980	0.0517
Toxaphene #4	7.577	3048177	0.0495
Toxaphene #5	7.704	7406079	0.0507
SURRDCBPEST	10.304	15663404	60.3927
Chlordane		45277034	0.2279
Toxaphene		26381646	0.2525

Pesticide Analysis Report *(Channel A)*

Data File: C:\Instarch\Semi1\data\092418pst\019.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\092418pst.met
User: JJY
Sample ID: 153654,MSW175864,
Acquired: 09/24/2018 19:12:29
Printed: 09/25/2018 08:29:23

Data Summary: {Data Description}



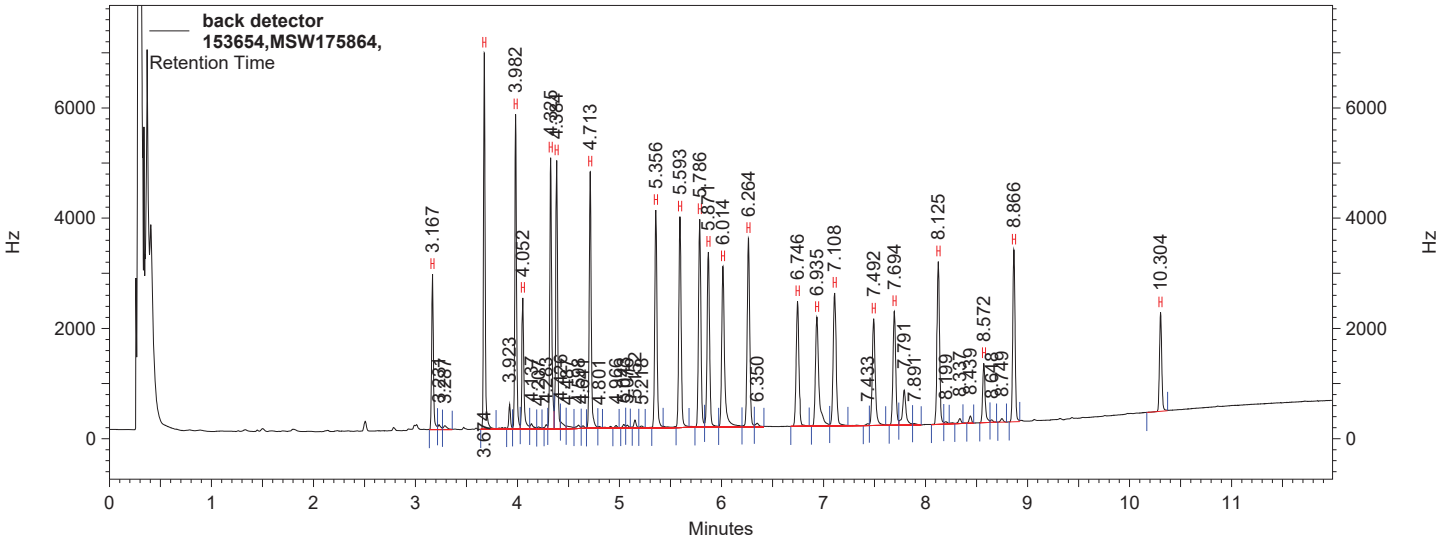
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPEST	2.621	28847856	85.3975
ALPHABHC	3.060	61243681	0.0373
LINDANE	3.293	50686913	0.0395
BETABHC	3.360	24848499	0.0386
DELTABHC	3.488	54818647	0.0403
HEPTACHLOR	3.641	50626157	0.0416
ALDRIN	3.871	51270932	0.0341
HEPTAEPOX	4.377	47891467	0.0390
GAMMACHLOR	4.494	50945661	0.0396
ALPHACHLOR	4.619	49721552	0.0383
44DDE	4.706	46996867	0.0388
ENDOI	4.748	48166878	0.0366
DIELDRIN	4.995	54447979	0.0412
ENDRIN	5.249	42637678	0.0471
44DDD	5.351	35811206	0.0450
ENDOII	5.518	39939342	0.0400
44DDT	5.698	33305031	0.0463
ENDRINALDEH	6.063	33515144	0.0458
METHOXYCL	6.421	15236801	0.0449
ENDOSULFATE	6.708	41768125	0.0452
ENDRINKETONE	7.164	44519323	0.0416
SURRDCBPEST	8.763	25221023	81.7073

Pesticide Analysis Report *(Channel B)*

Data File: C:\Instarch\Semi1\data\092418pst\019.dat
Method: C:\Instarch\Semi1\Methods\Pest\091318pstic\092418pst.met
User: JJY
Sample ID: 153654,MSW175864,
Acquired: 09/24/2018 19:12:29
Printed: 09/25/2018 08:29:23

Data Summary: {Data Description}



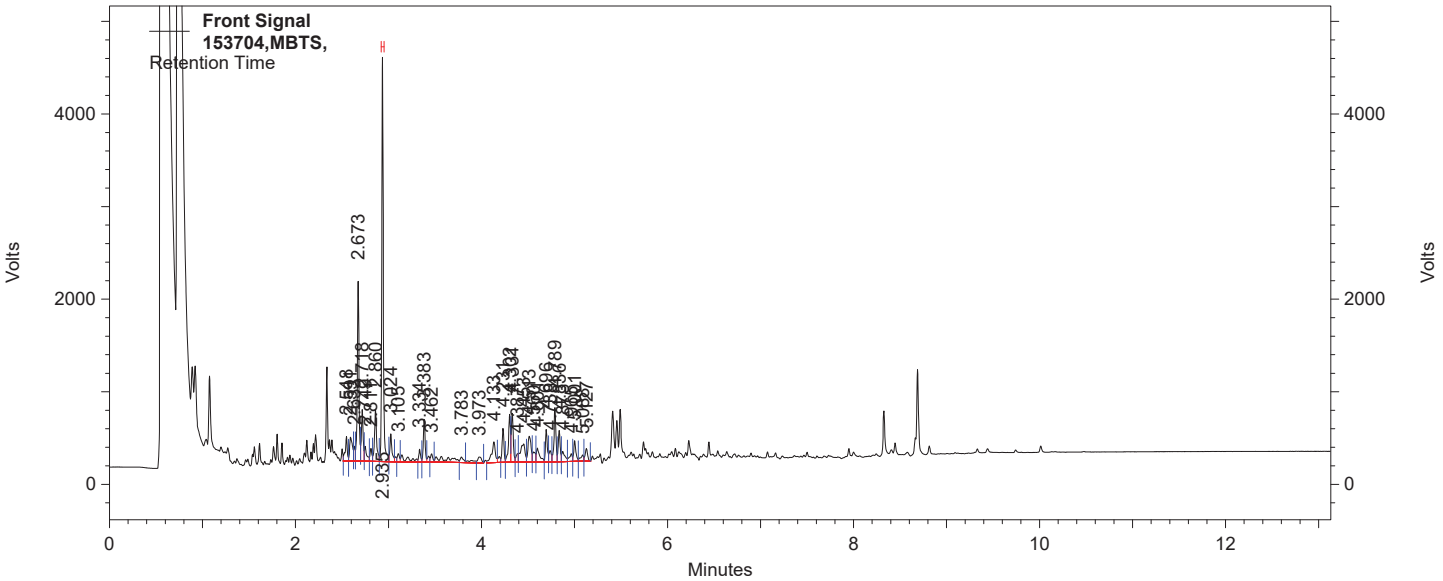
back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPEST	3.167	26241002	83.7208
ALPHABHC	3.674	58562893	0.0366
LINDANE	3.982	50789835	0.0397
BETABHC	4.052	23757987	0.0368
DELTABHC	4.325	50144050	0.0423
HEPTACHLOR	4.384	47299496	0.0377
ALDRIN	4.713	49685311	0.0343
HEPTAEPOX	5.356	46366621	0.0381
GAMMACHLOR	5.593	46852838	0.0381
ALPHACHLOR	5.786	46821989	0.0367
ENDOI	5.871	41693092	0.0381
44DDE	6.014	45072261	0.0359
DIELDRIN	6.264	46182113	0.0392
ENDRIN	6.746	33026017	0.0477
44DDD	6.935	36130273	0.0417
ENDOII	7.108	38629672	0.0378
44DDT	7.492	30526365	0.0433
ENDRINALDEH	7.694	29937307	0.0413
ENDOSULFATE	8.125	39316852	0.0444
METHOXYCL	8.572	13962437	0.0468
ENDRINKETONE	8.866	37976626	0.0397
SURRDCBPEST	10.304	20994786	80.5390

Pesticide Analysis Report *(Channel A)*

Data File: C:\Instarch\Semi6\Data\092518hrb\006.dat
Method: C:\Instarch\Semi6\Methods\Herb\080218hrbic\090718hrb.met
User: JJY
Sample ID: 153704,MBTS,
Acquired: 09/25/2018 14:58:52
Printed: 09/26/2018 08:48:26

Data Summary: {Data Description}



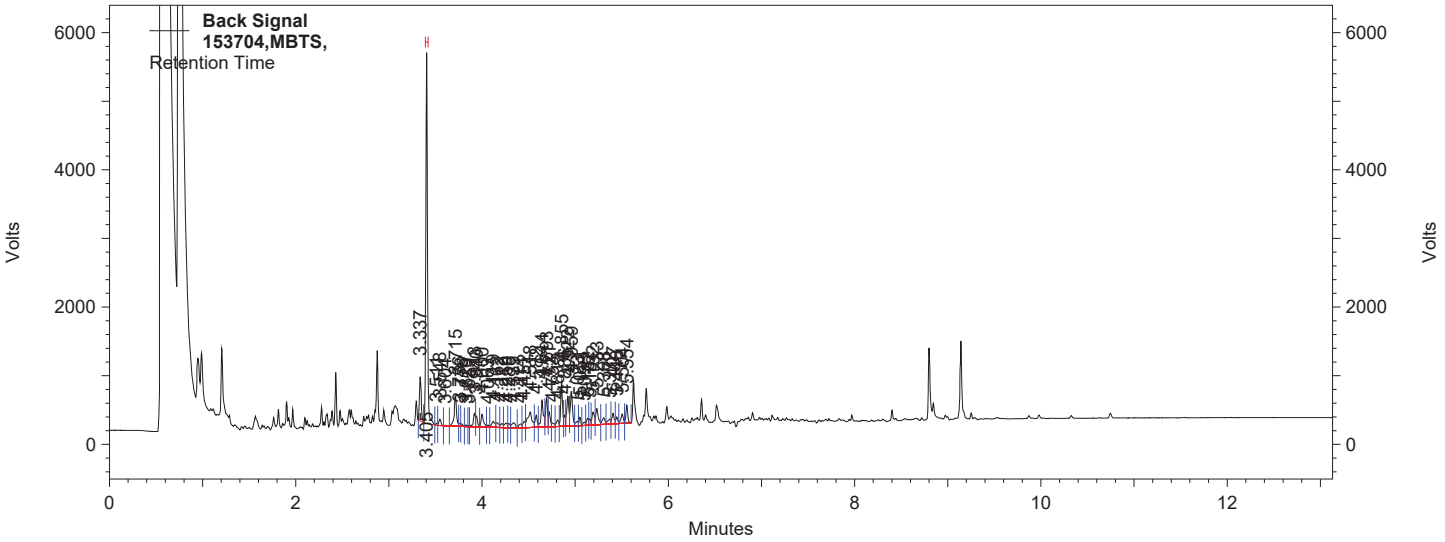
Front Signal Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRDCAA	2.935	39311998	78.2036
2,4-D			0.0000 BDL
Silvex			0.0000 BDL

Pesticide Analysis Report *(Channel B)*

Data File: C:\Instarch\Semi6\Data\092518hrb\006.dat
Method: C:\Instarch\Semi6\Methods\Herb\080218hrbic\090718hrb.met
User: JJY
Sample ID: 153704,MBTS,
Acquired: 09/25/2018 14:58:52
Printed: 09/26/2018 08:48:26

Data Summary: {Data Description}



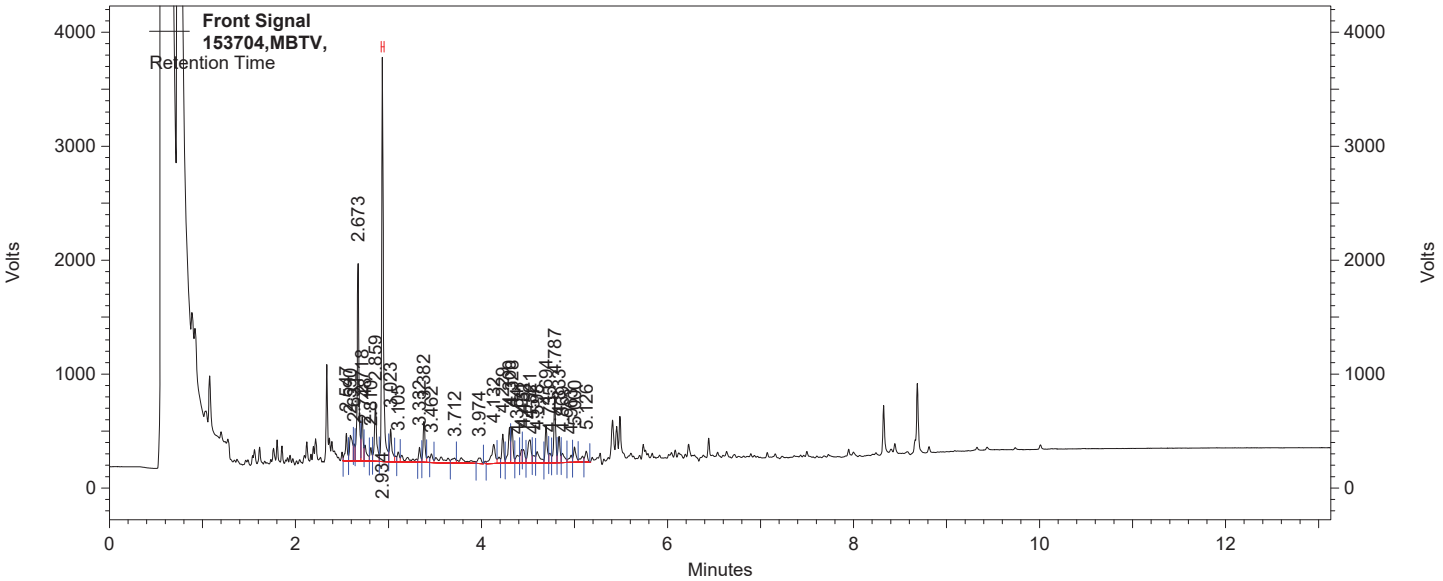
Back Signal Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRDCAA	3.405	51549617	83.5448
2,4-D			0.0000 BDL
Silvex			0.0000 BDL

Pesticide Analysis Report *(Channel A)*

Data File: C:\Instarch\Semi6\Data\092518hrb\007.dat
Method: C:\Instarch\Semi6\Methods\Herb\080218hrbic\090718hrb.met
User: JJY
Sample ID: 153704,MBTV,
Acquired: 09/25/2018 15:15:37
Printed: 09/26/2018 08:48:29

Data Summary: {Data Description}



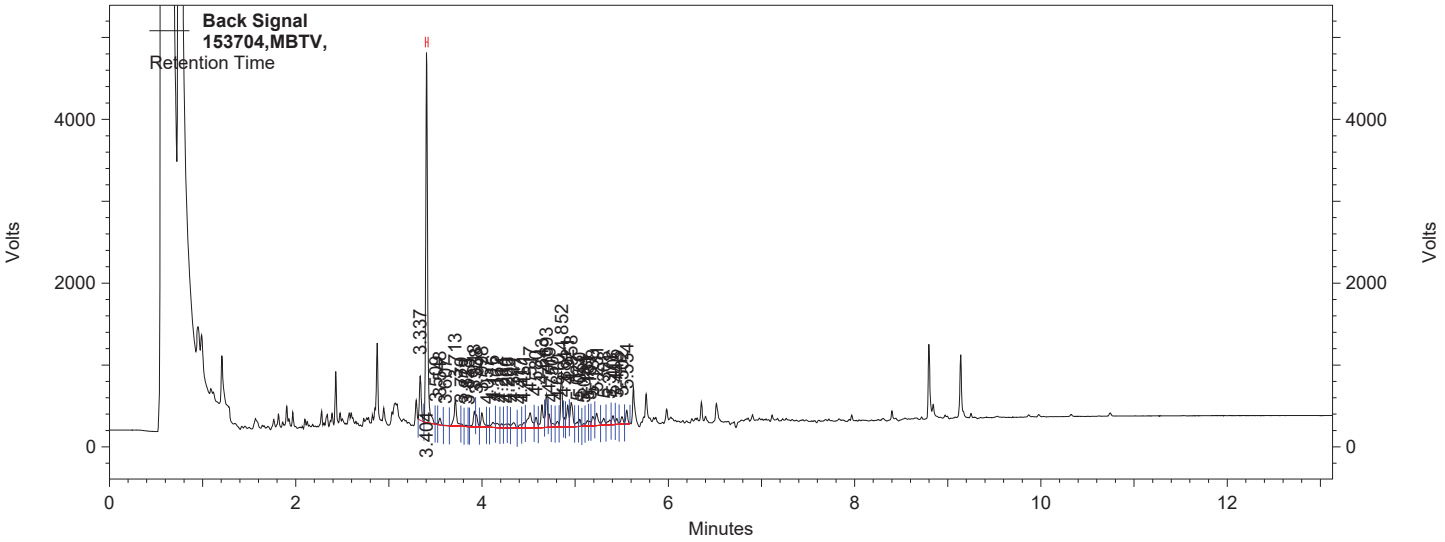
Front Signal Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRDCAA	2.934	35727467	71.0007
2,4-D			0.0000 BDL
Silvex			0.0000 BDL

Pesticide Analysis Report *(Channel B)*

Data File: C:\Instarch\Semi6\Data\092518hrb\007.dat
Method: C:\Instarch\Semi6\Methods\Herb\080218hrbic\090718hrb.met
User: JJY
Sample ID: 153704,MBTV,
Acquired: 09/25/2018 15:15:37
Printed: 09/26/2018 08:48:29

Data Summary: {Data Description}



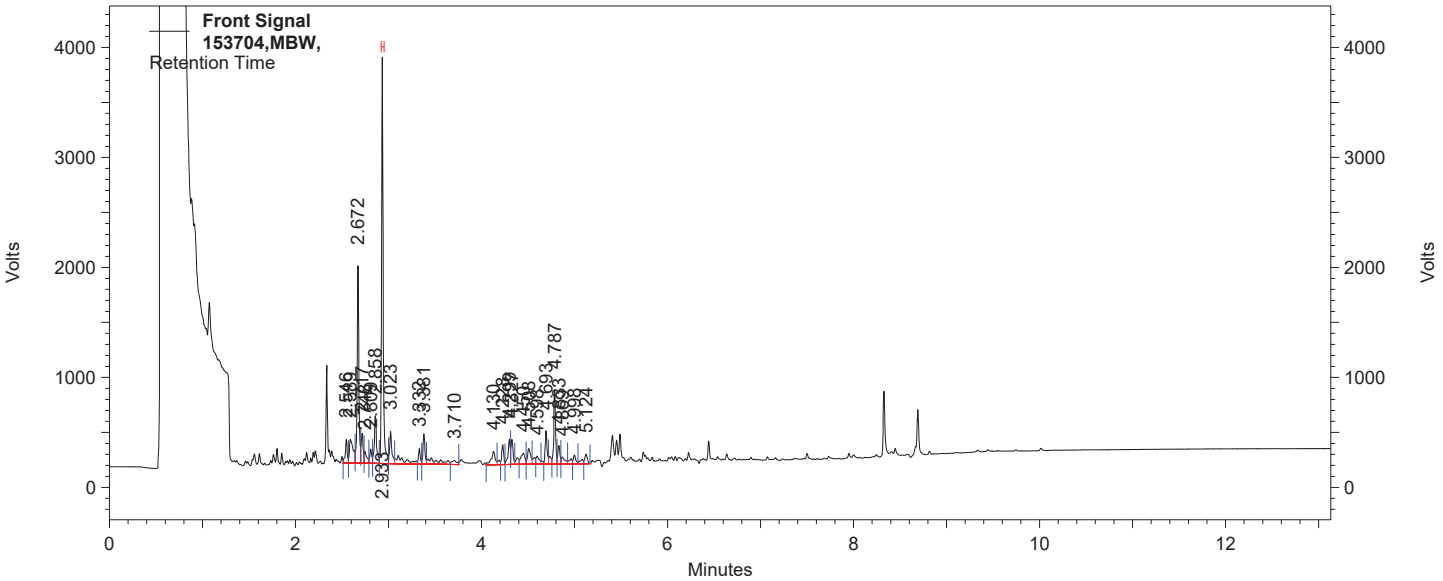
Back Signal Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRDCAA	3.404	46943235	75.9916
2,4-D			0.0000 BDL
Silvex			0.0000 BDL

Pesticide Analysis Report *(Channel A)*

Data File: C:\Instarch\Semi6\Data\092518hrb\008.dat
Method: C:\Instarch\Semi6\Methods\Herb\080218hrbic\090718hrb.met
User: JJY
Sample ID: 153704,MBW,
Acquired: 09/25/2018 15:32:20
Printed: 09/26/2018 08:48:32

Data Summary: {Data Description}



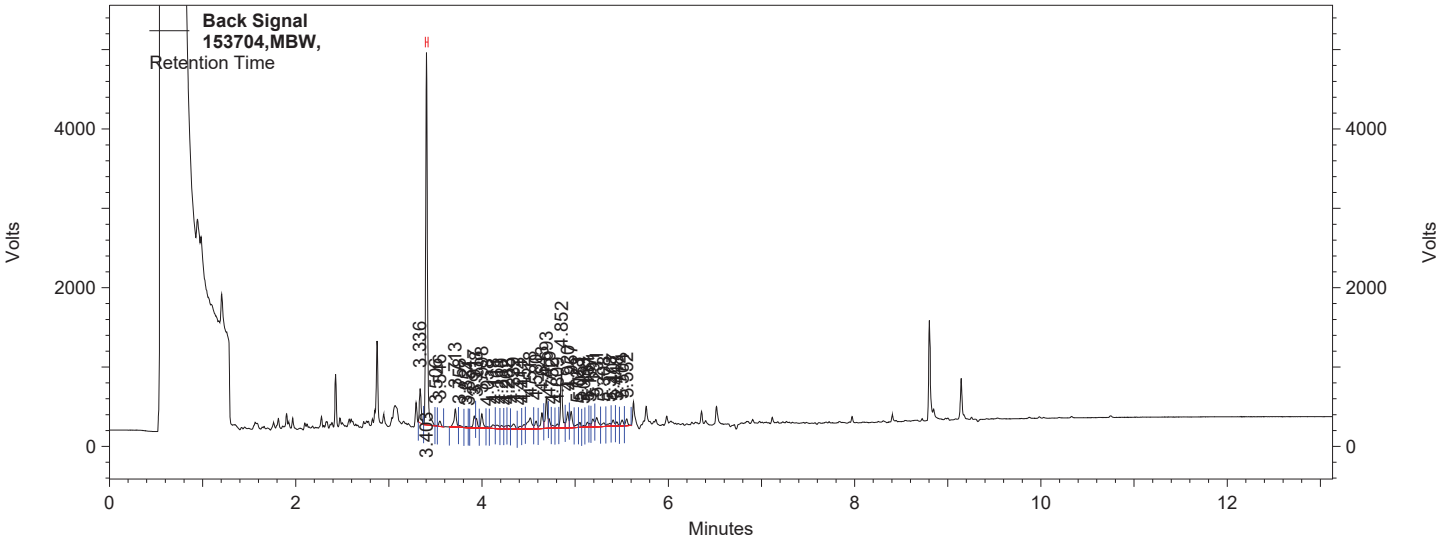
Front Signal Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRDCAA	2.933	34839394	69.2161
2,4-D			0.0000 BDL
Silvex			0.0000 BDL

Pesticide Analysis Report *(Channel B)*

Data File: C:\Instarch\Semi6\Data\092518hrb\008.dat
Method: C:\Instarch\Semi6\Methods\Herb\080218hrbic\090718hrb.met
User: JJY
Sample ID: 153704,MBW,
Acquired: 09/25/2018 15:32:20
Printed: 09/26/2018 08:48:32

Data Summary: {Data Description}



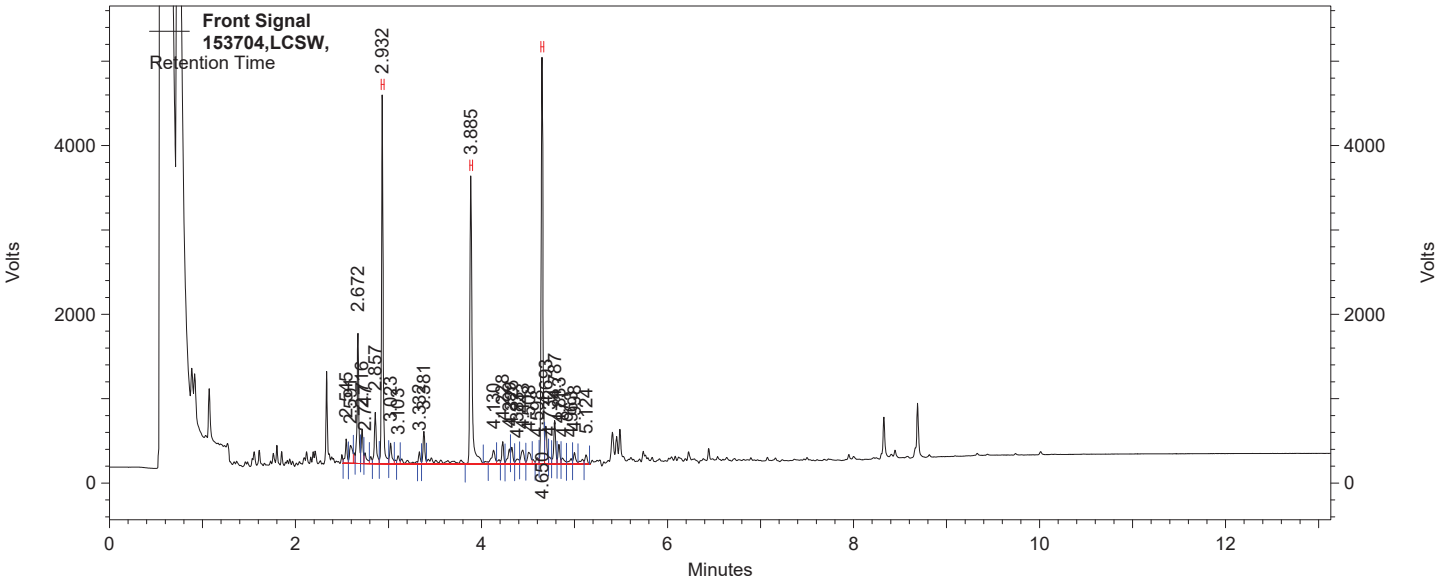
Back Signal Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRDCAA	3.403	46224988	74.8139
2,4-D			0.0000 BDL
Silvex			0.0000 BDL

Pesticide Analysis Report *(Channel A)*

Data File: C:\Instarch\Semi6\Data\092518hrb\009.dat
Method: C:\Instarch\Semi6\Methods\Herb\080218hrbic\090718hrb.met
User: JJY
Sample ID: 153704,LCSW,
Acquired: 09/25/2018 15:49:19
Printed: 09/26/2018 08:48:35

Data Summary: {Data Description}



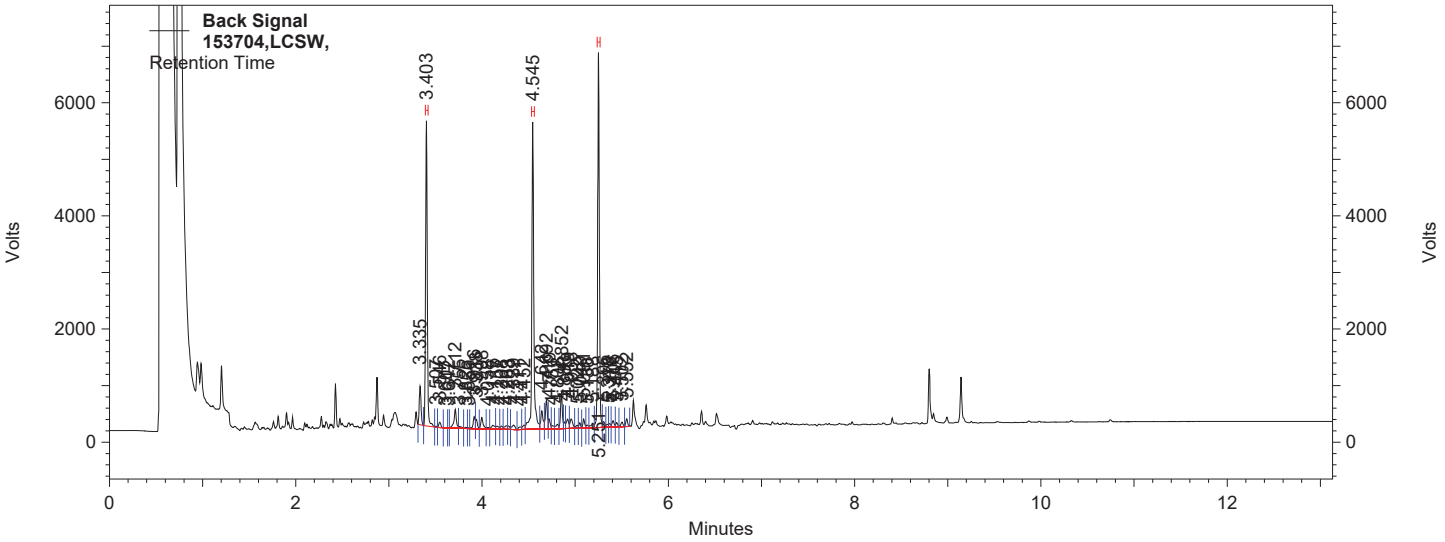
Front Signal Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRDCAA	2.932	39517242	78.6160
2,4-D	3.885	42614059	0.3866
Silvex	4.650	47849333	0.0704

Pesticide Analysis Report *(Channel B)*

Data File: C:\Instarch\Semi6\Data\092518hrb\009.dat
Method: C:\Instarch\Semi6\Methods\Herb\080218hrbic\090718hrb.met
User: JJY
Sample ID: 153704,LCSW,
Acquired: 09/25/2018 15:49:19
Printed: 09/26/2018 08:48:35

Data Summary: {Data Description}



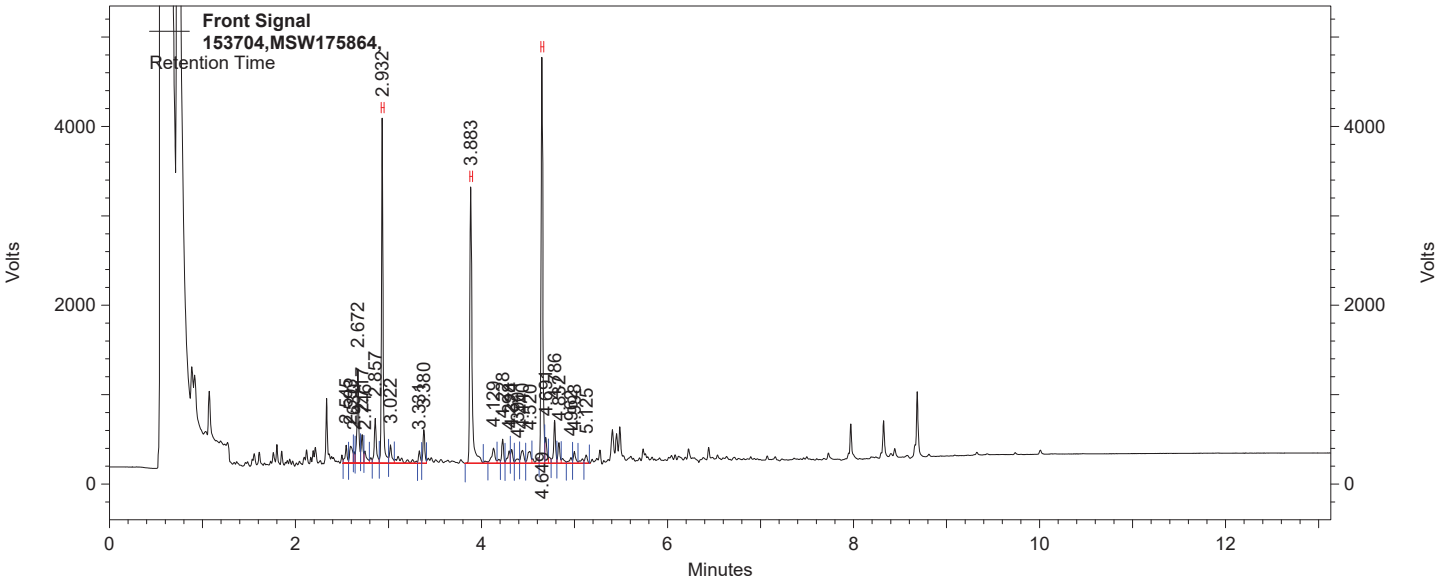
Back Signal Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRDCAA	3.403	51866832	84.0649
2,4-D	4.545	61611672	0.4867
Silvex	5.251	61788804	0.0842

Pesticide Analysis Report *(Channel A)*

Data File: C:\Instarch\Semi6\Data\092518hrb\012.dat
Method: C:\Instarch\Semi6\Methods\Herb\080218hrbic\090718hrb.met
User: JJY
Sample ID: 153704,MSW175864,
Acquired: 09/25/2018 16:39:40
Printed: 09/26/2018 08:48:44

Data Summary: {Data Description}



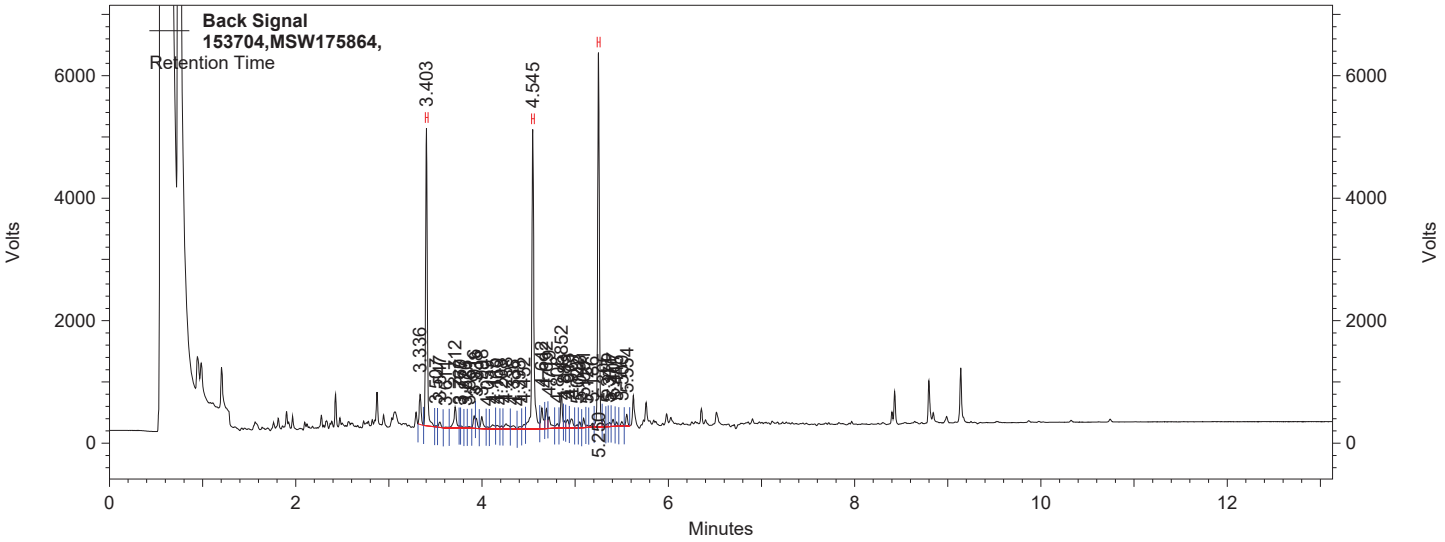
Front Signal Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRDCAA	2.932	35845336	71.2375
2,4-D	3.883	39511470	0.3583
Silvex	4.649	45368220	0.0668

Pesticide Analysis Report *(Channel B)*

Data File: C:\Instarch\Semi6\Data\092518hrb\012.dat
Method: C:\Instarch\Semi6\Methods\Herb\080218hrbic\090718hrb.met
User: JJY
Sample ID: 153704,MSW175864,
Acquired: 09/25/2018 16:39:40
Printed: 09/26/2018 08:48:44

Data Summary: {Data Description}



Back Signal Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRDCAA	3.403	47220543	76.4463
2,4-D	4.545	57025566	0.4504
Silvex	5.250	58155812	0.0793

PESTICIDE/HERBICIDE
LOGBOOK
DOCUMENTS

S PEST Analytical Run
153654 on 09/24/2018

Date Analyzed: _____ JJY Date Reviewed: _____

Date Entered: _____ 09/26/18 Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME	QC TYPE (Parent Sample)	CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
139370	175864		09/11/2008 0800		MAXXAM ANALYTICS	SI AFFF	PESTICIDES QSM TCLP		M	**4**	
		PETER-WS-001						68735			
139370	175866		09/11/2018 0800		MAXXAM ANALYTICS	SI AFFF	PESTICIDES QSM TCLP		M	**4**	
		PETER-WW-001						68735			
	179891						PESTICIDES QSM TCLP				
				MBW				68735			
	179892						PESTICIDES QSM TCLP				
				LCSW				68735			
	179893		09/11/2008 0800				PESTICIDES QSM TCLP				
		PETER-WS-001		MSW 175864				68735			

5 SAMPLE COUNT ON RUN, INCLUDING METHOD AND INSTRUMENT QC

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

Distribution: C:\LIMSREPS\ANALYTICALRUN.RPT

PREP WORKSHEET
on 09/24/2018

Prep Batch **68,735** Date Prepped: 09/24/2018 Prepped By TMG

Folder #	Order	QC Type	Link	Test	Matrix	Volume	Weight	Initial Volume	SDG Level	Notes
	179891	MBW		PESTICIDES QSM TCLP	LIQUID	10		0.10		
	179892	LCSW		PESTICIDES QSM TCLP	LIQUID	10		0.10		
139370	175864			PESTICIDES QSM TCLP	TCLP	10		0.10	4	
	175866			PESTICIDES QSM TCLP	TCLP	10		0.10	4	
	179893	MSW	175864	PESTICIDES QSM TCLP	TCLP	10		0.10		

Notes:

Pesticides/PCB Extraction Bench Sheet

(SOP Reference # SV002 & SV004)

3510=WATER
3545=PFE or 3546=Microwave >>
(PFE=Pressurized Fluid Extraction)

Prep Batch #:	68735
Prep Method:	3510/8081
Analyst:	TMG/JAV
Date:	09/24/2018
Start Time:	11:00
End Date:	09/24/2018
End Time:	14:45

Analysis Methods
8081 = Pesticides
8082 = PCBs

Matrix: TCLP
Balance Used: NA
Ave MW Temp (°C): NA

Reagent Lots>>>

NA_2SO_4	MISC0516
Diatomaceous Earth	NA
Dionex Solution	NA
Methylene Chloride	SD639
Acetone	NA
Hexane	DS056
H_2SO_4	NA

Concentration By: TMG
Concentration Date: 09/24/2018

Microwave Cell #	Sample ID	Comments	(Solids) Sample Weight (g)	(Liquids) Sample Volume (L)	Final Volume (ml)	pH Adj. 5-9 (Yes/No)
	179891	MB		0.10	10	Y
	179892	LCS		0.10	10	Y
	175864			0.10	10	Y
	175866			0.10	10	Y
	T/C LCS			0.10	10	Y
	SB 2907			0.10	10	Y
	VB 2907			0.10	10	Y
					10	
					10	
					10	
					10	
					10	
					10	
					10	
					10	
					10	
					10	
					10	
					10	
					10	
					10	
					10	
					10	
	179893	(MS) Parent Sample		0.10	10	Y
		(MSD) 175864			10	

MB=Method Blank, LCS=Laboratory Control Sample, MS=Matrix Spike, MSD=Matrix Spike Duplicate, Tox=Toxaphene & Chlor=Technical chlordane

MS/MSD/ LCS Spike Amount (ml): 0.5
Spike Concentration (ug/mL): 0.8
Spike Reference #: PP5781

Surrogate Spike Amount (ml): 0.5
Surrogate Spike Conc. (ug/mL): 0.5
Surrogate Spike Reference #: PP5761/5763

Tox/Chlor Spike Amount (ml): 0.5
Tox/Chlor Spike Conc. (ug/mL): 5

Tox/Chlor Spike Reference: PP5782

Relinquished to: JJY
Date: 09/24/2018

Reviewed By: JJY
Date: 09/24/2016

Semi-Volatiles Sample Cleanup Record Sheet

FSV14-02, FSV25-01, FSV26-01, FSV28-01

Prep Batch Number(s): 68735 _____ _____

GPC

Cleanup Performed (Y/N): N
Date:
Time:
Analyst Initials:
$MeCl_2$ Lot:

Florisil

Cleanup Performed (Y/N): N
Date:
Time:
Analyst Initials:
Cartridge I.D. Number:
Hexane Lot:
Acetone Lot:

Acid

Cleanup Performed (Y/N): N
Date:
Time:
Analyst Initials:
H_2SO_4 Lot:
Number of treatments:

Sulfur

Cleanup Performed (Y/N): Y
Date: 09/24/2018
Time: 16:30
Analyst Initials: JJY
Copper Lot: 811260-BF

Comments:

8081 Pesticide Analysis Data Review Checklist

Analytical Run #: 153654	**Independent Reviewer: AJZ**
Sequence Date: 09/24/2018	**Date of Review: 09/25/2018**
Analyst/Data Interpreter: JJY	**Approval: Yes**

Instructions: Complete one checklist per *analytical run* . Enter the appropriate response for each question. Each "No" response requires an explanation in the Comments section, and may require the initiation of a Nonconformance Report.

Requirements:	Acceptance Criteria	Analyst Review		Independent Review		Comments (indicate reference to an attachment if necessary)
		Yes	No	Yes	No	
1. INITIAL CALIBRATION (ICAL)						
a. Was the Pesticide initial calibration performed using a minimum of five varying standard concentration levels on two dissimilar columns?	Lowest standard at or near MRL	X		X		
b. Was there initial calibration performed using a minimum of five varying standard concentration levels for Toxaphene and tech-Chlordane.		X		X		
c. Is the variation between calibration response factors for all concentration levels <20% RSD, is r >.995, or r^2 > 0.990 for the regression line	RSD<20%, r^2>0.990, or r>0.990	X		X		
d. Was each ICAL uniquely identified (i.e. Standard Number)?		X		X		
e. Was an initial calibration blank (ICB) analyzed?		X		X		
f. Was there an Evaluation standard injected prior to initial calibration?	Breakdown ≤15%	X		X		
2. INITIAL CALIBRATION VERIFICATION (ICV)						
a. Were there a second source ICVs for all target analytes analyzed after the initial calibration and prior to analysis of any samples?		X		X		
b. Were the recoveries for the ICVs within program limits?	Second source	X		X		
c. Was the ICVs uniquely identified (i.e. Standard Number)?	%Recovery	X		X		
3. CONTINUING CALIBRATION VERIFICATION (CCV)						
a. Were CCVs analyzed at the beginning of the sequence, after every 12 hours or every 20 samples (which ever comes first) and at the end of the analytical run.		X		X		
b. Were there a CCV for Toxaphene and tech-Chlordane at the beginning or at the end of the analytical sequence?		X		X		
c. Were the recoveries for the CCVs within program limits?		X		X		
d. Was each CCV uniquely identified (i.e. Standard Number)?	%Recovery	X		X		

Additional Comments:
TCLP samples.

8081 Pesticide Analysis Data Review Checklist

Requirements:	Acceptance Criteria	Analyst		Independent		Comments (indicate reference to an attachment if necessary)
		Yes	No	Yes	No	
4. BLANKS						
a. Was method blank (MB) analyzed prior to the analysis of samples?		x		x		
b. Was the MB result less than ½ the reporting limit (RL) or 5% of the sample amount?	In-house limits or client specified limits	x		x		
c. Was a MB prepped and analyzed at a frequency of one per Prep Batch?	Batch <20 samples	x		x		
5. LABORATORY CONTROL SAMPLE (LCS)						
a. Was a LCS analyzed prior to the analysis of samples?		x		x		
b. Was there a Toxaphene and tech-Chlordane LCS preformed	Batch <20 samples	x		x		
c. Were the LCS recoveries in each LCS within the acceptance criteria?	In-house limits or client specified limits	x		x		
6. MATRIX SPIKES						
a. Was a matrix spiked (MS) sample analyzed at a frequency one per Prep Batch?	Batch <20 samples	x		x		
b. Were MS recoveries in each MS within the acceptance criteria?	In-house limits or client specified limits	x		x		
7. LABORATORY CONTROL SPIKE / MATRIX SPIKE DUPLICATE						
a. Was a duplicate matrix spike or laboratory control spike sample analyzed at a . frequency one per Prep Batch?	Batch <20 samples		x		x	MS only, per TCLP method.
b. Were MSD or LCSD recoveries within the acceptance criteria?	In-house limits or client specified limits	na		na		
c. Is the relative percent difference (RPD) between a matrix spike (MS) and its' duplicate (MSD) or laboratory control spike (LCS) and its' duplicate (LCSD) within the acceptance criteria?	In-house limits or client specified limits	na		na		

Additional Comments:

8081 Pesticide Analysis Data Review Checklist

Requirements:	Acceptance Criteria	Analyst		Independent		Comments (indicate reference to an attachment if necessary)
		Yes	No	Yes	No	
8. SAMPLES (INCLUDING BLANKS, STANDARDS, AND QC SAMPLES)						
a. Are chromatogram characteristics, including peak shapes and areas, consistent with those of the CCV?		X		X		
b. Are surrogate recoveries for all samples, blanks, standards, and QC samples within acceptance criteria?		X		X		
c. Were all samples having analytes detected in amounts exceeding the calibration range diluted and reanalyzed?		X		X		
d. Were all pH checks and adjustments recorded on the sample prep bench sheet?		X		X		
e. Were all samples extracted within holding times and analyzed within 40 days of extracting?	Analysis within 40 days of extraction	X		X		
f. Did the samples require additional cleanup steps? (i.e. florisil, GPC, and sulfur treatment)	Florisil, GPC, and/or Sulfur Treatments	X		X		Sulfur treatment.
g. Was there a hexane injection performed prior to sample analysis?		X		X		
h. Was there a priming standard injected prior to sample analysis?		X		X		
i. Was there an Eval standard injected prior to sample analysis and every twelve hours?	Breakdown ≤15%	X		X		
9. RECORDS AND REPORTING						
a. Is the Analytical Run, Prep Batch and Extraction sheets, Summary sheets, Sequence file, analytical data, and method transferred to PDF format?		X		X		
b. Are reported results whose amounts exceeded the acceptance criteria flagged with an appropriate qualifier in LIMS and, if needed, a NCR completed?		X		X		
c. Do all values, dilution factors and qualifiers listed on the raw reports match the LIMS data?		X		X		

Additional Comments:

Summary Report

Instrument I... **Semi 1**
Data Path: **C:\Instarch\Semi1\Sequence\091318pstic.seq**
User ID: **JJY**
Printed Date: **09/13/2018 09:14:41**

JJY
09/26/18

Run Number	Sample ID	Data Filename	Method Filename	Analysis Date	Data Description
1	EVAL PP5644	001.dat	eval.met	09/13/2018 09:02:03	
2	TC PRIME PP5648 1:10	002.dat	091318tcic.met	09/13/2018 09:18:12	
3	Hexane	003.dat	091318tcic.met	09/13/2018 09:34:20	
4	TC ICAL 1 PP5710	004.dat	091318tcic.met	09/13/2018 09:50:29	
5	TC ICAL 2 PP5711	005.dat	091318tcic.met	09/13/2018 10:06:43	
6	TC ICAL 3 PP5712	006.dat	091318tcic.met	09/13/2018 10:22:59	
7	TC ICAL 4 PP5713	007.dat	091318tcic.met	09/13/2018 10:39:08	
8	TC ICAL 5 PP5714	008.dat	091318tcic.met	09/13/2018 10:55:24	
9	TC ICAL 6 PP5715	009.dat	091318tcic.met	09/13/2018 11:11:39	
10	TC ICV PP5716	010.dat	091318tcic.met	09/13/2018 11:27:54	
11	Pest Prime PP5646 1:20	011.dat	091318pstic.met	09/13/2018 11:44:12	
12	Hexane	012.dat	091318pstic.met	09/13/2018 12:00:30	
13	Pest ICAL 1 PP5701	013.dat	091318pstic.met	09/13/2018 12:16:46	
14	Pest ICAL 2 PP5702	014.dat	091318pstic.met	09/13/2018 12:33:04	
15	Pest ICAL 3 PP5703	015.dat	091318pstic.met	09/13/2018 12:49:26	
16	Pest ICAL 4 PP5704	016.dat	091318pstic.met	09/13/2018 13:05:36	
17	Pest ICAL 5 PP5705	017.dat	091318pstic.met	09/13/2018 13:21:48	
18	Pest ICAL 6 PP5706	018.dat	091318pstic.met	09/13/2018 13:38:02	
19	Pest ICAL 7 PP5707	019.dat	091318pstic.met	09/13/2018 13:54:17	
20	Pest ICV 1 PP5708	020.dat	091318pstic.met	09/13/2018 14:10:31	
21	Pest ICV 2 PP5709	021.dat	091318pstic.met	09/13/2018 14:26:45	

Summary Report

Instrument I... **Semi 1**
Data Path: **C:\Instarch\Semi1\Sequence\092418pst.seq**
User ID: **JJY**
Printed Date: **09/25/2018 08:27:52**

JJY
09/26/18

Run Number	Sample ID	Data Filename	Method Filename	Analysis Date	Data Description
1	EVAL PP5784	001.dat	eval.met	09/24/2018 14:19:53	
2	Pest Prime PP5786 1:20	002.dat	092418pst.met	09/24/2018 14:36:04	
3	Hexane	003.dat	092418pst.met	09/24/2018 14:52:16	
4	Pest stock check PP5785 1:50	004.dat	092418pst.met	09/24/2018 15:08:32	
5	Pest ICV stock check PP57...	005.dat	092418pst.met	09/24/2018 15:24:48	
6	TC stock check PP5787 1:40	006.dat	092418tc.met	09/24/2018 15:41:02	
7	TC ICV stock check PP578...	007.dat	092418tc.met	09/24/2018 15:57:16	
8	Pest spike check PP5781 1:20	008.dat	092418pst.met	09/24/2018 16:13:34	
9	TC spike check PP5782 1:20	009.dat	092418tc.met	09/24/2018 16:29:50	
10	Pest CCV PP5805	010.dat	092418pst.met	09/24/2018 16:46:03	
11	TC CCV PP5806	011.dat	092418tc.met	09/24/2018 17:02:22	
12	153654,MBTS,	012.dat	092418pst.met	09/24/2018 17:18:35	
13	153654,MBTV,	013.dat	092418pst.met	09/24/2018 17:34:51	
14	153654,MBW,	014.dat	092418pst.met	09/24/2018 17:51:06	
15	153654,LCSW,	015.dat	092418pst.met	09/24/2018 18:07:20	
16	153654,LCSW TC	016.dat	092418tc.met	09/24/2018 18:23:36	
17	153654,175866,	017.dat	092418pst.met	09/24/2018 18:39:52	
18	153654,175864,	018.dat	092418pst.met	09/24/2018 18:56:11	
19	153654,MSW175864,	019.dat	092418pst.met	09/24/2018 19:12:29	
20	Pest CCV PP5805	020.dat	092418pst.met	09/24/2018 19:28:49	
21	TC CCV PP5806	021.dat	092418tc.met	09/24/2018 19:45:07	

PEST-PCB-LOGBOOK-02
SV Prep Logbook
Logbook created: 09/21/17
NOTEBOOK VIEW: LTN_PEST_PCB_LOGBOOK_02_Default, NOTEBOOK: PEST_PCB_LOGBOOK_02, PAGE: 15
Page is Locked
Author: jyoder on: 3/15/2018 10:43:44 AM
Page is not Witnessed
Project: Unassigned
Page Title: 031418

Standard Number	Standard Description	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
PP5644	Pest EVAL Solution	Hexane ChemPure lot DS056	JJY	03/14/2018	09/14/2018

STD Parent ID	Parent Concentration	Units	Standard Volume (ml)	Final Volume (ml)	Final Concentration (ug/ml)
S3748	100/200	ug/ml	0.020	50.0	0.040/0.080

Standard Number	Standard Description	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
PP5645	Pest ICAL Stock	Hexane ChemPure lot DS056	JJY	03/14/2018	09/14/2018

STD Parent ID	Parent Concentration	Units	Standard Volume (ml)	Final Volume (ml)	Final Concentration (ug/ml)
S3732	200	ug/ml	0.100	10.0	2.00
S3670E	200	ug/ml	0.0625	10.0	1.25

Standard Number	Standard Description	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
PP5646	Pest ICV Stock	Hexane ChemPure lot DS056	JJY	03/14/2018	09/14/2018

STD Parent ID	Parent Concentration	Units	Standard Volume (ml)	Final Volume (ml)	Final Concentration (ug/ml)
S3733	200	ug/ml	0.100	10.0	2.00
S3670E	200	ug/ml	0.0625	10.0	1.25

Standard Number	Standard Description	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
PP5647	Tox/Chlor Stock	Hexane ChemPure lot DS056	JJY	03/14/2018	09/14/2018

STD Parent ID	Parent Concentration	Units	Standard Volume (ml)	Final Volume (ml)	Final Concentration (ug/ml)
S3734	1000	ug/ml	0.100	10.0	10.0
S3736	1000	ug/ml	0.100	10.0	10.0
S3670E	200	ug/ml	0.030	10.0	0.60

Standard Number	Standard Description	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
PP5648	Tox/Chlor ICV Stock	Hexane ChemPure lot DS056	JJY	03/14/2018	09/14/2018

STD Parent ID	Parent Concentration	Units	Standard Volume (ml)	Final Volume (ml)	Final Concentration (ug/ml)
S3735	1000	ug/ml	0.100	10.0	10.0
S3737	1000	ug/ml	0.100	10.0	10.0
S3670E	200	ug/ml	0.030	10.0	0.60

	Initial Calibration	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
	Pest Tox/Chlor ICAL	Hexane ChemPure lot DS056	JJY	05/21/2018	09/14/2018

Standard Number	Standard Description	Parent ID	Parent Concentration	Units	Standard Volume (ml)	Final Volume (ml)	Final Concentration (ug/ml)
PP5701	PEST ICAL PT 1	PP5645	2.0	ug/ml	0.005	10.0	0.001
PP5702	PEST ICAL PT 2	PP5645	2.0	ug/ml	0.025	10.0	0.005
PP5703	PEST ICAL PT 3	PP5645	2.0	ug/ml	0.050	10.0	0.010
PP5704	PEST ICAL PT 4	PP5645	2.0	ug/ml	0.100	10.0	0.020
PP5705	PEST ICAL PT 5	PP5645	2.0	ug/ml	0.200	10.0	0.040
PP5706	PEST ICAL PT 6	PP5645	2.0	ug/ml	0.250	10.0	0.050
PP5707	PEST ICAL PT 7	PP5645	2.0	ug/ml	0.350	10.0	0.070
PP5708	PEST ICV	PP5646	2.0	ug/ml	0.100	10.0	0.020
PP5709	PEST ICV 2	PP5646	2.0	ug/ml	0.200	10.0	0.040
PP5710	TOX/CHLOR PT 1	PP5647	10.0	ug/ml	0.030	10.0	0.030
PP5711	TOX/CHLOR PT 2	PP5647	10.0	ug/ml	0.050	10.0	0.050
PP5712	TOX/CHLOR PT 3	PP5647	10.0	ug/ml	0.100	10.0	0.100
PP5713	TOX/CHLOR PT 4	PP5647	10.0	ug/ml	0.250	10.0	0.250
PP5714	TOX/CHLOR PT 5	PP5647	10.0	ug/ml	0.400	10.0	0.400
PP5715	TOX/CHLOR PT 6	PP5647	10.0	ug/ml	0.600	10.0	0.600
PP5716	TOX/CHLOR ICV	PP5648	10.0	ug/ml	0.250	10.0	0.250
PP5717	PEST CCV	PP5645	2.0	ug/ml	0.200	10.0	0.040
PP5718	TOX/CHLOR CCV	PP5647	10.0	ug/ml	0.250	10.0	0.250

1

CT Laboratories, LLC

PEST-PCB-LOGBOOK-02
SV Prep Logbook
Logbook created: 09/21/17
NOTEBOOK VIEW: LTN_PEST_PCB_LOGBOOK_02_Default, NOTEBOOK: PEST_PCB_LOGBOOK_02, PAGE: 26
Page is Unlocked
Page is not Witnessed
Project: Unassigned
Page Title: 072418

Standard Number	Standard Description	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
PP5760	PCB Spike	Acetone ChemPure lot DR774	JJY	07/24/2018	01/24/2019

STD Parent ID	Parent Concentration	Units	Standard Volume (ml)	Final Volume (ml)	Final Concentration (ug/ml)
S3883B	1000	ug/ml	0.500	50.0	10.0
S3884B	1000	ug/ml	0.500	50.0	10.0

Standard Number	Standard Description	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
PP5761	Pest/PCB Surrogates	Acetone ChemPure lot DR774	JJY	07/24/2018	01/24/2019

STD Parent ID	Parent Concentration	Units	Standard Volume (ml)	Final Volume (ml)	Final Concentration (ug/ml)
S3882A	200	ug/ml	0.250	100	0.50

Standard Number	Standard Description	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
PP5762	Pest/PCB Surrogates	Acetone ChemPure lot DR774	JJY	07/24/2018	01/24/2019

STD Parent ID	Parent Concentration	Units	Standard Volume (ml)	Final Volume (ml)	Final Concentration (ug/ml)
S3882A	200	ug/ml	0.250	100	0.50

Standard Number	Standard Description	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
PP5763	Pest/PCB Surrogates	Acetone ChemPure lot DR774	JJY	07/24/2018	01/24/2019

STD Parent ID	Parent Concentration	Units	Standard Volume (ml)	Final Volume (ml)	Final Concentration (ug/ml)
S3882A	200	ug/ml	0.250	100	0.50

1

CT Laboratories, LLC

PEST-PCB-LOGBOOK-02
SV Prep Logbook
Logbook created: 09/21/17
NOTEBOOK VIEW: LTN_PEST_PCB_LOGBOOK_02_Default, NOTEBOOK: PEST_PCB_LOGBOOK_02, PAGE: 31
Page is Unlocked
Page is not Witnessed
Project: Unassigned
Page Title: 092418

Standard Number	Standard Description	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
PP5781	Pest Spike	Acetone ChemPure lot DR774	JJY	09/24/2018	03/24/2019

STD Parent ID	Parent Concentration	Units	Standard Volume (ml)	Final Volume (ml)	Final Concentration (ug/ml)
S3936	200	ug/ml	0.200	50.0	0.80

Standard Number	Standard Description	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
PP5782	Tox/Chlor Spike	Acetone ChemPure lot DR774	JJY	09/24/2018	03/24/2019

STD Parent ID	Parent Concentration	Units	Standard Volume (ml)	Final Volume (ml)	Final Concentration (ug/ml)
S3937	1000	ug/ml	0.250	50.0	5.0
S3938	1000	ug/ml	0.250	50.0	5.0

Standard Number	Standard Description	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
PP5783	Pest ICV Intermediate Std	Hexane ChemPure lot DS056	JJY	09/24/2018	03/24/2019

STD Parent ID	Parent Concentration	Units	Standard Volume (ml)	Final Volume (ml)	Final Concentration (ug/ml)
S3942	1000	ug/ml	0.200	1.000	200

Standard Number	Standard Description	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
PP5784	Pest Eval Solution	Hexane ChemPure lot DS056	JJY	09/24/2018	03/24/2019

STD Parent ID	Parent Concentration	Units	Standard Volume (ml)	Final Volume (ml)	Final Concentration (ug/ml)
S3941	200	ug/ml	0.010	50.0	0.040

Standard Number	Standard Description	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
PP5785	Pest ICAL Stock	Hexane ChemPure lot DS056	JJY	09/24/2018	03/24/2019

STD Parent ID	Parent Concentration	Units	Standard Volume (ml)	Final Volume (ml)	Final Concentration (ug/ml)
S3936	200	ug/ml	0.100	10.0	2.00
S3882B	200	ug/ml	0.0625	10.0	1.25

Standard Number	Standard Description	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
PP5786	Pest ICV Stock	Hexane ChemPure lot DS056	JJY	09/24/2018	03/24/2019

STD Parent ID	Parent Concentration	Units	Standard Volume (ml)	Final Volume (ml)	Final Concentration (ug/ml)
PP5783	200	ug/ml	0.100	10.0	2.00
S3882B	200	ug/ml	0.0625	10.0	1.25

Standard Number	Standard Description	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
PP5787	Tox/chlor Stock	Hexane ChemPure lot DS056	JJY	09/24/2018	03/24/2019

STD Parent ID	Parent Concentration	Units	Standard Volume (ml)	Final Volume (ml)	Final Concentration (ug/ml)
S3937	1000	ug/ml	0.100	10.0	10.0
S3938	1000	ug/ml	0.100	10.0	10.0
S3882B	200	ug/ml	0.030	10.0	0.60

Standard Number	Standard Description	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
PP5788	Tox/chlor ICV Stock	Hexane ChemPure lot DS056	JJY	09/24/2018	03/24/2019

STD Parent ID	Parent Concentration	Units	Standard Volume (ml)	Final Volume (ml)	Final Concentration (ug/ml)
S3943	1000	ug/ml	0.100	10.0	10.0
S3944	1000	ug/ml	0.100	10.0	10.0
S3882B	200	ug/ml	0.030	10.0	0.60

	Initial Calibration	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
	Pest Tox/Chlor ICAL	Hexane ChemPure lot DS056	JJY	09/24/2018	03/24/2019

Standard Number	Standard Description	Parent ID	Parent Concentration	Units	Standard Volume (ml)	Final Volume (ml)	Final Concentration (ug/ml)
PP5789	PEST ICAL PT 1	PP5785	2.0	ug/ml	0.005	10.0	0.001
PP5790	PEST ICAL PT 2	PP5785	2.0	ug/ml	0.025	10.0	0.005
PP5791	PEST ICAL PT 3	PP5785	2.0	ug/ml	0.050	10.0	0.010
PP5792	PEST ICAL PT 4	PP5785	2.0	ug/ml	0.100	10.0	0.020
PP5793	PEST ICAL PT 5	PP5785	2.0	ug/ml	0.200	10.0	0.040
PP5794	PEST ICAL PT 6	PP5785	2.0	ug/ml	0.250	10.0	0.050
PP5795	PEST ICAL PT 7	PP5785	2.0	ug/ml	0.350	10.0	0.070
PP5796	PEST ICV	PP5786	2.0	ug/ml	0.100	10.0	0.020
PP5797	PEST ICV 2	PP5786	2.0	ug/ml	0.200	10.0	0.040
PP5798	TOX/CHLOR PT 1	PP5787	10.0	ug/ml	0.030	10.0	0.030
PP5799	TOX/CHLOR PT 2	PP5787	10.0	ug/ml	0.050	10.0	0.050
PP5800	TOX/CHLOR PT 3	PP5787	10.0	ug/ml	0.100	10.0	0.100
PP5801	TOX/CHLOR PT 4	PP5787	10.0	ug/ml	0.250	10.0	0.250
PP5802	TOX/CHLOR PT 5	PP5787	10.0	ug/ml	0.400	10.0	0.400
PP5803	TOX/CHLOR PT 6	PP5787	10.0	ug/ml	0.600	10.0	0.600
PP5804	TOX/CHLOR ICV	PP5786	10.0	ug/ml	0.250	10.0	0.250
PP5805	PEST CCV	PP5785	2.0	ug/ml	0.200	10.0	0.040
PP5806	TOX/CHLOR CCV	PP5787	10.0	ug/ml	0.250	10.0	0.250

1

CT Laboratories, LLC

S HERBICIDES TCLP Analytical Run
153704 on 09/25/2018

Date Analyzed: _____ JJY Date Reviewed: _____

Date Entered: _____ 09/26/18 Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME	QC TYPE (Parent Sample)	CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
139370	175864		09/11/2008 0800		MAXXAM ANALYTICS	SI AFFF	HERBICIDES TCLP QSM 5		M	**4**	
		PETER-WS-001						68741			
139370	175866		09/11/2018 0800		MAXXAM ANALYTICS	SI AFFF	HERBICIDES TCLP QSM 5		M	**4**	
		PETER-WW-001						68741			
	180860						HERBICIDES TCLP QSM 5				
				MBW				68741			
	180861						HERBICIDES TCLP QSM 5				
				LCSW				68741			
	180863		09/11/2008 0800				HERBICIDES TCLP QSM 5				
		PETER-WS-001		MSW 175864				68741			

5 SAMPLE COUNT ON RUN, INCLUDING METHOD AND INSTRUMENT QC

Page 796

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

PREP WORKSHEET
on 09/25/2018

Prep Batch **68,741** Date Prepped: 01/01/1900 Prepped By JLH

Folder #	Order	QC Type	Link	Test	Matrix	Volume	Weight	Initial Volume	SDG Level	Notes
	180860	MBW		HERBICIDES TCLP QSM	LIQUID	10		0.10		
	180861	LCSW		HERBICIDES TCLP QSM	LIQUID	10		0.10		
139370	175864			HERBICIDES TCLP QSM	TCLP	10		0.10	4	
	175866			HERBICIDES TCLP QSM	TCLP	10		0.10	4	
	180863	MSW	175864	HERBICIDES TCLP QSM	TCLP	10		0.10		

Notes:

Herbicide Extraction Bench Sheet

(SOP Reference # SV029)

Prep Batch #:	68741
Analyst:	JLH
Start Date:	09/25/2018
Start Time:	09:00
End Date:	09/25/2018
End Time:	14:30

Prep/Analysis Method
EPA 8151A

Matrix: TCLP
TCLP Batch #: 2907

Reagent Lots>>>

Acidified Na_2SO_4	MISC0517
2% Na_2SO_4 solution:	MISC0518
Ether:	173928
Hexane:	DS056
BF_3-methanol:	A0379837
H_2SO_4:	MISC0496

Concentrated by: JLH
Concentration Date: 09/25/2018

Derivatized by: JLH
Derivatization Date: 09/25/2018

Sample ID	Comments		(Liquids) Sample Volume (L)	Final Volume (ml)	pH Adj. <2 (Yes/No)
180860	(MB)		0.10	10	Y
180861	(LCS)		0.10	10	Y
2907	(SB)		0.10	10	Y
2907	(VB)		0.10	10	Y
175864			0.10	10	Y
175866					
180863	(MS)		0.10	10	Y
	(MS)	175864			

MB=method blank, LCS=laboratory control sample, SB=solution blank, VB=vessel blank, MS=matrix spike

Spike Amount (ml):	1	Surrogate Spike Amount (ml):	1
Spike Concentration (ug/mL):	1.0/5.0	Surrogate Spike Conc. (ug/mL):	5
Spike Reference #:	PP5765	Surrogate Spike Reference #:	PP5764

Relinquished to:	JJY	Reviewed By:	JJY
Date:	09/25/2018	Date:	09/25/2018

FSV29-02

8151A Herbicide Analysis Data Review Checklist

Analytical Run #: 153704	**Independent Reviewer: AJZ**
Sequence Date: 09/25/2018	**Date of Review: 09/26/2018**
Analyst/Data Interpreter: JJY	**Approval: Yes**

Instructions: Complete one checklist per *analytical run* . Enter the appropriate response for each question. Each "No" response requires an explanation in the Comments section, and may require the initiation of a Nonconformance Report.

Requirements:	Acceptance Criteria	Analyst Review		Independent Review		Comments (indicate reference to an attachment if necessary)
		Yes	No	Yes	No	
1. INITIAL CALIBRATION (ICAL)						
a. Was the initial calibration performed using a minimum of five varying standard concentration levels on two dissimilar columns?	Lowest standard at or near MRL	X		X		
b. Is the variation between calibration response factors for all concentration levels <20% RSD, is r^2 >.990, or r > 0.990 for the regression line?	RSD<20%, r^2>0.990, or r>0.990	X		X		
c. Was each ICAL uniquely identified (i.e. Standard Number)?		X		X		
d. Was an initial calibration blank (ICB, hexane) analyzed?		X		X		
2. INITIAL CALIBRATION VERIFICATION (ICV)						
a. Was a second source ICV analyzed after the initial calibration and prior to analysis of any samples?	second lot or manufacturer	X		X		
b. Were the recoveries for the ICVs within program limits?	% recovery	X		X		
c. Was the ICVs uniquely identified (i.e. Standard Number)?		X		X		
3. CONTINUING CALIBRATION VERIFICATION (CCV)						
a. Were CCVs analyzed at the beginning of the sequence, after every 12 hours or every 10 samples (which ever comes first) and at the end of the analytical run?		X		X		
b. Were the recoveries for the CCVs within program limits?	% recovery	X		X		
c. Was each CCV uniquely identified (i.e. Standard Number)?		X		X		

Additional Comments:

Analytical Run #: 153704

FSV29-02

8151A Herbicide Analysis Data Review Checklist

Requirements:	Acceptance Criteria	Analyst		Independent		Comments (indicate reference to an attachment if necessary)
		Yes	No	Yes	No	
4. BLANKS						
a. Was the method blank (MB) analyzed prior to the analysis of samples?		X		X		
b. Was the MB result less than ½ the reporting limit (RL) or 5% of the sample amount?	In-house limits or client specified limits	X		X		
c. Was a MB prepped and analyzed at a frequency of one per Prep Batch?	Batch <20 samples	X		X		
5. LABORATORY CONTROL SAMPLE (LCS)						
a. Was a LCS analyzed at a frequencey of one per Prep Batch?	Batch <20 samples	X		X		
b. Were the LCS recoveries in each LCS within the acceptance criteria?	In-house limits or client, program, or project-specified limits	X		X		
6. MATRIX SPIKES						
a. Was a matrix spiked (MS) sample analyzed at a frequency one per Prep Batch?	Batch <20 samples	X		X		
b. Were MS recoveries in each MS within the acceptance criteria?	In-house limits or client, program, or project-specified limits	X		X		

Additional Comments:

Analytical Run #: 153704

FSV29-02

8151A Herbicide Analysis Data Review Checklist

Requirements:	Acceptance Criteria	Analyst		Independent		Comments (indicate reference to an attachment if necessary)
		Yes	No	Yes	No	
7. SAMPLES (INCLUDING BLANKS, STANDARDS, AND QC SAMPLES)						
a. Are chromatogram characteristics, including peak shapes and areas, consistent with those of the CCV?		X		X		
b. Are surrogate recoveries for all samples, blanks, standards, and QC samples within acceptance criteria?	In-house limits or client, program, or project-specified limits	X		X		
c. Were all samples having analytes detected in amounts exceeding the calibration range diluted and reanalyzed?		X		X		
d. Were all samples extracted within holding times and analyzed within 40 days of extracting?	Analysis within 40 days of extraction	X		X		
e. Was there a hexane injection performed prior to sample analysis?		X		X		
9. RECORDS AND REPORTING						
a. Is the Analytical Run, Prep Batch and Extraction sheets, Summary sheets, Sequence file, analytical data, and method transfered to PDF format?		X		X		
b. Are all manually integrated chromatograms stamped with initials and date?		X		X		
c. Are reported results whose amounts exceeded the acceptance criteria flagged with an appropriate qualifier in LIMS and, if needed, a NCR completed?		X		X		
d. Do all values, dilution factors and qualifiers listed on the raw reports match the LIMS data?		X		X		
e. Is the ICAL method referenced on the Raw Data?		X		X		

Additional Comments:

Summary Report

Instrument I... **Semi 6 (Offline)**
Data Path: **C:\Instarch\Semi6\Sequence\080218hrbic.seq**
User ID: **JJY**
Printed Date: **08/02/2018 15:55:49**

JJY
08/03/18

Run Number	Sample ID	Data Filename	Method Filename	Analysis Date	Data Description
1	Hex	001.dat	080218hrbic.met	08/02/2018 13:26:06	
2	AH PRIME PP5560 1:10	002.dat	080218hrbic.met	08/02/2018 13:42:51	
3	Hex	003.dat	080218hrbic.met	08/02/2018 13:59:40	
4	AH ICAL 1 PP5721	004.dat	080218hrbic.met	08/02/2018 14:16:35	
5	AH ICAL 2 PP5722	005.dat	080218hrbic.met	08/02/2018 14:33:27	
6	AH ICAL 3 PP5723	006.dat	080218hrbic.met	08/02/2018 14:50:14	
7	AH ICAL 4 PP5724	007.dat	080218hrbic.met	08/02/2018 15:07:02	
8	AH ICAL 5 PP5725	008.dat	080218hrbic.met	08/02/2018 15:23:58	
9	AH ICAL 6 PP5726	009.dat	080218hrbic.met	08/02/2018 15:40:50	
10	AH ICV PP5727	010.dat	080218hrbic.met	08/02/2018 15:57:38	
11	AH CCV PP5728	011.dat	080218hrbic.met	08/02/2018 16:14:27	
12	151963,MBTS,	012.dat	080218hrbic.met	08/02/2018 16:31:23	
13	151963,MBTV,	013.dat	080218hrbic.met	08/02/2018 16:48:08	
14	151963,MBW,	014.dat	080218hrbic.met	08/02/2018 17:04:59	
15	151963,143874,	015.dat	080218hrbic.met	08/02/2018 17:21:47	
16	151963,LQCKW,	016.dat	080218hrbic.met	08/02/2018 17:38:45	
17	151963,LCSW,	017.dat	080218hrbic.met	08/02/2018 17:55:37	
18	151963,156808,	018.dat	080218hrbic.met	08/02/2018 18:12:25	
19	151963,154008,	019.dat	080218hrbic.met	08/02/2018 18:29:13	
20	151963,MSW154008,	020.dat	080218hrbic.met	08/02/2018 18:46:09	
21	AH CCV PP5728	021.dat	080218hrbic.met	08/02/2018 19:02:56	

Summary Report

Instrument I... **Semi 6 (Offline)**
Data Path: **C:\Instarch\Semi6\Sequence\092518hrb.seq**
User ID: **JJY**
Printed Date: **09/26/2018 08:47:48**

JJY
09/26/18

Run Number	Sample ID	Data Filename	Method Filename	Analysis Date	Data Description
1	Hex	001.dat	090718hrb.met	09/25/2018 12:20:20	
2	AH PRIME PP5560 1:10	002.dat	090718hrb.met	09/25/2018 12:37:05	
3	Hex	003.dat	090718hrb.met	09/25/2018 12:53:54	
4	AH CCV PP5728	004.dat	090718hrb.met	09/25/2018 13:10:42	
5	Hex	005.dat	090718hrb.met	09/25/2018 14:42:04	
6	153704,MBTS,	006.dat	090718hrb.met	09/25/2018 14:58:52	
7	153704,MBTV,	007.dat	090718hrb.met	09/25/2018 15:15:37	
8	153704,MBW,	008.dat	090718hrb.met	09/25/2018 15:32:20	
9	153704,LCSW,	009.dat	090718hrb.met	09/25/2018 15:49:19	
10	153704,175866,	010.dat	090718hrb.met	09/25/2018 16:06:00	
11	153704,175864,	011.dat	090718hrb.met	09/25/2018 16:22:51	
12	153704,MSW175864,	012.dat	090718hrb.met	09/25/2018 16:39:40	
13	AH CCV PP5728	013.dat	090718hrb.met	09/25/2018 16:56:34	

PEST-PCB-LOGBOOK-02
SV Prep Logbook
Logbook created: 09/21/17
NOTEBOOK VIEW: LTN_PEST_PCB_LOGBOOK_02_Default, NOTEBOOK: PEST_PCB_LOGBOOK_02, PAGE: 12
Page is Locked
Author: jyoder on: 1/19/2018 7:02:40 AM
Page is not Witnessed
Project: Unassigned
Page Title: 011818

Standard Number	Standard Description	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
PP5559	Acid Herbicide Stock (Derivatized)	Hexane ChemPure lot DS056	JJY	01/18/2018	01/18/2019

STD Parent ID	Parent Concentration	Units	Standard Volume (ml)	Final Volume (ml)	Final Concentration (ug/ml)
S3743	1000	ug/ml	0.100	10.0	10.0
S3772	1000	ug/ml	0.100	10.0	10.0
S3778	1000	ug/ml	0.020	10.0	2.00

Standard Number	Standard Description	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
PP5560	Acid Herbicide ICV Stock (Derivatized)	Hexane ChemPure lot DS056	JJY	01/18/2018	01/18/2019

STD Parent ID	Parent Concentration	Units	Standard Volume (ml)	Final Volume (ml)	Final Concentration (ug/ml)
S3743	1000	ug/ml	0.100	10.0	10.0
S3771	1000	ug/ml	0.100	10.0	10.0
S3770	1000	ug/ml	0.020	10.0	2.0

PEST-PCB-LOGBOOK-02
SV Prep Logbook
Logbook created: 09/21/17
NOTEBOOK VIEW: LTN_PEST_PCB_LOGBOOK_02_Default, NOTEBOOK: PEST_PCB_LOGBOOK_02, PAGE: 24
Page is Unlocked
Page is not Witnessed
Project: Unassigned
Page Title: 06142018

	PCB CURVE	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
	Acid Herbicides ICAL	Hexane ChemPure lot DS056	JJY	06/14/2018	12/14/2018

Standard Number	Standard Description	Parent ID	Parent Concentration	Units	Standard Volume (ml)	Final Volume (ml)	Final Concentration (ug/ml)
PP5721	AH ICAL PT 1	PP5560	10.0/2.00	ug/ml	0.020	10.0	0.02/0.004
PP5722	AH ICAL PT 2	PP5560	10.0/2.00	ug/ml	0.050	10.0	0.05/0.01
PP5723	AH ICAL PT 3	PP5560	10.0/2.00	ug/ml	0.200	10.0	0.20/0.04
PP5724	AH ICAL PT 4	PP5560	10.0/2.00	ug/ml	0.500	10.0	0.50/0.10
PP5725	AH ICAL PT 5	PP5560	10.0/2.00	ug/ml	0.700	10.0	0.70/0.14
PP5726	AH ICAL PT 6	PP5560	10.0/2.00	ug/ml	1.000	10.0	1.00/0.20
PP5727	AH ICV	PP5559	10.0/2.00	ug/ml	0.500	10.0	0.50/0.10
PP5728	AH CCV	PP5560	10.0/2.00	ug/ml	0.500	10.0	0.50/0.10

1

CT Laboratories, LLC

PEST-PCB-LOGBOOK-02
SV Prep Logbook
Logbook created: 09/21/17
NOTEBOOK VIEW: LTN_PEST_PCB_LOGBOOK_02_Default, NOTEBOOK: PEST_PCB_LOGBOOK_02, PAGE: 27
Page is Locked
Author: azurfluh on: 8/1/2018 11:22:44 AM
Page is not Witnessed
Project: Unassigned
Page Title: 08/01/2018

Standard Number	Standard Description	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
PP5764	Acid Herbicide Surrogate	Acetone ChemPure Lot DR774	AJZ	08/01/2018	10/01/2018

STD Parent ID	Parent Concentration	Units	Standard Volume (ml)	Final Volume (ml)	Final Concentration (ug/ml)
S3921A	1000	ug/mL	0.250	50.0	5.0

Standard Number	Standard Description	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
PP5765	Acid Herbicide Spike	Acetone ChemPure Lot DR774	AJZ	08/01/2018	10/01/2018

STD Parent ID	Parent Concentration	Units	Standard Volume (ml)	Final Volume (ml)	Final Concentration (ug/ml)
S3919A	1000	ug/mL	0.050	50.0	1.0
S3920A	1000	ug/mL	0.250	50.0	5.0

1

CT Laboratories, LLC

POLYCHLORINATED BIPHENYL QUALITY CONTROL SUMMARY DOCUMENTS

CT LABORATORIES
delivering more than data from your environmental analyses

1D-2

PCB ORGANICS ANALYSIS

Sample Description

PETER-WS-001

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Matrix:	SOIL	SDG No.:	139370
Sample wt/vol:	10.02 (g/L)	CTL Sample ID:	175865
% Solids:	93.6	Date Received:	09/13/2018
Conc. Extract Vol:	10 (mL)	Date/Time Prepared:	09/18/2018 / 09:00
Analytical Method:	EPA 8082A	Analytical Prep Batch #	68676
Analytical Run #:	153371	Dilution Factor:	1.00
Date & Time Analyzed:	09/18/2018 / 16:02		

Cleanup Date/Time/Type: , 09/18/2018 14:50 (Sulfur) , 09/18/2018 14:30 (Acid) ,

TCLP / SPLP / MLP or ASTM Procedure Extraction Date (*if applicable*): /

ICAL Calibration #: 091418pcbic Concentration Units: ug/kg

CAS NO.	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
12674-11-2	Aroclor-1016	21	U	5.3	21	32	32
11104-28-2	Aroclor-1221	21	U	7.5	21	32	32
11141-16-5	Aroclor-1232	21	U	9.6	21	32	32
53469-21-9	Aroclor-1242	21	U	7.5	21	32	32
12672-29-6	Aroclor-1248	21	U	7.5	21	32	32
11097-69-1	Aroclor-1254	21	U	9.6	21	32	32
11096-82-5	Aroclor-1260	21	U	6.4	21	32	32
37324-23-5	Aroclor-1262	21	U	7.5	21	32	32
11100-14-4	Aroclor-1268	21	U	5.3	21	32	32

CT LABORATORIES
delivering more than data from your environmental analyses

1D-2

PCB ORGANICS ANALYSIS

Sample Description

PETER-WW-001

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Matrix:	GROUND WATER	SDG No.:	139370
Sample wt/vol:	0.95 (g/L)	CTL Sample ID:	175867
% Solids:		Date Received:	09/13/2018
Conc. Extract Vol:	10 (mL)	Date/Time Prepared:	09/18/2018 / 13:00
Analytical Method:	EPA 8082A	Analytical Prep Batch #	68675
Analytical Run #:	153406	Dilution Factor:	1.00
Date & Time Analyzed:	09/19/2018 / 15:03		

Cleanup Date/Time/Type: , 09/19/2018 13:05 (Sulfur) , 09/19/2018 12:45 (Acid) ,

TCLP / SPLP / MLP or ASTM Procedure Extraction Date (*if applicable*): /

ICAL Calibration #:	091418pcbic	Concentration Units:	ug/L

CAS NO.	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
12674-11-2	Aroclor-1016	0.32	U	0.12	0.32	1.1	1.1
11104-28-2	Aroclor-1221	0.32	U	0.089	0.32	1.1	1.1
11141-16-5	Aroclor-1232	0.32	U	0.15	0.32	1.1	1.1
53469-21-9	Aroclor-1242	0.32	U	0.10	0.32	1.1	1.1
12672-29-6	Aroclor-1248	0.32	U	0.093	0.32	1.1	1.1
11097-69-1	Aroclor-1254	0.32	U	0.099	0.32	1.1	1.1
11096-82-5	Aroclor-1260	0.32	U	0.10	0.32	1.1	1.1
37324-23-5	Aroclor-1262	0.32	U	0.29	0.32	1.1	1.1
11100-14-4	Aroclor-1268	0.32	U	0.059	0.32	1.1	1.1

CT LABORATORIES
delivering more than data from your environmental analyses

1D-4

Sample Description

METHOD BLANK

PCB ORGANICS ANALYSIS (MB)

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Matrix:		SDG No.:	139370
Sample wt/vol:	1.00 (g/L)	CTL Sample ID:	177833
% Solids:		Date Received:	09/13/2018
Conc. Extract Vol:	10 (mL)	Date/Time Prepared:	09/18/2018 / 13:00
Analytical Method:	EPA 8082A	Analytical Prep Batch #	68675
Analytical Run #:	153406	Dilution Factor:	ug/L
Cleanup Date/Time/Type:	, 09/19/2018 13:05 (Sulfur) , 09/19/201812:45 (Acid) ,		
TCLP / SPLP / MLP or ASTM Procedure Extraction Date (*if applicable*):			/
ICAL Calibration #:	091418pcbic	Concentration Units:	MBW

CAS NO.	Analyte	Analysis Date/Time		Concentration	Qualifiers	DL/LOD	RL	*Control Limit*
12674-11-2	Aroclor-1016	09/19/2018	13:59	0.113	U	0.113	1.0	***0.50***
11104-28-2	Aroclor-1221	09/19/2018	13:59	0.085	U	0.085	1.0	***0.50***
11141-16-5	Aroclor-1232	09/19/2018	13:59	0.145	U	0.145	1.0	***0.50***
53469-21-9	Aroclor-1242	09/19/2018	13:59	0.096	U	0.096	1.0	***0.50***
12672-29-6	Aroclor-1248	09/19/2018	13:59	0.088	U	0.088	1.0	***0.50***
11097-69-1	Aroclor-1254	09/19/2018	13:59	0.094	U	0.094	1.0	***0.50***
11096-82-5	Aroclor-1260	09/19/2018	13:59	0.099	U	0.099	1.0	***0.50***
37324-23-5	Aroclor-1262	09/19/2018	13:59	0.28	U	0.28	1.0	***0.50***
11100-14-4	Aroclor-1268	09/19/2018	13:59	0.056	U	0.056	1.0	***0.50***

CT LABORATORIES
delivering more than data from your environmental analyses

1D-4

Sample Description

METHOD BLANK

PCB ORGANICS ANALYSIS (MB)

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Matrix:		SDG No.:	139370
Sample wt/vol:	10.00 (g/L)	CTL Sample ID:	177836
% Solids:		Date Received:	09/13/2018
Conc. Extract Vol:	10 (mL)	Date/Time Prepared:	09/18/2018 / 09:00
Analytical Method:	EPA 8082A	Analytical Prep Batch #	68676
Analytical Run #:	153371	Dilution Factor:	ug/kg
Cleanup Date/Time/Type:	, 09/18/2018 14:50 (Sulfur)	, 09/18/2018 14:30 (Acid)	,
TCLP / SPLP / MLP or ASTM Procedure Extraction Date (*if applicable*):			/
ICAL Calibration #:	091418pcbic	Concentration Units:	MBS

CAS NO.	Analyte	Analysis Date/Time		Concentration	Qualifiers	DL/LOD	RL	*Control Limit*
12674-11-2	Aroclor-1016	09/18/2018	14:59	5	U	5	30	***15***
11104-28-2	Aroclor-1221	09/18/2018	14:59	7	U	7	30	***15***
11141-16-5	Aroclor-1232	09/18/2018	14:59	9	U	9	30	***15***
53469-21-9	Aroclor-1242	09/18/2018	14:59	7	U	7	30	***15***
12672-29-6	Aroclor-1248	09/18/2018	14:59	7	U	7	30	***15***
11097-69-1	Aroclor-1254	09/18/2018	14:59	9	U	9	30	***15***
11096-82-5	Aroclor-1260	09/18/2018	14:59	6	U	6	30	***15***
37324-23-5	Aroclor-1262	09/18/2018	14:59	7	U	7	30	***15***
11100-14-4	Aroclor-1268	09/18/2018	14:59	5	U	5	30	***15***

CT LABORATORIES
delivering more than data from your environmental analyses

2E-1

WATER PCB SYSTEM MONITORING COMPOUND RECOVERY

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Analytical Method:	EPA 8082A	SDG:	139370
Analytical Run #:	153406	ICAL Calibration #:	091418pcbic

GC Column(1): Restek RTX ID: 0.32 (mm) GC Column(2): Restek RTX C2 ID: 0.32 (mm)

CTLab #	175867				
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
Surr: 2,4,5,6-TCMX	100	82	38	137	
Surr: DCBP	100	96	23	147	

CTLab #	177833	Sample Type:		Method Blank	
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
Surr: 2,4,5,6-TCMX	100	70.4	38	137	
Surr: DCBP	100	68.3	23	147	

CTLab #	177834	Sample Type:		Lab Control Spike	
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
Surr: 2,4,5,6-TCMX	100	75.7	38	137	
Surr: DCBP	100	78.8	23	147	

CTLab #	177835	Sample Type:		Normal Field Sample	
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
Surr: 2,4,5,6-TCMX	100	75.5	38	137	
Surr: DCBP	100	71.6	23	147	

CT LABORATORIES
delivering more than data from your environmental analyses

2F-1

SOIL PCB SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: CT Laboratories | Contract: MAXXAM ANALYTICS-SI AFFF

Analytical Method: EPA 8082A | SDG: 139370

Analytical Run #: 153371 | ICAL Calibration #: 091418pcbic

GC Column(1): Restek RTX ID: 0.32 (mm) | GC Column(2): Restek RTX C2 ID: 0.32 (mm)

CTLab #	175865				
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
Surr: 2,4,5,6-TCMX	100	95	44	130	
Surr: DCBP	100	104	54	141	

CTLab #	177836	Sample Type:		Method Blank	
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
Surr: 2,4,5,6-TCMX	100	91.8	44	130	
Surr: DCBP	100	98.5	54	141	

CTLab #	177837	Sample Type:		Lab Control Spike	
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
Surr: 2,4,5,6-TCMX	100	82.2	44	130	
Surr: DCBP	100	92.6	54	141	

CTLab #	177839	Sample Type:		Matrix Spike	
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
Surr: 2,4,5,6-TCMX	100	78.7	44	130	
Surr: DCBP	100	94.4	54	141	

CTLab #	177840	Sample Type:		Matrix Spike Duplicate	
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
Surr: 2,4,5,6-TCMX	100	80.3	44	130	
Surr: DCBP	100	97.4	54	141	

CT LABORATORIES
delivering more than data from your environmental analyses

3E

Sample Description

LCS

WATER PCB LAB CONTROL SAMPLE

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

Sample No.: 177834

SDG No.: 139370

Analytical Method: EPA 8082A

Concentration Units: ug/L

Sample No.: 177834

Parent Sample No.: 0

Analytical Prep Batch #: 68675

Analytical Preparation Date/Time: 09/18/2018 13:00

Analytical Run #: 153406

ICAL Calibration #: 091418pcbic

Analyte	Analysis Date/Time		Control Limit (%R)	Spike Result	Parent Result	Spike Amount	%R
Aroclor-1016	09/19/2018	14:20	46-129	3.82		5.00	76
Aroclor-1260	09/19/2018	14:20	45-134	3.84		5.00	77

Spike Recovery: 0 out of 2 outside limits

CT LABORATORIES
delivering more than data from your environmental analyses

3E

WATER PCB LAB CONTROL SAMPLE

Sample Description

LCSD

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

Sample No.: 177835

SDG No.: 139370

Analytical Method: EPA 8082A

Concentration Units: ug/L

Analytical Run #: 153406 Sample No.: 177835 Parent Sample No.: 177834

Analytical Prep Batch #: 68675 Analytical Preparation Date/Time: 09/18/2018 13:00

ICAL Calibration #: 091418pcbic

Analyte	Analysis Date/Time		Spike Result	Parent Result	Spike Amount	%R	%RPD	Control Limit (%R)	Control Limit (%RPD)
Aroclor-1016	09/19/2018	15:24	3.84	3.82	5.00	77	1	46-129	30
Aroclor-1260	09/19/2018	15:24	3.99	3.84	5.00	80	4	45-134	30

RPD or Spike Recovery: 0 out of 2 outside QC limits

CT LABORATORIES
delivering more than data from your environmental analyses

3F

Sample Description

PETER-WS-001

SOIL PCB MATRIX SPIKE RECOVERY

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

Matrix: SOIL

SDG No.: 139370

Analytical Method: EPA 8082A

Concentration Units: ug/kg

Analytical Run #: 153371

Sample No.: 177839

Parent Sample No.: 175865

Analytical Prep Batch #: 68676

Analytical Preparation Date/Time: 09/18/2018 09:00

ICAL Calibration #: 091418pcbic

Analyte	Analysis Date/Time		Control Limit (%R)	Spike Result	Parent Result	Spike Amount	%R
Aroclor-1016	09/18/2018	16:23	47-134	535	BDL	530	101
Aroclor-1260	09/18/2018	16:23	53-140	553	BDL	530	104

Spike Recovery: 0 out of 2 outside QC limits

CT LABORATORIES
delivering more than data from your environmental analyses

3F

Sample Description

PETER-WS-001

SOIL PCB MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

Matrix: SOIL

SDG No.: 139370

Analytical Method: EPA 8082A

Concentration Units: ug/kg

Analytical Run #: 153371

Sample No.: 177840

Parent Sample No.: 177839

Analytical Prep Batch #: 68676

Analytical Preparation Date/Time: 09/18/2018 09:00

ICAL Calibration #: 091418pcbic

Analyte	Analysis Date/Time		Spike Result	Spike Amount	%R	%RPD	Control Limits (%R)	Control Limits (%RPD)
Aroclor-1016	09/18/2018	16:45	540	525	103	2	47-134	30
Aroclor-1260	09/18/2018	16:45	567	525	108	4	53-140	30

RPD or Spike Recovery: 0 out of 2 outside QC limits

CT LABORATORIES
delivering more than data from your environmental analyses

3F

Sample Description

LCS

SOIL PCB LAB CONTROL SAMPLE

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

Sample No.: 177837

SDG No.: 139370

Analytical Method: EPA 8082A

Concentration Units: ug/kg

Sample No.: 177837

Parent Sample No.: 0

Analytical Prep Batch #: 68676

Analytical Preparation Date/Time: 09/18/2018 09:00

Analytical Run #: 153371

ICAL Calibration #: 091418pcbic

Analyte	Analysis Date/Time		Control Limit (%R)	Spike Result	Parent Result	Spike Amount	%R
Aroclor-1016	09/18/2018	15:20	47-134	491		500	98
Aroclor-1260	09/18/2018	15:20	53-140	494		500	99

Spike Recovery: 0 out of 2 outside limits

CT Laboratories

4C-2

PCB METHOD BLANK SUMMARY

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Sample ID:	177833	SDG No.:	139370
Matrix:	LIQUID	Date Extracted:	09/18/2018
Date Analyzed:	09/19/2018	Time Analyzed:	13:59
Analytical Method:	EPA 8082A	Extraction Method:	SW3510
Analytical Run #:	153406	Extraction Batch #:	68675
		ICAL Calibration #:	091418pcbic

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES AND QC:

SEQUENCE	SAMPLE DESCRIPTION	SAMPLE ID	DATE/TIME ANALYZED	CALIBRATION REFERENCE #
1	PETER-WW-001	175867	09/19/2018 15:03	091418pcbic
2	MBW	177833	09/19/2018 13:59	091418pcbic
3	LCSW	177834	09/19/2018 14:20	091418pcbic
4	LCSDW	177835	09/19/2018 15:24	091418pcbic

CT Laboratories

4C-2

PCB METHOD BLANK SUMMARY

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Sample ID:	177836	SDG No.:	139370
Matrix:	SOLID	Date Extracted:	09/18/2018
Date Analyzed:	09/18/2018	Time Analyzed:	14:59
Analytical Method:	EPA 8082A	Extraction Method:	SW3546
Analytical Run #:	153371	Extraction Batch #:	68676
		ICAL Calibration #:	091418pcbic

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES AND QC:

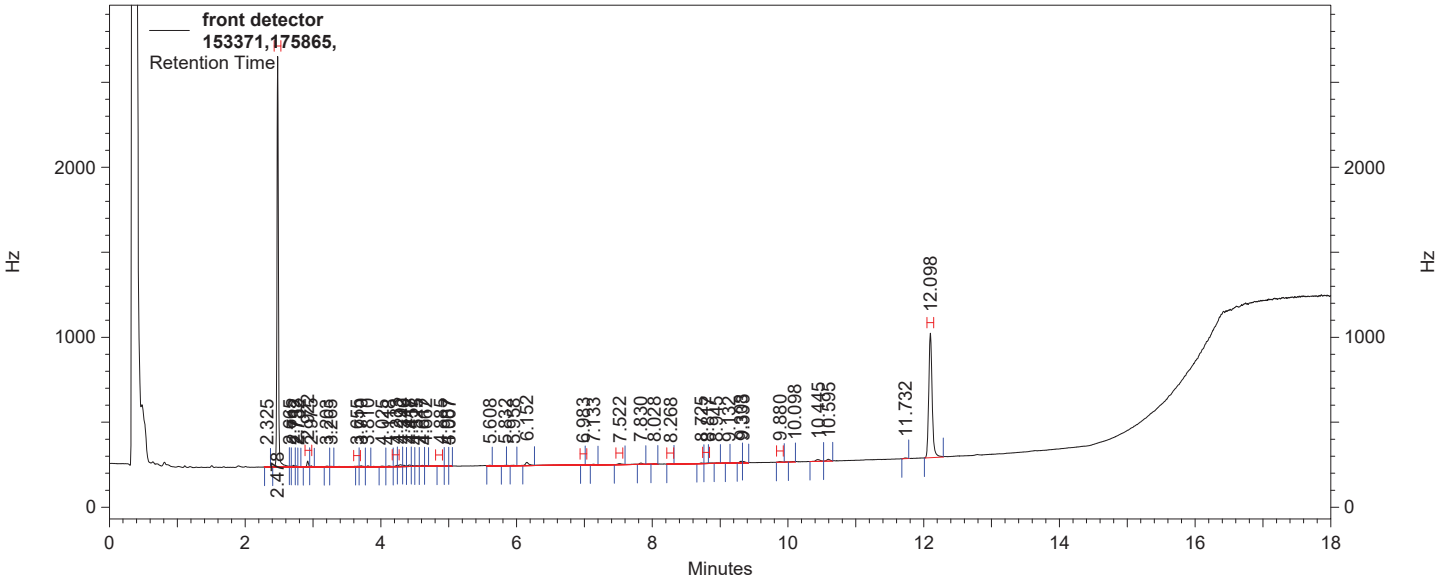
SEQUENCE	SAMPLE DESCRIPTION	SAMPLE ID	DATE/TIME ANALYZED	CALIBRATION REFERENCE #
1	PETER-WS-001	175865	09/18/2018 16:02	091418pcbic
2	MBS	177836	09/18/2018 14:59	091418pcbic
3	LCSS	177837	09/18/2018 15:20	091418pcbic
4	PETER-WS-001MSS	177839	09/18/2018 16:23	091418pcbic
5	PETER-WS-001MSDS	177840	09/18/2018 16:45	091418pcbic

POLYCHLORINATED BIPHENYL SAMPLE DATA DOCUMENTS

PCB Analysis Report (1016/1260) *(Channel A)*

Data File: C:\Instarch\Semi7\Data\091818pcb\014.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091818pcb.met
User: JJY
Sample ID: 153371,175865,
Acquired: 09/18/2018 16:02:44
Printed: 09/19/2018 07:54:34

Data Summary: {Data Description}



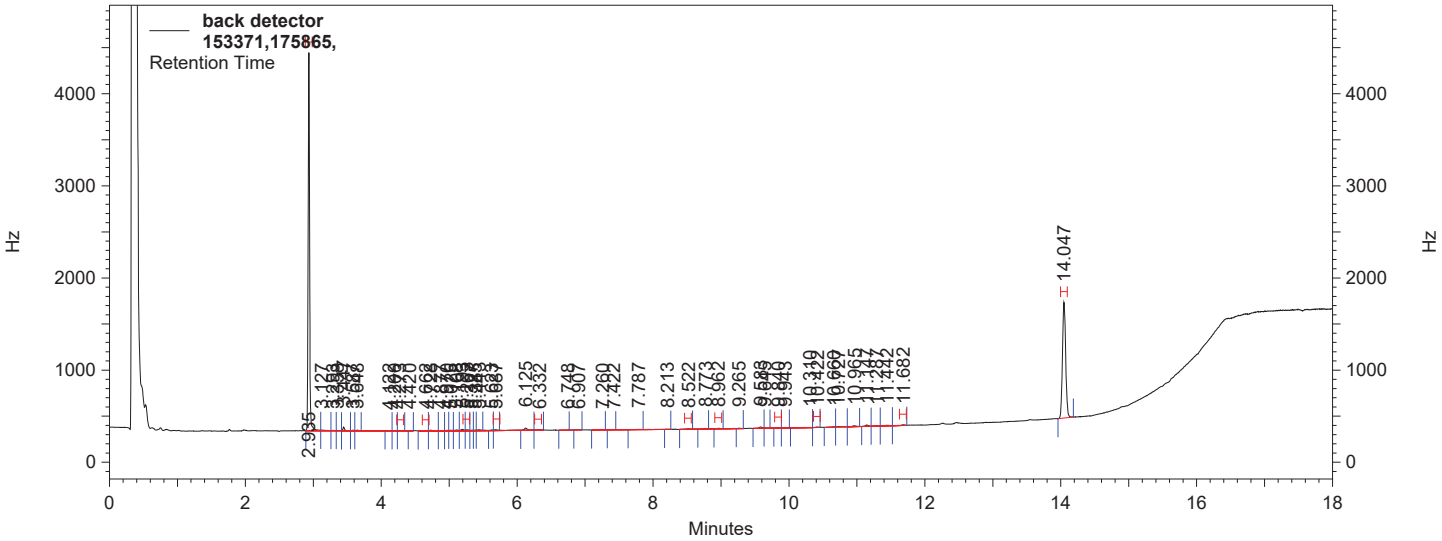
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPCB	2.478	26801131	94.634
Aroclor 1016 #1	2.922	472553	0.003
Aroclor 1016 #2			0.000 BDL
Aroclor 1016 #3	3.655	59705	0.000
Aroclor 1016 #4	4.233	91924	0.000
Aroclor 1016 #5	4.885	131781	0.000
Aroclor 1260 #1	6.983	64971	0.000
Aroclor 1260 #2	7.522	219199	0.000
Aroclor 1260 #3	8.268	72702	0.000
Aroclor 1260 #4	8.817	69736	0.000
Aroclor 1260 #5	9.880	106056	0.001
SURRDCBPCB	12.098	19319887	103.988
Aroclor 1016		755963	0.003
Aroclor 1260		532664	0.001

PCB Analysis Report (1016/1260) *(Channel B)*

Data File: C:\Instarch\Semi7\Data\091818pcb\014.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091818pcb.met
User: JJY
Sample ID: 153371,175865,
Acquired: 09/18/2018 16:02:44
Printed: 09/19/2018 07:54:34

Data Summary: {Data Description}



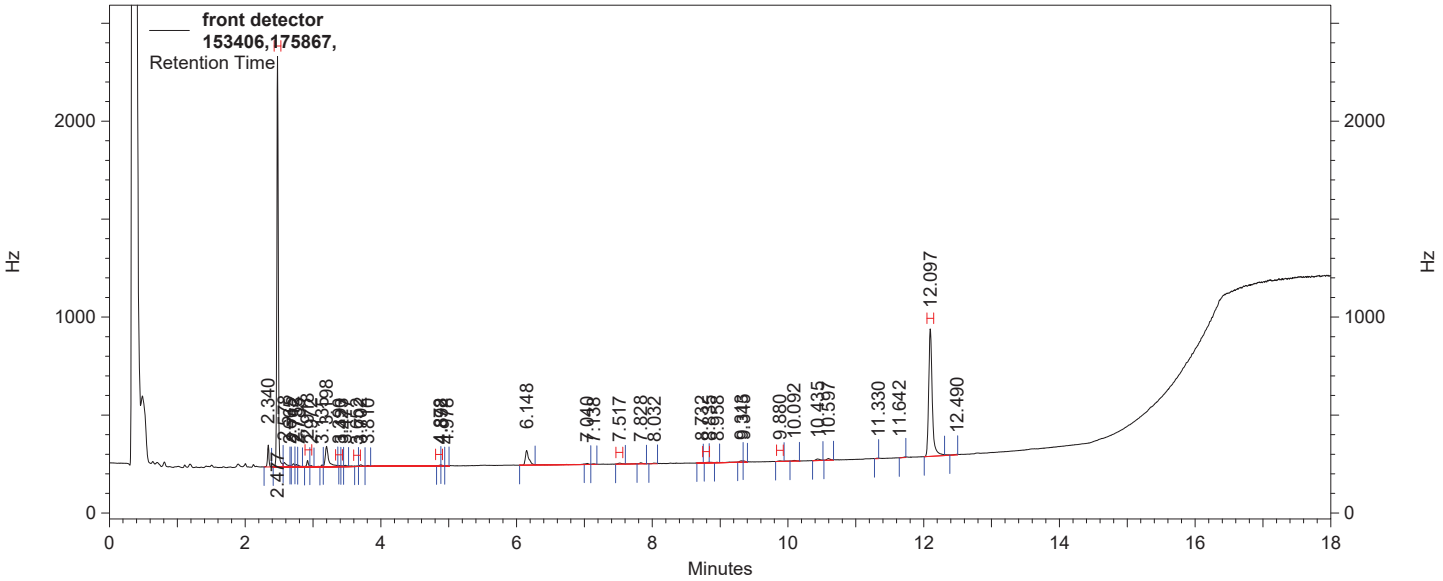
back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPCB	2.935	47008993	101.618
Aroclor 1016 #1	4.273	178756	0.000
Aroclor 1016 #2	4.662	219656	0.000
Aroclor 1016 #3	5.263	228203	0.000
Aroclor 1016 #4	5.687	261821	0.001
Aroclor 1016 #5	6.332	212332	0.001
Aroclor 1260 #1	8.522	270354	0.001
Aroclor 1260 #2	8.962	190277	0.001
Aroclor 1260 #3	9.840	111522	0.000
Aroclor 1260 #4	10.422	156901	0.001
Aroclor 1260 #5	11.682	224029	0.001
SURRDCBPCB	14.047	31806882	107.902
Aroclor 1016		1100768	0.001
Aroclor 1260		953083	0.003

PCB Analysis Report (1016/1260) *(Channel A)*

Data File: C:\Instarch\Semi7\Data\091918pcb\008.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091918pcb.met
User: JJY
Sample ID: 153406,175867,
Acquired: 09/19/2018 15:03:09
Printed: 09/19/2018 15:44:21

Data Summary: {Data Description}



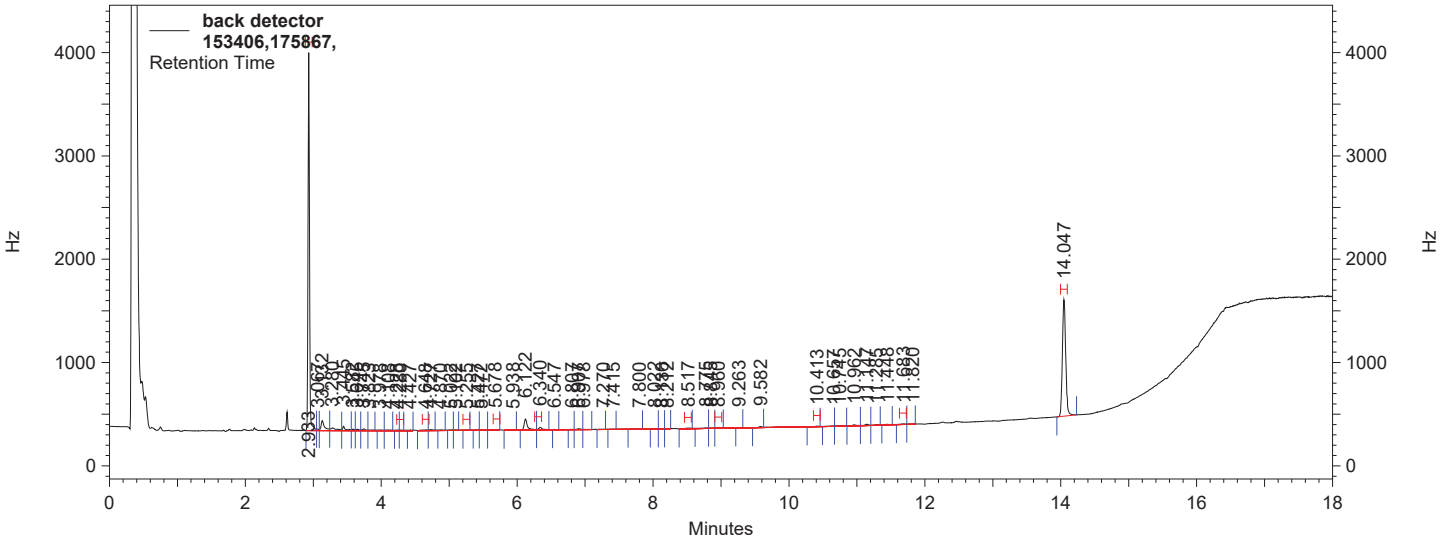
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPCB	2.477	23153774	81.748
Aroclor 1016 #1	2.918	431822	0.003
Aroclor 1016 #2	3.390	76147	0.000
Aroclor 1016 #3	3.652	72863	0.000
Aroclor 1016 #4			0.000 BDL
Aroclor 1016 #5	4.878	79938	0.000
Aroclor 1260 #1			0.000 BDL
Aroclor 1260 #2	7.517	194601	0.000
Aroclor 1260 #3			0.000 BDL
Aroclor 1260 #4	8.835	82402	0.000
Aroclor 1260 #5	9.880	90249	0.001
SURRDCBPCB	12.097	17919918	96.328
Aroclor 1016		660770	0.003
Aroclor 1260		367252	0.001

PCB Analysis Report (1016/1260) *(Channel B)*

Data File: C:\Instarch\Semi7\Data\091918pcb\008.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091918pcb.met
User: JJY
Sample ID: 153406,175867,
Acquired: 09/19/2018 15:03:09
Printed: 09/19/2018 15:44:21

Data Summary: {Data Description}



back detector Results

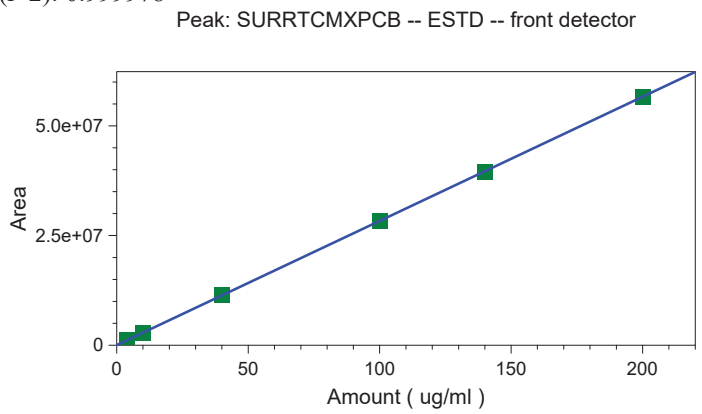
Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPCB	2.933	41799288	90.424
Aroclor 1016 #1	4.280	136892	0.000
Aroclor 1016 #2	4.648	302766	0.000
Aroclor 1016 #3	5.255	183743	0.000
Aroclor 1016 #4	5.678	336120	0.001
Aroclor 1016 #5	6.340	840924	0.003
Aroclor 1260 #1	8.517	312147	0.001
Aroclor 1260 #2	8.960	189337	0.001
Aroclor 1260 #3			0.000 BDL
Aroclor 1260 #4	10.413	189497	0.001
Aroclor 1260 #5	11.683	272688	0.001
SURRDCBPCB	14.047	29599937	100.345
Aroclor 1016		1800445	0.005
Aroclor 1260		963669	0.003

POLYCHLORINATED BIPHENYL INITIAL CALIBRATION DOCUMENTS

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
Print Time: 09/14/2018 17:21:29
User: JJY
Instrument: Semi 7 (Offline)

SURRTCMXPCB (front detector)
Average RF: 282035. RF StDev: 3801.95 RF %RSD: 1.34804
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 283048.x + 15094.7
Goodness of fit (r^2): 0.999978



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	4	10	40	100	140
Area	1101080	2811878	11464964	28367731	39478532
RF	275270	281187.8	286624.1	283677.31	281989.514285714
Last Area					
Residual	0.163247	0.119049	-0.452043	-0.169009	0.576867
Rep StDev					
Rep %RSD					
Rep 1 Area	1101080	2811878	11464964	28367731	39478532
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\022.dat	C:\Instarch\Semi7\Data\091418pcbic\023.dat	C:\Instarch\Semi7\Data\091418pcbic\024.dat	C:\Instarch\Semi7\Data\091418pcbic\025.dat	C:\Instarch\Semi7\Data\091418pcbic\026.dat
Rep 1 Sample ID	PCB ICAL PT 1 PP 5738	PCB ICAL PT 2 PP 5739	PCB ICAL PT 3 PP 5740	PCB ICAL PT 4 PP 5741	PCB ICAL PT 5 PP 5742
Rep 1 Calib. Time	09/14/2018 16:49:37	09/14/2018 16:49:47	09/14/2018 16:49:56	09/14/2018 16:50:06	09/14/2018 16:57:05

	Level 6
Amount	200
Area	56692089

Calibration Report

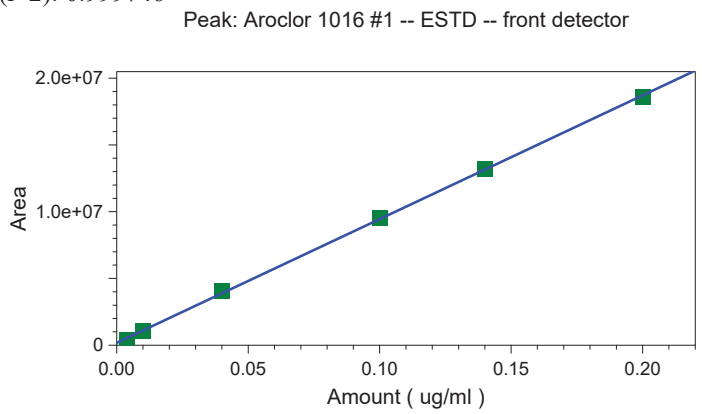
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
Print Time: 09/14/2018 17:21:29
User: JJY
Instrument: Semi 7 (Offline)

RF	283460.445
Last Area	
Residual	-0.238111
Rep StDev	
Rep %RSD	
Rep 1 Area	56692089
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\027.dat
Rep 1 Sample ID	PCB ICAL PT 6 PP 5743
Rep 1 Calib. Time	09/14/2018 17:18:10

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
Print Time: 09/14/2018 17:21:33
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1016 #1 (front detector)
Average RF: 9.84353e+007 RF StDev: 4.83198e+006 RF %RSD: 4.90878
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 9.27019e+007x + 174213.
Goodness of fit (r^2): 0.999746



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.004	0.01	0.04	0.1	0.14
Area	408363	1048304	4039224	9559752	13155764
RF	102090750	104830400	100980600	95597520	93969742.857 1429
Last Area					
Residual	0.00147416	0.000570951	-0.00169289	-0.00124429	-3.54173e-005
Rep StDev					
Rep %RSD					
Rep 1 Area	408363	1048304	4039224	9559752	13155764
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\022.dat	C:\Instarch\Semi7\Data\091418pcbic\023.dat	C:\Instarch\Semi7\Data\091418pcbic\024.dat	C:\Instarch\Semi7\Data\091418pcbic\025.dat	C:\Instarch\Semi7\Data\091418pcbic\026.dat
Rep 1 Sample ID	PCB ICAL PT 1 PP 5738	PCB ICAL PT 2 PP 5739	PCB ICAL PT 3 PP 5740	PCB ICAL PT 4 PP 5741	PCB ICAL PT 5 PP 5742
Rep 1 Calib. Time	09/14/2018 16:49:37	09/14/2018 16:49:47	09/14/2018 16:49:56	09/14/2018 16:50:06	09/14/2018 16:57:05

	Level 6
Amount	0.2
Area	18628616

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
Print Time: 09/14/2018 17:21:33
User: JJY
Instrument: Semi 7 (Offline)

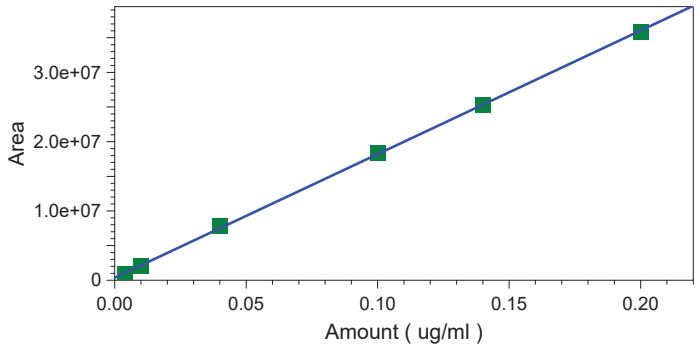
RF	93143080
Last Area	
Residual	0.000927483
Rep StDev	
Rep %RSD	
Rep 1 Area	18628616
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\027.dat
Rep 1 Sample ID	PCB ICAL PT 6 PP 5743
Rep 1 Calib. Time	09/14/2018 17:18:10

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
Print Time: 09/14/2018 17:21:35
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1016 #2 (front detector)
Average RF: 1.92085e+008 RF StDev: 1.25912e+007 RF %RSD: 6.55501
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 1.78390e+008x + 361018.
Goodness of fit (r^2): 0.999788

Peak: Aroclor 1016 #2 -- ESTD -- front detector



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.004	0.01	0.04	0.1	0.14
Area	831999	2056652	7778253	18405069	25314564
RF	207999750	205665200	194456325	184050690	180818314.285714
Last Area					
Residual	0.00135982	0.000494769	-0.00157887	-0.00114972	0.000117659
Rep StDev					
Rep %RSD					
Rep 1 Area	831999	2056652	7778253	18405069	25314564
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\022.dat	C:\Instarch\Semi7\Data\091418pcbic\023.dat	C:\Instarch\Semi7\Data\091418pcbic\024.dat	C:\Instarch\Semi7\Data\091418pcbic\025.dat	C:\Instarch\Semi7\Data\091418pcbic\026.dat
Rep 1 Sample ID	PCB ICAL PT 1 PP 5738	PCB ICAL PT 2 PP 5739	PCB ICAL PT 3 PP 5740	PCB ICAL PT 4 PP 5741	PCB ICAL PT 5 PP 5742
Rep 1 Calib. Time	09/14/2018 16:49:37	09/14/2018 16:49:47	09/14/2018 16:49:56	09/14/2018 16:50:06	09/14/2018 16:57:05

	Level 6
Amount	0.2
Area	35904003

Calibration Report

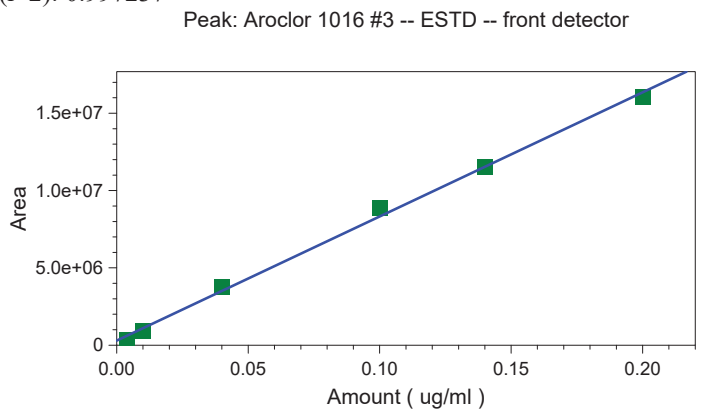
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
Print Time: 09/14/2018 17:21:35
User: JJY
Instrument: Semi 7 (Offline)

RF	179520015
Last Area	
Residual	0.000756335
Rep StDev	
Rep %RSD	
Rep 1 Area	35904003
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\027.dat
Rep 1 Sample ID	PCB ICAL PT 6 PP 5743
Rep 1 Calib. Time	09/14/2018 17:18:10

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
Print Time: 09/14/2018 17:21:37
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1016 #3 (front detector)
Average RF: 8.65839e+007 RF StDev: 5.30348e+006 RF %RSD: 6.12525
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 8.02927e+007x + 296675.
Goodness of fit (r^2): 0.997237



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.004	0.01	0.04	0.1	0.14
Area	336423	899098	3776852	8854967	11494256
RF	84105750	89909800	94421300	88549670	82101828.5714286
Last Area					
Residual	0.00350496	0.00249716	-0.00334365	-0.00658872	0.000540418
Rep StDev					
Rep %RSD					
Rep 1 Area	336423	899098	3776852	8854967	11494256
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\022.dat	C:\Instarch\Semi7\Data\091418pcbic\023.dat	C:\Instarch\Semi7\Data\091418pcbic\024.dat	C:\Instarch\Semi7\Data\091418pcbic\025.dat	C:\Instarch\Semi7\Data\091418pcbic\026.dat
Rep 1 Sample ID	PCB ICAL PT 1 PP 5738	PCB ICAL PT 2 PP 5739	PCB ICAL PT 3 PP 5740	PCB ICAL PT 4 PP 5741	PCB ICAL PT 5 PP 5742
Rep 1 Calib. Time	09/14/2018 16:49:37	09/14/2018 16:49:47	09/14/2018 16:49:56	09/14/2018 16:50:06	09/14/2018 16:57:05

	Level 6
Amount	0.2
Area	16083028

Calibration Report

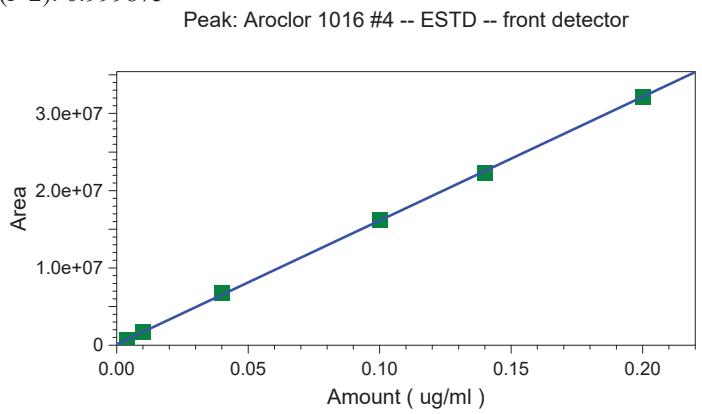
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
Print Time: 09/14/2018 17:21:37
User: JJY
Instrument: Semi 7 (Offline)

RF	80415140
Last Area	
Residual	0.00338984
Rep StDev	
Rep %RSD	
Rep 1 Area	16083028
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\027.dat
Rep 1 Sample ID	PCB ICAL PT 6 PP 5743
Rep 1 Calib. Time	09/14/2018 17:18:10

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
Print Time: 09/14/2018 17:21:38
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1016 #4 (front detector)
Average RF: 1.62993e+008 RF StDev: 3.77764e+006 RF %RSD: 2.31767
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 1.60177e+008x + 110187.
Goodness of fit (r^2): 0.999875



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.004	0.01	0.04	0.1	0.14
Area	638698	1678790	6700121	16234184	22341559
RF	159674500	167879000	167503025	162341840	159582564.285714
Last Area					
Residual	0.000700449	0.000207042	-0.00114167	-0.000663863	0.00120713
Rep StDev					
Rep %RSD					
Rep 1 Area	638698	1678790	6700121	16234184	22341559
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\022.dat	C:\Instarch\Semi7\Data\091418pcbic\023.dat	C:\Instarch\Semi7\Data\091418pcbic\024.dat	C:\Instarch\Semi7\Data\091418pcbic\025.dat	C:\Instarch\Semi7\Data\091418pcbic\026.dat
Rep 1 Sample ID	PCB ICAL PT 1 PP 5738	PCB ICAL PT 2 PP 5739	PCB ICAL PT 3 PP 5740	PCB ICAL PT 4 PP 5741	PCB ICAL PT 5 PP 5742
Rep 1 Calib. Time	09/14/2018 16:49:37	09/14/2018 16:49:47	09/14/2018 16:49:56	09/14/2018 16:50:06	09/14/2018 16:57:05

	Level 6
Amount	0.2
Area	32195019

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
Print Time: 09/14/2018 17:21:38
User: JJY
Instrument: Semi 7 (Offline)

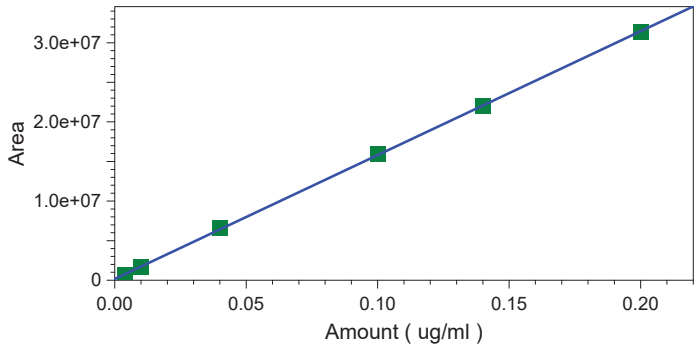
RF	160975095
Last Area	
Residual	-0.000309088
Rep StDev	
Rep %RSD	
Rep 1 Area	32195019
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\027.dat
Rep 1 Sample ID	PCB ICAL PT 6 PP 5743
Rep 1 Calib. Time	09/14/2018 17:18:10

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
Print Time: 09/14/2018 17:21:40
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1016 #5 (front detector)
Average RF: 1.60688e+008 RF StDev: 4.92917e+006 RF %RSD: 3.06754
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 1.56524e+008x + 159677.
Goodness of fit (r^2): 0.999875

Peak: Aroclor 1016 #5 -- ESTD -- front detector



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.004	0.01	0.04	0.1	0.14
Area	627501	1682965	6612444	15952503	21977238
RF	156875250	168296500	165311100	159525030	156980271.428571
Last Area					
Residual	0.00101116	0.000268005	-0.0012255	-0.000897353	0.000611763
Rep StDev					
Rep %RSD					
Rep 1 Area	627501	1682965	6612444	15952503	21977238
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\022.dat	C:\Instarch\Semi7\Data\091418pcbic\023.dat	C:\Instarch\Semi7\Data\091418pcbic\024.dat	C:\Instarch\Semi7\Data\091418pcbic\025.dat	C:\Instarch\Semi7\Data\091418pcbic\026.dat
Rep 1 Sample ID	PCB ICAL PT 1 PP 5738	PCB ICAL PT 2 PP 5739	PCB ICAL PT 3 PP 5740	PCB ICAL PT 4 PP 5741	PCB ICAL PT 5 PP 5742
Rep 1 Calib. Time	09/14/2018 16:49:37	09/14/2018 16:49:47	09/14/2018 16:49:56	09/14/2018 16:50:06	09/14/2018 16:57:05

	Level 6
Amount	0.2
Area	31428114

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
Print Time: 09/14/2018 17:21:40
User: JJY
Instrument: Semi 7 (Offline)

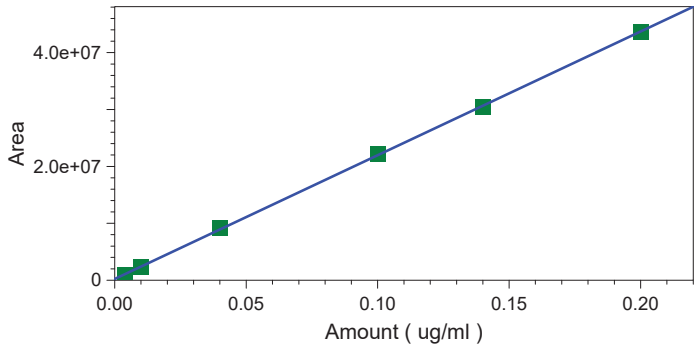
RF	157140570
Last Area	
Residual	0.000231918
Rep StDev	
Rep %RSD	
Rep 1 Area	31428114
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\027.dat
Rep 1 Sample ID	PCB ICAL PT 6 PP 5743
Rep 1 Calib. Time	09/14/2018 17:18:10

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
Print Time: 09/14/2018 17:21:42
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1260 #1 (front detector)
Average RF: 2.23740e+008 RF StDev: 6.45247e+006 RF %RSD: 2.88391
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 2.17492e+008x + 208034.
Goodness of fit (r^2): 0.999880

Peak: Aroclor 1260 #1 -- ESTD -- front detector



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.004	0.01	0.04	0.1	0.14
Area	887960	2340921	9156655	22135381	30449911
RF	221990000	234092100	228916375	221353810	217499364.285714
Last Area					
Residual	0.000873783	0.000193247	-0.00114466	-0.000819255	0.000951554
Rep StDev					
Rep %RSD					
Rep 1 Area	887960	2340921	9156655	22135381	30449911
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\022.dat	C:\Instarch\Semi7\Data\091418pcbic\023.dat	C:\Instarch\Semi7\Data\091418pcbic\024.dat	C:\Instarch\Semi7\Data\091418pcbic\025.dat	C:\Instarch\Semi7\Data\091418pcbic\026.dat
Rep 1 Sample ID	PCB ICAL PT 1 PP 5738	PCB ICAL PT 2 PP 5739	PCB ICAL PT 3 PP 5740	PCB ICAL PT 4 PP 5741	PCB ICAL PT 5 PP 5742
Rep 1 Calib. Time	09/14/2018 16:49:37	09/14/2018 16:49:47	09/14/2018 16:49:56	09/14/2018 16:50:06	09/14/2018 16:57:05

	Level 6
Amount	0.2
Area	43718255

Calibration Report

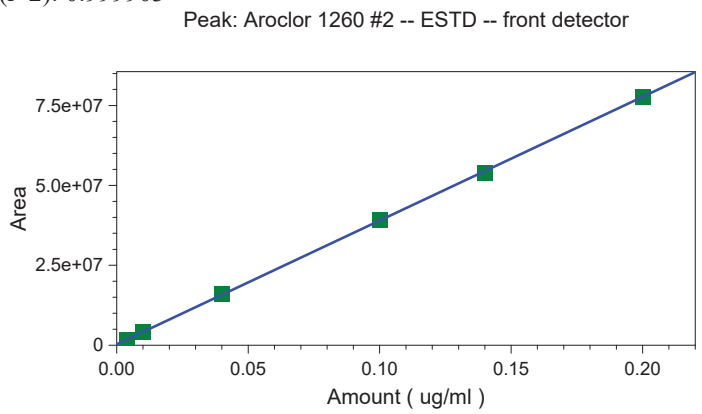
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
Print Time: 09/14/2018 17:21:42
User: JJY
Instrument: Semi 7 (Offline)

RF	218591275
Last Area	
Residual	-5.46658e-005
Rep StDev	
Rep %RSD	
Rep 1 Area	43718255
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\027.dat
Rep 1 Sample ID	PCB ICAL PT 6 PP 5743
Rep 1 Calib. Time	09/14/2018 17:18:10

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
Print Time: 09/14/2018 17:21:43
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1260 #2 (front detector)
Average RF: 3.95441e+008 RF StDev: 8.38658e+006 RF %RSD: 2.12082
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 3.87222e+008x + 259040.
Goodness of fit (r^2): 0.999903



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.004	0.01	0.04	0.1	0.14
Area	1578737	4084583	16077845	39255444	54029846
RF	394684250	408458300	401946125	392554440	385927471.428571
Last Area					
Residual	0.000591886	0.000120545	-0.000852023	-0.000708113	0.00113703
Rep StDev					
Rep %RSD					
Rep 1 Area	1578737	4084583	16077845	39255444	54029846
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\022.dat	C:\Instarch\Semi7\Data\091418pcbic\023.dat	C:\Instarch\Semi7\Data\091418pcbic\024.dat	C:\Instarch\Semi7\Data\091418pcbic\025.dat	C:\Instarch\Semi7\Data\091418pcbic\026.dat
Rep 1 Sample ID	PCB ICAL PT 1 PP 5738	PCB ICAL PT 2 PP 5739	PCB ICAL PT 3 PP 5740	PCB ICAL PT 4 PP 5741	PCB ICAL PT 5 PP 5742
Rep 1 Calib. Time	09/14/2018 16:49:37	09/14/2018 16:49:47	09/14/2018 16:49:56	09/14/2018 16:50:06	09/14/2018 16:57:05

	Level 6
Amount	0.2
Area	77815487

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
Print Time: 09/14/2018 17:21:43
User: JJY
Instrument: Semi 7 (Offline)

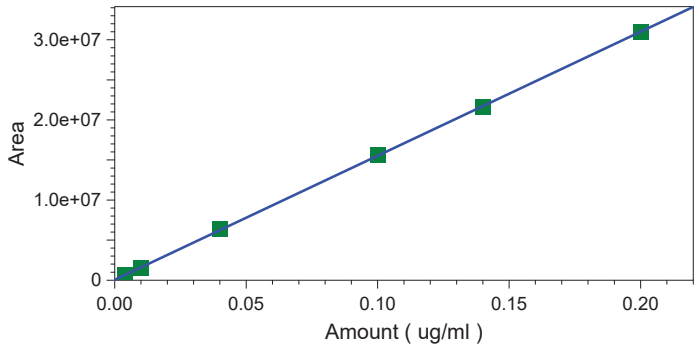
RF	389077435
Last Area	
Residual	-0.000289326
Rep StDev	
Rep %RSD	
Rep 1 Area	77815487
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\027.dat
Rep 1 Sample ID	PCB ICAL PT 6 PP 5743
Rep 1 Calib. Time	09/14/2018 17:18:10

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
Print Time: 09/14/2018 17:21:47
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1260 #3 (front detector)
Average RF: 1.54959e+008 RF StDev: 3.80677e+006 RF %RSD: 2.45663
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 1.54792e+008x + 52869.9
Goodness of fit (r^2): 0.999932

Peak: Aroclor 1260 #3 -- ESTD -- front detector



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.004	0.01	0.04	0.1	0.14
Area	593077	1561376	6398383	15587350	21604053
RF	148269250	156137600	159959575	155873500	154314664.285714
Last Area					
Residual	0.000510105	0.000254612	-0.000993858	-0.000357254	0.000773097
Rep StDev					
Rep %RSD					
Rep 1 Area	593077	1561376	6398383	15587350	21604053
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\022.dat	C:\Instarch\Semi7\Data\091418pcbic\023.dat	C:\Instarch\Semi7\Data\091418pcbic\024.dat	C:\Instarch\Semi7\Data\091418pcbic\025.dat	C:\Instarch\Semi7\Data\091418pcbic\026.dat
Rep 1 Sample ID	PCB ICAL PT 1 PP 5738	PCB ICAL PT 2 PP 5739	PCB ICAL PT 3 PP 5740	PCB ICAL PT 4 PP 5741	PCB ICAL PT 5 PP 5742
Rep 1 Calib. Time	09/14/2018 16:49:37	09/14/2018 16:49:47	09/14/2018 16:49:56	09/14/2018 16:50:06	09/14/2018 16:57:05

	Level 6
Amount	0.2
Area	31040130

Calibration Report

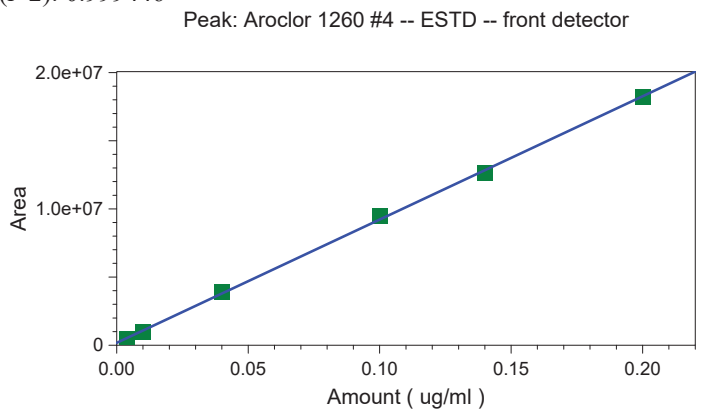
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
Print Time: 09/14/2018 17:21:47
User: JJY
Instrument: Semi 7 (Offline)

RF	155200650
Last Area	
Residual	-0.000186702
Rep StDev	
Rep %RSD	
Rep 1 Area	31040130
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\027.dat
Rep 1 Sample ID	PCB ICAL PT 6 PP 5743
Rep 1 Calib. Time	09/14/2018 17:18:10

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
Print Time: 09/14/2018 17:21:49
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1260 #4 (front detector)
Average RF: 9.64966e+007 RF StDev: 5.53940e+006 RF %RSD: 5.74051
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 9.04759e+007x + 167818.
Goodness of fit (r^2): 0.999446



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.004	0.01	0.04	0.1	0.14
Area	419858	996840	3922519	9472302	12643228
RF	104964500	99684000	98062975	94723020	90308771.4285714
Last Area					
Residual	0.00121429	0.000837096	-0.00149947	-0.00283939	0.00211342
Rep StDev					
Rep %RSD					
Rep 1 Area	419858	996840	3922519	9472302	12643228
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\022.dat	C:\Instarch\Semi7\Data\091418pcbic\023.dat	C:\Instarch\Semi7\Data\091418pcbic\024.dat	C:\Instarch\Semi7\Data\091418pcbic\025.dat	C:\Instarch\Semi7\Data\091418pcbic\026.dat
Rep 1 Sample ID	PCB ICAL PT 1 PP 5738	PCB ICAL PT 2 PP 5739	PCB ICAL PT 3 PP 5740	PCB ICAL PT 4 PP 5741	PCB ICAL PT 5 PP 5742
Rep 1 Calib. Time	09/14/2018 16:49:37	09/14/2018 16:49:47	09/14/2018 16:49:56	09/14/2018 16:50:06	09/14/2018 16:57:05

	Level 6
Amount	0.2
Area	18247246

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
Print Time: 09/14/2018 17:21:49
User: JJY
Instrument: Semi 7 (Offline)

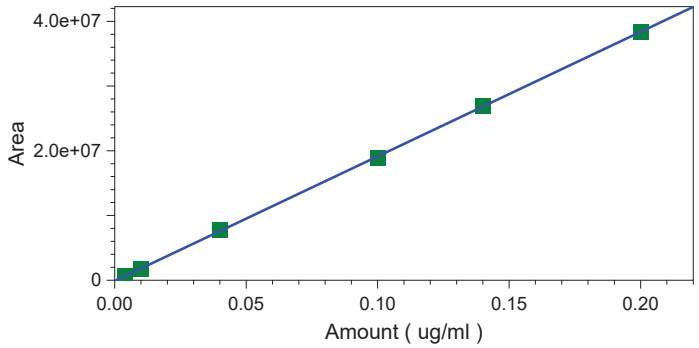
RF	91236230
Last Area	
Residual	0.000174055
Rep StDev	
Rep %RSD	
Rep 1 Area	18247246
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\027.dat
Rep 1 Sample ID	PCB ICAL PT 6 PP 5743
Rep 1 Calib. Time	09/14/2018 17:18:10

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
Print Time: 09/14/2018 17:21:51
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1260 #5 (front detector)
Average RF: 1.85443e+008 RF StDev: 1.05051e+007 RF %RSD: 5.66485
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 1.92377e+008x - 104047.
Goodness of fit (r^2): 0.999916

Peak: Aroclor 1260 #5 -- ESTD -- front detector



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.004	0.01	0.04	0.1	0.14
Area	670856	1776655	7771119	18896640	26862389
RF	167714000	177665500	194277975	188966400	191874207.142857
Last Area					
Residual	-2.80373e-005	0.000223886	-0.000936061	0.00123214	-0.000174786
Rep StDev					
Rep %RSD					
Rep 1 Area	670856	1776655	7771119	18896640	26862389
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\022.dat	C:\Instarch\Semi7\Data\091418pcbic\023.dat	C:\Instarch\Semi7\Data\091418pcbic\024.dat	C:\Instarch\Semi7\Data\091418pcbic\025.dat	C:\Instarch\Semi7\Data\091418pcbic\026.dat
Rep 1 Sample ID	PCB ICAL PT 1 PP 5738	PCB ICAL PT 2 PP 5739	PCB ICAL PT 3 PP 5740	PCB ICAL PT 4 PP 5741	PCB ICAL PT 5 PP 5742
Rep 1 Calib. Time	09/14/2018 16:49:37	09/14/2018 16:49:47	09/14/2018 16:49:56	09/14/2018 16:50:06	09/14/2018 16:57:05

	Level 6
Amount	0.2

Calibration Report

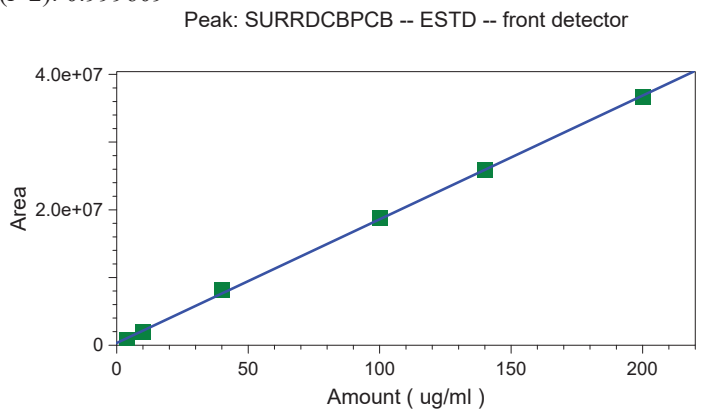
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
Print Time: 09/14/2018 17:21:51
User: JJY
Instrument: Semi 7 (Offline)

Area	38432408
RF	192162040
Last Area	
Residual	-0.000317141
Rep StDev	
Rep %RSD	
Rep 1 Area	38432408
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\027.dat
Rep 1 Sample ID	PCB ICAL PT 6 PP 5743
Rep 1 Calib. Time	09/14/2018 17:18:10

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
Print Time: 09/14/2018 17:21:52
User: JJY
Instrument: Semi 7 (Offline)

SURRDCBPCB (front detector)
Average RF: 190744. RF StDev: 7007.92 RF %RSD: 3.67399
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 182779.x + 313049.
Goodness of fit (r^2): 0.999609



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	4	10	40	100	140
Area	763777	1951464	8085107	18813870	25817342
RF	190944.25	195146.4	202127.675	188138.7	184409.585714286
Last Area					
Residual	1.53403	1.03611	-2.52151	-1.21937	0.464116
Rep StDev					
Rep %RSD					
Rep 1 Area	763777	1951464	8085107	18813870	25817342
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\022.dat	C:\Instarch\Semi7\Data\091418pcbic\023.dat	C:\Instarch\Semi7\Data\091418pcbic\024.dat	C:\Instarch\Semi7\Data\091418pcbic\025.dat	C:\Instarch\Semi7\Data\091418pcbic\026.dat
Rep 1 Sample ID	PCB ICAL PT 1 PP 5738	PCB ICAL PT 2 PP 5739	PCB ICAL PT 3 PP 5740	PCB ICAL PT 4 PP 5741	PCB ICAL PT 5 PP 5742
Rep 1 Calib. Time	09/14/2018 16:49:37	09/14/2018 16:49:47	09/14/2018 16:49:56	09/14/2018 16:50:06	09/14/2018 16:57:05

	Level 6
Amount	200
Area	36739785

Calibration Report

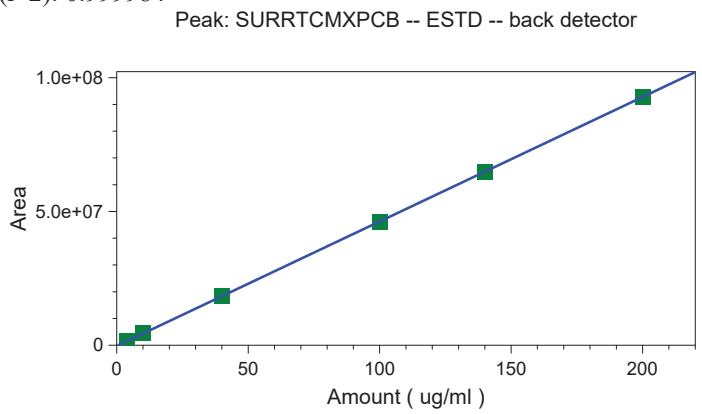
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
Print Time: 09/14/2018 17:21:52
User: JJY
Instrument: Semi 7 (Offline)

RF	183698.925
Last Area	
Residual	0.706618
Rep StDev	
Rep %RSD	
Rep 1 Area	36739785
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\027.dat
Rep 1 Sample ID	PCB ICAL PT 6 PP 5743
Rep 1 Calib. Time	09/14/2018 17:18:10

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
Print Time: 09/14/2018 17:21:58
User: JJY
Instrument: Semi 7 (Offline)

SURRTCMXPCB (back detector)
Average RF: 448168. RF StDev: 24637.2 RF %RSD: 5.49732
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 465415.x - 285560.
Goodness of fit (r^2): 0.999984



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	4	10	40	100	140
Area	1606784	4389187	18392127	46211329	64618411
RF	401696	438918.7	459803.175	462113.29	461560.078571429
Last Area					
Residual	-0.0659305	-0.0442608	-0.131276	0.0957938	0.545945
Rep StDev					
Rep %RSD					
Rep 1 Area	1606784	4389187	18392127	46211329	64618411
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\022.dat	C:\Instarch\Semi7\Data\091418pcbic\023.dat	C:\Instarch\Semi7\Data\091418pcbic\024.dat	C:\Instarch\Semi7\Data\091418pcbic\025.dat	C:\Instarch\Semi7\Data\091418pcbic\026.dat
Rep 1 Sample ID	PCB ICAL PT 1 PP 5738	PCB ICAL PT 2 PP 5739	PCB ICAL PT 3 PP 5740	PCB ICAL PT 4 PP 5741	PCB ICAL PT 5 PP 5742
Rep 1 Calib. Time	09/14/2018 16:49:37	09/14/2018 16:49:47	09/14/2018 16:49:56	09/14/2018 16:50:06	09/14/2018 16:57:05

	Level 6
Amount	200
Area	92983678

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
Print Time: 09/14/2018 17:21:58
User: JJY
Instrument: Semi 7 (Offline)

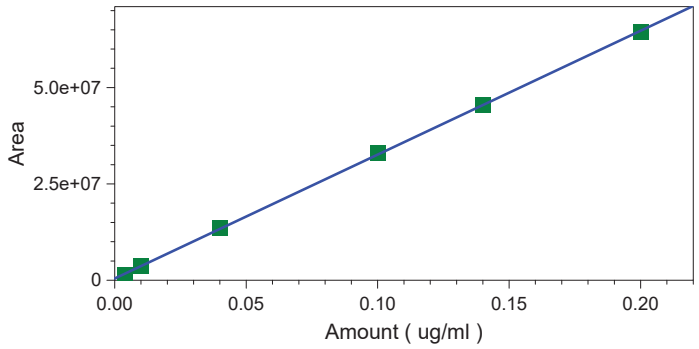
RF	464918.39
Last Area	
Residual	-0.400272
Rep StDev	
Rep %RSD	
Rep 1 Area	92983678
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\027.dat
Rep 1 Sample ID	PCB ICAL PT 6 PP 5743
Rep 1 Calib. Time	09/14/2018 17:18:10

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
Print Time: 09/14/2018 17:22:00
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1016 #1 (back detector)
Average RF: 3.35788e+008 RF StDev: 1.29545e+007 RF %RSD: 3.85795
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 3.21612e+008x + 441286.
Goodness of fit (r^2): 0.999868

Peak: Aroclor 1016 #1 -- ESTD -- back detector



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.004	0.01	0.04	0.1	0.14
Area	1356580	3568862	13693036	32895313	45438805
RF	339145000	356886200	342325900	328953130	324562892.857143
Last Area					
Residual	0.00115404	0.000275298	-0.00120421	-0.00091065	8.73516e-005
Rep StDev					
Rep %RSD					
Rep 1 Area	1356580	3568862	13693036	32895313	45438805
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\022.dat	C:\Instarch\Semi7\Data\091418pcbic\023.dat	C:\Instarch\Semi7\Data\091418pcbic\024.dat	C:\Instarch\Semi7\Data\091418pcbic\025.dat	C:\Instarch\Semi7\Data\091418pcbic\026.dat
Rep 1 Sample ID	PCB ICAL PT 1 PP 5738	PCB ICAL PT 2 PP 5739	PCB ICAL PT 3 PP 5740	PCB ICAL PT 4 PP 5741	PCB ICAL PT 5 PP 5742
Rep 1 Calib. Time	09/14/2018 16:49:37	09/14/2018 16:49:47	09/14/2018 16:49:56	09/14/2018 16:50:06	09/14/2018 16:57:05

	Level 6
Amount	0.2
Area	64571209

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
Print Time: 09/14/2018 17:22:00
User: JJY
Instrument: Semi 7 (Offline)

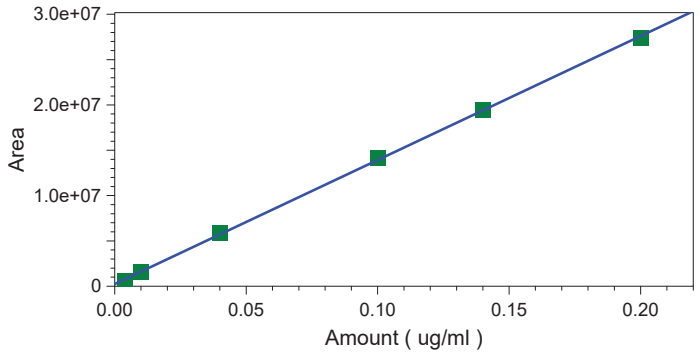
RF	322856045
Last Area	
Residual	0.000598176
Rep StDev	
Rep %RSD	
Rep 1 Area	64571209
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\027.dat
Rep 1 Sample ID	PCB ICAL PT 6 PP 5743
Rep 1 Calib. Time	09/14/2018 17:18:10

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
Print Time: 09/14/2018 17:22:02
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1016 #2 (back detector)
Average RF: 1.44243e+008 RF StDev: 5.99713e+006 RF %RSD: 4.15765
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 1.36820e+008x + 242450.
Goodness of fit (r^2): 0.999724

Peak: Aroclor 1016 #2 -- ESTD -- back detector



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.004	0.01	0.04	0.1	0.14
Area	591009	1523648	5920097	14131135	19431188
RF	147752250	152364800	148002425	141311350	138794200
Last Area					
Residual	0.00145243	0.000635888	-0.00149719	-0.00151062	-0.000248026
Rep StDev					
Rep %RSD					
Rep 1 Area	591009	1523648	5920097	14131135	19431188
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\022.dat	C:\Instarch\Semi7\Data\091418pcbic\023.dat	C:\Instarch\Semi7\Data\091418pcbic\024.dat	C:\Instarch\Semi7\Data\091418pcbic\025.dat	C:\Instarch\Semi7\Data\091418pcbic\026.dat
Rep 1 Sample ID	PCB ICAL PT 1 PP 5738	PCB ICAL PT 2 PP 5739	PCB ICAL PT 3 PP 5740	PCB ICAL PT 4 PP 5741	PCB ICAL PT 5 PP 5742
Rep 1 Calib. Time	09/14/2018 16:49:37	09/14/2018 16:49:47	09/14/2018 16:49:56	09/14/2018 16:50:06	09/14/2018 16:57:05

	Level 6
Amount	0.2
Area	27446714
RF	137233570

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
Print Time: 09/14/2018 17:22:02
User: JJY
Instrument: Semi 7 (Offline)

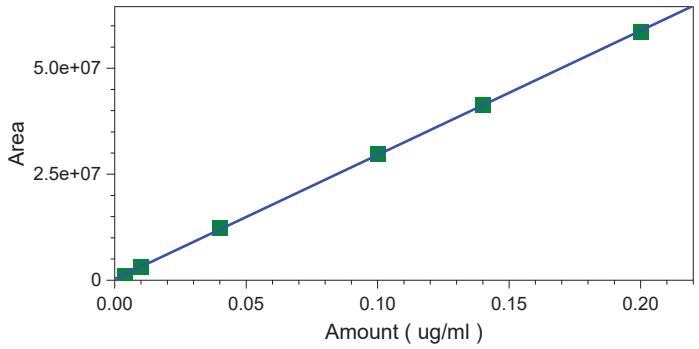
Last Area Residual	0.00116752
Rep StDev	
Rep %RSD	
Rep 1 Area	27446714
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\027.dat
Rep 1 Sample ID	PCB ICAL PT 6 PP 5743
Rep 1 Calib. Time	09/14/2018 17:18:10

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
Print Time: 09/14/2018 17:22:03
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1016 #3 (back detector)
Average RF: 2.94528e+008 RF StDev: 1.61036e+007 RF %RSD: 5.46758
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 2.93112e+008x + 245624.
Goodness of fit (r^2): 0.999842

Peak: Aroclor 1016 #3 -- ESTD -- back detector



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.004	0.01	0.04	0.1	0.14
Area	1057880	3067341	12388010	29807610	41271819
RF	264470000	306734100	309700250	298076100	294798707.142857
Last Area					
Residual	0.00122885	0.000373235	-0.00142581	-0.000855721	3.21892e-005
Rep StDev					
Rep %RSD					
Rep 1 Area	1057880	3067341	12388010	29807610	41271819
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\022.dat	C:\Instarch\Semi7\Data\091418pcbic\023.dat	C:\Instarch\Semi7\Data\091418pcbic\024.dat	C:\Instarch\Semi7\Data\091418pcbic\025.dat	C:\Instarch\Semi7\Data\091418pcbic\026.dat
Rep 1 Sample ID	PCB ICAL PT 1 PP 5738	PCB ICAL PT 2 PP 5739	PCB ICAL PT 3 PP 5740	PCB ICAL PT 4 PP 5741	PCB ICAL PT 5 PP 5742
Rep 1 Calib. Time	09/14/2018 16:49:37	09/14/2018 16:49:47	09/14/2018 16:49:56	09/14/2018 16:50:06	09/14/2018 16:57:05

	Level 6
Amount	0.2
Area	58678236

Calibration Report

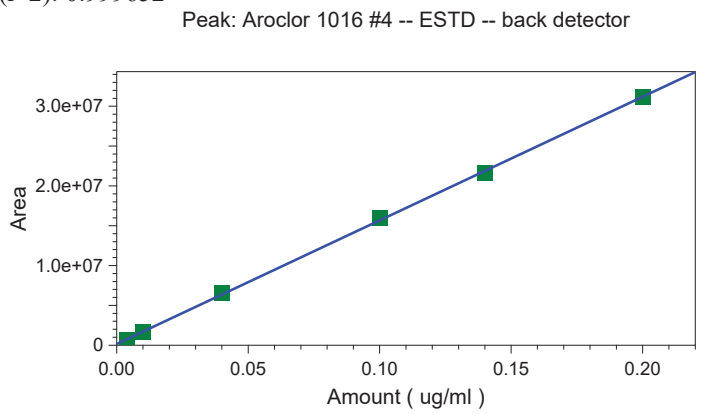
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
Print Time: 09/14/2018 17:22:03
User: JJY
Instrument: Semi 7 (Offline)

RF	293391180
Last Area	
Residual	0.00064725
Rep StDev	
Rep %RSD	
Rep 1 Area	58678236
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\027.dat
Rep 1 Sample ID	PCB ICAL PT 6 PP 5743
Rep 1 Calib. Time	09/14/2018 17:18:10

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
Print Time: 09/14/2018 17:22:05
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1016 #4 (back detector)
Average RF: 1.58054e+008 RF StDev: 5.69766e+006 RF %RSD: 3.60488
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 1.55217e+008x + 149035.
Goodness of fit (r^2): 0.999652



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.004	0.01	0.04	0.1	0.14
Area	600276	1640807	6576971	15952749	21569867
RF	150069000	164080700	164424275	159527490	154070478.571429
Last Area					
Residual	0.00109283	0.000389088	-0.0014127	-0.00181721	0.00199388
Rep StDev					
Rep %RSD					
Rep 1 Area	600276	1640807	6576971	15952749	21569867
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\022.dat	C:\Instarch\Semi7\Data\091418pcbic\023.dat	C:\Instarch\Semi7\Data\091418pcbic\024.dat	C:\Instarch\Semi7\Data\091418pcbic\025.dat	C:\Instarch\Semi7\Data\091418pcbic\026.dat
Rep 1 Sample ID	PCB ICAL PT 1 PP 5738	PCB ICAL PT 2 PP 5739	PCB ICAL PT 3 PP 5740	PCB ICAL PT 4 PP 5741	PCB ICAL PT 5 PP 5742
Rep 1 Calib. Time	09/14/2018 16:49:37	09/14/2018 16:49:47	09/14/2018 16:49:56	09/14/2018 16:50:06	09/14/2018 16:57:05

	Level 6
Amount	0.2
Area	31230507

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
Print Time: 09/14/2018 17:22:05
User: JJY
Instrument: Semi 7 (Offline)

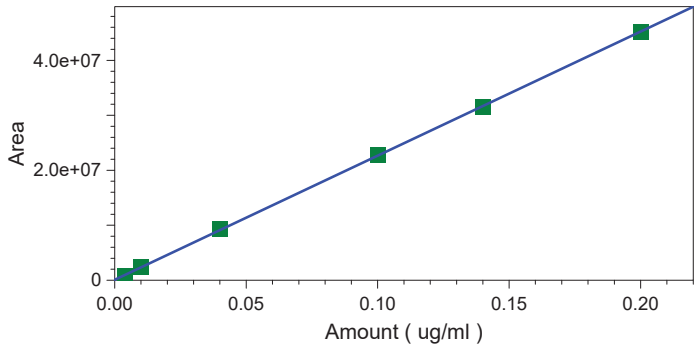
RF	156152535
Last Area	
Residual	-0.000245881
Rep StDev	
Rep %RSD	
Rep 1 Area	31230507
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\027.dat
Rep 1 Sample ID	PCB ICAL PT 6 PP 5743
Rep 1 Calib. Time	09/14/2018 17:18:10

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
Print Time: 09/14/2018 17:22:07
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1016 #5 (back detector)
Average RF: 2.22896e+008 RF StDev: 1.74586e+007 RF %RSD: 7.83263
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 2.25826e+008x + 68401.7
Goodness of fit (r^2): 0.999905

Peak: Aroclor 1016 #5 -- ESTD -- back detector



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.004	0.01	0.04	0.1	0.14
Area	753970	2375601	9277602	22820227	31488762
RF	188492500	237560100	231940050	228202270	224919728.571429
Last Area					
Residual	0.000964181	-0.00021669	-0.000779981	-0.000749139	0.000865042
Rep StDev					
Rep %RSD					
Rep 1 Area	753970	2375601	9277602	22820227	31488762
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\022.dat	C:\Instarch\Semi7\Data\091418pcbic\023.dat	C:\Instarch\Semi7\Data\091418pcbic\024.dat	C:\Instarch\Semi7\Data\091418pcbic\025.dat	C:\Instarch\Semi7\Data\091418pcbic\026.dat
Rep 1 Sample ID	PCB ICAL PT 1 PP 5738	PCB ICAL PT 2 PP 5739	PCB ICAL PT 3 PP 5740	PCB ICAL PT 4 PP 5741	PCB ICAL PT 5 PP 5742
Rep 1 Calib. Time	09/14/2018 16:49:37	09/14/2018 16:49:47	09/14/2018 16:49:56	09/14/2018 16:50:06	09/14/2018 16:57:05

	Level 6
Amount	0.2
Area	45252538

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
Print Time: 09/14/2018 17:22:07
User: JJY
Instrument: Semi 7 (Offline)

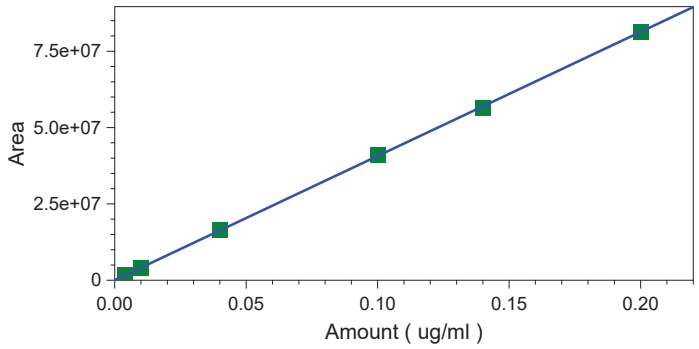
RF	226262690
Last Area	
Residual	-8.34125e-005
Rep StDev	
Rep %RSD	
Rep 1 Area	45252538
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\027.dat
Rep 1 Sample ID	PCB ICAL PT 6 PP 5743
Rep 1 Calib. Time	09/14/2018 17:18:10

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
Print Time: 09/14/2018 17:22:09
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1260 #1 (back detector)
Average RF: 4.03679e+008 RF StDev: 8.61125e+006 RF %RSD: 2.13319
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 4.06457e+008x + 27306.1
Goodness of fit (r^2): 0.999917

Peak: Aroclor 1260 #1 -- ESTD -- back detector



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.004	0.01	0.04	0.1	0.14
Area	1551732	4018419	16468769	41011413	56442840
RF	387933000	401841900	411719225	410114130	403163142.857143
Last Area					
Residual	0.000249482	0.000180735	-0.00045064	-0.000832473	0.00120186
Rep StDev					
Rep %RSD					
Rep 1 Area	1551732	4018419	16468769	41011413	56442840
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\022.dat	C:\Instarch\Semi7\Data\091418pcbic\023.dat	C:\Instarch\Semi7\Data\091418pcbic\024.dat	C:\Instarch\Semi7\Data\091418pcbic\025.dat	C:\Instarch\Semi7\Data\091418pcbic\026.dat
Rep 1 Sample ID	PCB ICAL PT 1 PP 5738	PCB ICAL PT 2 PP 5739	PCB ICAL PT 3 PP 5740	PCB ICAL PT 4 PP 5741	PCB ICAL PT 5 PP 5742
Rep 1 Calib. Time	09/14/2018 16:49:37	09/14/2018 16:49:47	09/14/2018 16:49:56	09/14/2018 16:50:06	09/14/2018 16:57:05

	Level 6
Amount	0.2
Area	81460629

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
Print Time: 09/14/2018 17:22:09
User: JJY
Instrument: Semi 7 (Offline)

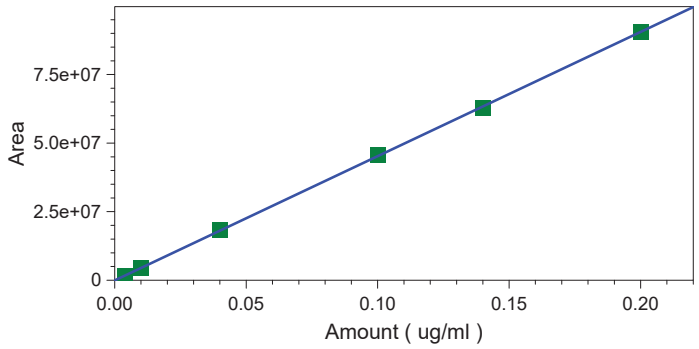
RF	407303145
Last Area	
Residual	-0.000348964
Rep StDev	
Rep %RSD	
Rep 1 Area	81460629
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\027.dat
Rep 1 Sample ID	PCB ICAL PT 6 PP 5743
Rep 1 Calib. Time	09/14/2018 17:18:10

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
Print Time: 09/14/2018 17:22:10
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1260 #2 (back detector)
Average RF: 4.44445e+008 RF StDev: 1.82412e+007 RF %RSD: 4.10426
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 4.52939e+008x - 42713.0
Goodness of fit (r^2): 0.999910

Peak: Aroclor 1260 #2 -- ESTD -- back detector



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.004	0.01	0.04	0.1	0.14
Area	1635787	4422509	18270420	45659242	62805589
RF	408946750	442250900	456760500	456592420	448611350
Last Area					
Residual	0.000294202	0.000141668	-0.000431794	-0.000900924	0.00124332
Rep StDev					
Rep %RSD					
Rep 1 Area	1635787	4422509	18270420	45659242	62805589
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\022.dat	C:\Instarch\Semi7\Data\091418pcbic\023.dat	C:\Instarch\Semi7\Data\091418pcbic\024.dat	C:\Instarch\Semi7\Data\091418pcbic\025.dat	C:\Instarch\Semi7\Data\091418pcbic\026.dat
Rep 1 Sample ID	PCB ICAL PT 1 PP 5738	PCB ICAL PT 2 PP 5739	PCB ICAL PT 3 PP 5740	PCB ICAL PT 4 PP 5741	PCB ICAL PT 5 PP 5742
Rep 1 Calib. Time	09/14/2018 16:49:37	09/14/2018 16:49:47	09/14/2018 16:49:56	09/14/2018 16:50:06	09/14/2018 16:57:05

	Level 6
Amount	0.2
Area	90701998
RF	453509990

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
Print Time: 09/14/2018 17:22:10
User: JJY
Instrument: Semi 7 (Offline)

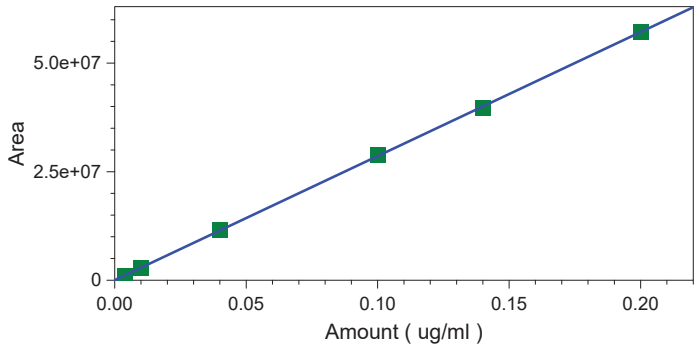
Last Area Residual	-0.000346467
Rep StDev	
Rep %RSD	
Rep 1 Area	90701998
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\027.dat
Rep 1 Sample ID	PCB ICAL PT 6 PP 5743
Rep 1 Calib. Time	09/14/2018 17:18:10

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
Print Time: 09/14/2018 17:22:12
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1260 #3 (back detector)
Average RF: 2.82938e+008 RF StDev: 1.16841e+007 RF %RSD: 4.12954
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 2.85602e+008x + 38346.8
Goodness of fit (r^2): 0.999886

Peak: Aroclor 1260 #3 -- ESTD -- back detector



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.004	0.01	0.04	0.1	0.14
Area	1039130	2887052	11660847	28812881	39621912
RF	259782500	288705200	291521175	288128810	283013657.142857
Last Area					
Residual	0.000495877	2.55985e-005	-0.000694798	-0.000750599	0.00140287
Rep StDev					
Rep %RSD					
Rep 1 Area	1039130	2887052	11660847	28812881	39621912
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\022.dat	C:\Instarch\Semi7\Data\091418pcbic\023.dat	C:\Instarch\Semi7\Data\091418pcbic\024.dat	C:\Instarch\Semi7\Data\091418pcbic\025.dat	C:\Instarch\Semi7\Data\091418pcbic\026.dat
Rep 1 Sample ID	PCB ICAL PT 1 PP 5738	PCB ICAL PT 2 PP 5739	PCB ICAL PT 3 PP 5740	PCB ICAL PT 4 PP 5741	PCB ICAL PT 5 PP 5742
Rep 1 Calib. Time	09/14/2018 16:49:37	09/14/2018 16:49:47	09/14/2018 16:49:56	09/14/2018 16:50:06	09/14/2018 16:57:05

	Level 6
Amount	0.2
Area	57295458

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
Print Time: 09/14/2018 17:22:12
User: JJY
Instrument: Semi 7 (Offline)

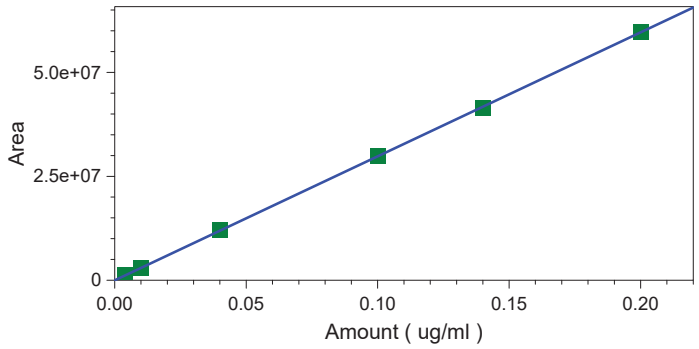
RF	286477290
Last Area	
Residual	-0.000478946
Rep StDev	
Rep %RSD	
Rep 1 Area	57295458
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\027.dat
Rep 1 Sample ID	PCB ICAL PT 6 PP 5743
Rep 1 Calib. Time	09/14/2018 17:18:10

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
Print Time: 09/14/2018 17:22:14
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1260 #4 (back detector)
Average RF: 2.95419e+008 RF StDev: 8.32259e+006 RF %RSD: 2.81722
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 2.98242e+008x - 12511.7
Goodness of fit (r^2): 0.999917

Peak: Aroclor 1260 #4 -- ESTD -- back detector



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.004	0.01	0.04	0.1	0.14
Area	1116881	2972445	12121357	29825491	41373616
RF	279220250	297244500	303033925	298254910	295525828.571429
Last Area					
Residual	0.00021317	-8.49741e-006	-0.000684609	-4.62007e-005	0.00123318
Rep StDev					
Rep %RSD					
Rep 1 Area	1116881	2972445	12121357	29825491	41373616
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\022.dat	C:\Instarch\Semi7\Data\091418pcbic\023.dat	C:\Instarch\Semi7\Data\091418pcbic\024.dat	C:\Instarch\Semi7\Data\091418pcbic\025.dat	C:\Instarch\Semi7\Data\091418pcbic\026.dat
Rep 1 Sample ID	PCB ICAL PT 1 PP 5738	PCB ICAL PT 2 PP 5739	PCB ICAL PT 3 PP 5740	PCB ICAL PT 4 PP 5741	PCB ICAL PT 5 PP 5742
Rep 1 Calib. Time	09/14/2018 16:49:37	09/14/2018 16:49:47	09/14/2018 16:49:56	09/14/2018 16:50:06	09/14/2018 16:57:05

	Level 6
Amount	0.2
Area	59846805

Calibration Report

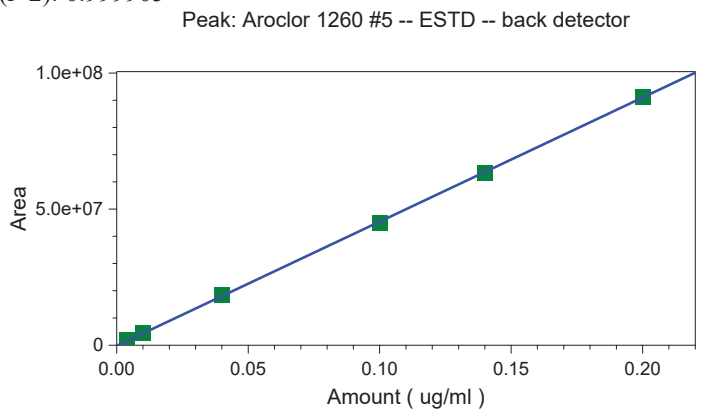
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
Print Time: 09/14/2018 17:22:14
User: JJY
Instrument: Semi 7 (Offline)

RF	299234025
Last Area	
Residual	-0.00070704
Rep StDev	
Rep %RSD	
Rep 1 Area	59846805
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\027.dat
Rep 1 Sample ID	PCB ICAL PT 6 PP 5743
Rep 1 Calib. Time	09/14/2018 17:18:10

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
Print Time: 09/14/2018 17:22:16
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1260 #5 (back detector)
Average RF: 4.49058e+008 RF StDev: 8.96815e+006 RF %RSD: 1.99710
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 4.56076e+008x - 195569.
Goodness of fit (r^2): 0.999905



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.004	0.01	0.04	0.1	0.14
Area	1770382	4349968	18327116	44850708	63430541
RF	442595500	434996800	458177900	448507080	453075292.857143
Last Area					
Residual	-0.000310575	3.33854e-005	-0.000613123	0.00123084	0.000492416
Rep StDev					
Rep %RSD					
Rep 1 Area	1770382	4349968	18327116	44850708	63430541
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\022.dat	C:\Instarch\Semi7\Data\091418pcbic\023.dat	C:\Instarch\Semi7\Data\091418pcbic\024.dat	C:\Instarch\Semi7\Data\091418pcbic\025.dat	C:\Instarch\Semi7\Data\091418pcbic\026.dat
Rep 1 Sample ID	PCB ICAL PT 1 PP 5738	PCB ICAL PT 2 PP 5739	PCB ICAL PT 3 PP 5740	PCB ICAL PT 4 PP 5741	PCB ICAL PT 5 PP 5742
Rep 1 Calib. Time	09/14/2018 16:49:37	09/14/2018 16:49:47	09/14/2018 16:49:56	09/14/2018 16:50:06	09/14/2018 16:57:05

	Level 6
Amount	0.2
Area	91399588

Calibration Report

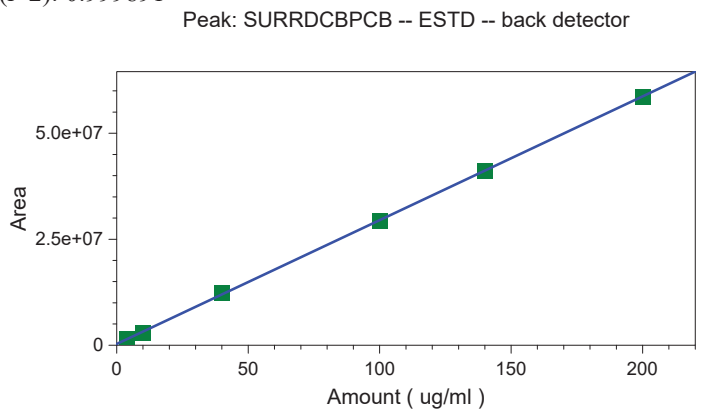
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
Print Time: 09/14/2018 17:22:16
User: JJY
Instrument: Semi 7 (Offline)

RF	456997940
Last Area	
Residual	-0.000832945
Rep StDev	
Rep %RSD	
Rep 1 Area	91399588
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\027.dat
Rep 1 Sample ID	PCB ICAL PT 6 PP 5743
Rep 1 Calib. Time	09/14/2018 17:18:10

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
Print Time: 09/14/2018 17:22:17
User: JJY
Instrument: Semi 7 (Offline)

SURRDCBPCB (back detector)
Average RF: 304295. RF StDev: 15176.7 RF %RSD: 4.98749
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 292040.x + 295082.
Goodness of fit (r^2): 0.999891



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	4	10	40	100	140
Area	1328092	3010796	12442669	29434656	41134924
RF	332023	301079.6	311066.725	294346.56	293820.885714286
Last Area					
Residual	0.462776	0.700873	-1.59568	0.220481	0.156507
Rep StDev					
Rep %RSD					
Rep 1 Area	1328092	3010796	12442669	29434656	41134924
Rep 1 User	JJY	JJY	JJY	JJY	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\022.dat	C:\Instarch\Semi7\Data\091418pcbic\023.dat	C:\Instarch\Semi7\Data\091418pcbic\024.dat	C:\Instarch\Semi7\Data\091418pcbic\025.dat	C:\Instarch\Semi7\Data\091418pcbic\026.dat
Rep 1 Sample ID	PCB ICAL PT 1 PP 5738	PCB ICAL PT 2 PP 5739	PCB ICAL PT 3 PP 5740	PCB ICAL PT 4 PP 5741	PCB ICAL PT 5 PP 5742
Rep 1 Calib. Time	09/14/2018 16:49:37	09/14/2018 16:49:47	09/14/2018 16:49:56	09/14/2018 16:50:06	09/14/2018 16:57:05

	Level 6
Amount	200
Area	58686934

Calibration Report

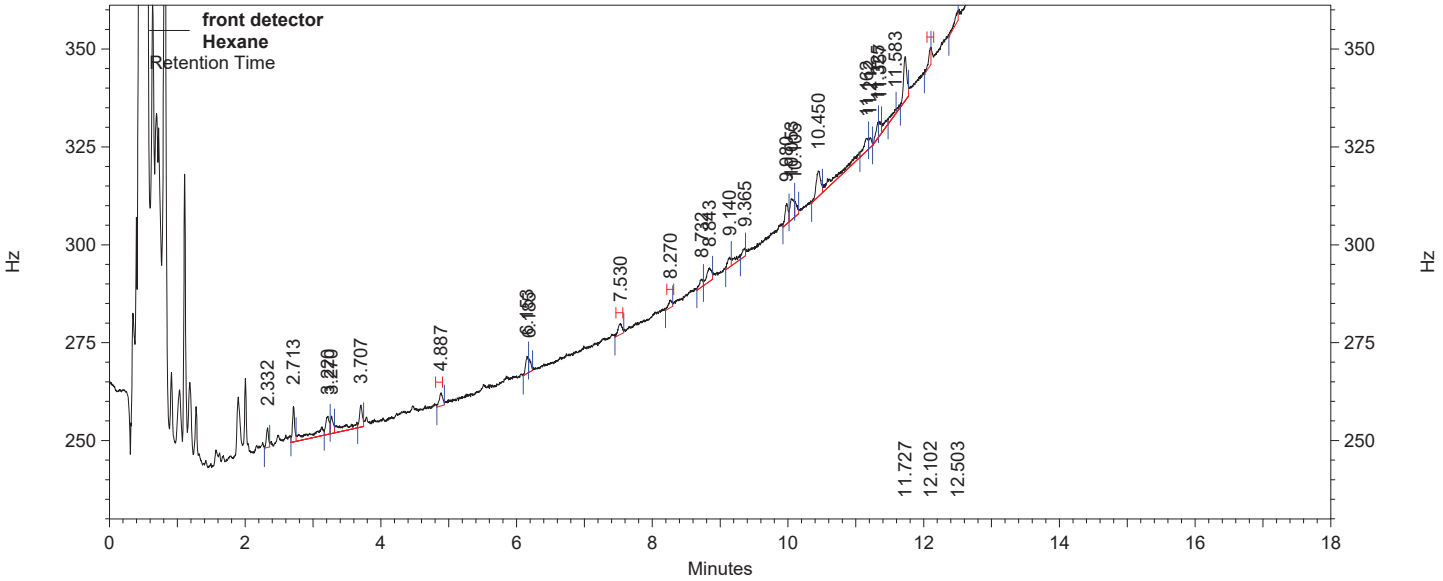
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
Print Time: 09/14/2018 17:22:17
User: JJY
Instrument: Semi 7 (Offline)

RF	293434.67
Last Area	
Residual	0.0550407
Rep StDev	
Rep %RSD	
Rep 1 Area	58686934
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\027.dat
Rep 1 Sample ID	PCB ICAL PT 6 PP 5743
Rep 1 Calib. Time	09/14/2018 17:18:10

PCB Analysis Report (1016/1260) *(Channel A)*

Data File: C:\Instarch\Semi7\Data\091418pcbic\021.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
User: JJY
Sample ID: Hexane
Acquired: 09/14/2018 14:52:45
Printed: 09/14/2018 17:25:04

Data Summary: {Data Description}



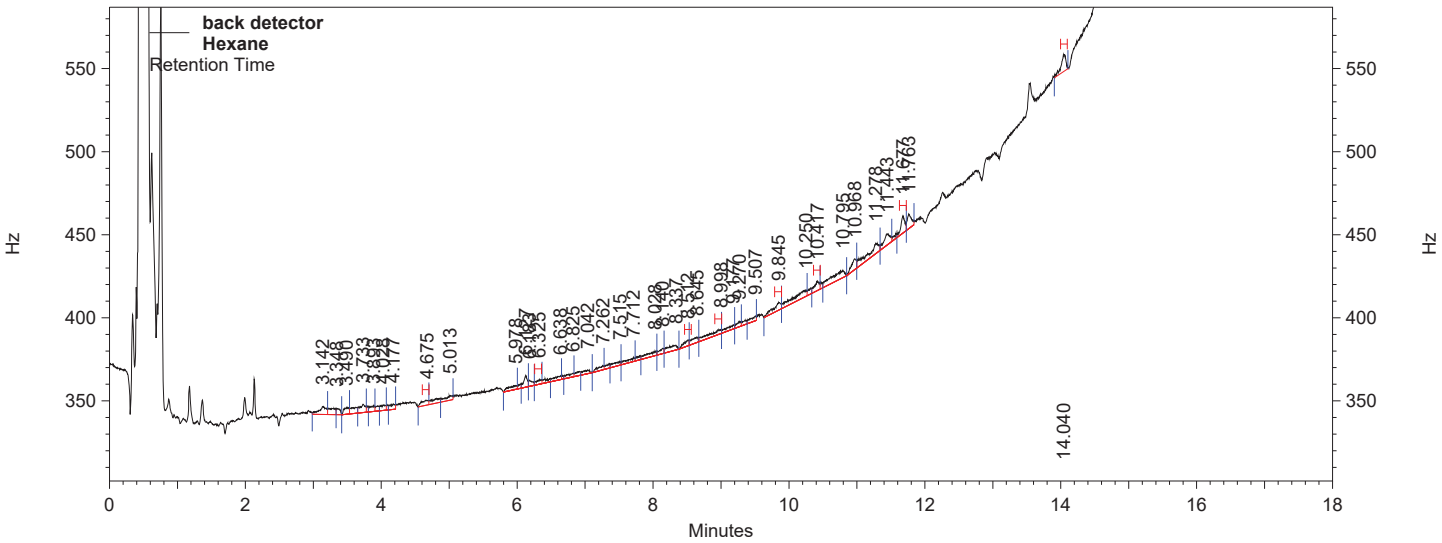
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPCB			0.000 BDL
Aroclor 1016 #1			0.000 BDL
Aroclor 1016 #2			0.000 BDL
Aroclor 1016 #3			0.000 BDL
Aroclor 1016 #4			0.000 BDL
Aroclor 1016 #5	4.887	91264	0.000
Aroclor 1260 #1			0.000 BDL
Aroclor 1260 #2	7.530	90806	0.000
Aroclor 1260 #3	8.270	53798	0.000
Aroclor 1260 #4			0.000 BDL
Aroclor 1260 #5			0.000 BDL
SURRDCBPCB	12.102	83041	0.000
Aroclor 1016		91264	0.000
Aroclor 1260		144604	0.000

PCB Analysis Report (1016/1260) *(Channel B)*

Data File: C:\Instarch\Semi7\Data\091418pcbic\021.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
User: JJY
Sample ID: Hexane
Acquired: 09/14/2018 14:52:45
Printed: 09/14/2018 17:25:04

Data Summary: {Data Description}



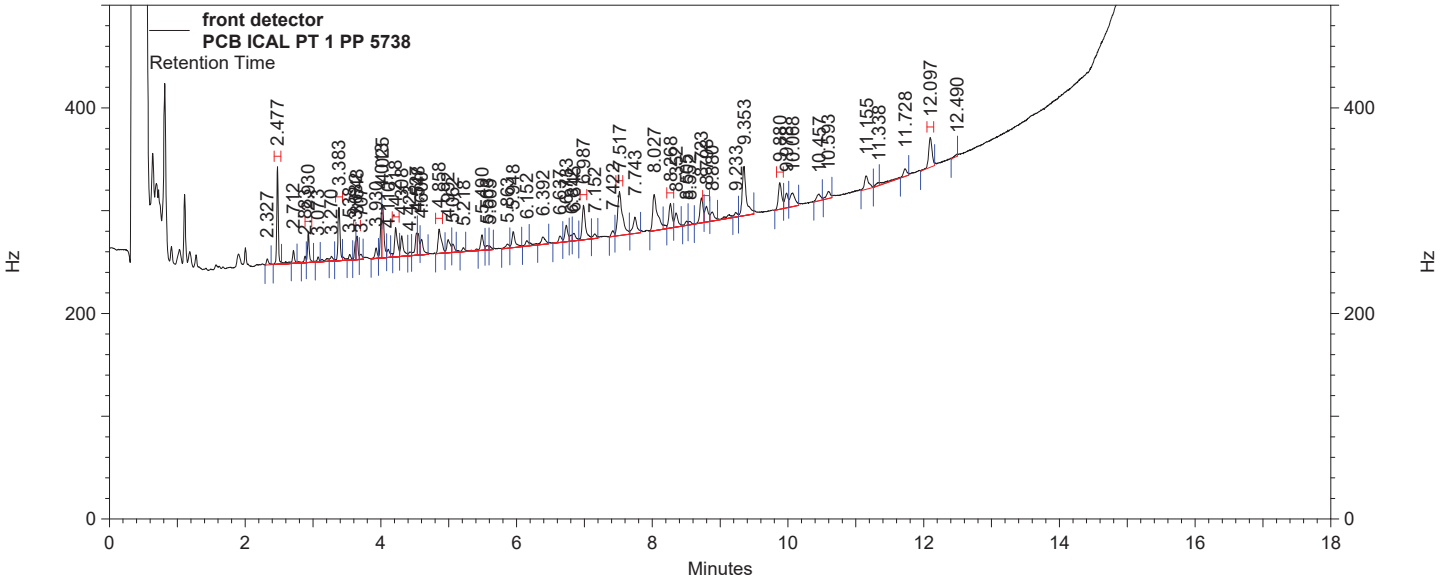
back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPCB			0.000 BDL
Aroclor 1016 #1			0.000 BDL
Aroclor 1016 #2	4.675	160604	0.000
Aroclor 1016 #3			0.000 BDL
Aroclor 1016 #4			0.000 BDL
Aroclor 1016 #5	6.325	115332	0.000
Aroclor 1260 #1	8.512	149496	0.000
Aroclor 1260 #2	8.998	322426	0.001
Aroclor 1260 #3	9.845	290614	0.001
Aroclor 1260 #4	10.417	221202	0.001
Aroclor 1260 #5	11.677	328720	0.001
SURRDCBPCB	14.040	386334	0.312
Aroclor 1016		275936	0.000
Aroclor 1260		1312458	0.004

PCB Analysis Report (1016/1260) *(Channel A)*

Data File: C:\Instarch\Semi7\Data\091418pcbic\022.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
User: JJY
Sample ID: PCB ICAL PT 1 PP 5738
Acquired: 09/14/2018 15:13:57
Printed: 09/14/2018 17:29:46

Data Summary: {Data Description}



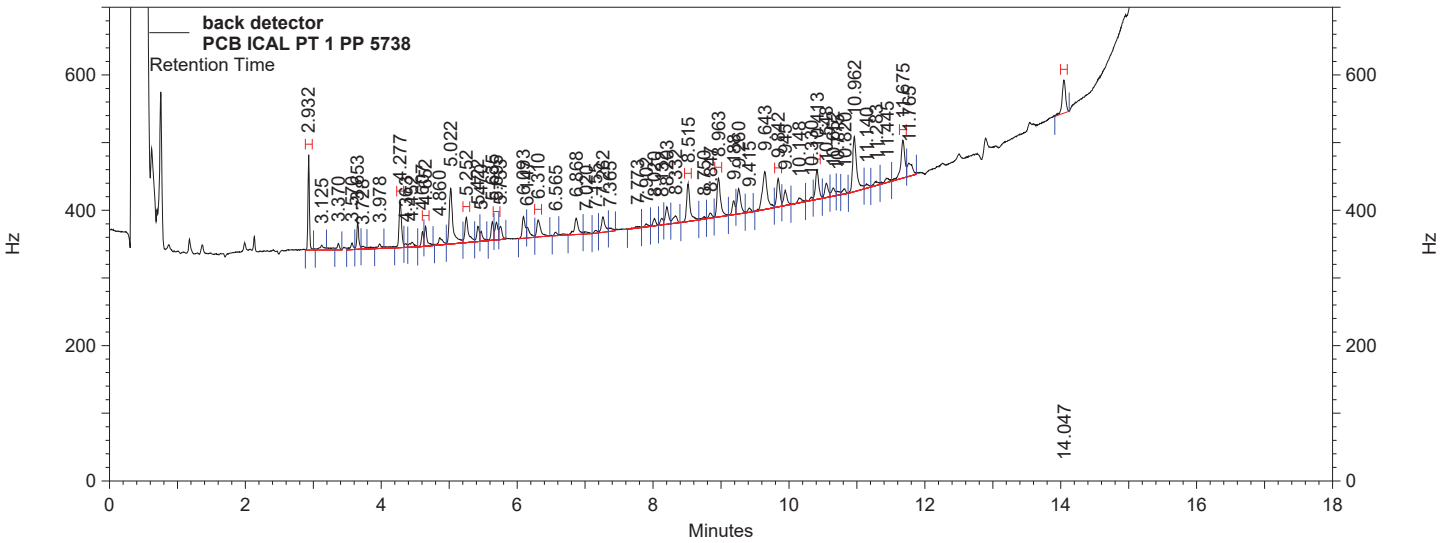
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPCB	2.477	1101080	4.000 CAL
Aroclor 1016 #1	2.930	408363	0.004 CAL
Aroclor 1016 #2	3.383	831999	0.004 CAL
Aroclor 1016 #3	3.648	336423	0.004 CAL
Aroclor 1016 #4	4.218	638698	0.004 CAL
Aroclor 1016 #5	4.858	627501	0.004 CAL
Aroclor 1260 #1	6.987	887960	0.004 CAL
Aroclor 1260 #2	7.517	1578737	0.004 CAL
Aroclor 1260 #3	8.268	593077	0.004 CAL
Aroclor 1260 #4	8.798	419858	0.004 CAL
Aroclor 1260 #5	9.880	670856	0.004 CAL
SURRDCBPCB	12.097	763777	4.000 CAL
Aroclor 1016		2842984	0.020 CAL
Aroclor 1260		4150488	0.020 CAL

PCB Analysis Report (1016/1260) *(Channel B)*

Data File: C:\Instarch\Semi7\Data\091418pcbic\022.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
User: JJY
Sample ID: PCB ICAL PT 1 PP 5738
Acquired: 09/14/2018 15:13:57
Printed: 09/14/2018 17:29:46

Data Summary: {Data Description}



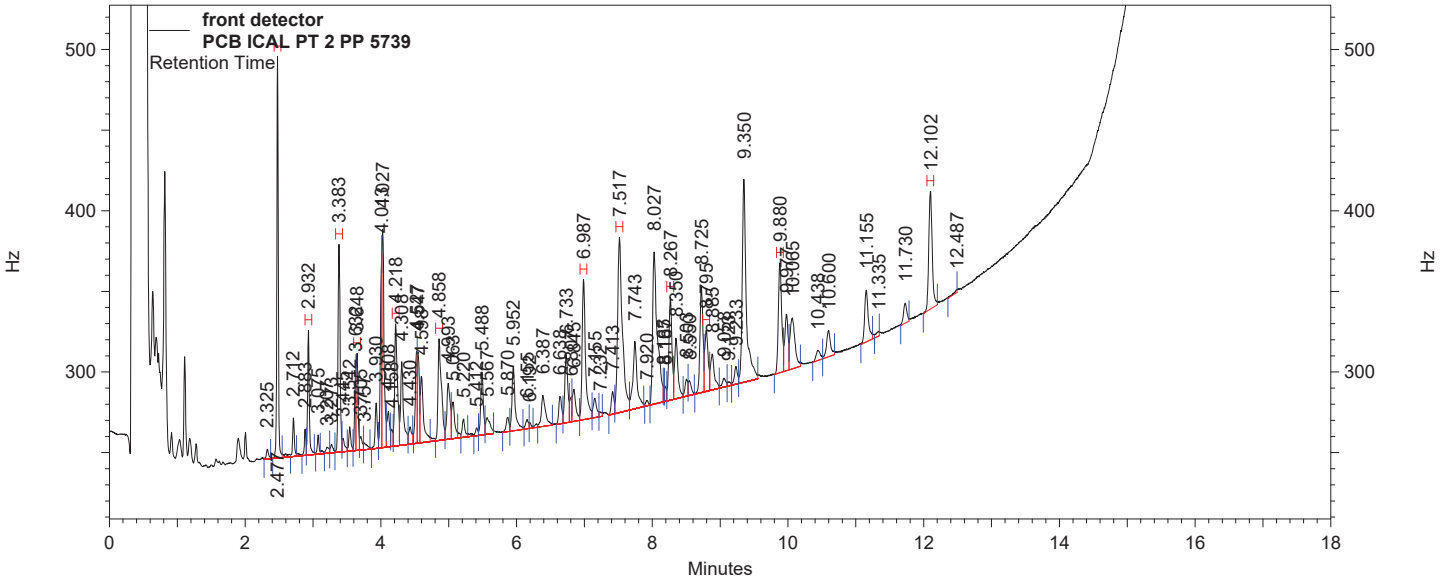
back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPCB	2.932	1606784	4.000 CAL
Aroclor 1016 #1	4.277	1356580	0.004 CAL
Aroclor 1016 #2	4.652	591009	0.004 CAL
Aroclor 1016 #3	5.252	1057880	0.004 CAL
Aroclor 1016 #4	5.695	600276	0.004 CAL
Aroclor 1016 #5	6.310	753970	0.004 CAL
Aroclor 1260 #1	8.515	1551732	0.004 CAL
Aroclor 1260 #2	8.963	1635787	0.004 CAL
Aroclor 1260 #3	9.842	1039130	0.004 CAL
Aroclor 1260 #4	10.413	1116881	0.004 CAL
Aroclor 1260 #5	11.675	1770382	0.004 CAL
SURRDCBPCB	14.047	1328092	4.000 CAL
Aroclor 1016		4359715	0.020 CAL
Aroclor 1260		7113912	0.020 CAL

PCB Analysis Report (1016/1260) *(Channel A)*

Data File: C:\Instarch\Semi7\Data\091418pcbic\023.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
User: JJY
Sample ID: PCB ICAL PT 2 PP 5739
Acquired: 09/14/2018 15:35:08
Printed: 09/14/2018 17:19:40

Data Summary: {Data Description}



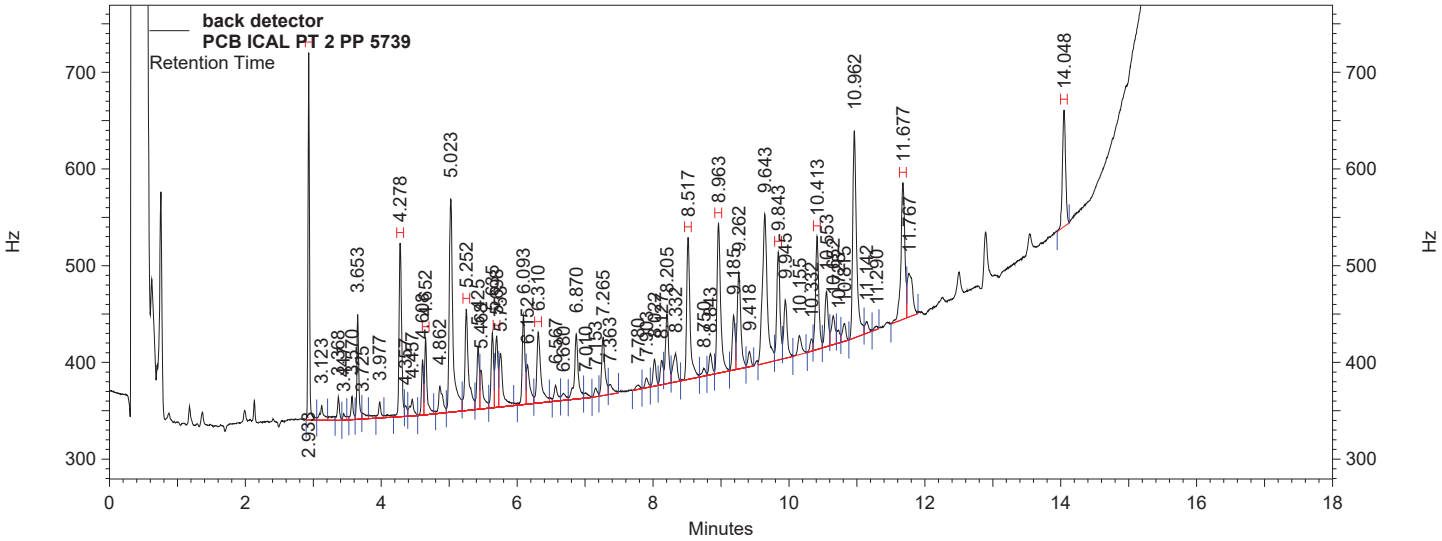
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPCB	2.477	2811878	10.000 CAL
Aroclor 1016 #1	2.932	1048304	0.010 CAL
Aroclor 1016 #2	3.383	2056652	0.010 CAL
Aroclor 1016 #3	3.648	899098	0.010 CAL
Aroclor 1016 #4	4.218	1678790	0.010 CAL
Aroclor 1016 #5	4.858	1682965	0.010 CAL
Aroclor 1260 #1	6.987	2340921	0.010 CAL
Aroclor 1260 #2	7.517	4084583	0.010 CAL
Aroclor 1260 #3	8.267	1561376	0.010 CAL
Aroclor 1260 #4	8.795	996840	0.010 CAL
Aroclor 1260 #5	9.880	1776655	0.010 CAL
SURRDCBPCB	12.102	1951464	10.000 CAL
Aroclor 1016		7365809	0.050 CAL
Aroclor 1260		10760375	0.050 CAL

PCB Analysis Report (1016/1260) *(Channel B)*

Data File: C:\Instarch\Semi7\Data\091418pcbic\023.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
User: JJY
Sample ID: PCB ICAL PT 2 PP 5739
Acquired: 09/14/2018 15:35:08
Printed: 09/14/2018 17:19:40

Data Summary: {Data Description}



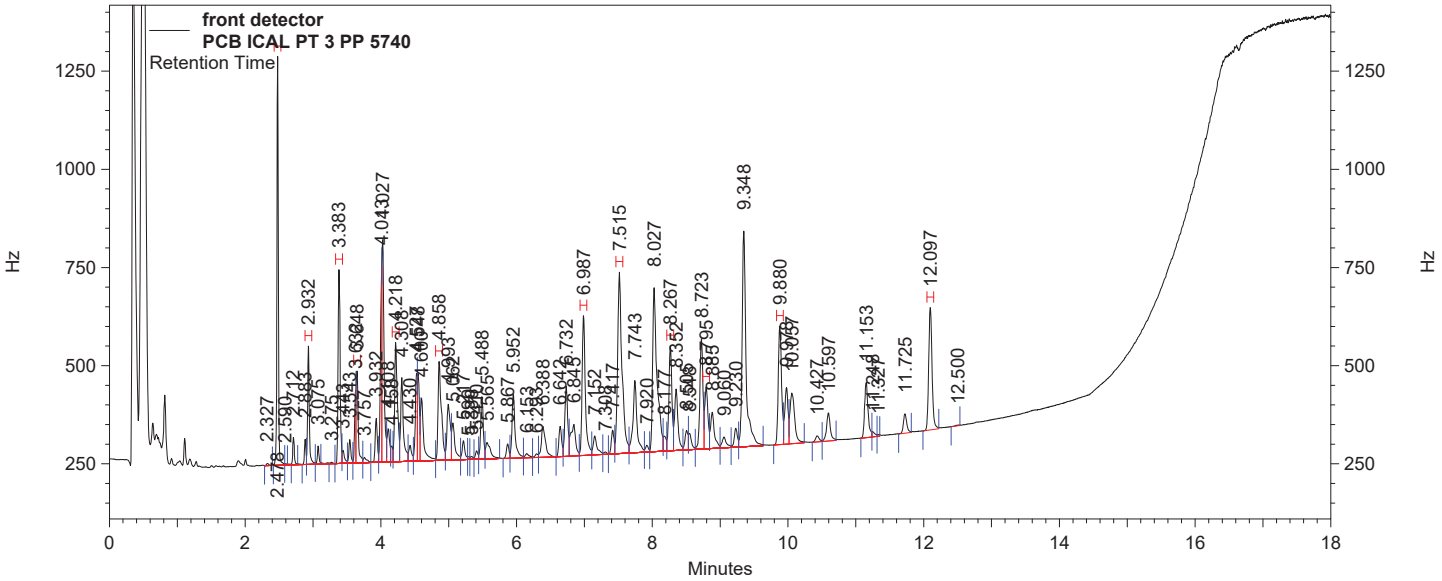
back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPCB	2.933	4389187	10.000 CAL
Aroclor 1016 #1	4.278	3568862	0.010 CAL
Aroclor 1016 #2	4.652	1523648	0.010 CAL
Aroclor 1016 #3	5.252	3067341	0.010 CAL
Aroclor 1016 #4	5.698	1640807	0.010 CAL
Aroclor 1016 #5	6.310	2375601	0.010 CAL
Aroclor 1260 #1	8.517	4018419	0.010 CAL
Aroclor 1260 #2	8.963	4422509	0.010 CAL
Aroclor 1260 #3	9.843	2887052	0.010 CAL
Aroclor 1260 #4	10.413	2972445	0.010 CAL
Aroclor 1260 #5	11.677	4349968	0.010 CAL
SURRDCBPCB	14.048	3010796	10.000 CAL
Aroclor 1016		12176259	0.050 CAL
Aroclor 1260		18650393	0.050 CAL

PCB Analysis Report (1016/1260) *(Channel A)*

Data File: C:\Instarch\Semi7\Data\091418pcbic\024.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
User: JJY
Sample ID: PCB ICAL PT 3 PP 5740
Acquired: 09/14/2018 15:56:20
Printed: 09/14/2018 17:19:42

Data Summary: {Data Description}



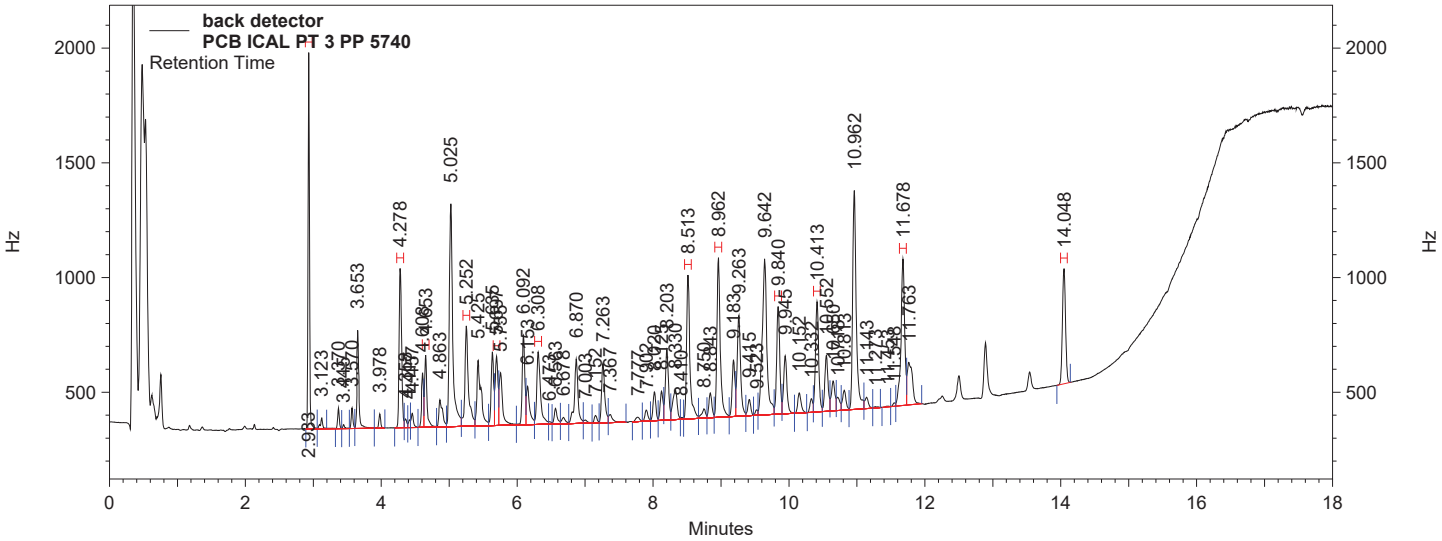
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPCB	2.478	11464964	40.000 CAL
Aroclor 1016 #1	2.932	4039224	0.040 CAL
Aroclor 1016 #2	3.383	7778253	0.040 CAL
Aroclor 1016 #3	3.648	3776852	0.040 CAL
Aroclor 1016 #4	4.218	6700121	0.040 CAL
Aroclor 1016 #5	4.858	6612444	0.040 CAL
Aroclor 1260 #1	6.987	9156655	0.040 CAL
Aroclor 1260 #2	7.515	16077845	0.040 CAL
Aroclor 1260 #3	8.267	6398383	0.040 CAL
Aroclor 1260 #4	8.795	3922519	0.040 CAL
Aroclor 1260 #5	9.880	7771119	0.040 CAL
SURRDCBPCB	12.097	8085107	40.000 CAL
Aroclor 1016		28906894	0.200 CAL
Aroclor 1260		43326521	0.200 CAL

PCB Analysis Report (1016/1260) *(Channel B)*

Data File: C:\Instarch\Semi7\Data\091418pcbic\024.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
User: JJY
Sample ID: PCB ICAL PT 3 PP 5740
Acquired: 09/14/2018 15:56:20
Printed: 09/14/2018 17:19:42

Data Summary: {Data Description}



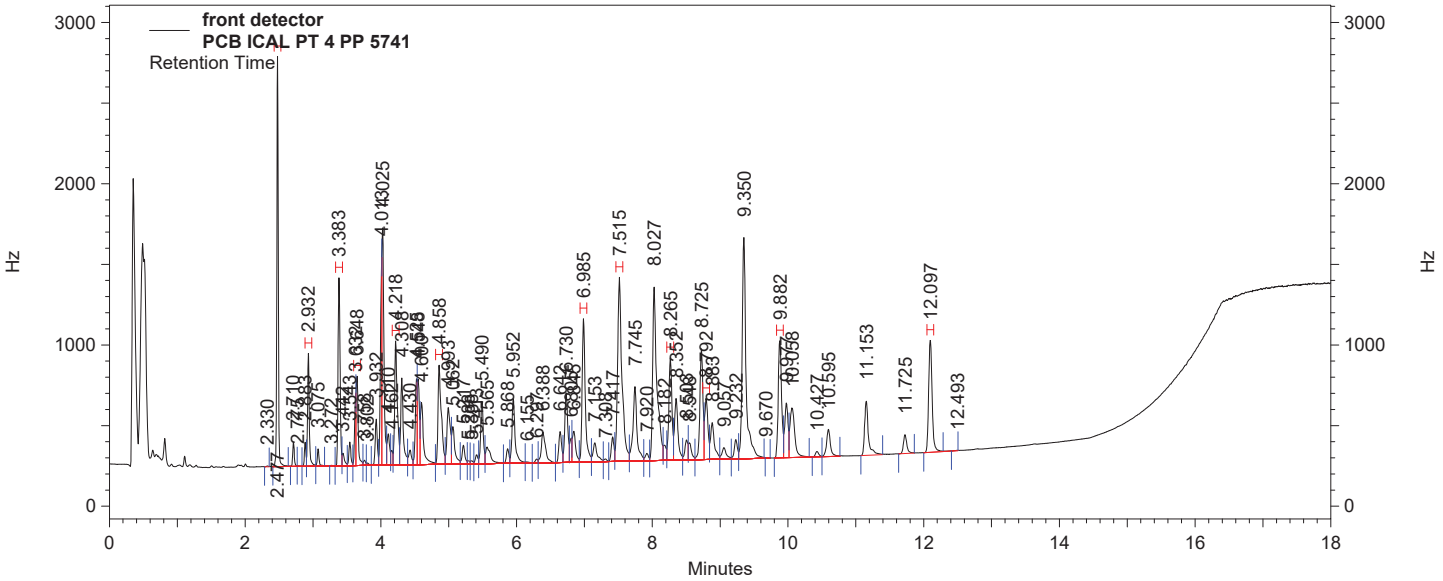
back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPCB	2.933	18392127	40.000 CAL
Aroclor 1016 #1	4.278	13693036	0.040 CAL
Aroclor 1016 #2	4.653	5920097	0.040 CAL
Aroclor 1016 #3	5.252	12388010	0.040 CAL
Aroclor 1016 #4	5.697	6576971	0.040 CAL
Aroclor 1016 #5	6.308	9277602	0.040 CAL
Aroclor 1260 #1	8.513	16468769	0.040 CAL
Aroclor 1260 #2	8.962	18270420	0.040 CAL
Aroclor 1260 #3	9.840	11660847	0.040 CAL
Aroclor 1260 #4	10.413	12121357	0.040 CAL
Aroclor 1260 #5	11.678	18327116	0.040 CAL
SURRDCBPCB	14.048	12442669	40.000 CAL
Aroclor 1016		47855716	0.200 CAL
Aroclor 1260		76848509	0.200 CAL

PCB Analysis Report (1016/1260) *(Channel A)*

Data File: C:\Instarch\Semi7\Data\091418pcbic\025.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
User: JJY
Sample ID: PCB ICAL PT 4 PP 5741
Acquired: 09/14/2018 16:17:31
Printed: 09/14/2018 17:19:45

Data Summary: {Data Description}



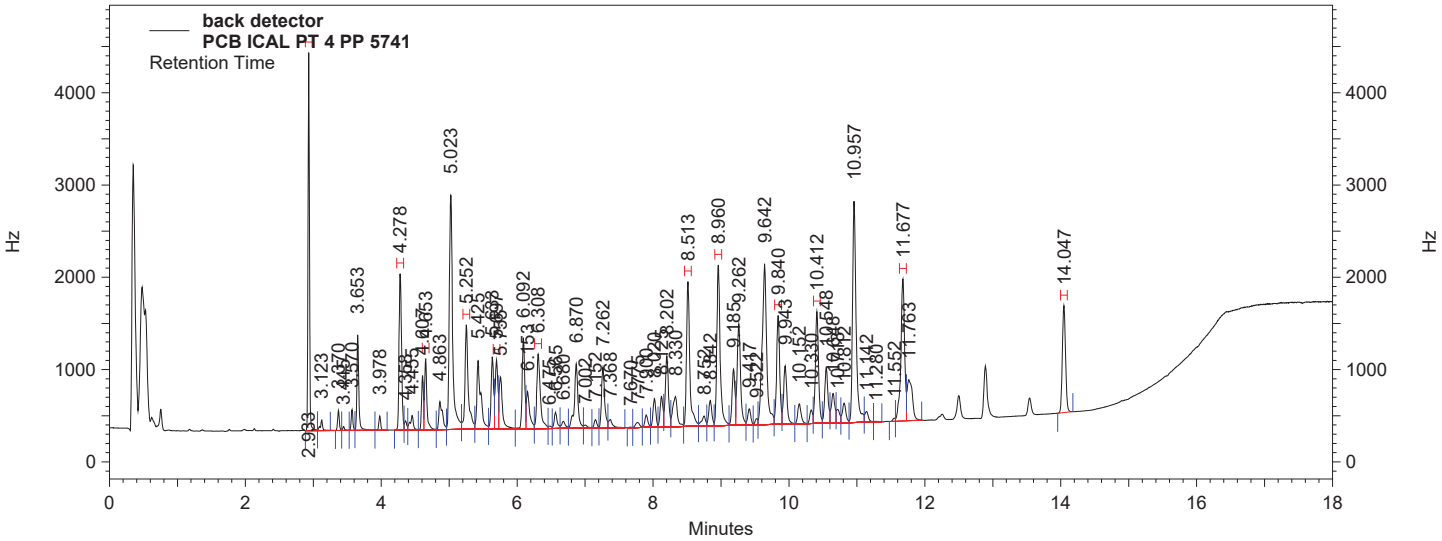
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPCB	2.477	28367731	100.000 CAL
Aroclor 1016 #1	2.932	9559752	0.100 CAL
Aroclor 1016 #2	3.383	18405069	0.100 CAL
Aroclor 1016 #3	3.648	8854967	0.100 CAL
Aroclor 1016 #4	4.218	16234184	0.100 CAL
Aroclor 1016 #5	4.858	15952503	0.100 CAL
Aroclor 1260 #1	6.985	22135381	0.100 CAL
Aroclor 1260 #2	7.515	39255444	0.100 CAL
Aroclor 1260 #3	8.265	15587350	0.100 CAL
Aroclor 1260 #4	8.792	9472302	0.100 CAL
Aroclor 1260 #5	9.882	18896640	0.100 CAL
SURRDCBPCB	12.097	18813870	100.000 CAL
Aroclor 1016		69006475	0.500 CAL
Aroclor 1260		105347117	0.500 CAL

PCB Analysis Report (1016/1260) *(Channel B)*

Data File: C:\Instarch\Semi7\Data\091418pcbic\025.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
User: JJY
Sample ID: PCB ICAL PT 4 PP 5741
Acquired: 09/14/2018 16:17:31
Printed: 09/14/2018 17:19:45

Data Summary: {Data Description}



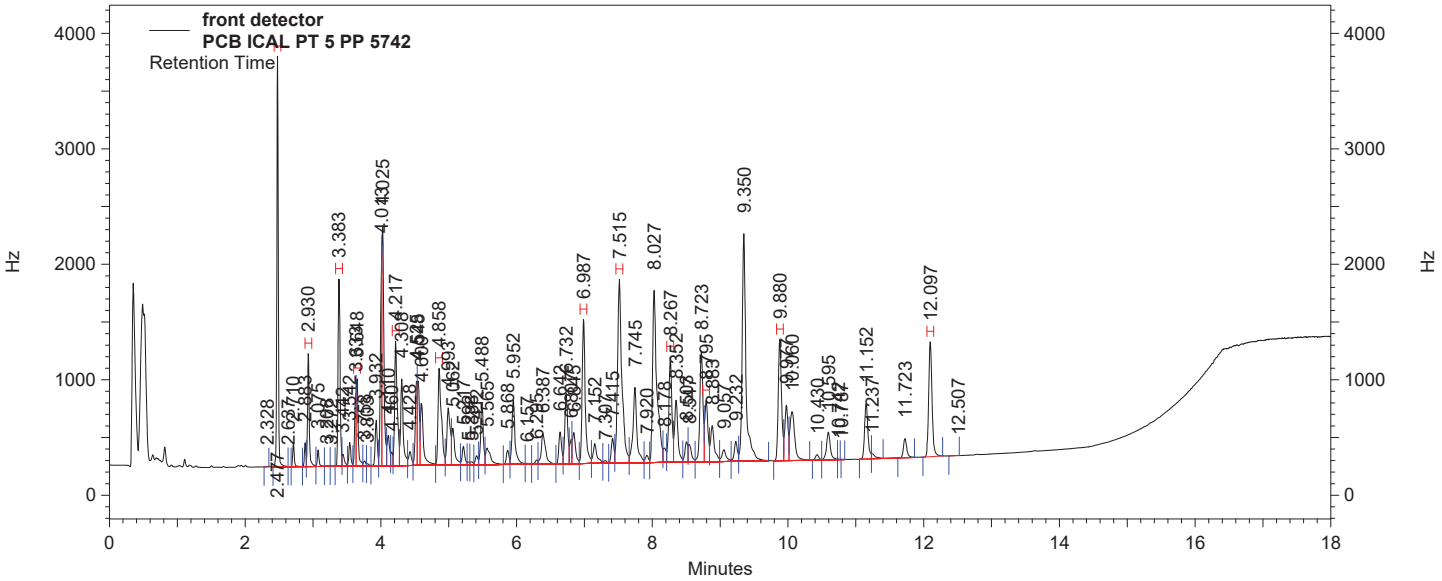
back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPCB	2.933	46211329	100.000 CAL
Aroclor 1016 #1	4.278	32895313	0.100 CAL
Aroclor 1016 #2	4.653	14131135	0.100 CAL
Aroclor 1016 #3	5.252	29807610	0.100 CAL
Aroclor 1016 #4	5.697	15952749	0.100 CAL
Aroclor 1016 #5	6.308	22820227	0.100 CAL
Aroclor 1260 #1	8.513	41011413	0.100 CAL
Aroclor 1260 #2	8.960	45659242	0.100 CAL
Aroclor 1260 #3	9.840	28812881	0.100 CAL
Aroclor 1260 #4	10.412	29825491	0.100 CAL
Aroclor 1260 #5	11.677	44850708	0.100 CAL
SURRDCBPCB	14.047	29434656	100.000 CAL
Aroclor 1016		115607034	0.500 CAL
Aroclor 1260		190159735	0.500 CAL

PCB Analysis Report (1016/1260) *(Channel A)*

Data File: C:\Instarch\Semi7\Data\091418pcbic\026.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
User: JJY
Sample ID: PCB ICAL PT 5 PP 5742
Acquired: 09/14/2018 16:38:42
Printed: 09/14/2018 17:19:48

Data Summary: {Data Description}



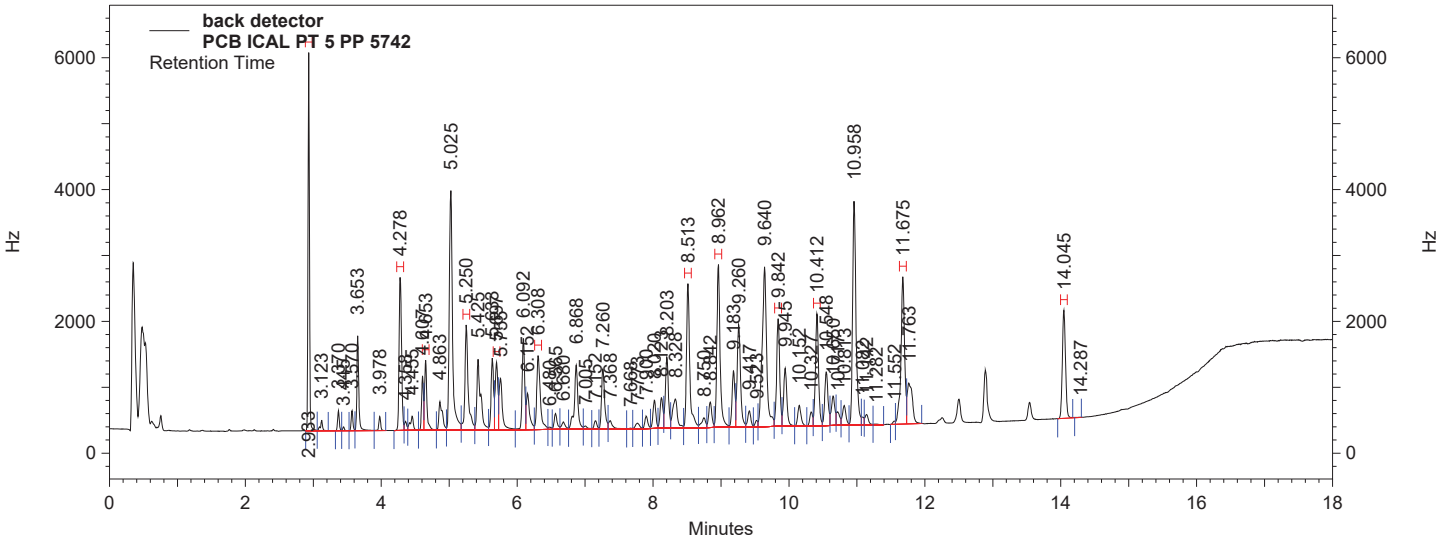
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPCB	2.477	39478532	140.000 CAL
Aroclor 1016 #1	2.930	13155764	0.140 CAL
Aroclor 1016 #2	3.383	25314564	0.140 CAL
Aroclor 1016 #3	3.648	11494256	0.140 CAL
Aroclor 1016 #4	4.217	22341559	0.140 CAL
Aroclor 1016 #5	4.858	21977238	0.140 CAL
Aroclor 1260 #1	6.987	30449911	0.140 CAL
Aroclor 1260 #2	7.515	54029846	0.140 CAL
Aroclor 1260 #3	8.267	21604053	0.140 CAL
Aroclor 1260 #4	8.795	12643228	0.140 CAL
Aroclor 1260 #5	9.880	26862389	0.140 CAL
SURRDCBPCB	12.097	25817342	140.000 CAL
Aroclor 1016		94283381	0.700 CAL
Aroclor 1260		145589427	0.700 CAL

PCB Analysis Report (1016/1260) *(Channel B)*

Data File: C:\Instarch\Semi7\Data\091418pcbic\026.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
User: JJY
Sample ID: PCB ICAL PT 5 PP 5742
Acquired: 09/14/2018 16:38:42
Printed: 09/14/2018 17:19:48

Data Summary: {Data Description}



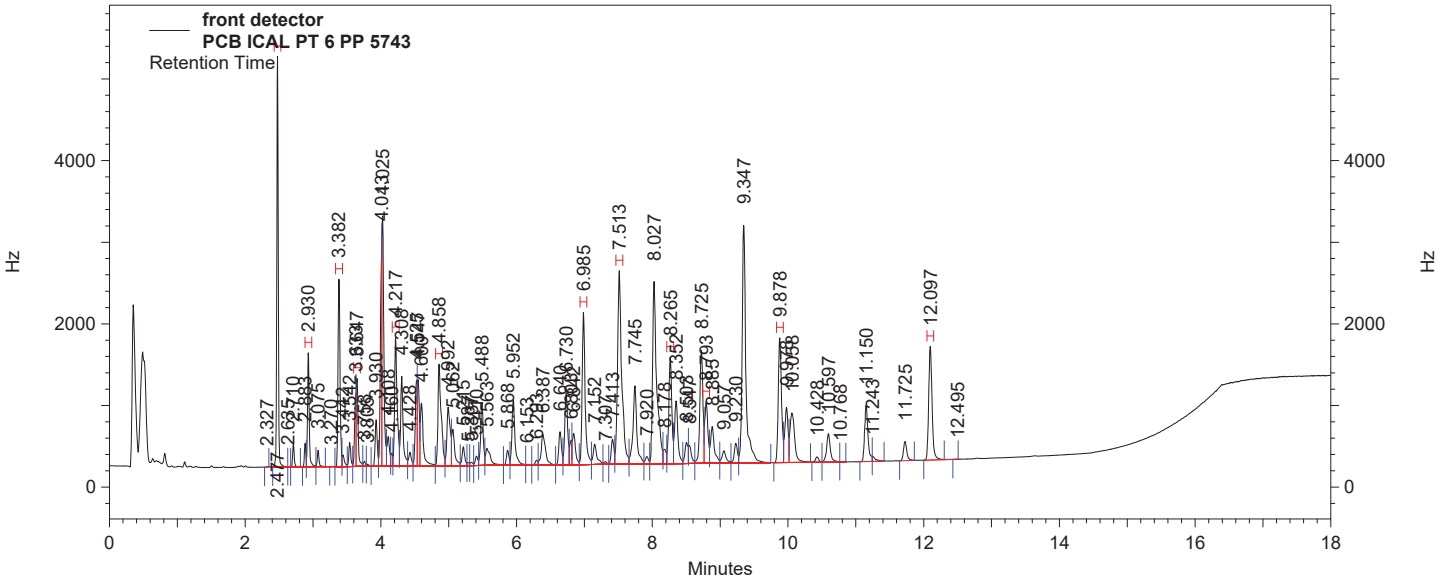
back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPCB	2.933	64618411	140.000 CAL
Aroclor 1016 #1	4.278	45438805	0.140 CAL
Aroclor 1016 #2	4.653	19431188	0.140 CAL
Aroclor 1016 #3	5.250	41271819	0.140 CAL
Aroclor 1016 #4	5.697	21569867	0.140 CAL
Aroclor 1016 #5	6.308	31488762	0.140 CAL
Aroclor 1260 #1	8.513	56442840	0.140 CAL
Aroclor 1260 #2	8.962	62805589	0.140 CAL
Aroclor 1260 #3	9.842	39621912	0.140 CAL
Aroclor 1260 #4	10.412	41373616	0.140 CAL
Aroclor 1260 #5	11.675	63430541	0.140 CAL
SURRDCBPCB	14.045	41134924	140.000 CAL
Aroclor 1016		159200441	0.700 CAL
Aroclor 1260		263674498	0.700 CAL

PCB Analysis Report (1016/1260) *(Channel A)*

Data File: C:\Instarch\Semi7\Data\091418pcbic\027.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
User: JJY
Sample ID: PCB ICAL PT 6 PP 5743
Acquired: 09/14/2018 16:59:52
Printed: 09/14/2018 17:19:51

Data Summary: {Data Description}



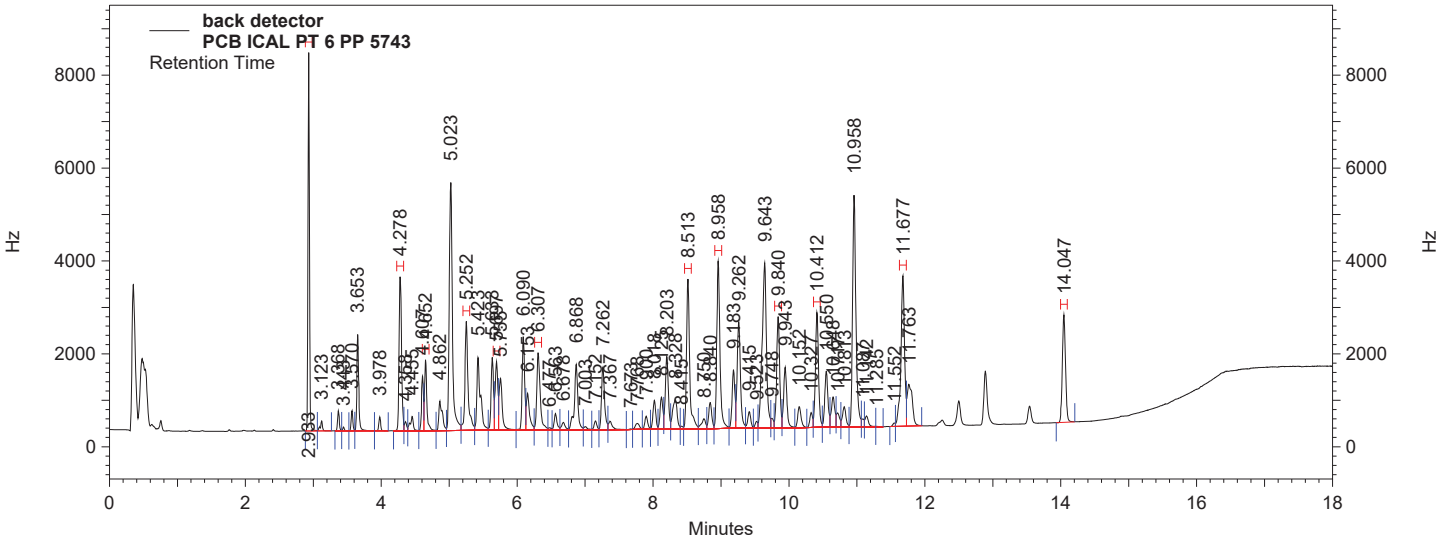
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPCB	2.477	56692089	200.000 CAL
Aroclor 1016 #1	2.930	18628616	0.200 CAL
Aroclor 1016 #2	3.382	35904003	0.200 CAL
Aroclor 1016 #3	3.647	16083028	0.200 CAL
Aroclor 1016 #4	4.217	32195019	0.200 CAL
Aroclor 1016 #5	4.858	31428114	0.200 CAL
Aroclor 1260 #1	6.985	43718255	0.200 CAL
Aroclor 1260 #2	7.513	77815487	0.200 CAL
Aroclor 1260 #3	8.265	31040130	0.200 CAL
Aroclor 1260 #4	8.793	18247246	0.200 CAL
Aroclor 1260 #5	9.878	38432408	0.200 CAL
SURRDCBPCB	12.097	36739785	200.000 CAL
Aroclor 1016		134238780	1.000 CAL
Aroclor 1260		209253526	1.000 CAL

PCB Analysis Report (1016/1260) *(Channel B)*

Data File: C:\Instarch\Semi7\Data\091418pcbic\027.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
User: JJY
Sample ID: PCB ICAL PT 6 PP 5743
Acquired: 09/14/2018 16:59:52
Printed: 09/14/2018 17:19:51

Data Summary: {Data Description}



back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPCB	2.933	92983678	200.000 CAL
Aroclor 1016 #1	4.278	64571209	0.200 CAL
Aroclor 1016 #2	4.652	27446714	0.200 CAL
Aroclor 1016 #3	5.252	58678236	0.200 CAL
Aroclor 1016 #4	5.697	31230507	0.200 CAL
Aroclor 1016 #5	6.307	45252538	0.200 CAL
Aroclor 1260 #1	8.513	81460629	0.200 CAL
Aroclor 1260 #2	8.958	90701998	0.200 CAL
Aroclor 1260 #3	9.840	57295458	0.200 CAL
Aroclor 1260 #4	10.412	59846805	0.200 CAL
Aroclor 1260 #5	11.677	91399588	0.200 CAL
SURRDCBPCB	14.047	58686934	200.000 CAL
Aroclor 1016		227179204	1.000 CAL
Aroclor 1260		380704478	1.000 CAL

QC Check Standard Report

Sequence : C:\Instarch\Semi7\Sequence\091418pcbic.seq
User : JJY
Printed : 09/14/2018 17:39:49

File	Sample ID	Acquired
C:\Instarch\Semi7\Data\091418pcbic\028.dat	PCB ICV PP 5752	09/14/2018 17:39:49

front detector

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
SURRTCMXPCB	100.000	100.044	0.044	20.000	Passed
Aroclor 1016 #1	0.100	0.103	2.580	20.000	Passed
Aroclor 1016 #2	0.100	0.102	1.985	20.000	Passed
Aroclor 1016 #3	0.100	0.106	5.719	20.000	Passed
Aroclor 1016 #4	0.100	0.102	1.973	20.000	Passed
Aroclor 1016 #5	0.100	0.102	2.411	20.000	Passed
Aroclor 1260 #1	0.100	0.106	5.741	20.000	Passed
Aroclor 1260 #2	0.100	0.106	5.514	20.000	Passed
Aroclor 1260 #3	0.100	0.106	5.806	20.000	Passed
Aroclor 1260 #4	0.100	0.107	6.799	20.000	Passed
Aroclor 1260 #5	0.100	0.106	5.682	20.000	Passed
SURRDCBPCB	100.000	104.548	4.548	20.000	Passed
Aroclor 1016	0.500	0.515	2.934	20.000	Passed
Aroclor 1260	0.500	0.530	5.908	20.000	Passed

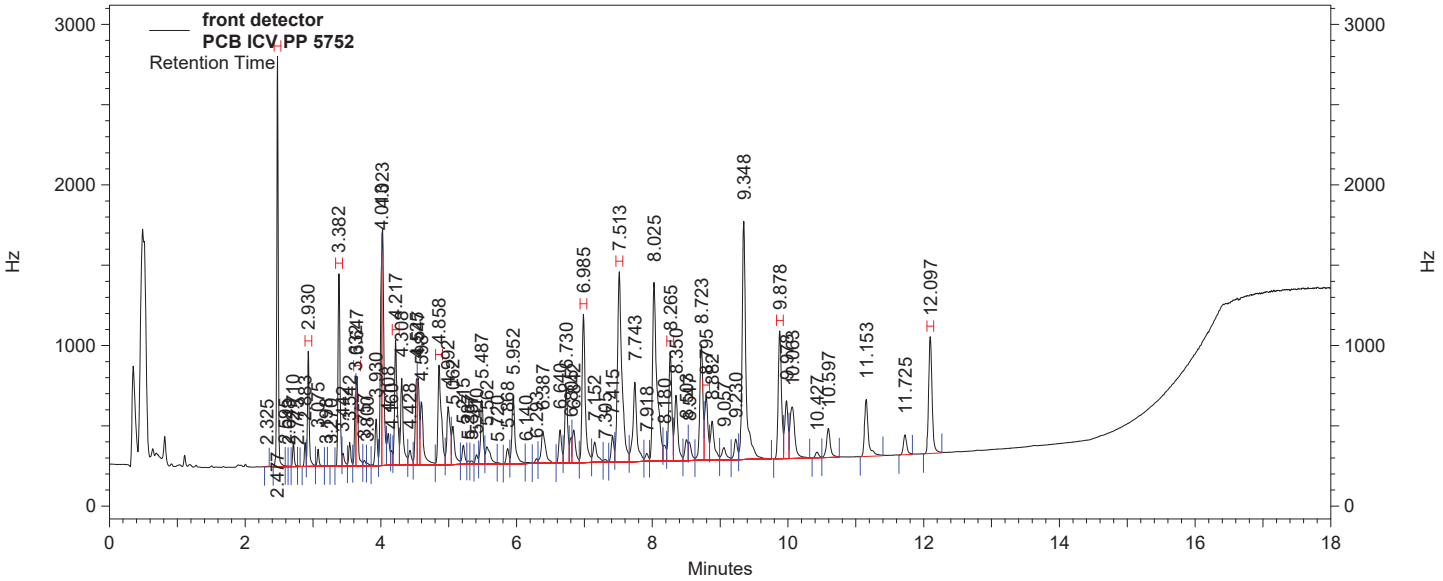
back detector

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
SURRTCMXPCB	100.000	100.250	0.250	20.000	Passed
Aroclor 1016 #1	0.100	0.102	2.358	20.000	Passed
Aroclor 1016 #2	0.100	0.104	4.148	20.000	Passed
Aroclor 1016 #3	0.100	0.103	2.634	20.000	Passed
Aroclor 1016 #4	0.100	0.103	3.333	20.000	Passed
Aroclor 1016 #5	0.100	0.103	2.825	20.000	Passed
Aroclor 1260 #1	0.100	0.106	6.140	20.000	Passed
Aroclor 1260 #2	0.100	0.106	6.438	20.000	Passed
Aroclor 1260 #3	0.100	0.106	6.431	20.000	Passed
Aroclor 1260 #4	0.100	0.106	6.407	20.000	Passed
Aroclor 1260 #5	0.100	0.106	5.767	20.000	Passed
SURRDCBPCB	100.000	103.788	3.788	20.000	Passed
Aroclor 1016	0.500	0.515	3.060	20.000	Passed
Aroclor 1260	0.500	0.531	6.237	20.000	Passed

PCB Analysis Report (1016/1260) *(Channel A)*

Data File: C:\Instarch\Semi7\Data\091418pcbic\028.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
User: JJY
Sample ID: PCB ICV PP 5752
Acquired: 09/14/2018 17:21:03
Printed: 09/14/2018 17:39:44

Data Summary: {Data Description}



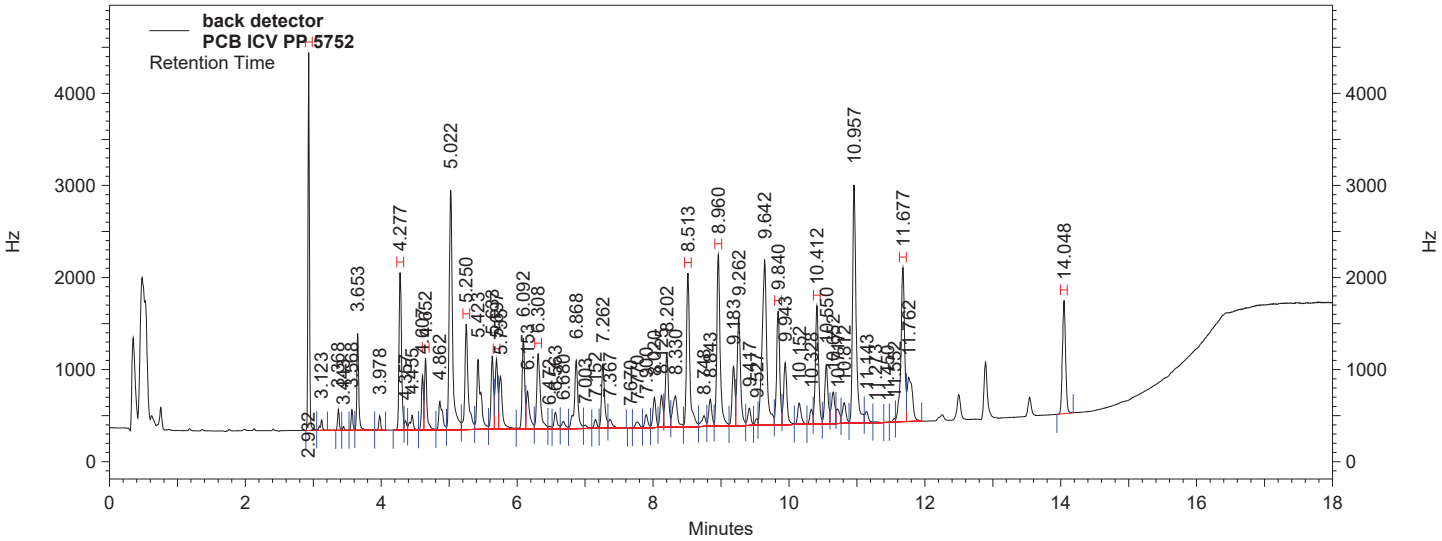
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPCB	2.477	28332401	100.044
Aroclor 1016 #1	2.930	9683570	0.103
Aroclor 1016 #2	3.382	18554070	0.102
Aroclor 1016 #3	3.647	8785158	0.106
Aroclor 1016 #4	4.217	16443943	0.102
Aroclor 1016 #5	4.858	16189361	0.102
Aroclor 1260 #1	6.985	23205849	0.106
Aroclor 1260 #2	7.513	41116273	0.106
Aroclor 1260 #3	8.265	16430740	0.106
Aroclor 1260 #4	8.795	9830519	0.107
Aroclor 1260 #5	9.878	20226826	0.106
SURRDCBPCB	12.097	19422273	104.548
Aroclor 1016		69656102	0.515
Aroclor 1260		110810207	0.530

PCB Analysis Report (1016/1260) *(Channel B)*

Data File: C:\Instarch\Semi7\Data\091418pcbic\028.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
User: JJY
Sample ID: PCB ICV PP 5752
Acquired: 09/14/2018 17:21:03
Printed: 09/14/2018 17:39:44

Data Summary: {Data Description}



back detector Results

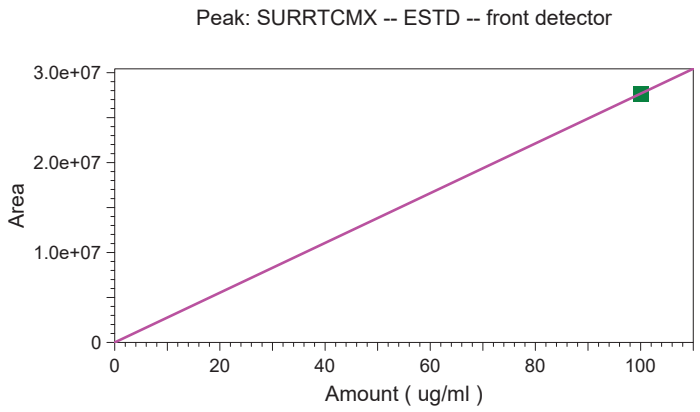
Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPCB	2.932	46372461	100.250
Aroclor 1016 #1	4.277	33360929	0.102
Aroclor 1016 #2	4.652	14491962	0.104
Aroclor 1016 #3	5.250	30328708	0.103
Aroclor 1016 #4	5.697	16188095	0.103
Aroclor 1016 #5	6.308	23288901	0.103
Aroclor 1260 #1	8.513	43168894	0.106
Aroclor 1260 #2	8.960	48167235	0.106
Aroclor 1260 #3	9.840	30435161	0.106
Aroclor 1260 #4	10.412	31722569	0.106
Aroclor 1260 #5	11.677	48042035	0.106
SURRDCBPCB	14.048	30605210	103.788
Aroclor 1016		117658595	0.515
Aroclor 1260		201535894	0.531

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1221.met
Print Time: 09/14/2018 11:24:17
User: JJY
Instrument: Semi 7 (Offline)

SURRTCMX (front detector)
Average RF: 276554.
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 276554.



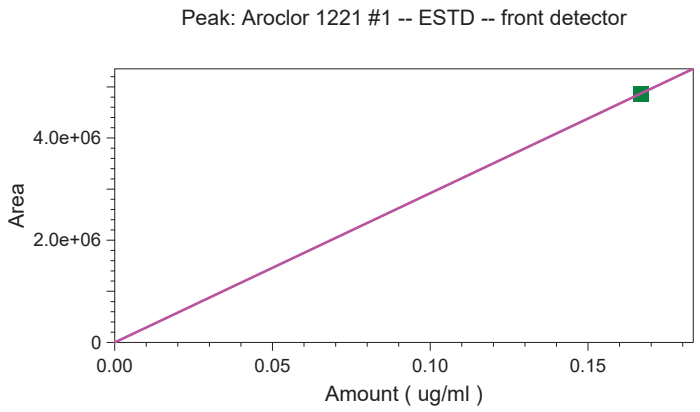
	Level 1
Amount	100
Area	27655441
RF	276554.41
Last Area	
Residual	-1.42109e-014
Rep StDev	
Rep %RSD	
Rep 1 Area	27655441
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\004.dat
Rep 1 Sample ID	1221 CF PP5745
Rep 1 Calib. Time	09/14/2018 11:23:30

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1221.met
Print Time: 09/14/2018 11:24:21
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1221 #1 (front detector)
Average RF: 2.92006e+007
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 2.92006e+007



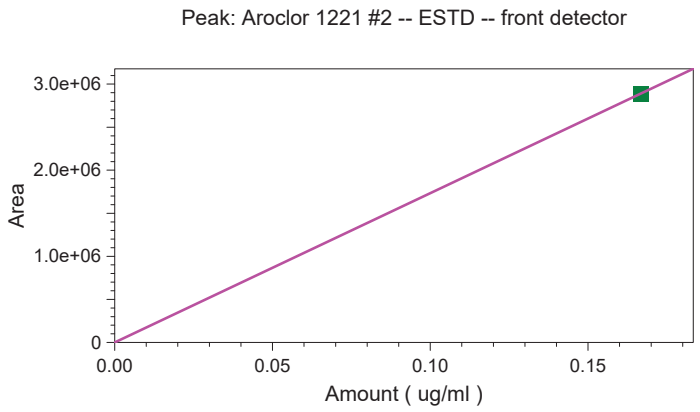
	Level 1
Amount	0.166667
Area	4866774
RF	29200644.00 00012
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	4866774
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\004.dat
Rep 1 Sample ID	1221 CF PP5745
Rep 1 Calib. Time	09/14/2018 11:23:30

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1221.met
Print Time: 09/14/2018 11:24:24
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1221 #2 (front detector)
Average RF: 1.73342e+007
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 1.73342e+007



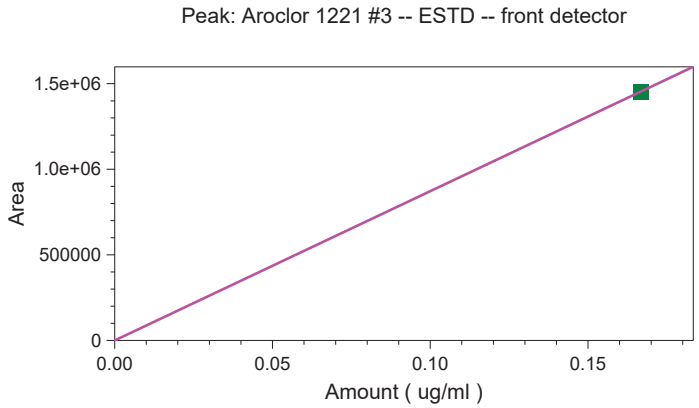
	Level 1
Amount	0.166667
Area	2889039
RF	17334234.00 00007
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	2889039
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\004.dat
Rep 1 Sample ID	1221 CF PP5745
Rep 1 Calib. Time	09/14/2018 11:23:30

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1221.met
Print Time: 09/14/2018 11:24:26
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1221 #3 (front detector)
Average RF: 8.72116e+006
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 8.72116e+006



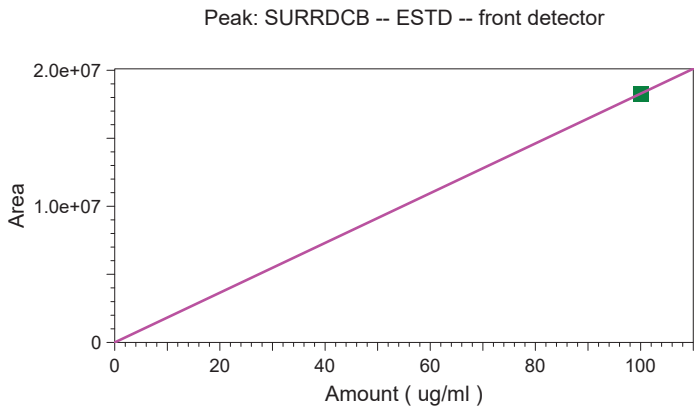
	Level 1
Amount	0.166667
Area	1453527
RF	8721162.000 00035
Last Area	
Residual	-2.77556e-01 7
Rep StDev	
Rep %RSD	
Rep 1 Area	1453527
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Se mi7\Data\091 418pcbic\004. dat
Rep 1 Sample ID	1221 CF PP5745
Rep 1 Calib. Time	09/14/2018 11:23:30

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1221.met
Print Time: 09/14/2018 11:24:27
User: JJY
Instrument: Semi 7 (Offline)

SURRDCB (front detector)
Average RF: 182807.
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 182807.



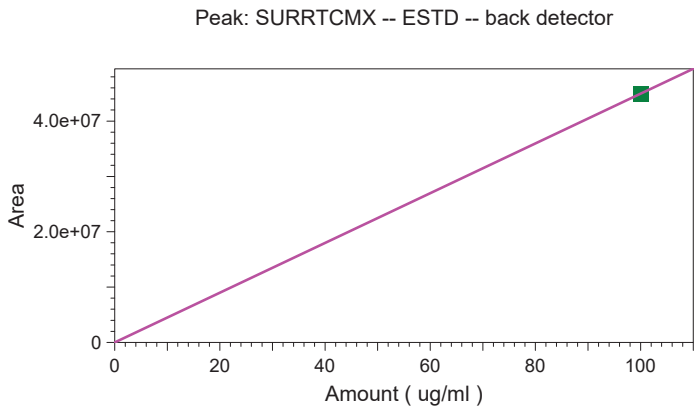
	Level 1
Amount	100
Area	18280661
RF	182806.61
Last Area	
Residual	-1.42109e-014
Rep StDev	
Rep %RSD	
Rep 1 Area	18280661
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\004.dat
Rep 1 Sample ID	1221 CF PP5745
Rep 1 Calib. Time	09/14/2018 11:23:30

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1221.met
Print Time: 09/14/2018 11:24:32
User: JJY
Instrument: Semi 7 (Offline)

SURRTCMX (back detector)
Average RF: 449593.
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 449593.



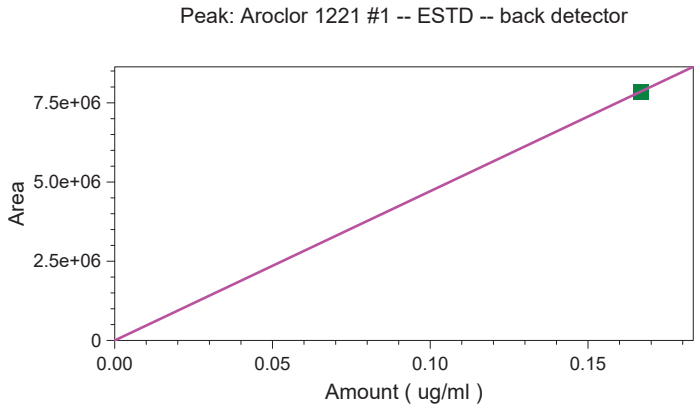
	Level 1
Amount	100
Area	44959336
RF	449593.36
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	44959336
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\004.dat
Rep 1 Sample ID	1221 CF PP5745
Rep 1 Calib. Time	09/14/2018 11:23:30

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1221.met
Print Time: 09/14/2018 11:24:34
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1221 #1 (back detector)
Average RF: 4.71028e+007
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 4.71028e+007



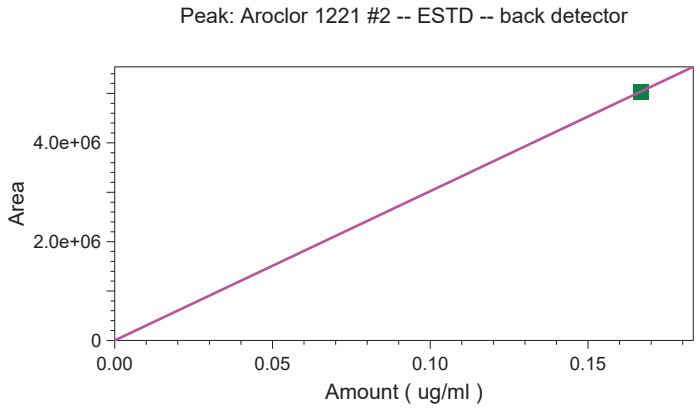
	Level 1
Amount	0.166667
Area	7850467
RF	47102802.00 00019
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	7850467
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\004.dat
Rep 1 Sample ID	1221 CF PP5745
Rep 1 Calib. Time	09/14/2018 11:23:30

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1221.met
Print Time: 09/14/2018 11:24:35
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1221 #2 (back detector)
Average RF: 3.02166e+007
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 3.02166e+007



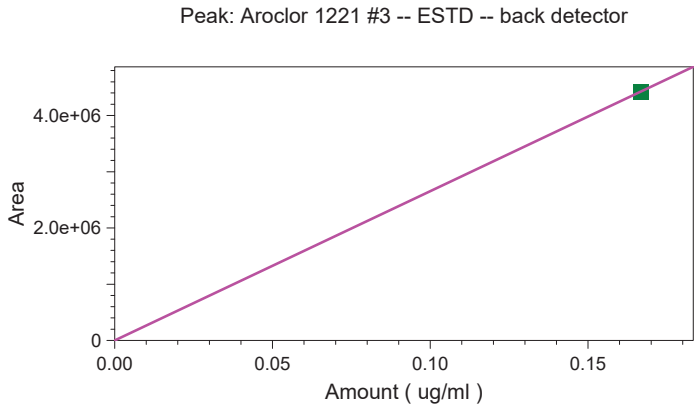
	Level 1
Amount	0.166667
Area	5036104
RF	30216624.00 00012
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	5036104
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\004.dat
Rep 1 Sample ID	1221 CF PP5745
Rep 1 Calib. Time	09/14/2018 11:23:30

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1221.met
Print Time: 09/14/2018 11:24:37
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1221 #3 (back detector)
Average RF: 2.65430e+007
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 2.65430e+007



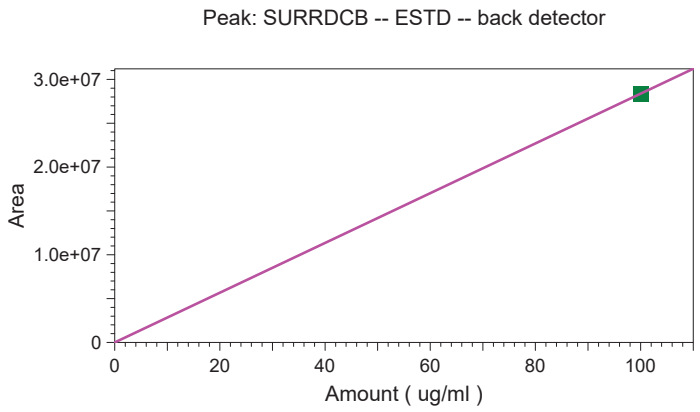
	Level 1
Amount	0.166667
Area	4423835
RF	26543010.00 00011
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	4423835
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\004.dat
Rep 1 Sample ID	1221 CF PP5745
Rep 1 Calib. Time	09/14/2018 11:23:30

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1221.met
Print Time: 09/14/2018 11:24:38
User: JJY
Instrument: Semi 7 (Offline)

SURRDCB (back detector)
Average RF: 283752.
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 283752.



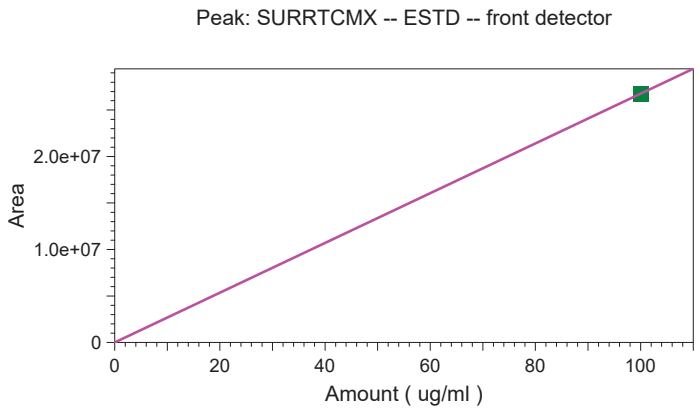
	Level 1
Amount	100
Area	28375208
RF	283752.08
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	28375208
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\004.dat
Rep 1 Sample ID	1221 CF PP5745
Rep 1 Calib. Time	09/14/2018 11:23:30

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1232.met
Print Time: 09/14/2018 11:26:29
User: JJY
Instrument: Semi 7 (Offline)

SURRTCMX (front detector)
Average RF: 267635.
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 267635.



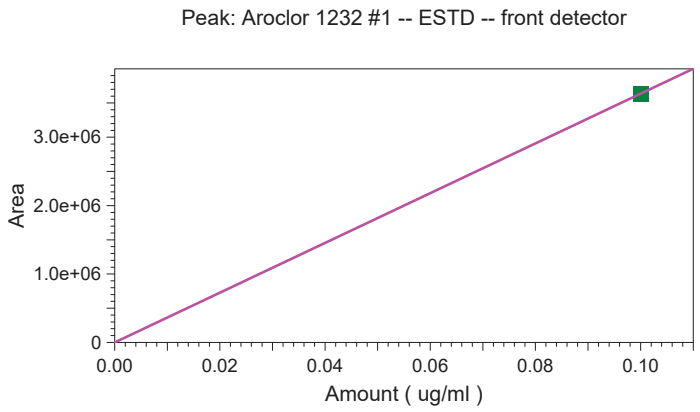
	Level 1
Amount	100
Area	26763457
RF	267634.57
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	26763457
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\005.dat
Rep 1 Sample ID	1232 CF PP5746
Rep 1 Calib. Time	09/14/2018 11:25:54

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1232.met
Print Time: 09/14/2018 11:26:31
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1232 #1 (front detector)
Average RF: 3.63613e+007
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 3.63613e+007



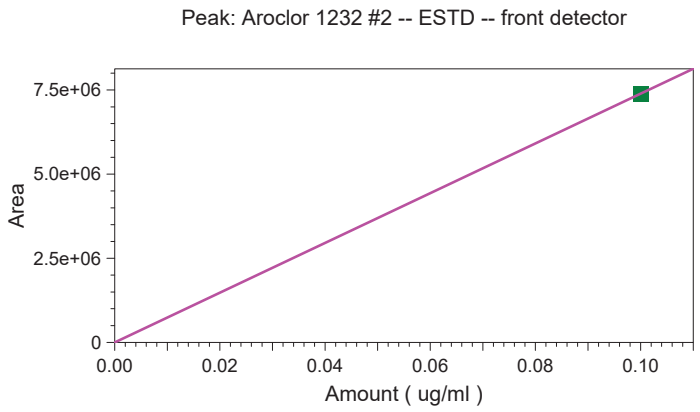
	Level 1
Amount	0.1
Area	3636125
RF	36361250
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	3636125
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\005.dat
Rep 1 Sample ID	1232 CF PP5746
Rep 1 Calib. Time	09/14/2018 11:25:54

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1232.met
Print Time: 09/14/2018 11:26:33
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1232 #2 (front detector)
Average RF: 7.39141e+007
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 7.39141e+007



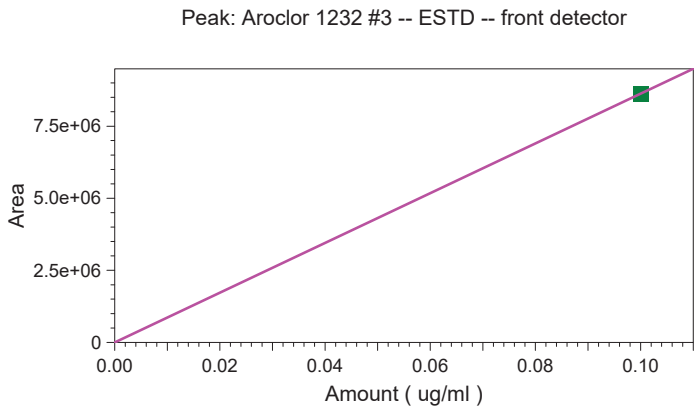
	Level 1
Amount	0.1
Area	7391413
RF	73914130
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	7391413
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\005.dat
Rep 1 Sample ID	1232 CF PP5746
Rep 1 Calib. Time	09/14/2018 11:25:54

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1232.met
Print Time: 09/14/2018 11:26:34
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1232 #3 (front detector)
Average RF: 8.62743e+007
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 8.62743e+007



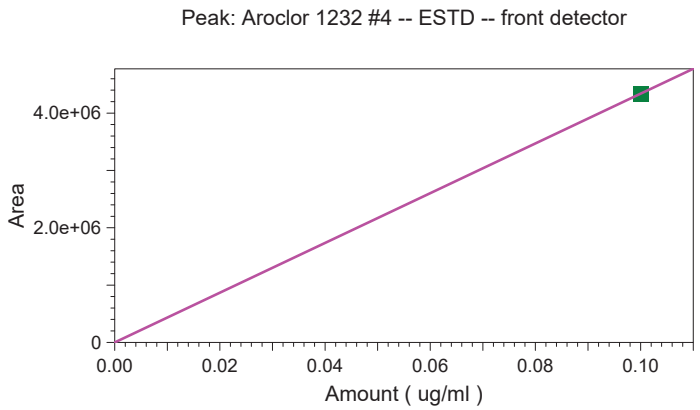
	Level 1
Amount	0.1
Area	8627431
RF	86274310
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	8627431
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\005.dat
Rep 1 Sample ID	1232 CF PP5746
Rep 1 Calib. Time	09/14/2018 11:25:54

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1232.met
Print Time: 09/14/2018 11:26:36
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1232 #4 (front detector)
Average RF: 4.33900e+007
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 4.33900e+007



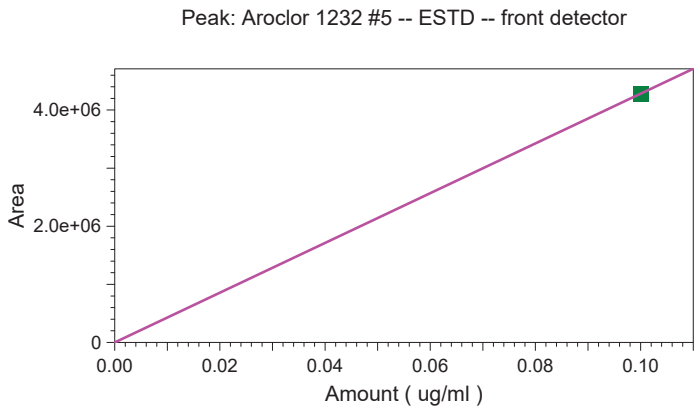
	Level 1
Amount	0.1
Area	4339001
RF	43390010
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	4339001
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\005.dat
Rep 1 Sample ID	1232 CF PP5746
Rep 1 Calib. Time	09/14/2018 11:25:54

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1232.met
Print Time: 09/14/2018 11:26:38
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1232 #5 (front detector)
Average RF: 4.28205e+007
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 4.28205e+007



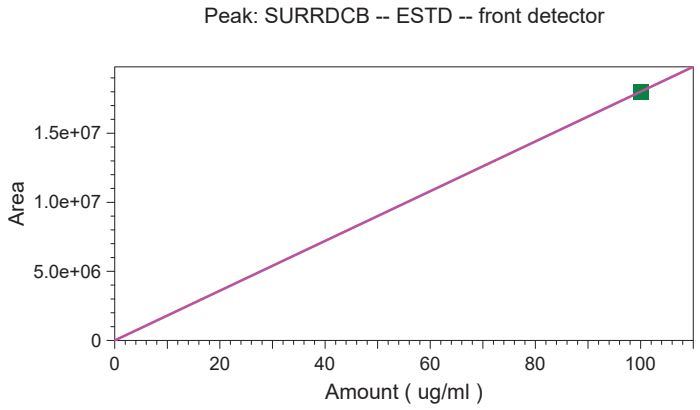
	Level 1
Amount	0.1
Area	4282050
RF	42820500
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	4282050
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\005.dat
Rep 1 Sample ID	1232 CF PP5746
Rep 1 Calib. Time	09/14/2018 11:25:54

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1232.met
Print Time: 09/14/2018 11:26:39
User: JJY
Instrument: Semi 7 (Offline)

SURRDCB (front detector)
Average RF: 180061.
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 180061.



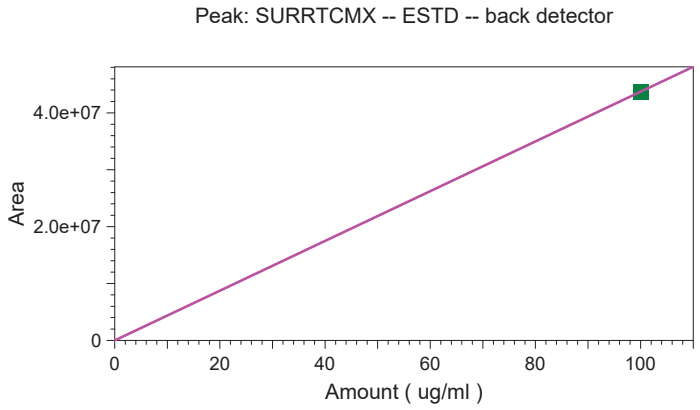
	Level 1
Amount	100
Area	18006140
RF	180061.4
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	18006140
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\005.dat
Rep 1 Sample ID	1232 CF PP5746
Rep 1 Calib. Time	09/14/2018 11:25:54

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1232.met
Print Time: 09/14/2018 11:26:47
User: JJY
Instrument: Semi 7 (Offline)

SURRTCMX (back detector)
Average RF: 437322.
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 437322.



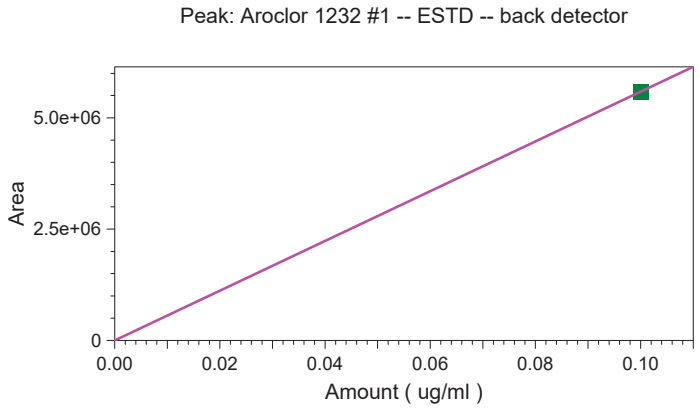
	Level 1
Amount	100
Area	43732207
RF	437322.07
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	43732207
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\005.dat
Rep 1 Sample ID	1232 CF PP5746
Rep 1 Calib. Time	09/14/2018 11:25:54

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1232.met
Print Time: 09/14/2018 11:26:49
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1232 #1 (back detector)
Average RF: 5.58804e+007
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 5.58804e+007



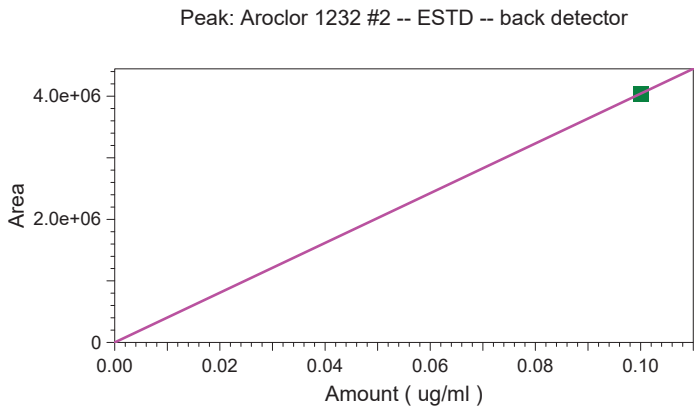
	Level 1
Amount	0.1
Area	5588035
RF	55880350
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	5588035
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\005.dat
Rep 1 Sample ID	1232 CF PP5746
Rep 1 Calib. Time	09/14/2018 11:25:54

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1232.met
Print Time: 09/14/2018 11:26:50
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1232 #2 (back detector)
Average RF: 4.04162e+007
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 4.04162e+007



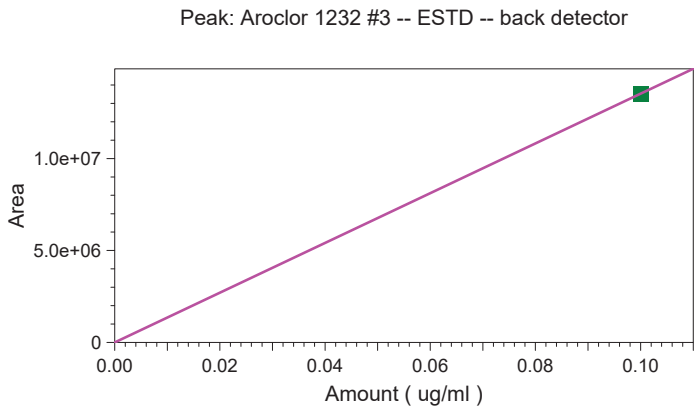
	Level 1
Amount	0.1
Area	4041618
RF	40416180
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	4041618
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\005.dat
Rep 1 Sample ID	1232 CF PP5746
Rep 1 Calib. Time	09/14/2018 11:25:54

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1232.met
Print Time: 09/14/2018 11:26:52
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1232 #3 (back detector)
Average RF: 1.35289e+008
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 1.35289e+008



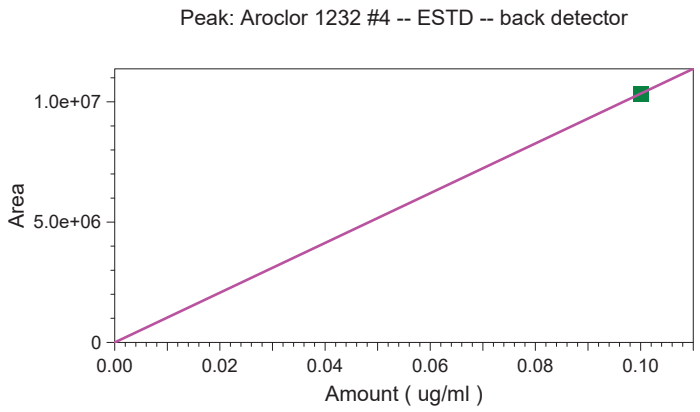
	Level 1
Amount	0.1
Area	13528914
RF	135289140
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	13528914
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\005.dat
Rep 1 Sample ID	1232 CF PP5746
Rep 1 Calib. Time	09/14/2018 11:25:54

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1232.met
Print Time: 09/14/2018 11:26:54
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1232 #4 (back detector)
Average RF: 1.03389e+008
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 1.03389e+008



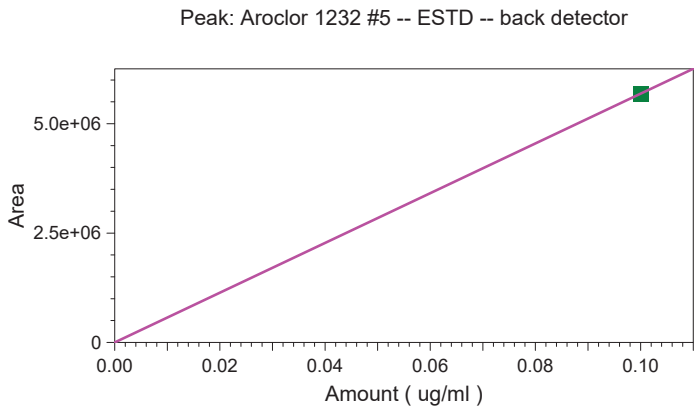
	Level 1
Amount	0.1
Area	10338917
RF	103389170
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	10338917
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\005.dat
Rep 1 Sample ID	1232 CF PP5746
Rep 1 Calib. Time	09/14/2018 11:25:54

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1232.met
Print Time: 09/14/2018 11:26:55
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1232 #5 (back detector)
Average RF: 5.68789e+007
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 5.68789e+007



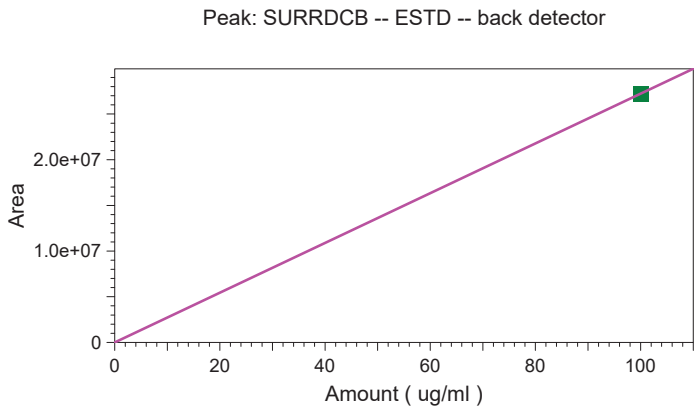
	Level 1
Amount	0.1
Area	5687892
RF	56878920
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	5687892
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\005.dat
Rep 1 Sample ID	1232 CF PP5746
Rep 1 Calib. Time	09/14/2018 11:25:54

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1232.met
Print Time: 09/14/2018 11:26:57
User: JJY
Instrument: Semi 7 (Offline)

SURRDCB (back detector)
Average RF: 272301.
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 272301.



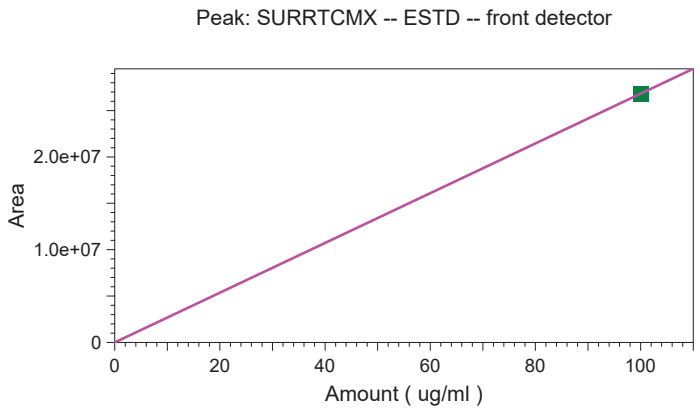
	Level 1
Amount	100
Area	27230093
RF	272300.93
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	27230093
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\005.dat
Rep 1 Sample ID	1232 CF PP5746
Rep 1 Calib. Time	09/14/2018 11:25:54

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1242.met
Print Time: 09/14/2018 12:04:28
User: JJY
Instrument: Semi 7 (Offline)

SURRTCMX (front detector)
Average RF: 268210.
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 268210.



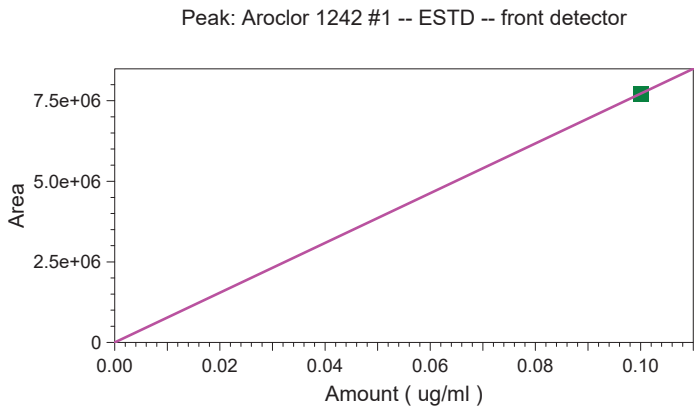
	Level 1
Amount	100
Area	26821047
RF	268210.47
Last Area	
Residual	-1.42109e-014
Rep StDev	
Rep %RSD	
Rep 1 Area	26821047
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\006.dat
Rep 1 Sample ID	1242 CF PP5747
Rep 1 Calib. Time	09/14/2018 12:03:58

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1242.met
Print Time: 09/14/2018 12:04:31
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1242 #1 (front detector)
Average RF: 7.71904e+007
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 7.71904e+007



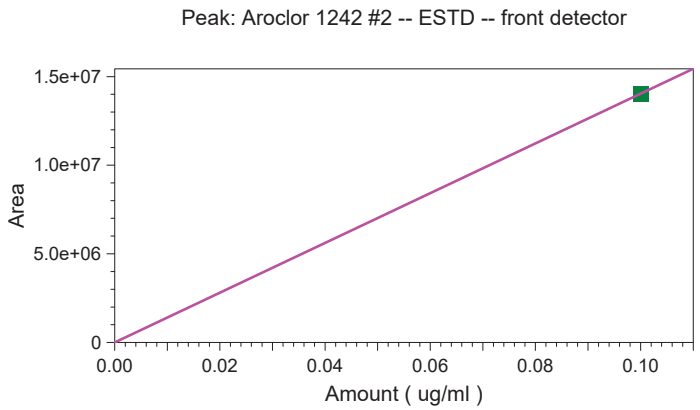
	Level 1
Amount	0.1
Area	7719037
RF	77190370
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	7719037
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\006.dat
Rep 1 Sample ID	1242 CF PP5747
Rep 1 Calib. Time	09/14/2018 12:03:58

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1242.met
Print Time: 09/14/2018 12:04:33
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1242 #2 (front detector)
Average RF: 1.40365e+008
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 1.40365e+008



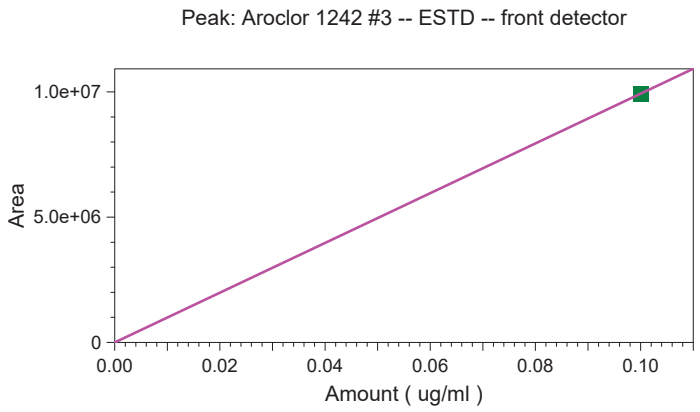
	Level 1
Amount	0.1
Area	14036537
RF	140365370
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	14036537
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\006.dat
Rep 1 Sample ID	1242 CF PP5747
Rep 1 Calib. Time	09/14/2018 12:03:58

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1242.met
Print Time: 09/14/2018 12:04:34
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1242 #3 (front detector)
Average RF: 9.93006e+007
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 9.93006e+007



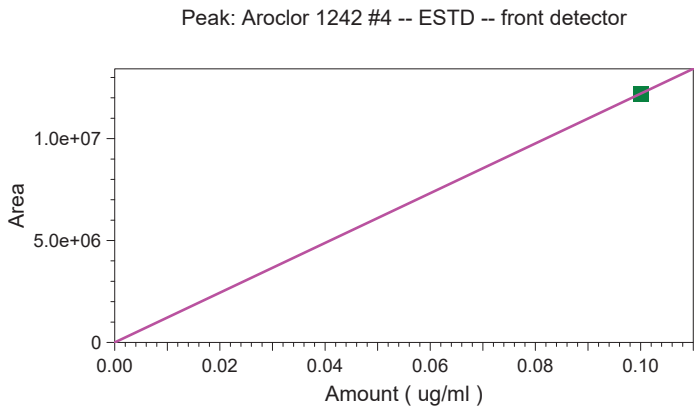
	Level 1
Amount	0.1
Area	9930055
RF	99300550
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	9930055
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\006.dat
Rep 1 Sample ID	1242 CF PP5747
Rep 1 Calib. Time	09/14/2018 12:03:58

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1242.met
Print Time: 09/14/2018 12:04:36
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1242 #4 (front detector)
Average RF: 1.22067e+008
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 1.22067e+008



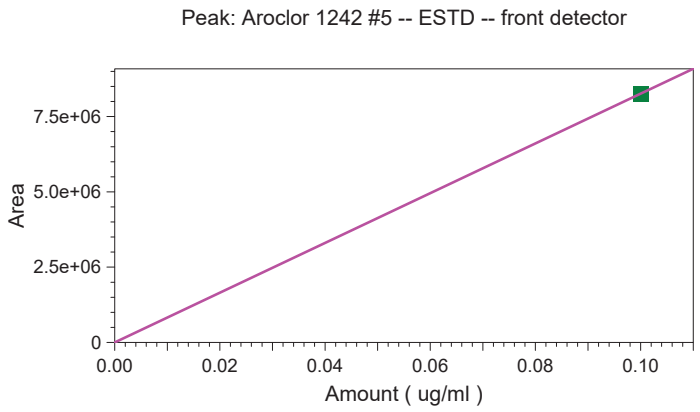
	Level 1
Amount	0.1
Area	12206746
RF	122067460
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	12206746
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\006.dat
Rep 1 Sample ID	1242 CF PP5747
Rep 1 Calib. Time	09/14/2018 12:03:58

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1242.met
Print Time: 09/14/2018 12:04:38
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1242 #5 (front detector)
Average RF: 8.25948e+007
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 8.25948e+007



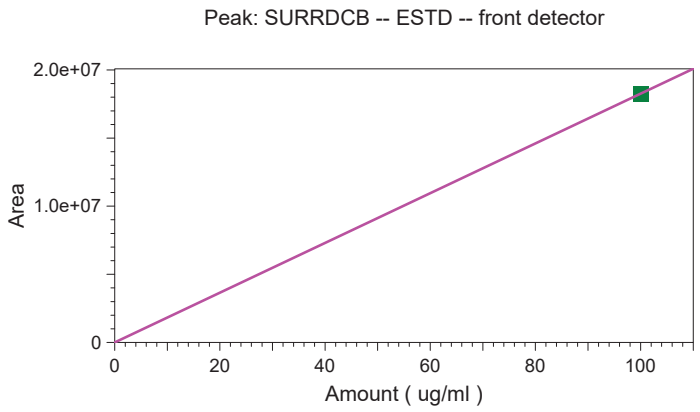
	Level 1
Amount	0.1
Area	8259475
RF	82594750
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	8259475
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\006.dat
Rep 1 Sample ID	1242 CF PP5747
Rep 1 Calib. Time	09/14/2018 12:03:58

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1242.met
Print Time: 09/14/2018 12:04:40
User: JJY
Instrument: Semi 7 (Offline)

SURRDCB (front detector)
Average RF: 182599.
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 182599.



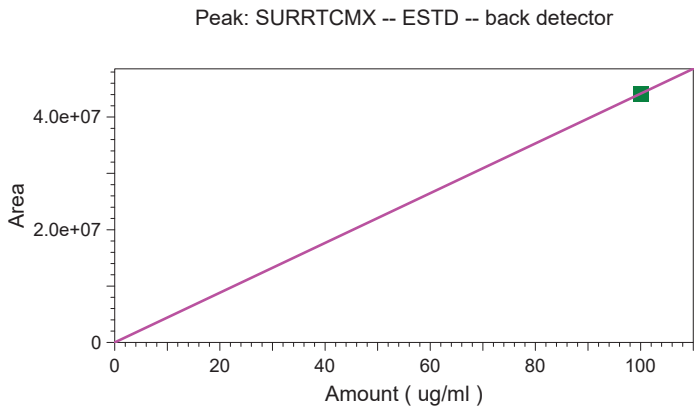
	Level 1
Amount	100
Area	18259918
RF	182599.18
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	18259918
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\006.dat
Rep 1 Sample ID	1242 CF PP5747
Rep 1 Calib. Time	09/14/2018 12:03:58

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1242.met
Print Time: 09/14/2018 12:04:45
User: JJY
Instrument: Semi 7 (Offline)

SURRTCMX (back detector)
Average RF: 441489.
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 441489.



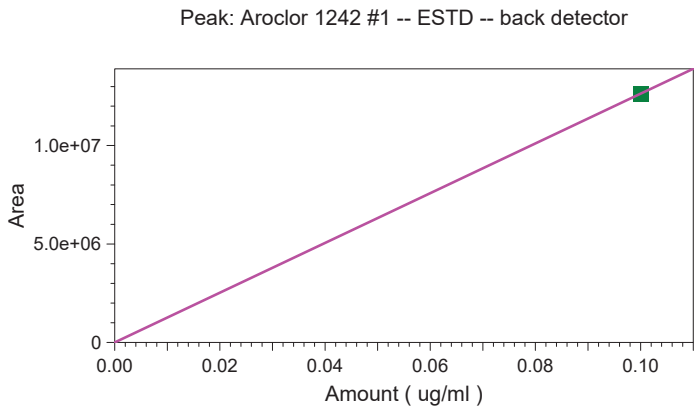
	Level 1
Amount	100
Area	44148878
RF	441488.78
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	44148878
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\006.dat
Rep 1 Sample ID	1242 CF PP5747
Rep 1 Calib. Time	09/14/2018 12:03:58

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1242.met
Print Time: 09/14/2018 12:04:47
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1242 #1 (back detector)
Average RF: 1.26356e+008
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 1.26356e+008



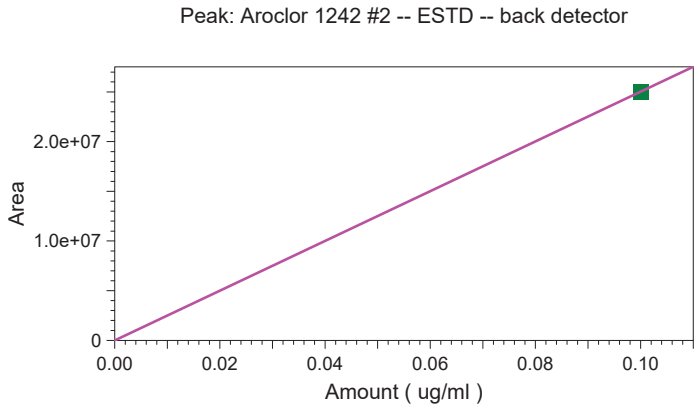
	Level 1
Amount	0.1
Area	12635568
RF	126355680
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	12635568
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\006.dat
Rep 1 Sample ID	1242 CF PP5747
Rep 1 Calib. Time	09/14/2018 12:03:58

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1242.met
Print Time: 09/14/2018 12:04:49
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1242 #2 (back detector)
Average RF: 2.50251e+008
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 2.50251e+008



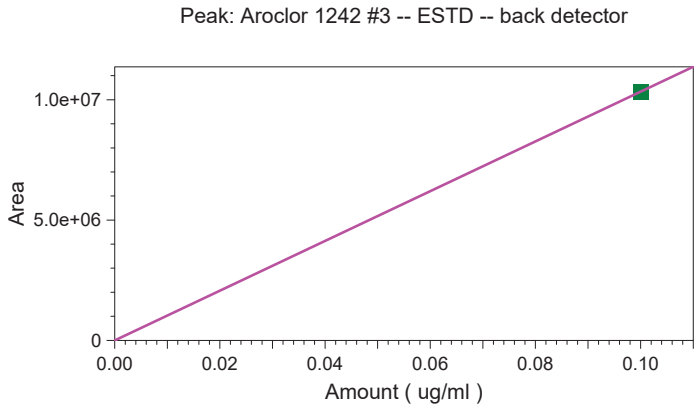
	Level 1
Amount	0.1
Area	25025088
RF	250250880
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	25025088
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\006.dat
Rep 1 Sample ID	1242 CF PP5747
Rep 1 Calib. Time	09/14/2018 12:03:58

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1242.met
Print Time: 09/14/2018 12:04:51
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1242 #3 (back detector)
Average RF: 1.03367e+008
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 1.03367e+008



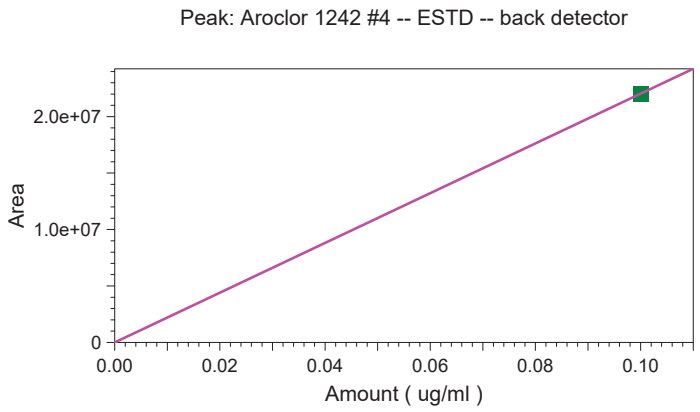
	Level 1
Amount	0.1
Area	10336688
RF	103366880
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	10336688
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\006.dat
Rep 1 Sample ID	1242 CF PP5747
Rep 1 Calib. Time	09/14/2018 12:03:58

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1242.met
Print Time: 09/14/2018 12:04:53
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1242 #4 (back detector)
Average RF: 2.20342e+008
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 2.20342e+008



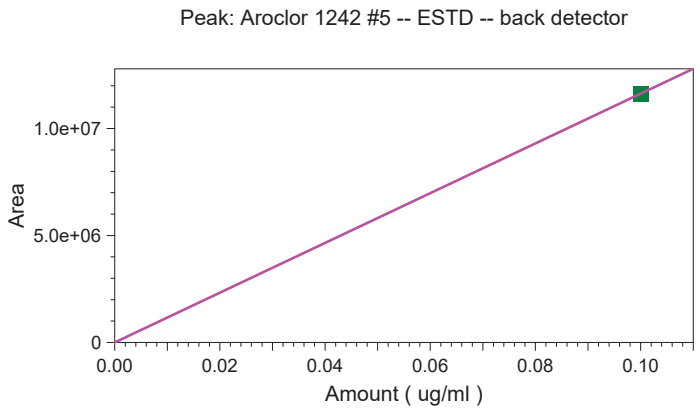
	Level 1
Amount	0.1
Area	22034178
RF	220341780
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	22034178
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\006.dat
Rep 1 Sample ID	1242 CF PP5747
Rep 1 Calib. Time	09/14/2018 12:03:58

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1242.met
Print Time: 09/14/2018 12:04:55
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1242 #5 (back detector)
Average RF: 1.16310e+008
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 1.16310e+008



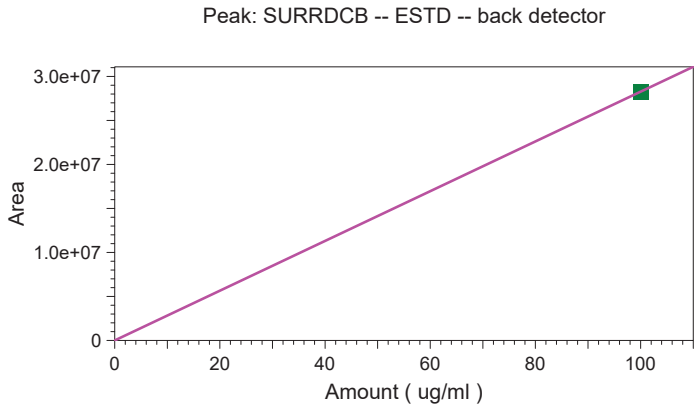
	Level 1
Amount	0.1
Area	11631038
RF	116310380
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	11631038
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\006.dat
Rep 1 Sample ID	1242 CF PP5747
Rep 1 Calib. Time	09/14/2018 12:03:58

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1242.met
Print Time: 09/14/2018 12:04:57
User: JJY
Instrument: Semi 7 (Offline)

SURRDCB (back detector)
Average RF: 282687.
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 282687.



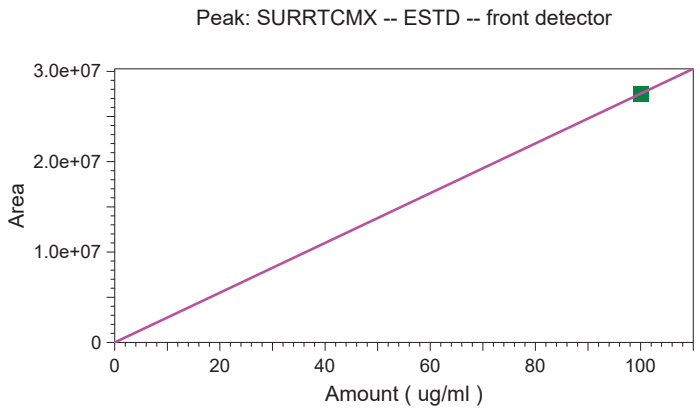
	Level 1
Amount	100
Area	28268652
RF	282686.52
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	28268652
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\006.dat
Rep 1 Sample ID	1242 CF PP5747
Rep 1 Calib. Time	09/14/2018 12:03:58

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1248.met
Print Time: 09/14/2018 12:10:26
User: JJY
Instrument: Semi 7 (Offline)

SURRTCMX (front detector)
Average RF: 275262.
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 275262.



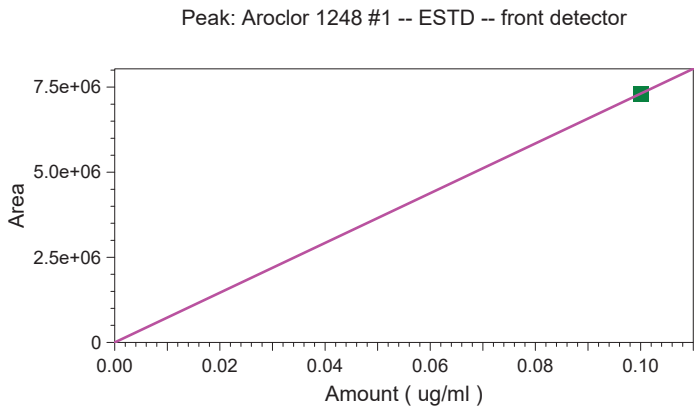
	Level 1
Amount	100
Area	27526154
RF	275261.54
Last Area	
Residual	-1.42109e-014
Rep StDev	
Rep %RSD	
Rep 1 Area	27526154
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\007.dat
Rep 1 Sample ID	1248 CF PP5748
Rep 1 Calib. Time	09/14/2018 12:10:08

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1248.met
Print Time: 09/14/2018 12:10:29
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1248 #1 (front detector)
Average RF: 7.30820e+007
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 7.30820e+007



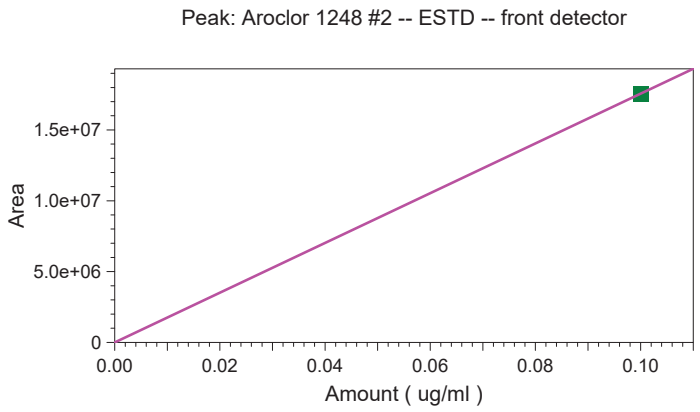
	Level 1
Amount	0.1
Area	7308196
RF	73081960
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	7308196
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\007.dat
Rep 1 Sample ID	1248 CF PP5748
Rep 1 Calib. Time	09/14/2018 12:10:08

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1248.met
Print Time: 09/14/2018 12:10:31
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1248 #2 (front detector)
Average RF: 1.75621e+008
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 1.75621e+008



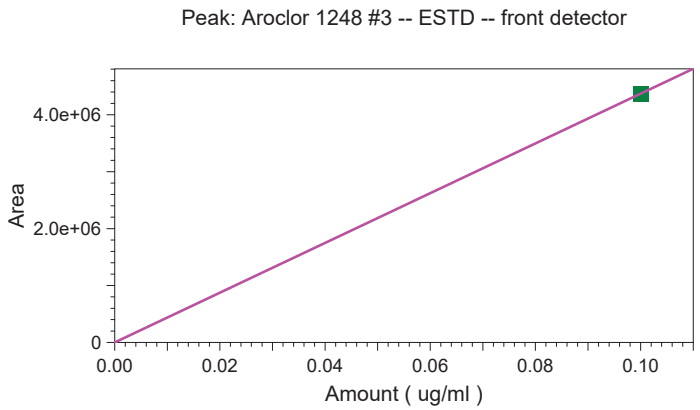
	Level 1
Amount	0.1
Area	17562084
RF	175620840
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	17562084
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\007.dat
Rep 1 Sample ID	1248 CF PP5748
Rep 1 Calib. Time	09/14/2018 12:10:08

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1248.met
Print Time: 09/14/2018 12:10:33
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1248 #3 (front detector)
Average RF: 4.37041e+007
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 4.37041e+007



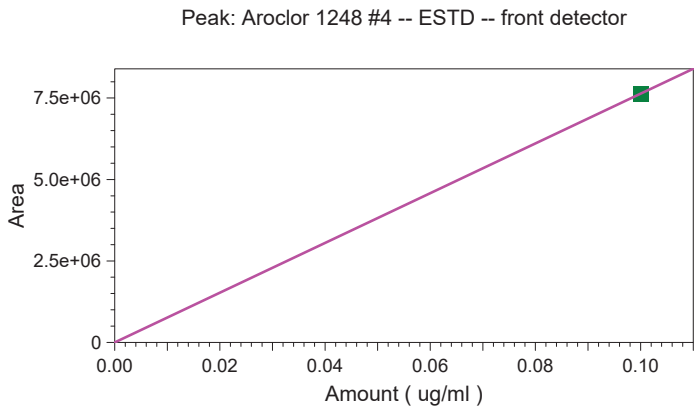
	Level 1
Amount	0.1
Area	4370405
RF	43704050
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	4370405
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\007.dat
Rep 1 Sample ID	1248 CF PP5748
Rep 1 Calib. Time	09/14/2018 12:10:08

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1248.met
Print Time: 09/14/2018 12:10:34
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1248 #4 (front detector)
Average RF: 7.63387e+007
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 7.63387e+007



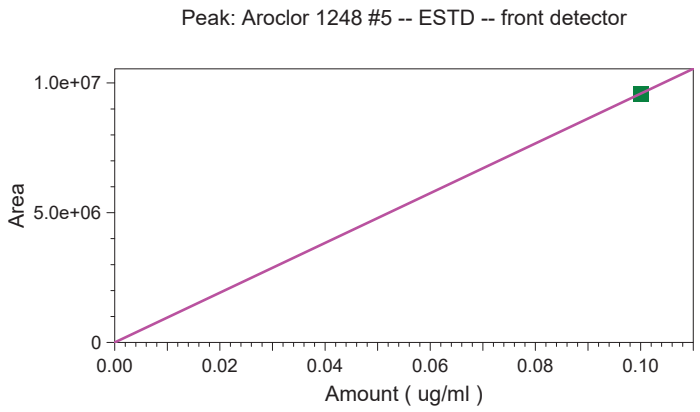
	Level 1
Amount	0.1
Area	7633869
RF	76338690
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	7633869
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\007.dat
Rep 1 Sample ID	1248 CF PP5748
Rep 1 Calib. Time	09/14/2018 12:10:08

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1248.met
Print Time: 09/14/2018 12:10:36
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1248 #5 (front detector)
Average RF: 9.58869e+007
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 9.58869e+007



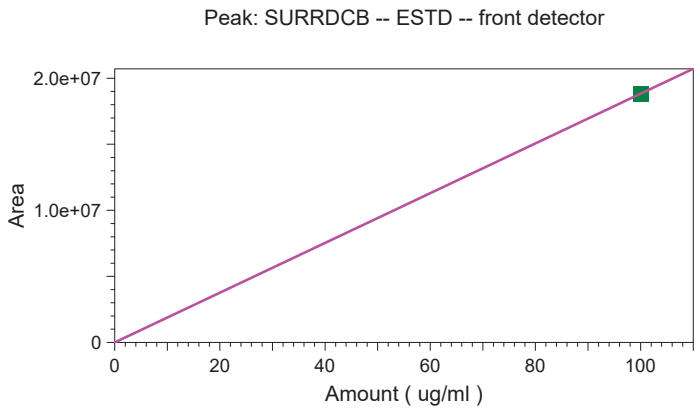
	Level 1
Amount	0.1
Area	9588693
RF	95886930
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	9588693
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\007.dat
Rep 1 Sample ID	1248 CF PP5748
Rep 1 Calib. Time	09/14/2018 12:10:08

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1248.met
Print Time: 09/14/2018 12:10:37
User: JJY
Instrument: Semi 7 (Offline)

SURRDCB (front detector)
Average RF: 188328.
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 188328.



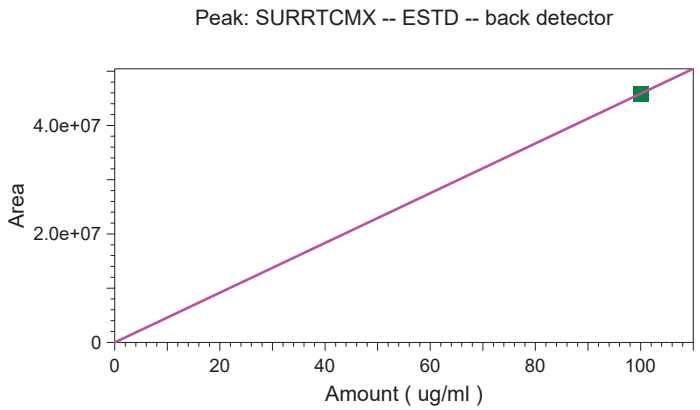
	Level 1
Amount	100
Area	18832810
RF	188328.1
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	18832810
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\007.dat
Rep 1 Sample ID	1248 CF PP5748
Rep 1 Calib. Time	09/14/2018 12:10:08

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1248.met
Print Time: 09/14/2018 12:10:42
User: JJY
Instrument: Semi 7 (Offline)

SURRTCMX (back detector)
Average RF: 458558.
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 458558.



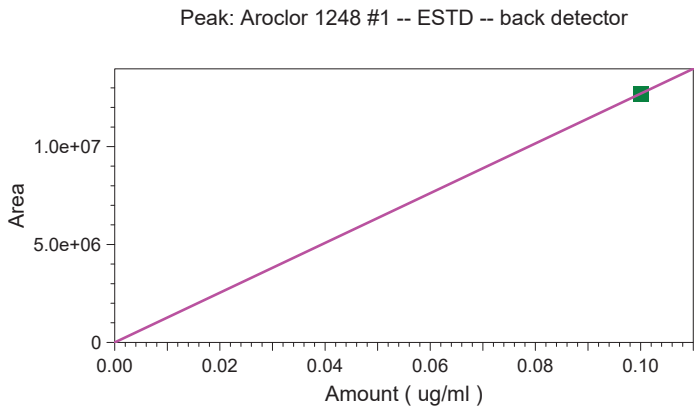
	Level 1
Amount	100
Area	45855772
RF	458557.72
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	45855772
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\007.dat
Rep 1 Sample ID	1248 CF PP5748
Rep 1 Calib. Time	09/14/2018 12:10:08

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1248.met
Print Time: 09/14/2018 12:10:44
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1248 #1 (back detector)
Average RF: 1.27034e+008
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 1.27034e+008



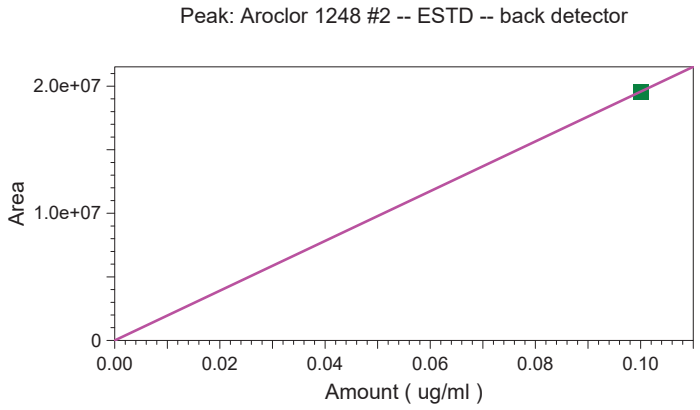
	Level 1
Amount	0.1
Area	12703387
RF	127033870
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	12703387
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\007.dat
Rep 1 Sample ID	1248 CF PP5748
Rep 1 Calib. Time	09/14/2018 12:10:08

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1248.met
Print Time: 09/14/2018 12:10:46
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1248 #2 (back detector)
Average RF: 1.95675e+008
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 1.95675e+008



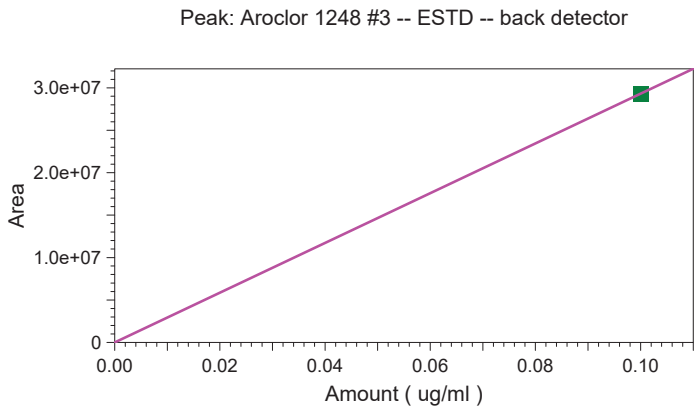
	Level 1
Amount	0.1
Area	19567544
RF	195675440
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	19567544
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\007.dat
Rep 1 Sample ID	1248 CF PP5748
Rep 1 Calib. Time	09/14/2018 12:10:08

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1248.met
Print Time: 09/14/2018 12:10:48
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1248 #3 (back detector)
Average RF: 2.93098e+008
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 2.93098e+008



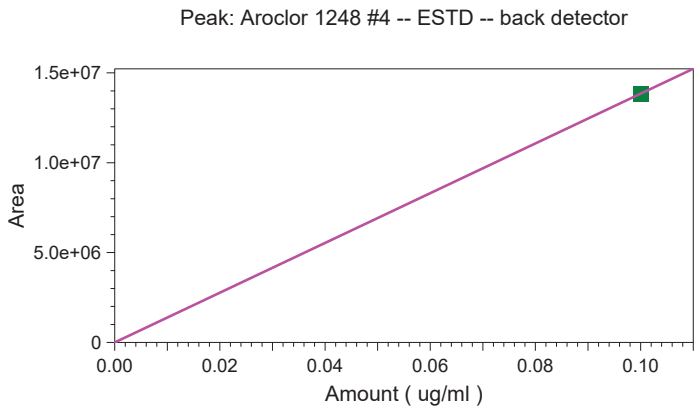
	Level 1
Amount	0.1
Area	29309775
RF	293097750
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	29309775
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\007.dat
Rep 1 Sample ID	1248 CF PP5748
Rep 1 Calib. Time	09/14/2018 12:10:08

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1248.met
Print Time: 09/14/2018 12:10:49
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1248 #4 (back detector)
Average RF: 1.38448e+008
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 1.38448e+008



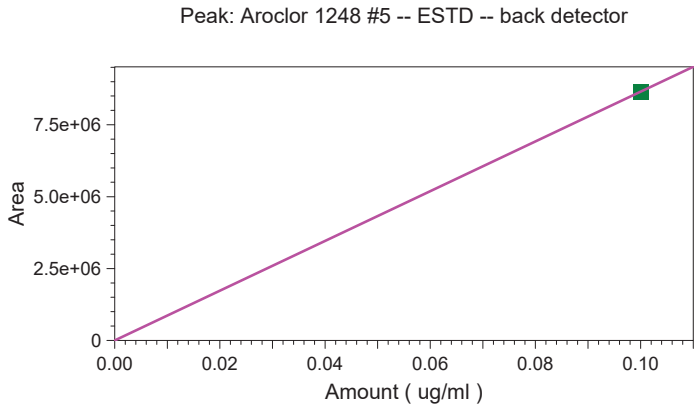
	Level 1
Amount	0.1
Area	13844795
RF	138447950
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	13844795
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\007.dat
Rep 1 Sample ID	1248 CF PP5748
Rep 1 Calib. Time	09/14/2018 12:10:08

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1248.met
Print Time: 09/14/2018 12:10:51
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1248 #5 (back detector)
Average RF: 8.65158e+007
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 8.65158e+007



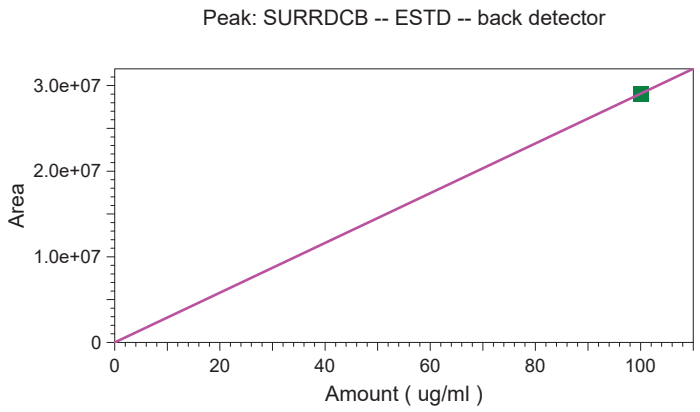
	Level 1
Amount	0.1
Area	8651583
RF	86515830
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	8651583
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\007.dat
Rep 1 Sample ID	1248 CF PP5748
Rep 1 Calib. Time	09/14/2018 12:10:08

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1248.met
Print Time: 09/14/2018 12:10:53
User: JJY
Instrument: Semi 7 (Offline)

SURRDCB (back detector)
Average RF: 290512.
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 290512.



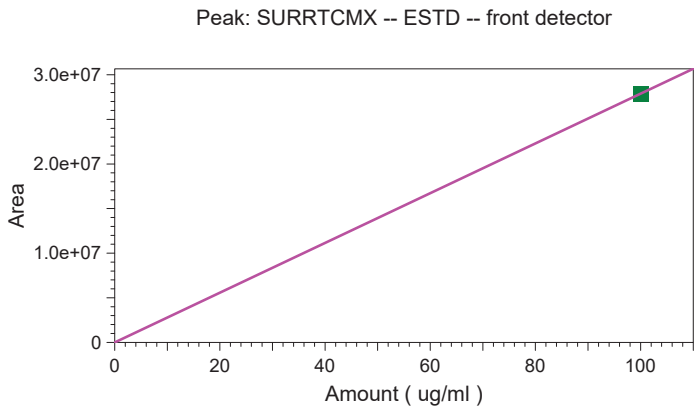
	Level 1
Amount	100
Area	29051221
RF	290512.21
Last Area	
Residual	1.42109e-014
Rep StDev	
Rep %RSD	
Rep 1 Area	29051221
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\007.dat
Rep 1 Sample ID	1248 CF PP5748
Rep 1 Calib. Time	09/14/2018 12:10:08

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1254.met
Print Time: 09/14/2018 12:14:05
User: JJY
Instrument: Semi 7 (Offline)

SURRTCMX (front detector)
Average RF: 278801.
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 278801.



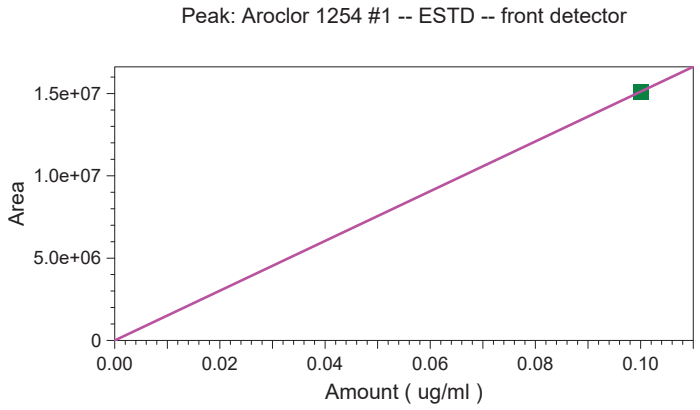
	Level 1
Amount	100
Area	27880071
RF	278800.71
Last Area	
Residual	1.42109e-014
Rep StDev	
Rep %RSD	
Rep 1 Area	27880071
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\008.dat
Rep 1 Sample ID	1254 CF PP5749
Rep 1 Calib. Time	09/14/2018 12:13:34

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1254.met
Print Time: 09/14/2018 12:14:08
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1254 #1 (front detector)
Average RF: 1.51119e+008
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 1.51119e+008



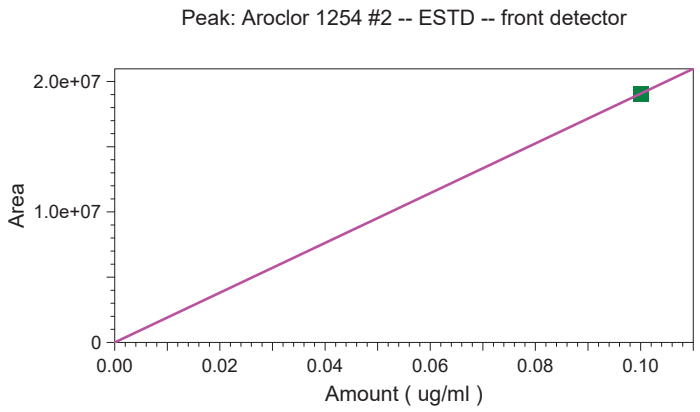
	Level 1
Amount	0.1
Area	15111889
RF	151118890
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	15111889
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\008.dat
Rep 1 Sample ID	1254 CF PP5749
Rep 1 Calib. Time	09/14/2018 12:13:34

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1254.met
Print Time: 09/14/2018 12:14:10
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1254 #2 (front detector)
Average RF: 1.90635e+008
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 1.90635e+008



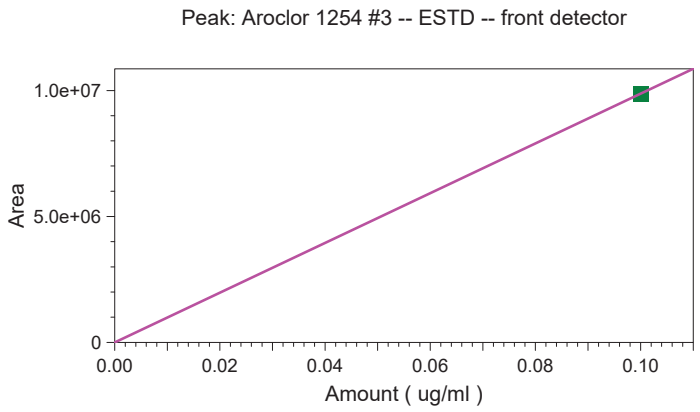
	Level 1
Amount	0.1
Area	19063512
RF	190635120
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	19063512
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\008.dat
Rep 1 Sample ID	1254 CF PP5749
Rep 1 Calib. Time	09/14/2018 12:13:34

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1254.met
Print Time: 09/14/2018 12:14:12
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1254 #3 (front detector)
Average RF: 9.87412e+007
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 9.87412e+007



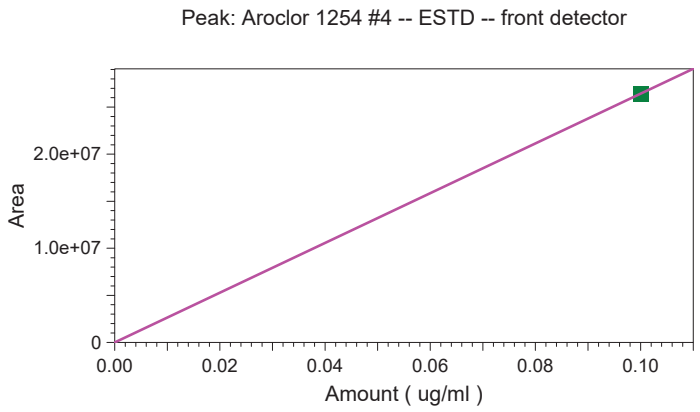
	Level 1
Amount	0.1
Area	9874119
RF	98741190
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	9874119
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\008.dat
Rep 1 Sample ID	1254 CF PP5749
Rep 1 Calib. Time	09/14/2018 12:13:34

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1254.met
Print Time: 09/14/2018 12:14:13
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1254 #4 (front detector)
Average RF: 2.64296e+008
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 2.64296e+008



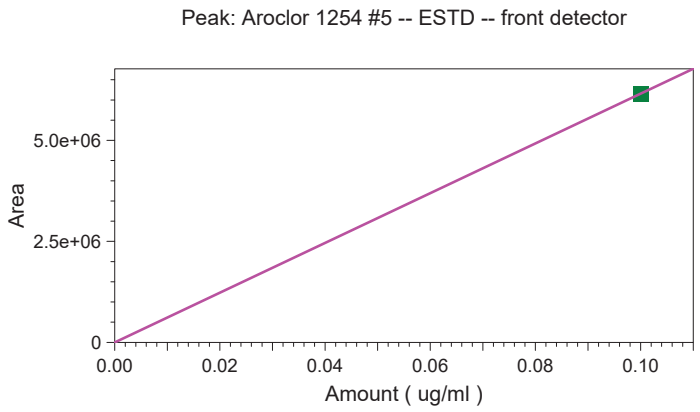
	Level 1
Amount	0.1
Area	26429559
RF	264295590
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	26429559
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\008.dat
Rep 1 Sample ID	1254 CF PP5749
Rep 1 Calib. Time	09/14/2018 12:13:34

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1254.met
Print Time: 09/14/2018 12:14:15
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1254 #5 (front detector)
Average RF: 6.15721e+007
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 6.15721e+007



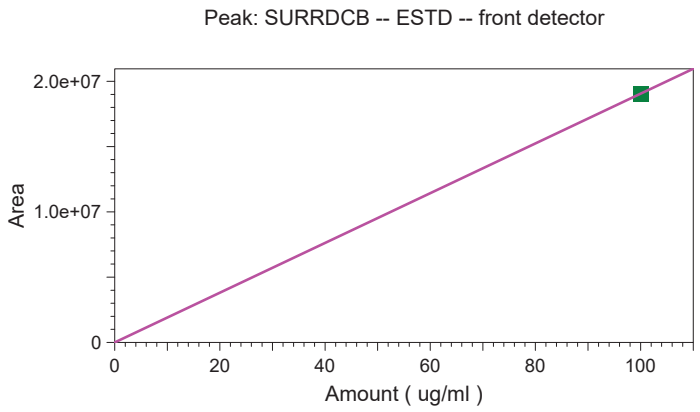
	Level 1
Amount	0.1
Area	6157207
RF	61572070
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	6157207
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\008.dat
Rep 1 Sample ID	1254 CF PP5749
Rep 1 Calib. Time	09/14/2018 12:13:34

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1254.met
Print Time: 09/14/2018 12:14:16
User: JJY
Instrument: Semi 7 (Offline)

SURRDCB (front detector)
Average RF: 190537.
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 190537.



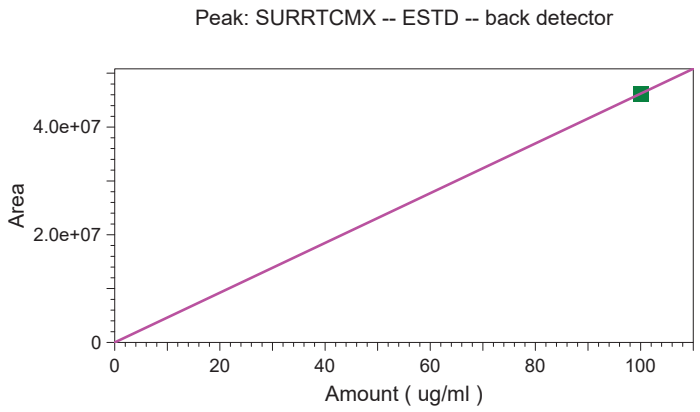
	Level 1
Amount	100
Area	19053692
RF	190536.92
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	19053692
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\008.dat
Rep 1 Sample ID	1254 CF PP5749
Rep 1 Calib. Time	09/14/2018 12:13:34

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1254.met
Print Time: 09/14/2018 12:14:23
User: JJY
Instrument: Semi 7 (Offline)

SURRTCMX (back detector)
Average RF: 462055.
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 462055.



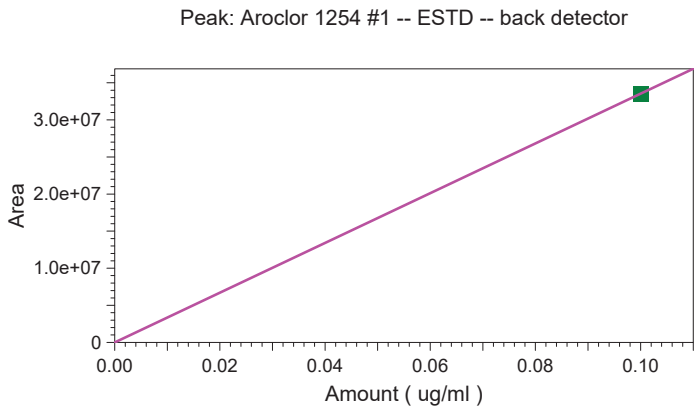
	Level 1
Amount	100
Area	46205520
RF	462055.2
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	46205520
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\008.dat
Rep 1 Sample ID	1254 CF PP5749
Rep 1 Calib. Time	09/14/2018 12:13:34

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1254.met
Print Time: 09/14/2018 12:14:24
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1254 #1 (back detector)
Average RF: 3.35328e+008
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 3.35328e+008



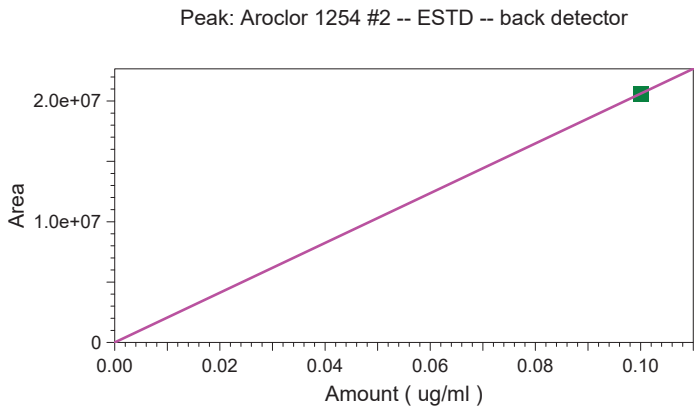
	Level 1
Amount	0.1
Area	33532830
RF	335328300
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	33532830
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\008.dat
Rep 1 Sample ID	1254 CF PP5749
Rep 1 Calib. Time	09/14/2018 12:13:34

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1254.met
Print Time: 09/14/2018 12:14:26
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1254 #2 (back detector)
Average RF: 2.06096e+008
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 2.06096e+008



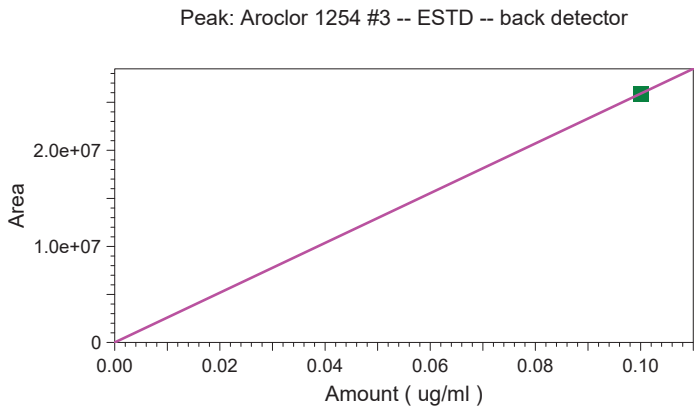
	Level 1
Amount	0.1
Area	20609636
RF	206096360
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	20609636
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\008.dat
Rep 1 Sample ID	1254 CF PP5749
Rep 1 Calib. Time	09/14/2018 12:13:34

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1254.met
Print Time: 09/14/2018 12:14:28
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1254 #3 (back detector)
Average RF: 2.58992e+008
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 2.58992e+008



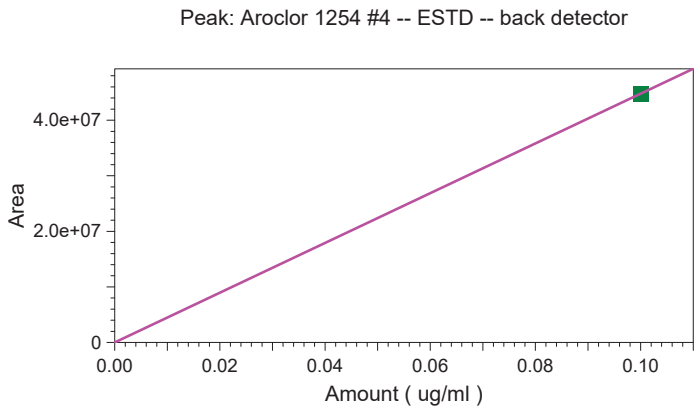
	Level 1
Amount	0.1
Area	25899181
RF	258991810
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	25899181
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\008.dat
Rep 1 Sample ID	1254 CF PP5749
Rep 1 Calib. Time	09/14/2018 12:13:34

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1254.met
Print Time: 09/14/2018 12:14:30
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1254 #4 (back detector)
Average RF: 4.47840e+008
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 4.47840e+008



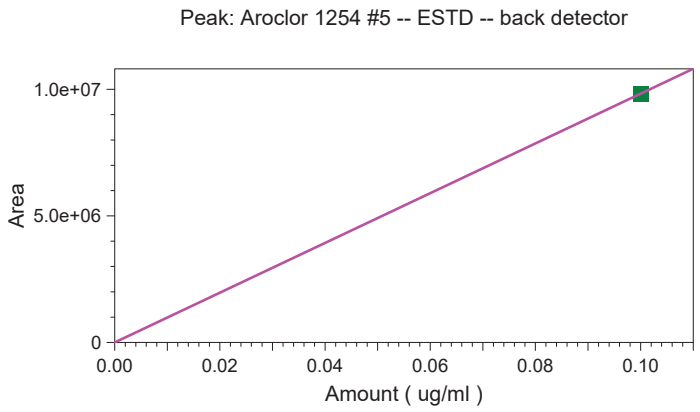
	Level 1
Amount	0.1
Area	44783988
RF	447839880
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	44783988
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\008.dat
Rep 1 Sample ID	1254 CF PP5749
Rep 1 Calib. Time	09/14/2018 12:13:34

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1254.met
Print Time: 09/14/2018 12:14:31
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1254 #5 (back detector)
Average RF: 9.82876e+007
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 9.82876e+007



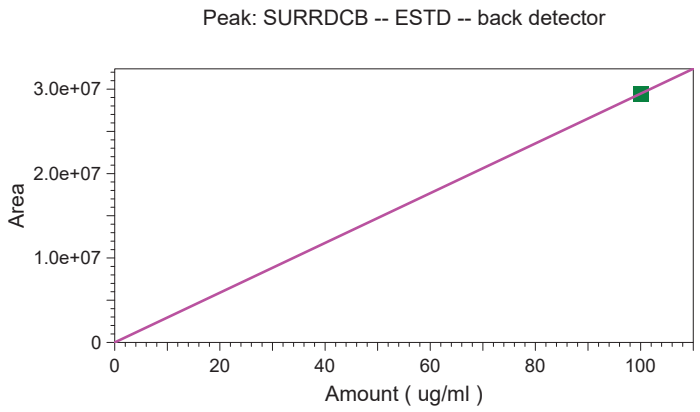
	Level 1
Amount	0.1
Area	9828764
RF	98287640
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	9828764
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\008.dat
Rep 1 Sample ID	1254 CF PP5749
Rep 1 Calib. Time	09/14/2018 12:13:34

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1254.met
Print Time: 09/14/2018 12:14:33
User: JJY
Instrument: Semi 7 (Offline)

SURRDCB (back detector)
Average RF: 294620.
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 294620.



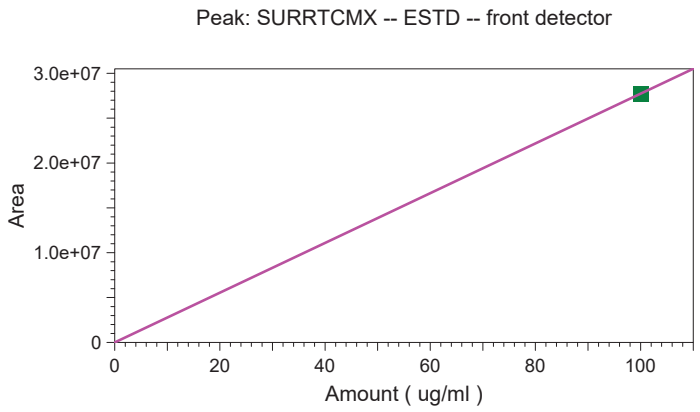
	Level 1
Amount	100
Area	29462038
RF	294620.38
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	29462038
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\008.dat
Rep 1 Sample ID	1254 CF PP5749
Rep 1 Calib. Time	09/14/2018 12:13:34

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1262.met
Print Time: 09/14/2018 12:18:19
User: JJY
Instrument: Semi 7 (Offline)

SURRTCMX (front detector)
Average RF: 277345.
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 277345.



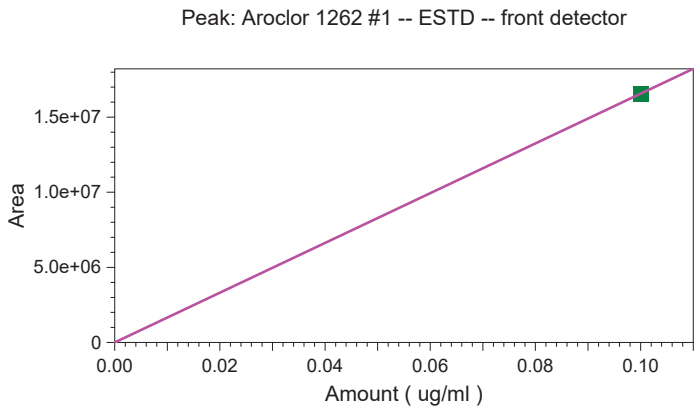
	Level 1
Amount	100
Area	27734505
RF	277345.05
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	27734505
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\009.dat
Rep 1 Sample ID	1262 CF PP5750
Rep 1 Calib. Time	09/14/2018 12:17:45

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1262.met
Print Time: 09/14/2018 12:18:23
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1262 #1 (front detector)
Average RF: 1.65658e+008
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 1.65658e+008



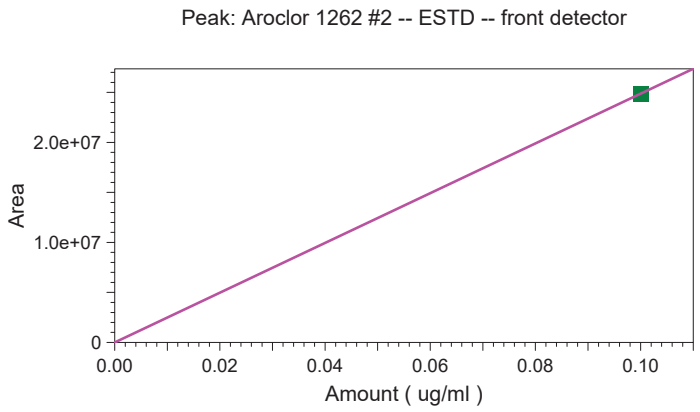
	Level 1
Amount	0.1
Area	16565841
RF	165658410
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	16565841
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\009.dat
Rep 1 Sample ID	1262 CF PP5750
Rep 1 Calib. Time	09/14/2018 12:17:45

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1262.met
Print Time: 09/14/2018 12:18:24
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1262 #2 (front detector)
Average RF: 2.48740e+008
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 2.48740e+008



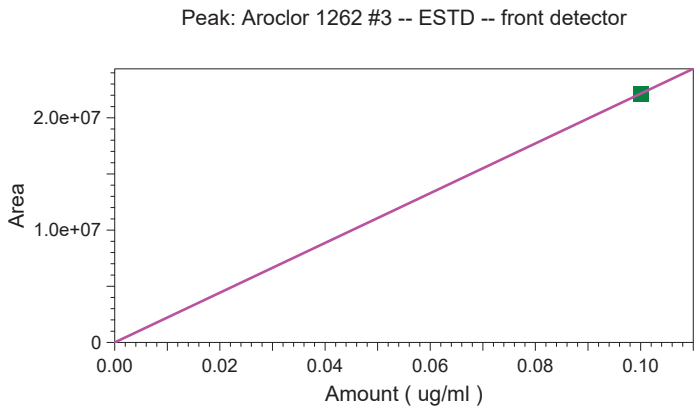
	Level 1
Amount	0.1
Area	24873957
RF	248739570
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	24873957
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\009.dat
Rep 1 Sample ID	1262 CF PP5750
Rep 1 Calib. Time	09/14/2018 12:17:45

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1262.met
Print Time: 09/14/2018 12:18:26
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1262 #3 (front detector)
Average RF: 2.21437e+008
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 2.21437e+008



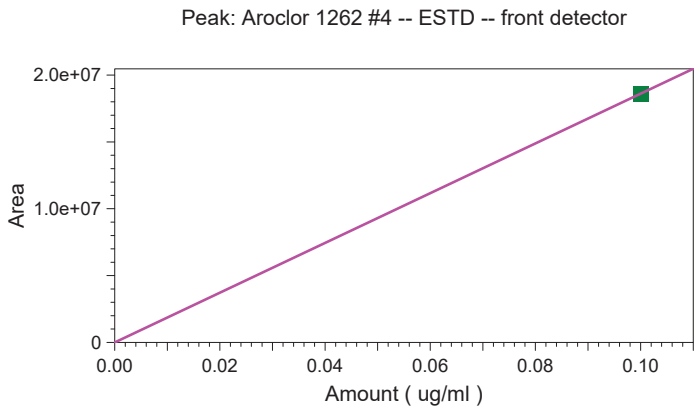
	Level 1
Amount	0.1
Area	22143700
RF	221437000
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	22143700
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\009.dat
Rep 1 Sample ID	1262 CF PP5750
Rep 1 Calib. Time	09/14/2018 12:17:45

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1262.met
Print Time: 09/14/2018 12:18:28
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1262 #4 (front detector)
Average RF: 1.86109e+008
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 1.86109e+008



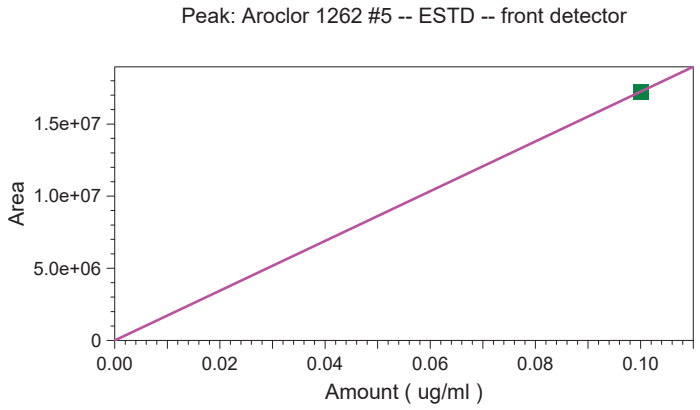
	Level 1
Amount	0.1
Area	18610924
RF	186109240
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	18610924
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\009.dat
Rep 1 Sample ID	1262 CF PP5750
Rep 1 Calib. Time	09/14/2018 12:17:45

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1262.met
Print Time: 09/14/2018 12:18:29
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1262 #5 (front detector)
Average RF: 1.72421e+008
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 1.72421e+008



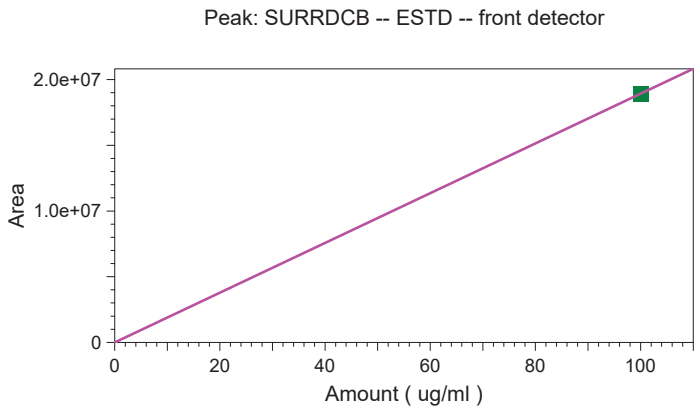
	Level 1
Amount	0.1
Area	17242077
RF	172420770
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	17242077
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\009.dat
Rep 1 Sample ID	1262 CF PP5750
Rep 1 Calib. Time	09/14/2018 12:17:45

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1262.met
Print Time: 09/14/2018 12:18:31
User: JJY
Instrument: Semi 7 (Offline)

SURRDCB (front detector)
Average RF: 189289.
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 189289.



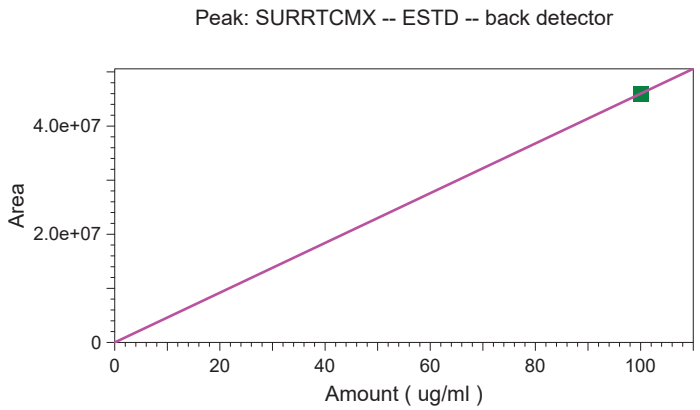
	Level 1
Amount	100
Area	18928886
RF	189288.86
Last Area	
Residual	-1.42109e-014
Rep StDev	
Rep %RSD	
Rep 1 Area	18928886
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\009.dat
Rep 1 Sample ID	1262 CF PP5750
Rep 1 Calib. Time	09/14/2018 12:17:45

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1262.met
Print Time: 09/14/2018 12:18:36
User: JJY
Instrument: Semi 7 (Offline)

SURRTCMX (back detector)
Average RF: 459874.
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 459874.



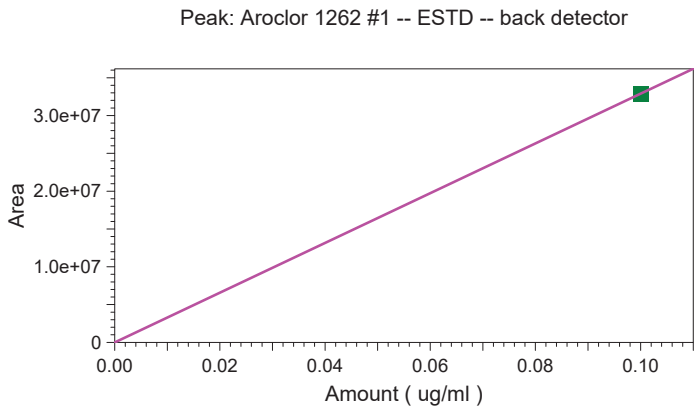
	Level 1
Amount	100
Area	45987415
RF	459874.15
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	45987415
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\009.dat
Rep 1 Sample ID	1262 CF PP5750
Rep 1 Calib. Time	09/14/2018 12:17:45

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1262.met
Print Time: 09/14/2018 12:18:38
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1262 #1 (back detector)
Average RF: 3.28940e+008
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 3.28940e+008



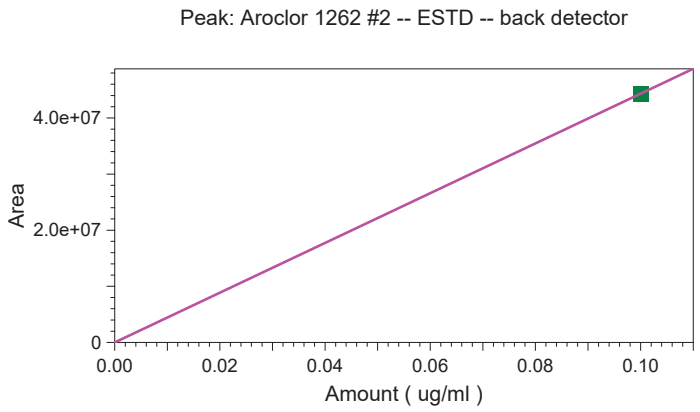
	Level 1
Amount	0.1
Area	32893957
RF	328939570
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	32893957
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\009.dat
Rep 1 Sample ID	1262 CF PP5750
Rep 1 Calib. Time	09/14/2018 12:17:45

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1262.met
Print Time: 09/14/2018 12:18:40
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1262 #2 (back detector)
Average RF: 4.43246e+008
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 4.43246e+008



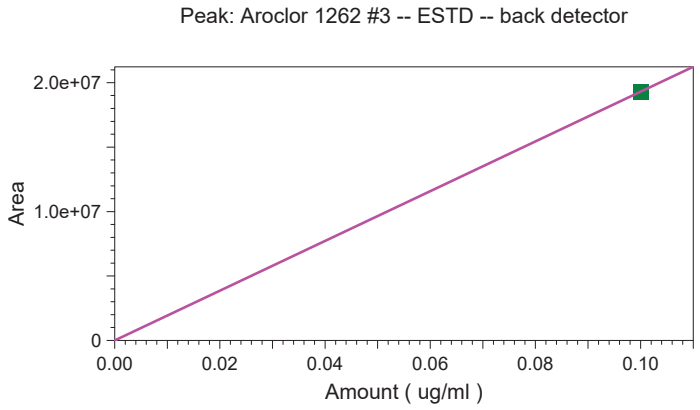
	Level 1
Amount	0.1
Area	44324614
RF	443246140
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	44324614
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\009.dat
Rep 1 Sample ID	1262 CF PP5750
Rep 1 Calib. Time	09/14/2018 12:17:45

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1262.met
Print Time: 09/14/2018 12:18:42
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1262 #3 (back detector)
Average RF: 1.93043e+008
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 1.93043e+008



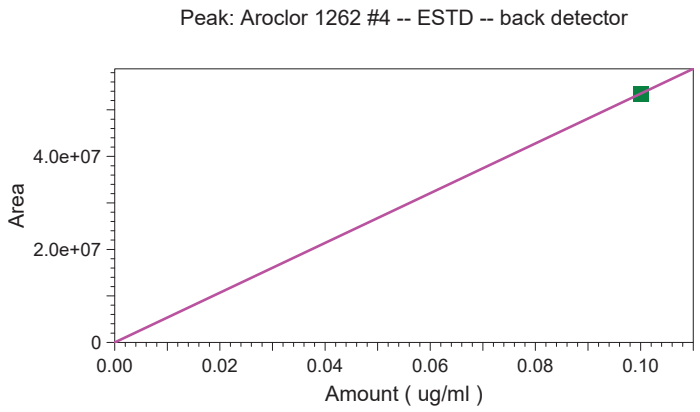
	Level 1
Amount	0.1
Area	19304297
RF	193042970
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	19304297
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\009.dat
Rep 1 Sample ID	1262 CF PP5750
Rep 1 Calib. Time	09/14/2018 12:17:45

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1262.met
Print Time: 09/14/2018 12:18:44
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1262 #4 (back detector)
Average RF: 5.34927e+008
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 5.34927e+008



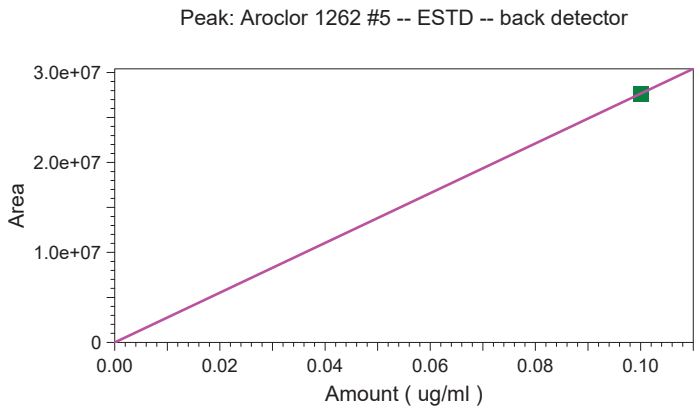
	Level 1
Amount	0.1
Area	53492663
RF	534926630
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	53492663
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\009.dat
Rep 1 Sample ID	1262 CF PP5750
Rep 1 Calib. Time	09/14/2018 12:17:45

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1262.met
Print Time: 09/14/2018 12:18:45
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1262 #5 (back detector)
Average RF: 2.76490e+008
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 2.76490e+008



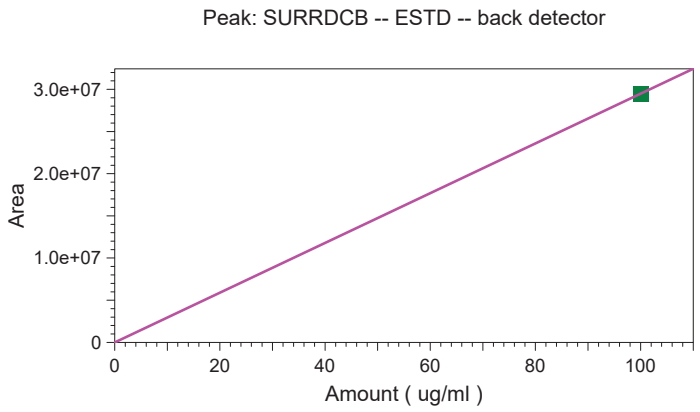
	Level 1
Amount	0.1
Area	27649015
RF	276490150
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	27649015
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\009.dat
Rep 1 Sample ID	1262 CF PP5750
Rep 1 Calib. Time	09/14/2018 12:17:45

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1262.met
Print Time: 09/14/2018 12:18:47
User: JJY
Instrument: Semi 7 (Offline)

SURRDCB (back detector)
Average RF: 294837.
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 294837.



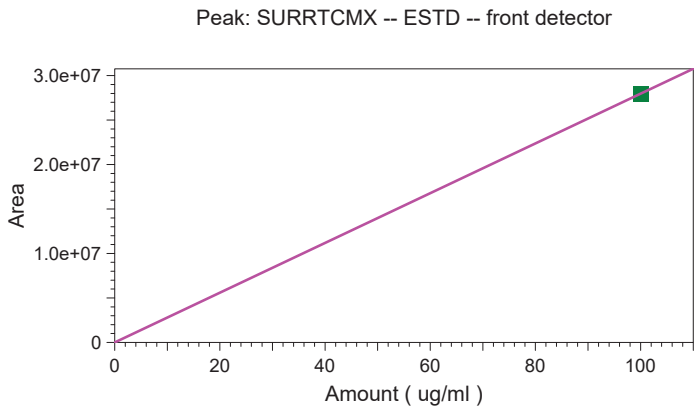
	Level 1
Amount	100
Area	29483662
RF	294836.62
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	29483662
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\009.dat
Rep 1 Sample ID	1262 CF PP5750
Rep 1 Calib. Time	09/14/2018 12:17:45

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1268.met
Print Time: 09/14/2018 12:22:37
User: JJY
Instrument: Semi 7 (Offline)

SURRTCMX (front detector)
Average RF: 279667.
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 279667.



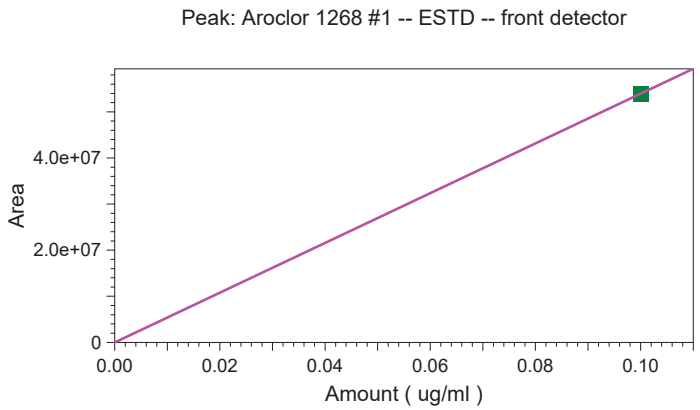
	Level 1
Amount	100
Area	27966699
RF	279666.99
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	27966699
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\010.dat
Rep 1 Sample ID	1268 CF PP5751
Rep 1 Calib. Time	09/14/2018 12:21:59

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1268.met
Print Time: 09/14/2018 12:22:41
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1268 #1 (front detector)
Average RF: 5.39420e+008
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 5.39420e+008



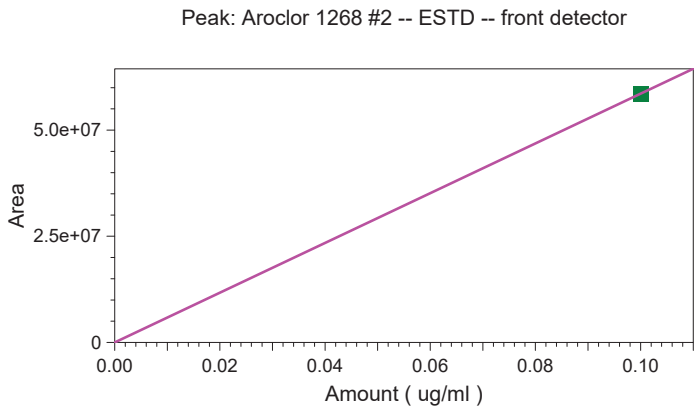
	Level 1
Amount	0.1
Area	53941972
RF	539419720
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	53941972
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\010.dat
Rep 1 Sample ID	1268 CF PP5751
Rep 1 Calib. Time	09/14/2018 12:21:59

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1268.met
Print Time: 09/14/2018 12:22:43
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1268 #2 (front detector)
Average RF: 5.85852e+008
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 5.85852e+008



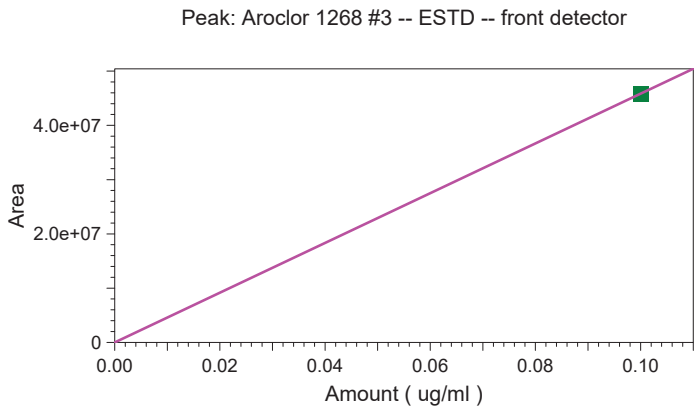
	Level 1
Amount	0.1
Area	58585164
RF	585851640
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	58585164
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\010.dat
Rep 1 Sample ID	1268 CF PP5751
Rep 1 Calib. Time	09/14/2018 12:21:59

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1268.met
Print Time: 09/14/2018 12:22:45
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1268 #3 (front detector)
Average RF: 4.58394e+008
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 4.58394e+008



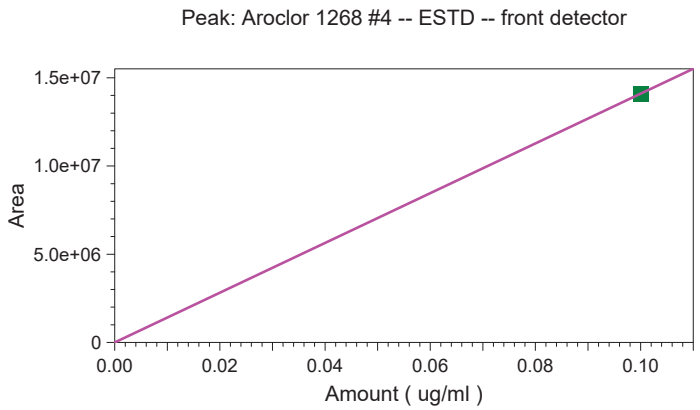
	Level 1
Amount	0.1
Area	45839390
RF	458393900
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	45839390
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\010.dat
Rep 1 Sample ID	1268 CF PP5751
Rep 1 Calib. Time	09/14/2018 12:21:59

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1268.met
Print Time: 09/14/2018 12:22:46
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1268 #4 (front detector)
Average RF: 1.41013e+008
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 1.41013e+008



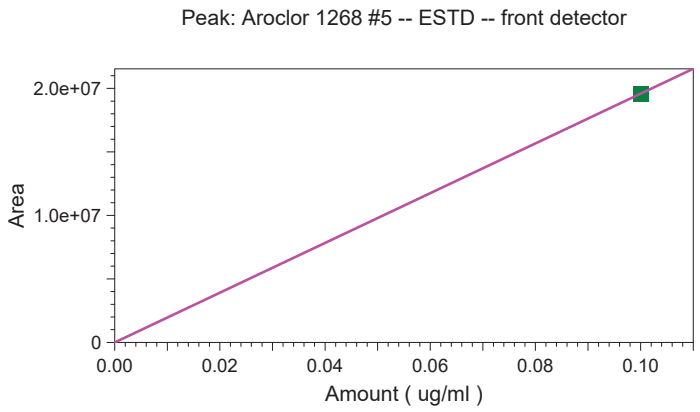
	Level 1
Amount	0.1
Area	14101310
RF	141013100
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	14101310
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\010.dat
Rep 1 Sample ID	1268 CF PP5751
Rep 1 Calib. Time	09/14/2018 12:21:59

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1268.met
Print Time: 09/14/2018 12:22:48
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1268 #5 (front detector)
Average RF: 1.95846e+008
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 1.95846e+008



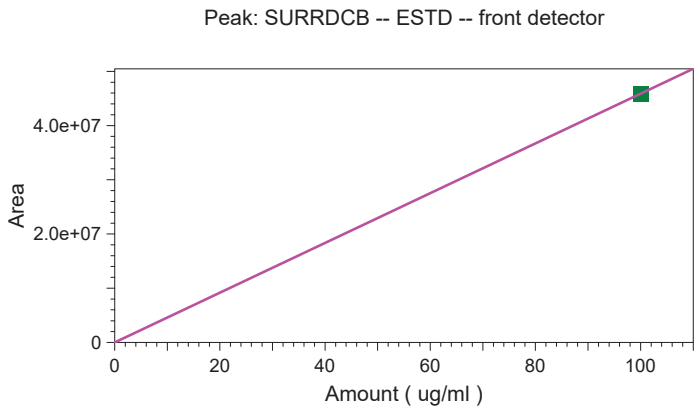
	Level 1
Amount	0.1
Area	19584613
RF	195846130
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	19584613
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\010.dat
Rep 1 Sample ID	1268 CF PP5751
Rep 1 Calib. Time	09/14/2018 12:21:59

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1268.met
Print Time: 09/14/2018 12:22:50
User: JJY
Instrument: Semi 7 (Offline)

SURRDCB (front detector)
Average RF: 458828.
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 458828.



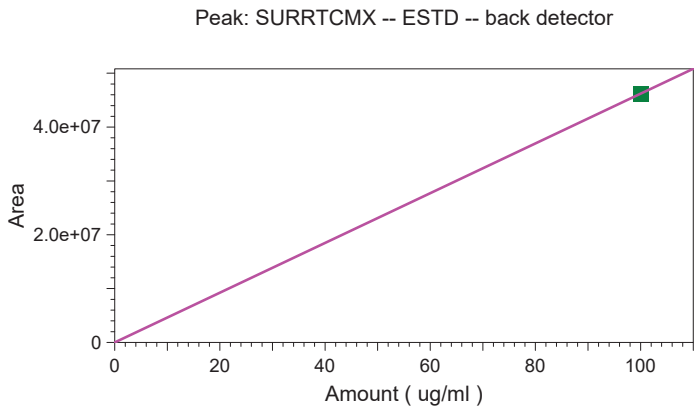
	Level 1
Amount	100
Area	45882754
RF	458827.54
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	45882754
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\010.dat
Rep 1 Sample ID	1268 CF PP5751
Rep 1 Calib. Time	09/14/2018 12:21:59

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1268.met
Print Time: 09/14/2018 12:22:55
User: JJY
Instrument: Semi 7 (Offline)

SURRTCMX (back detector)
Average RF: 462065.
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 462065.



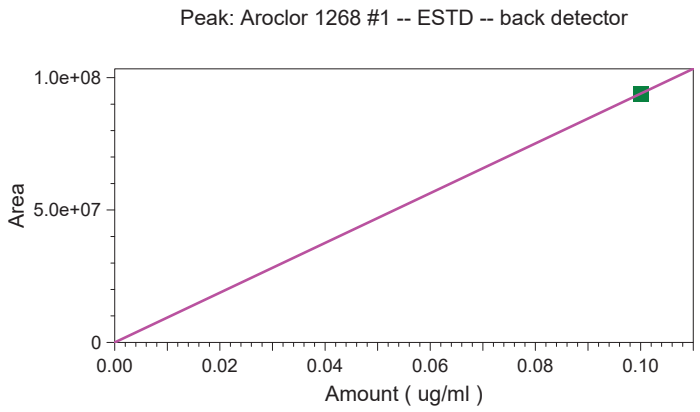
	Level 1
Amount	100
Area	46206521
RF	462065.21
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	46206521
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\010.dat
Rep 1 Sample ID	1268 CF PP5751
Rep 1 Calib. Time	09/14/2018 12:21:59

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1268.met
Print Time: 09/14/2018 12:22:57
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1268 #1 (back detector)
Average RF: 9.39466e+008
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 9.39466e+008



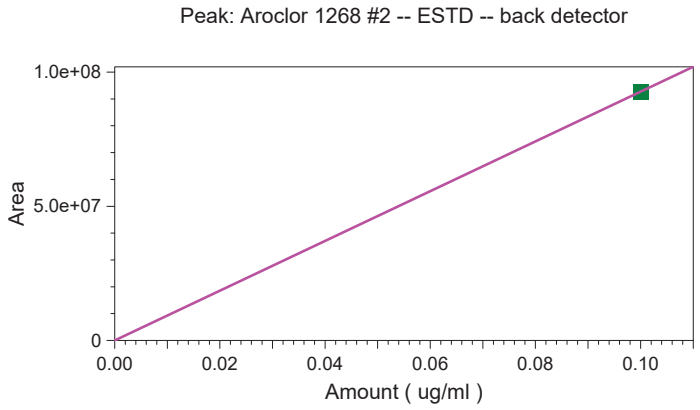
	Level 1
Amount	0.1
Area	93946550
RF	939465500
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	93946550
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\010.dat
Rep 1 Sample ID	1268 CF PP5751
Rep 1 Calib. Time	09/14/2018 12:21:59

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1268.met
Print Time: 09/14/2018 12:22:58
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1268 #2 (back detector)
Average RF: 9.27244e+008
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 9.27244e+008



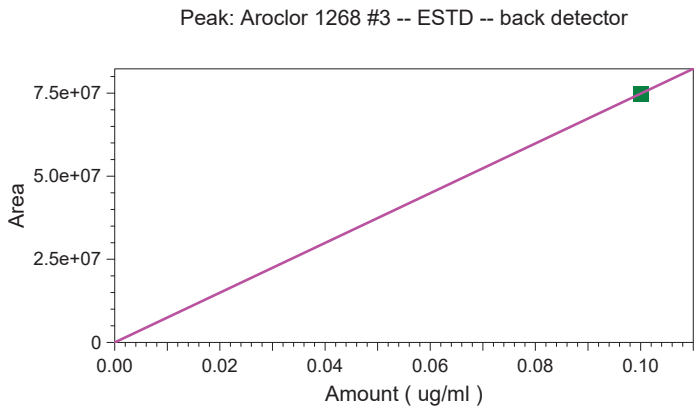
	Level 1
Amount	0.1
Area	92724363
RF	927243630
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	92724363
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\010.dat
Rep 1 Sample ID	1268 CF PP5751
Rep 1 Calib. Time	09/14/2018 12:21:59

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1268.met
Print Time: 09/14/2018 12:23:00
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1268 #3 (back detector)
Average RF: 7.48494e+008
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 7.48494e+008



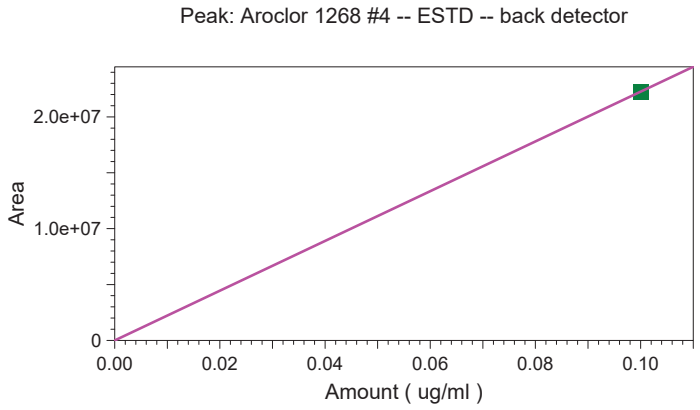
	Level 1
Amount	0.1
Area	74849384
RF	748493840
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	74849384
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\010.dat
Rep 1 Sample ID	1268 CF PP5751
Rep 1 Calib. Time	09/14/2018 12:21:59

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1268.met
Print Time: 09/14/2018 12:23:02
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1268 #4 (back detector)
Average RF: 2.22613e+008
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 2.22613e+008



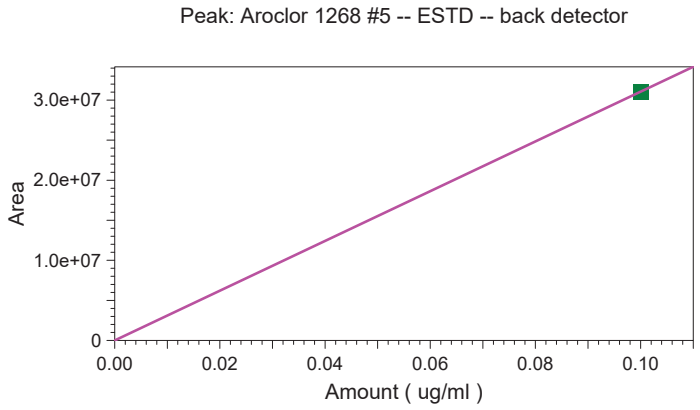
	Level 1
Amount	0.1
Area	22261290
RF	222612900
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	22261290
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\010.dat
Rep 1 Sample ID	1268 CF PP5751
Rep 1 Calib. Time	09/14/2018 12:21:59

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1268.met
Print Time: 09/14/2018 12:23:04
User: JJY
Instrument: Semi 7 (Offline)

Aroclor 1268 #5 (back detector)
Average RF: 3.10512e+008
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 3.10512e+008



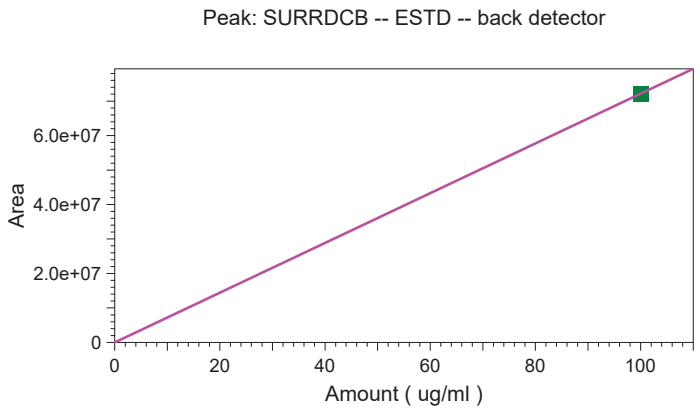
	Level 1
Amount	0.1
Area	31051247
RF	310512470
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	31051247
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\010.dat
Rep 1 Sample ID	1268 CF PP5751
Rep 1 Calib. Time	09/14/2018 12:21:59

Calibration Report

Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1268.met
Print Time: 09/14/2018 12:23:05
User: JJY
Instrument: Semi 7 (Offline)

SURRDCB (back detector)
Average RF: 721499.
Scaling: None LSQ Weighting: None Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Average RF

Average Slope: 721499.

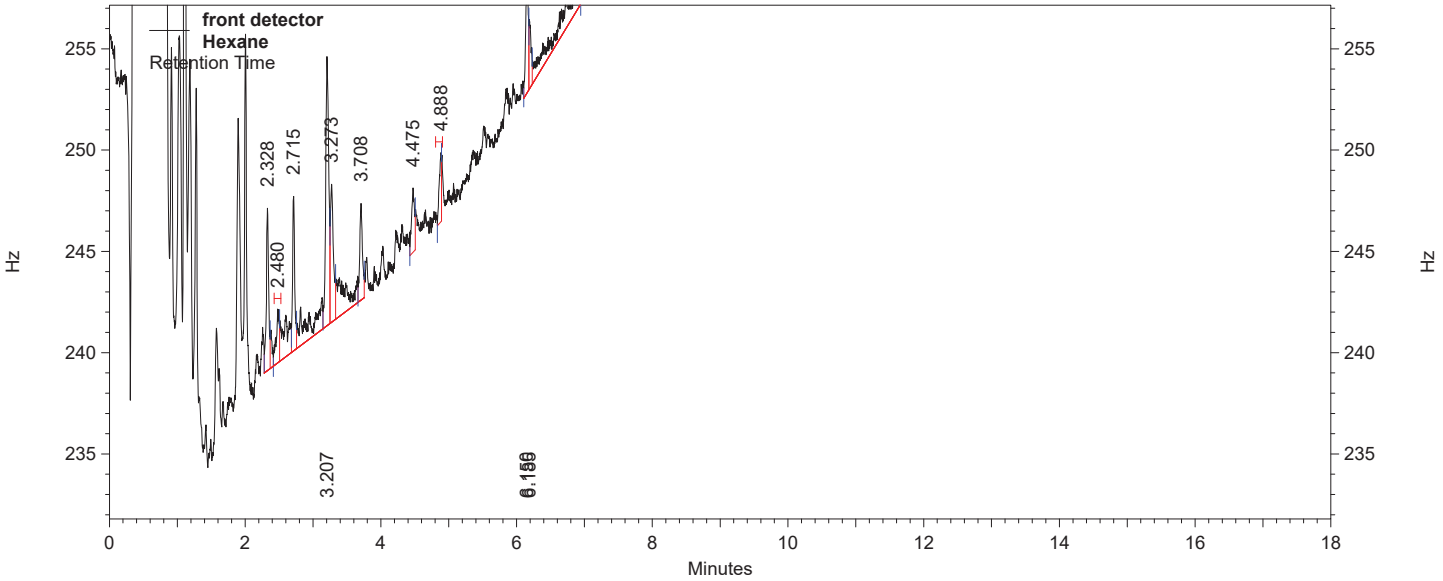


	Level 1
Amount	100
Area	72149895
RF	721498.95
Last Area	
Residual	0
Rep StDev	
Rep %RSD	
Rep 1 Area	72149895
Rep 1 User	JJY
Rep 1 Data File	C:\Instarch\Semi7\Data\091418pcbic\010.dat
Rep 1 Sample ID	1268 CF PP5751
Rep 1 Calib. Time	09/14/2018 12:21:59

PCB Analysis Report (1016/1260) *(Channel A)*

Data File: C:\Instarch\Semi7\Data\091418pcbic\003.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
User: JJY
Sample ID: Hexane
Acquired: 09/14/2018 08:31:19
Printed: 09/14/2018 17:24:04

Data Summary: {Data Description}



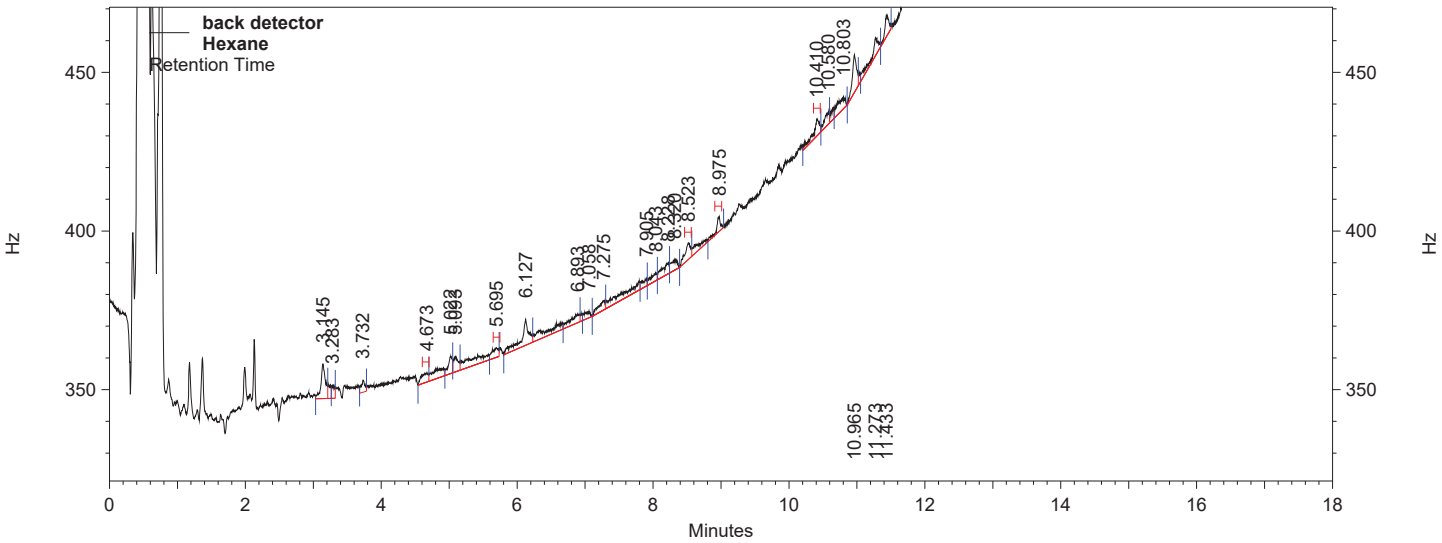
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPCB	2.480	61313	0.163
Aroclor 1016 #1			0.000 BDL
Aroclor 1016 #2			0.000 BDL
Aroclor 1016 #3			0.000 BDL
Aroclor 1016 #4			0.000 BDL
Aroclor 1016 #5	4.888	56161	0.000
Aroclor 1260 #1	6.990	69900	0.000
Aroclor 1260 #2	7.515	194969	0.000
Aroclor 1260 #3	8.272	50133	0.000
Aroclor 1260 #4	8.825	79138	0.000
Aroclor 1260 #5	9.892	89824	0.001
SURRDCBPCB	12.108	74528	0.000
Aroclor 1016		56161	0.000
Aroclor 1260		483964	0.001

PCB Analysis Report (1016/1260) *(Channel B)*

Data File: C:\Instarch\Semi7\Data\091418pcbic\003.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
User: JJY
Sample ID: Hexane
Acquired: 09/14/2018 08:31:19
Printed: 09/14/2018 17:24:04

Data Summary: {Data Description}



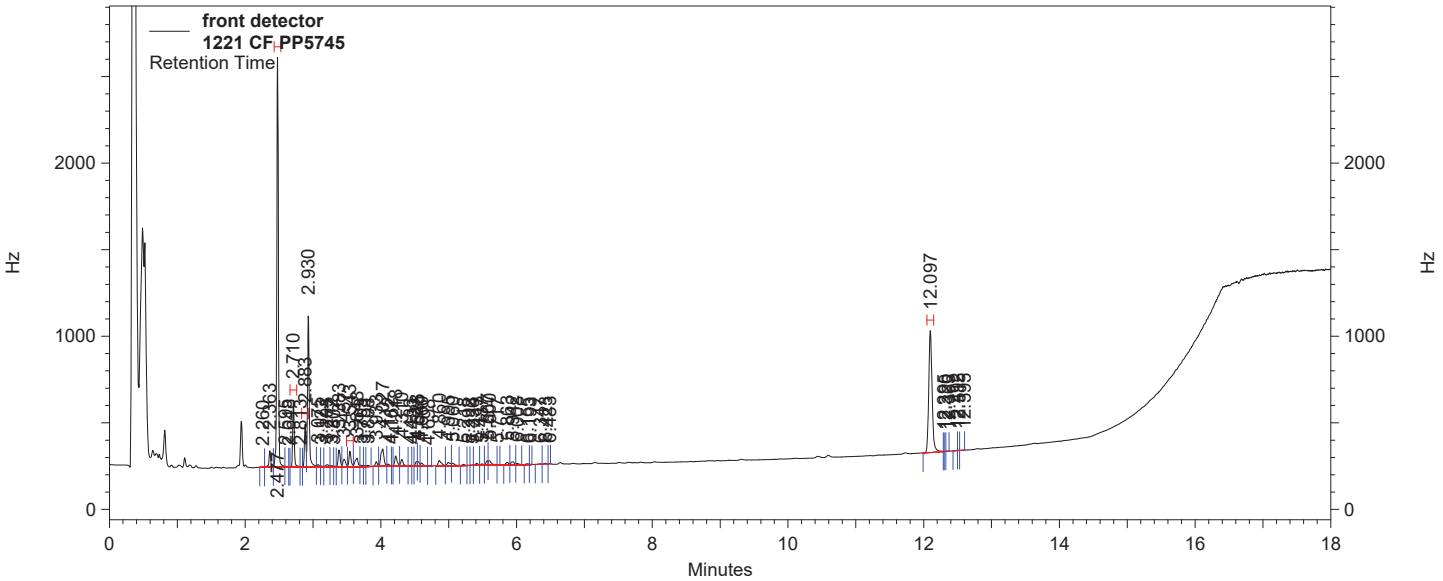
back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPCB			0.000 BDL
Aroclor 1016 #1			0.000 BDL
Aroclor 1016 #2	4.673	161947	0.000
Aroclor 1016 #3			0.000 BDL
Aroclor 1016 #4	5.695	154292	0.000
Aroclor 1016 #5			0.000 BDL
Aroclor 1260 #1	8.523	237070	0.001
Aroclor 1260 #2	8.975	150506	0.000
Aroclor 1260 #3			0.000 BDL
Aroclor 1260 #4	10.410	262932	0.001
Aroclor 1260 #5			0.000 BDL
SURRDCBPCB	14.050	402121	0.367
Aroclor 1016		316239	0.000
Aroclor 1260		650508	0.002

PCB Analysis Report (1221) *(Channel A)*

Data File: C:\Instarch\Semi7\Data\091418pcbic\004.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1221.met
User: JJY
Sample ID: 1221 CF PP5745
Acquired: 09/14/2018 08:52:29
Printed: 09/14/2018 11:23:50

Data Summary: {Data Description}



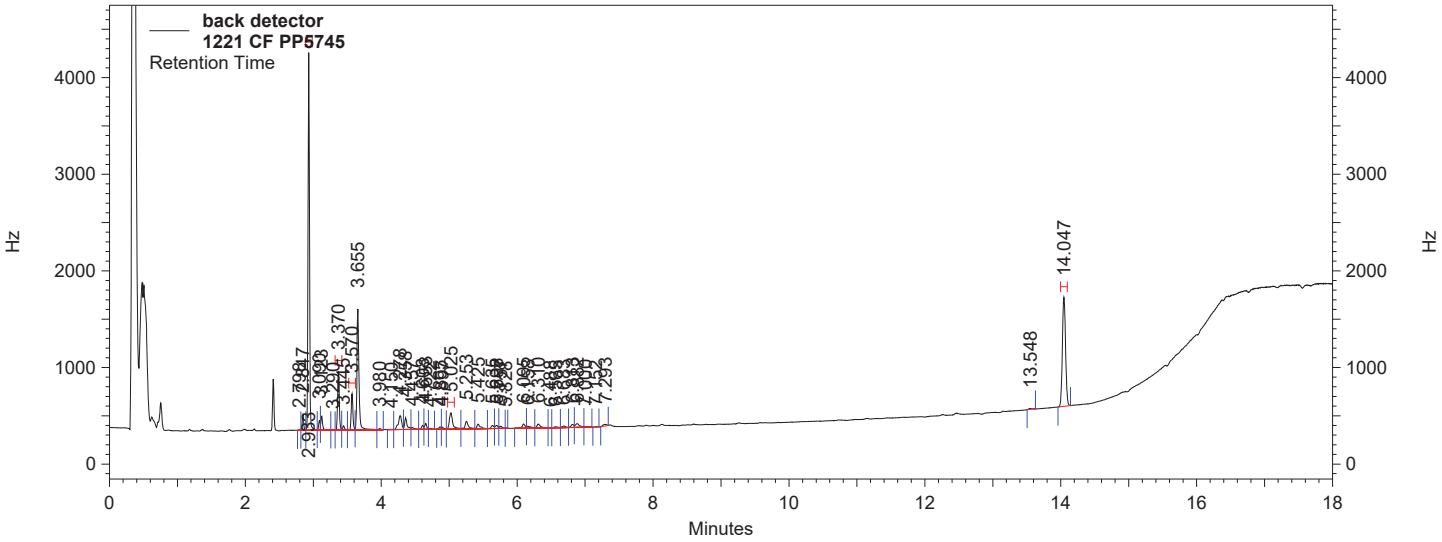
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMX	2.477	27655441	100.000 CAL
Aroclor 1221 #1	2.710	4866774	0.167 CAL
Aroclor 1221 #2	2.883	2889039	0.167 CAL
Aroclor 1221 #3	3.543	1453527	0.167 CAL
SURRDCB	12.097	18280661	100.000 CAL
Aroclor 1221		9209340	0.500 CAL

PCB Analysis Report (1221) *(Channel B)*

Data File: C:\Instarch\Semi7\Data\091418pcbic\004.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1221.met
User: JJY
Sample ID: 1221 CF PP5745
Acquired: 09/14/2018 08:52:29
Printed: 09/14/2018 11:23:50

Data Summary: {Data Description}



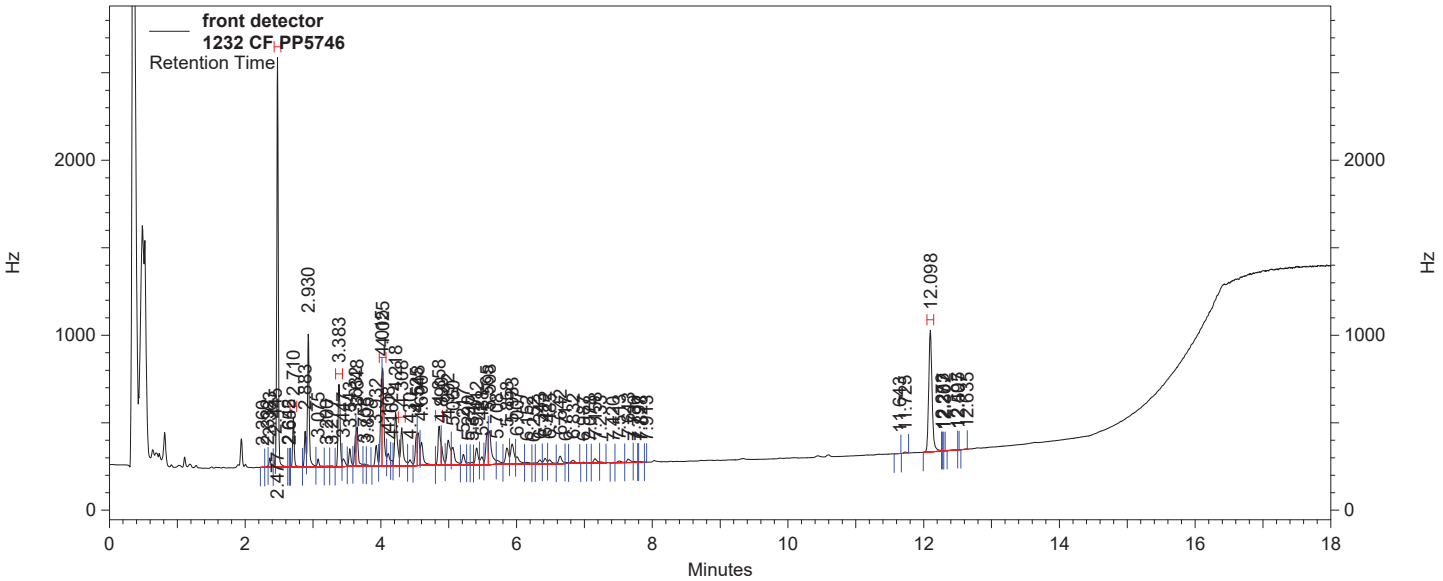
back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMX	2.933	44959336	100.000 CAL
Aroclor 1221 #1	3.370	7850467	0.167 CAL
Aroclor 1221 #2	3.570	5036104	0.167 CAL
Aroclor 1221 #3	5.025	4423835	0.167 CAL
SURRDCB	14.047	28375208	100.000 CAL
Aroclor 1221		17310406	0.500 CAL

PCB Analysis Report (1232) *(Channel A)*

Data File: C:\Instarch\Semi7\Data\091418pcbic\005.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1232.met
User: JJY
Sample ID: 1232 CF PP5746
Acquired: 09/14/2018 09:13:39
Printed: 09/14/2018 11:26:06

Data Summary: {Data Description}



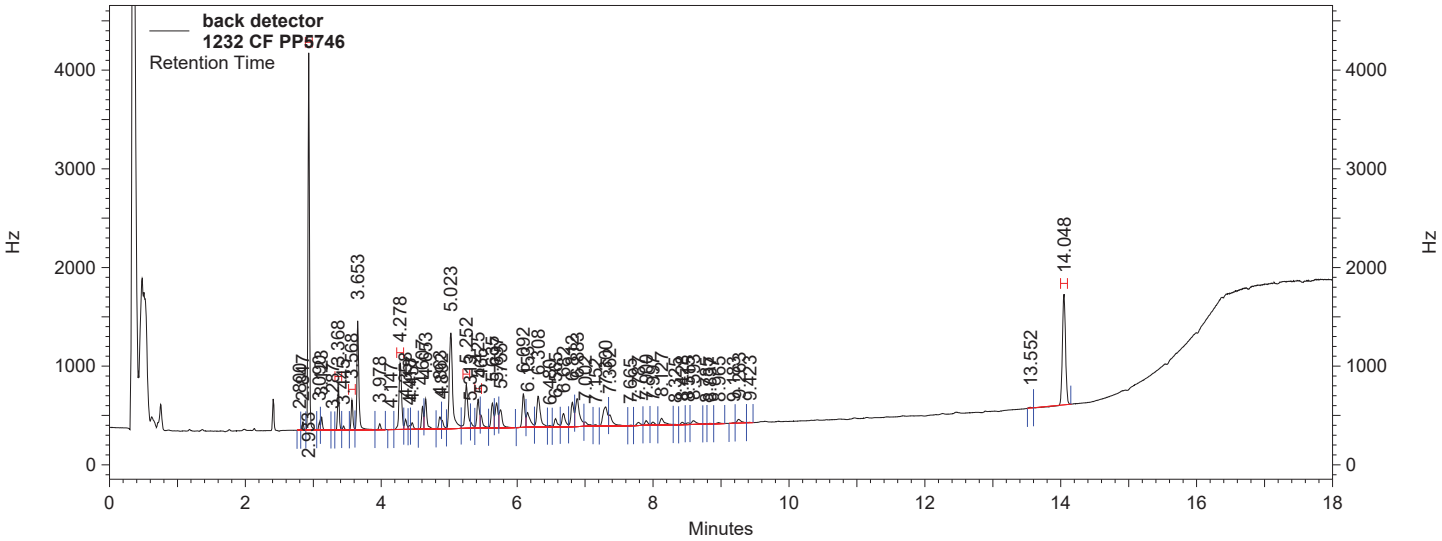
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMX	2.477	26763457	100.000 CAL
Aroclor 1232 #1	2.710	3636125	0.100 CAL
Aroclor 1232 #2	3.383	7391413	0.100 CAL
Aroclor 1232 #3	4.025	8627431	0.100 CAL
Aroclor 1232 #4	4.308	4339001	0.100 CAL
Aroclor 1232 #5	4.858	4282050	0.100 CAL
SURRDCB	12.098	18006140	100.000 CAL
Aroclor 1232		28276020	0.500 CAL

PCB Analysis Report (1232) *(Channel B)*

Data File: C:\Instarch\Semi7\Data\091418pcbic\005.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1232.met
User: JJY
Sample ID: 1232 CF PP5746
Acquired: 09/14/2018 09:13:39
Printed: 09/14/2018 11:26:06

Data Summary: {Data Description}



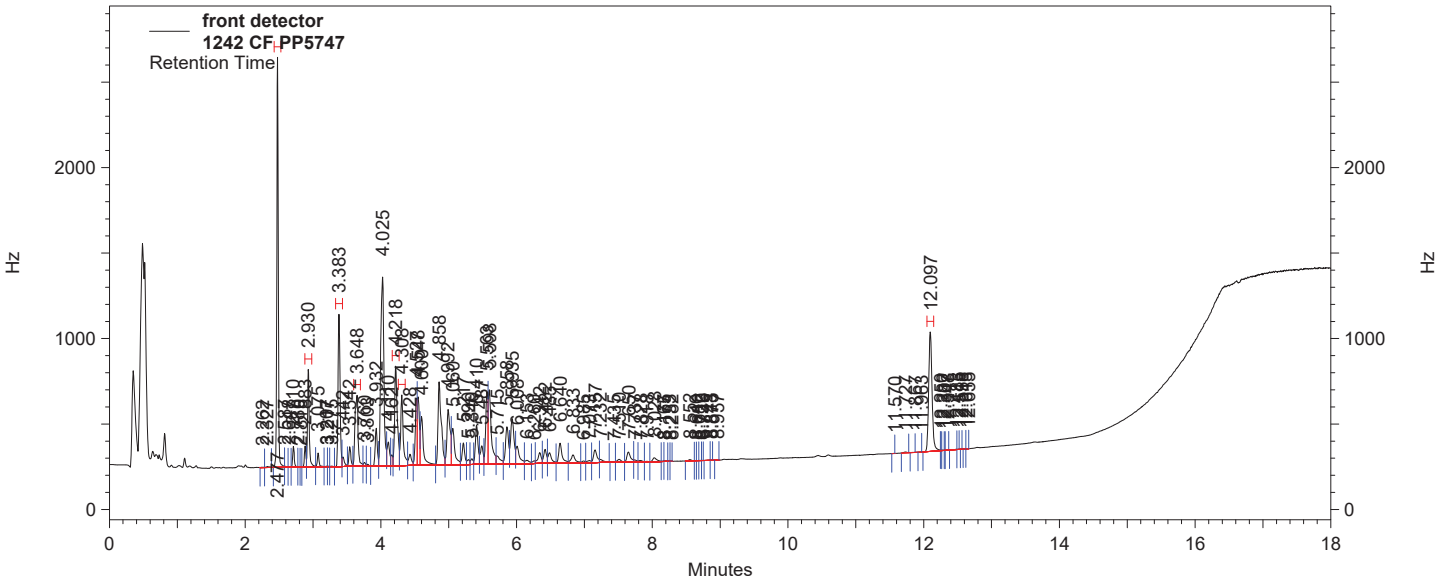
back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMX	2.933	43732207	100.000 CAL
Aroclor 1232 #1	3.368	5588035	0.100 CAL
Aroclor 1232 #2	3.568	4041618	0.100 CAL
Aroclor 1232 #3	4.278	13528914	0.100 CAL
Aroclor 1232 #4	5.252	10338917	0.100 CAL
Aroclor 1232 #5	5.425	5687892	0.100 CAL
SURRDCB	14.048	27230093	100.000 CAL
Aroclor 1232		39185376	0.500 CAL

PCB Analysis Report (1242) *(Channel A)*

Data File: C:\Instarch\Semi7\Data\091418pcbic\006.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1242.met
User: JJY
Sample ID: 1242 CF PP5747
Acquired: 09/14/2018 09:34:52
Printed: 09/14/2018 12:04:19

Data Summary: {Data Description}



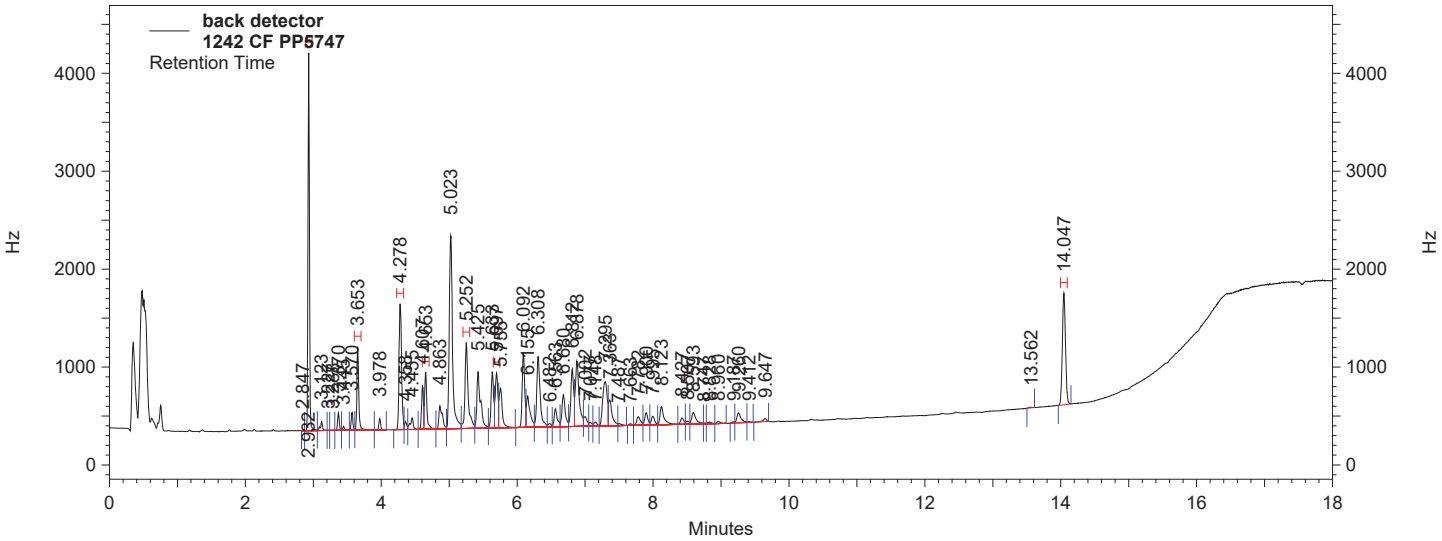
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMX	2.477	26821047	100.000 CAL
Aroclor 1242 #1	2.930	7719037	0.100 CAL
Aroclor 1242 #2	3.383	14036537	0.100 CAL
Aroclor 1242 #3	3.648	9930055	0.100 CAL
Aroclor 1242 #4	4.218	12206746	0.100 CAL
Aroclor 1242 #5	4.308	8259475	0.100 CAL
SURRDCB	12.097	18259918	100.000 CAL
Aroclor 1242		52151850	0.500 CAL

PCB Analysis Report (1242) *(Channel B)*

Data File: C:\Instarch\Semi7\Data\091418pcbic\006.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1242.met
User: JJY
Sample ID: 1242 CF PP5747
Acquired: 09/14/2018 09:34:52
Printed: 09/14/2018 12:04:19

Data Summary: {Data Description}



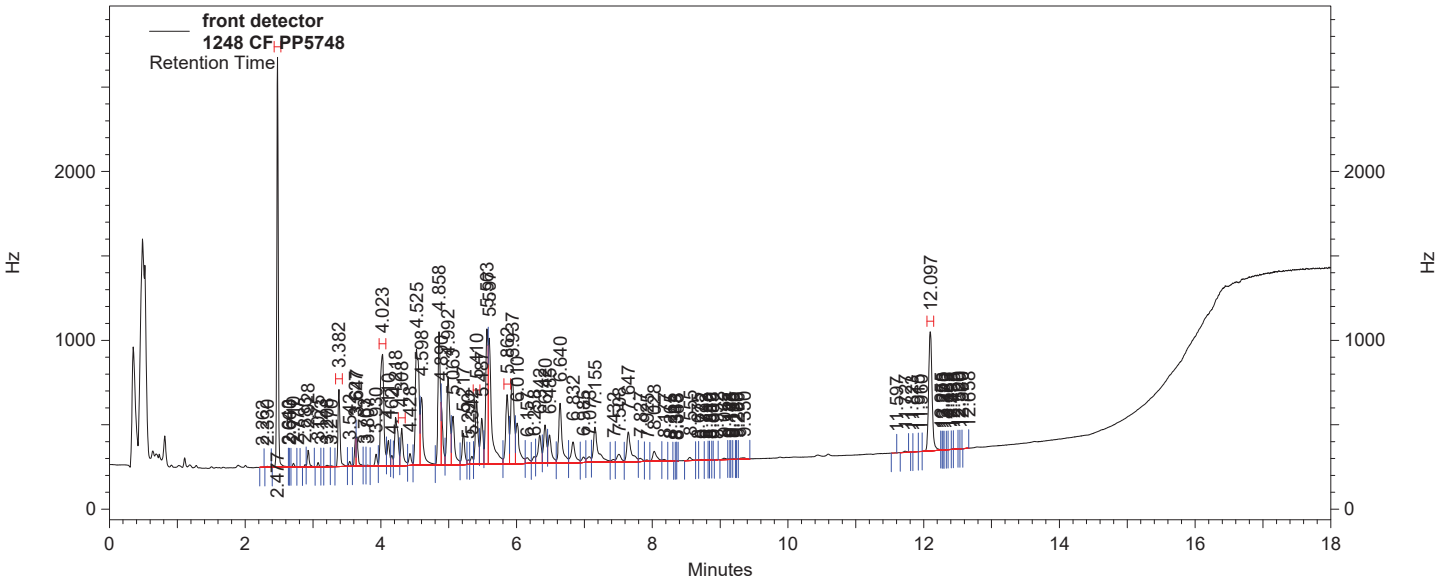
back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMX	2.932	44148878	100.000 CAL
Aroclor 1242 #1	3.653	12635568	0.100 CAL
Aroclor 1242 #2	4.278	25025088	0.100 CAL
Aroclor 1242 #3	4.653	10336688	0.100 CAL
Aroclor 1242 #4	5.252	22034178	0.100 CAL
Aroclor 1242 #5	5.697	11631038	0.100 CAL
SURRDCB	14.047	28268652	100.000 CAL
Aroclor 1242		81662560	0.500 CAL

PCB Analysis Report (1248) *(Channel A)*

Data File: C:\Instarch\Semi7\Data\091418pcbic\007.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1248.met
User: JJY
Sample ID: 1248 CF PP5748
Acquired: 09/14/2018 09:56:02
Printed: 09/14/2018 12:10:17

Data Summary: {Data Description}



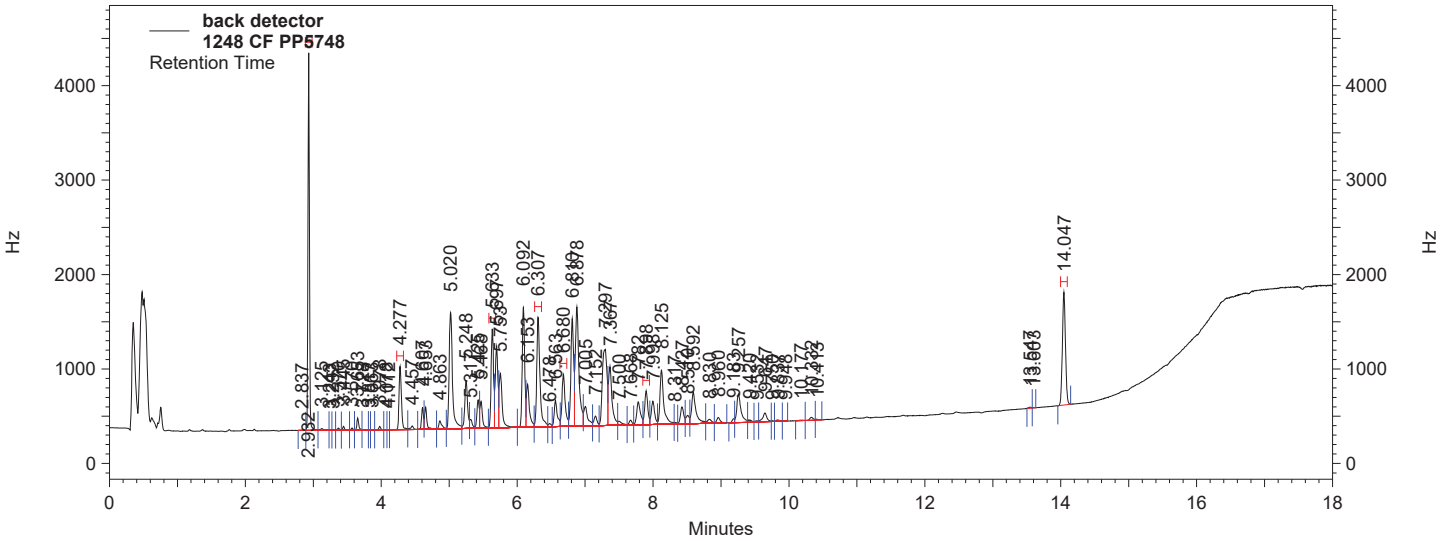
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMX	2.477	27526154	100.000 CAL
Aroclor 1248 #1	3.382	7308196	0.100 CAL
Aroclor 1248 #2	4.023	17562084	0.100 CAL
Aroclor 1248 #3	4.308	4370405	0.100 CAL
Aroclor 1248 #4	5.410	7633869	0.100 CAL
Aroclor 1248 #5	5.862	9588693	0.100 CAL
SURRDCB	12.097	18832810	100.000 CAL
Aroclor 1248		46463247	0.500 CAL

PCB Analysis Report (1248) *(Channel B)*

Data File: C:\Instarch\Semi7\Data\091418pcbic\007.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1248.met
User: JJY
Sample ID: 1248 CF PP5748
Acquired: 09/14/2018 09:56:02
Printed: 09/14/2018 12:10:17

Data Summary: {Data Description}



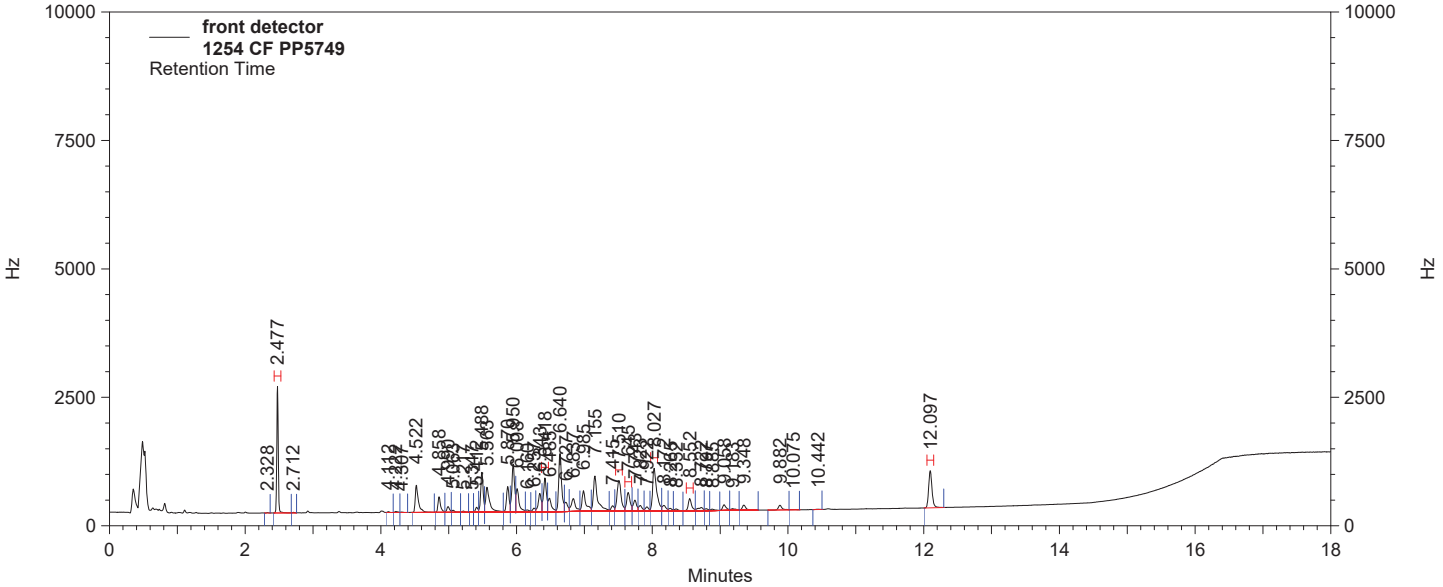
back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMX	2.932	45855772	100.000 CAL
Aroclor 1248 #1	4.277	12703387	0.100 CAL
Aroclor 1248 #2	5.633	19567544	0.100 CAL
Aroclor 1248 #3	6.307	29309775	0.100 CAL
Aroclor 1248 #4	6.680	13844795	0.100 CAL
Aroclor 1248 #5	7.898	8651583	0.100 CAL
SURRDCB	14.047	29051221	100.000 CAL
Aroclor 1248		84077084	0.500 CAL

PCB Analysis Report (1254) *(Channel A)*

Data File: C:\Instarch\Semi7\Data\091418pcbic\008.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1254.met
User: JJY
Sample ID: 1254 CF PP5749
Acquired: 09/14/2018 10:17:15
Printed: 09/14/2018 12:13:45

Data Summary: {Data Description}



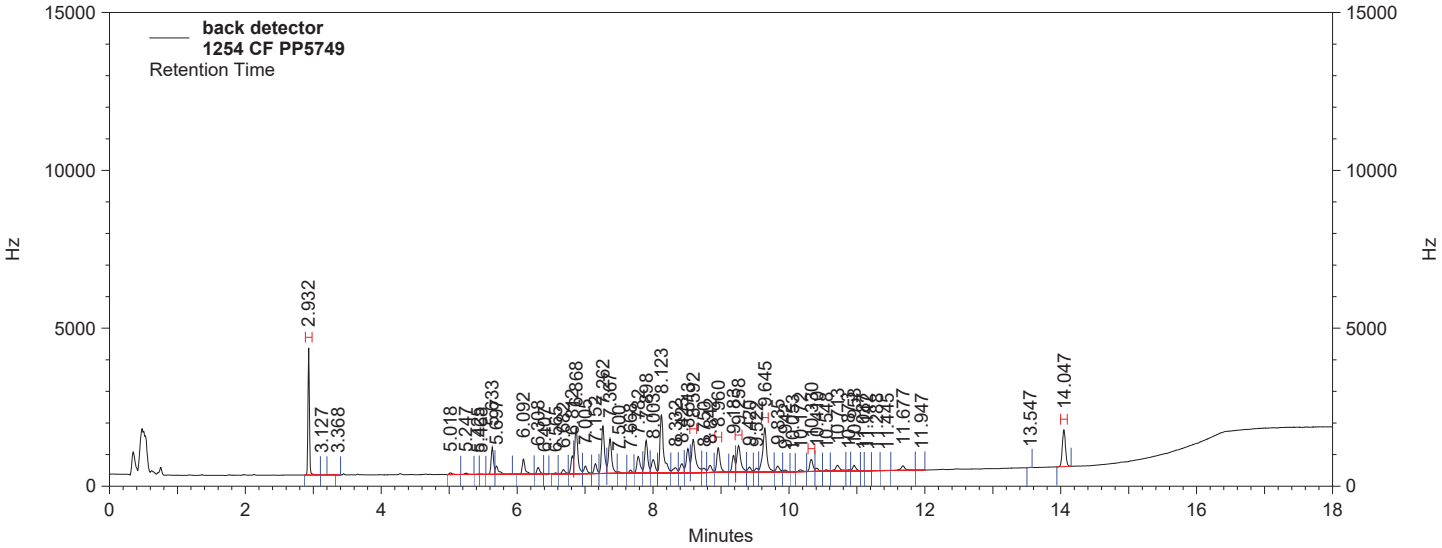
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMX	2.477	27880071	100.000 CAL
Aroclor 1254 #1	6.418	15111889	0.100 CAL
Aroclor 1254 #2	7.510	19063512	0.100 CAL
Aroclor 1254 #3	7.645	9874119	0.100 CAL
Aroclor 1254 #4	8.027	26429559	0.100 CAL
Aroclor 1254 #5	8.552	6157207	0.100 CAL
SURRDCB	12.097	19053692	100.000 CAL
Aroclor 1254		76636286	0.500 CAL

PCB Analysis Report (1254) *(Channel B)*

Data File: C:\Instarch\Semi7\Data\091418pcbic\008.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1254.met
User: JJY
Sample ID: 1254 CF PP5749
Acquired: 09/14/2018 10:17:15
Printed: 09/14/2018 12:13:45

Data Summary: {Data Description}



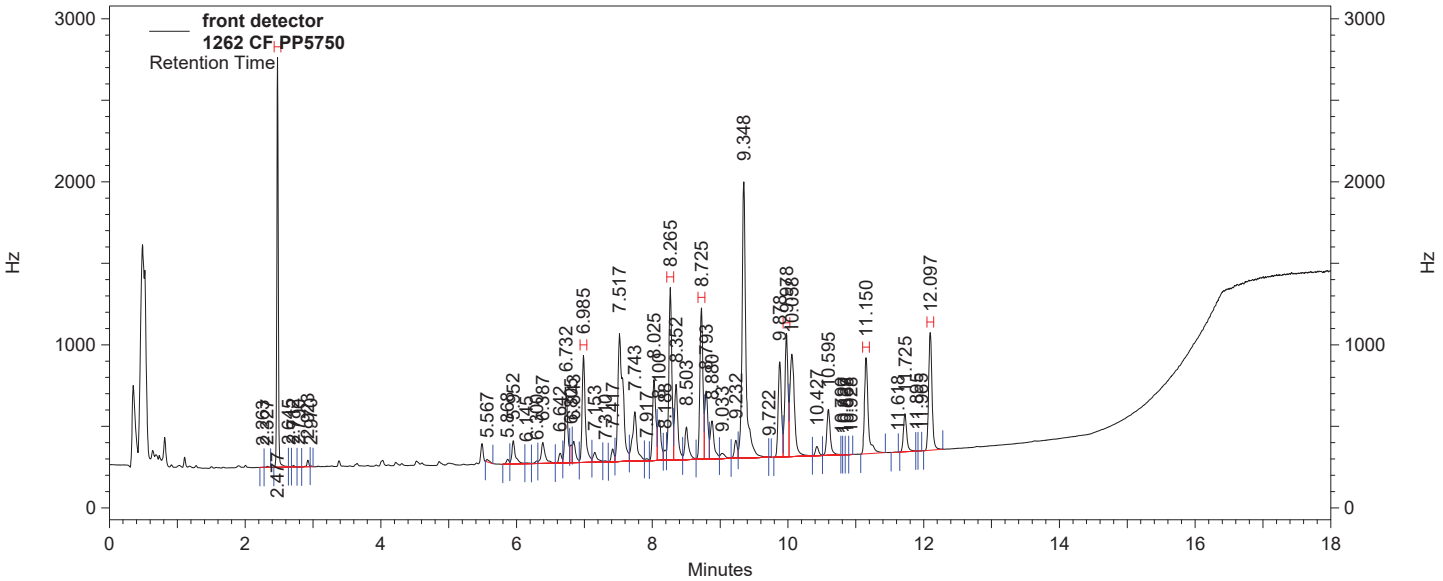
back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMX	2.932	46205520	100.000 CAL
Aroclor 1254 #1	8.592	33532830	0.100 CAL
Aroclor 1254 #2	8.960	20609636	0.100 CAL
Aroclor 1254 #3	9.258	25899181	0.100 CAL
Aroclor 1254 #4	9.645	44783988	0.100 CAL
Aroclor 1254 #5	10.330	9828764	0.100 CAL
SURRDCB	14.047	29462038	100.000 CAL
Aroclor 1254		134654399	0.500 CAL

PCB Analysis Report (1262) *(Channel A)*

Data File: C:\Instarch\Semi7\Data\091418pcbic\009.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1262.met
User: JJY
Sample ID: 1262 CF PP5750
Acquired: 09/14/2018 10:38:26
Printed: 09/14/2018 12:17:53

Data Summary: {Data Description}



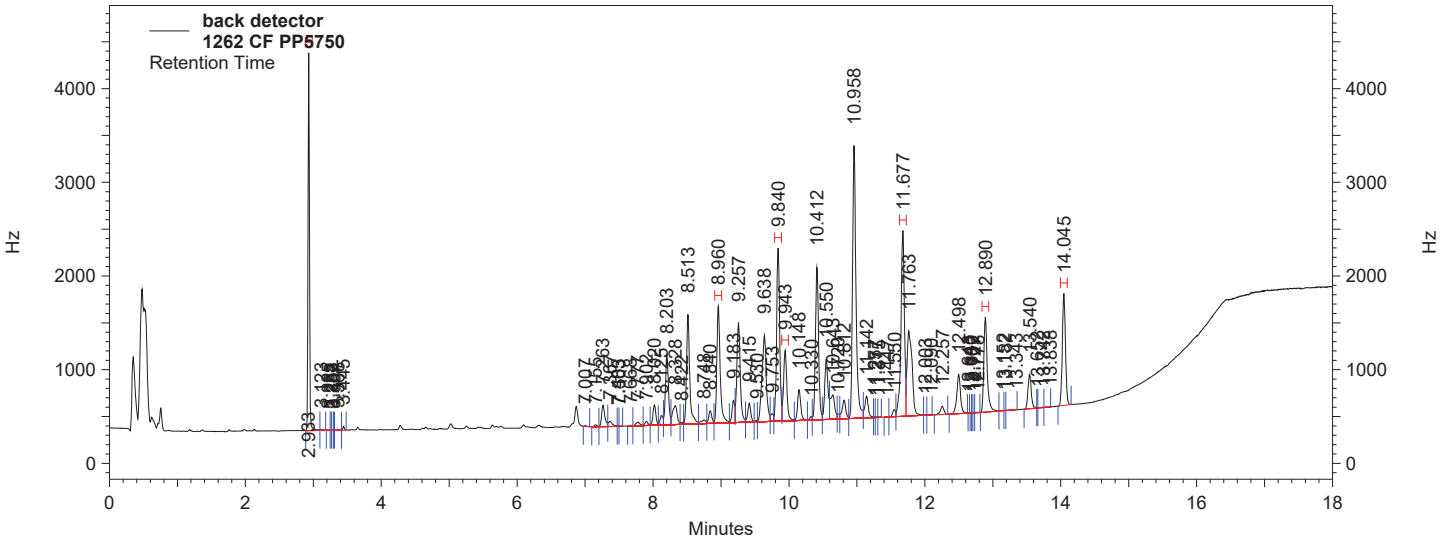
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMX	2.477	27734505	100.000 CAL
Aroclor 1262 #1	6.985	16565841	0.100 CAL
Aroclor 1262 #2	8.265	24873957	0.100 CAL
Aroclor 1262 #3	8.725	22143700	0.100 CAL
Aroclor 1262 #4	9.978	18610924	0.100 CAL
Aroclor 1262 #5	11.150	17242077	0.100 CAL
SURRDCB	12.097	18928886	100.000 CAL
Aroclor 1262		99436499	0.500 CAL

PCB Analysis Report (1262) *(Channel B)*

Data File: C:\Instarch\Semi7\Data\091418pcbic\009.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1262.met
User: JJY
Sample ID: 1262 CF PP5750
Acquired: 09/14/2018 10:38:26
Printed: 09/14/2018 12:17:53

Data Summary: {Data Description}



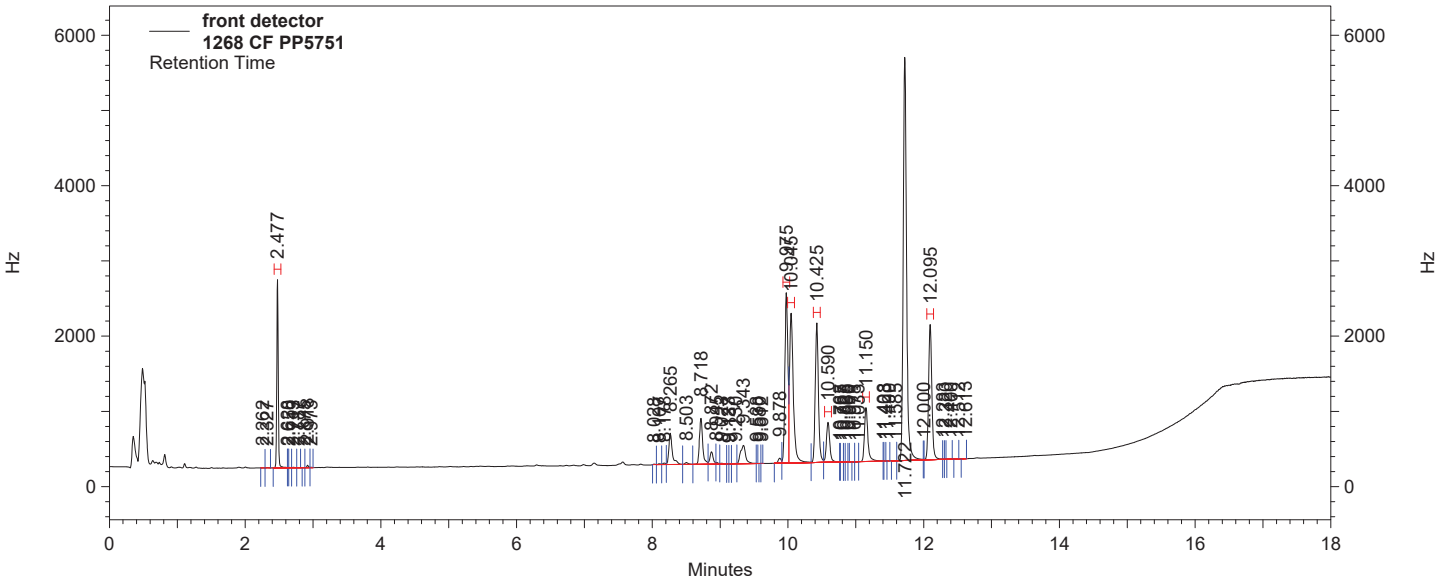
back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMX	2.933	45987415	100.000 CAL
Aroclor 1262 #1	8.960	32893957	0.100 CAL
Aroclor 1262 #2	9.840	44324614	0.100 CAL
Aroclor 1262 #3	9.943	19304297	0.100 CAL
Aroclor 1262 #4	11.677	53492663	0.100 CAL
Aroclor 1262 #5	12.890	27649015	0.100 CAL
SURRDCB	14.045	29483662	100.000 CAL
Aroclor 1262		177664546	0.500 CAL

PCB Analysis Report (1268) *(Channel A)*

Data File: C:\Instarch\Semi7\Data\091418pcbic\010.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1268.met
User: JJY
Sample ID: 1268 CF PP5751
Acquired: 09/14/2018 10:59:38
Printed: 09/14/2018 12:22:11

Data Summary: {Data Description}



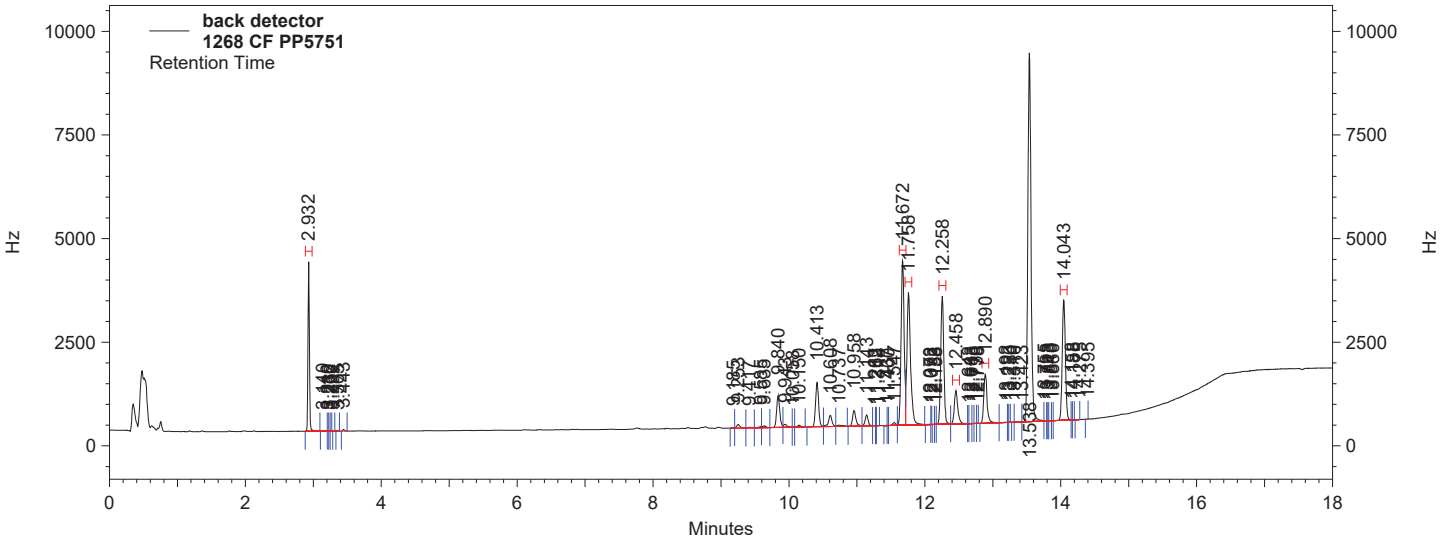
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMX	2.477	27966699	100.000 CAL
Aroclor 1268 #1	9.975	53941972	0.100 CAL
Aroclor 1268 #2	10.045	58585164	0.100 CAL
Aroclor 1268 #3	10.425	45839390	0.100 CAL
Aroclor 1268 #4	10.590	14101310	0.100 CAL
Aroclor 1268 #5	11.150	19584613	0.100 CAL
SURRDCB	12.095	45882754	100.000 CAL
Aroclor 1268		192052449	0.500 CAL

PCB Analysis Report (1268) *(Channel B)*

Data File: C:\Instarch\Semi7\Data\091418pcbic\010.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1268.met
User: JJY
Sample ID: 1268 CF PP5751
Acquired: 09/14/2018 10:59:38
Printed: 09/14/2018 12:22:11

Data Summary: {Data Description}



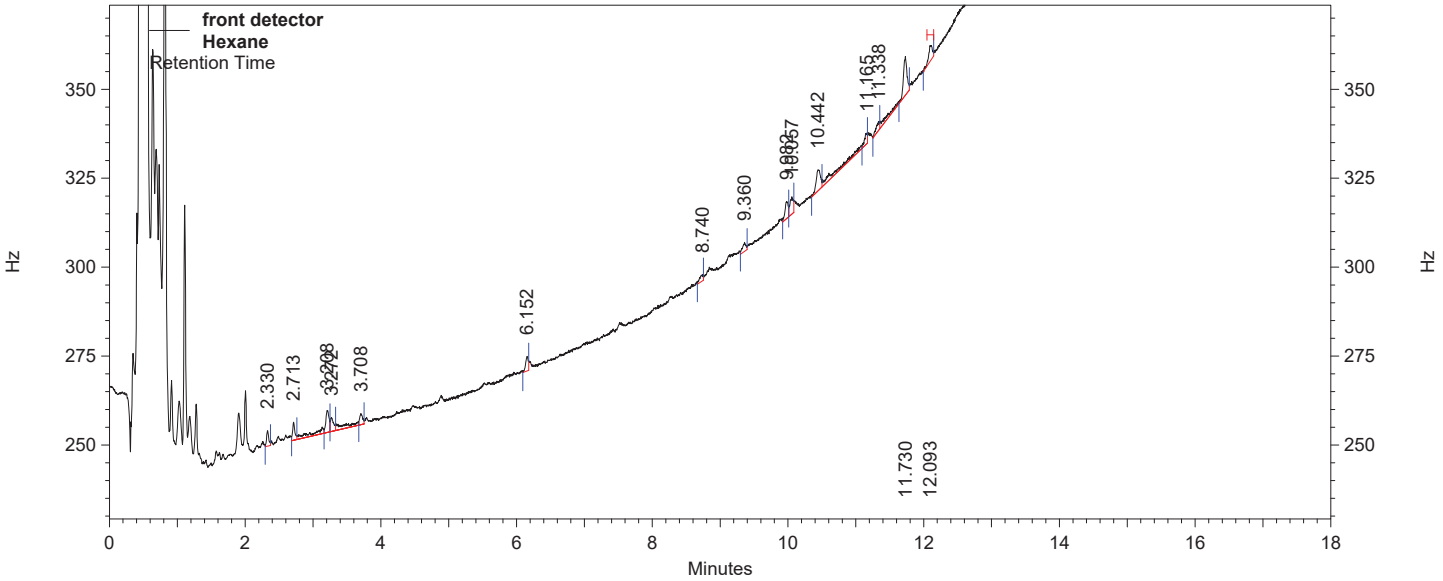
back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMX	2.932	46206521	100.000 CAL
Aroclor 1268 #1	11.672	93946550	0.100 CAL
Aroclor 1268 #2	11.758	92724363	0.100 CAL
Aroclor 1268 #3	12.258	74849384	0.100 CAL
Aroclor 1268 #4	12.458	22261290	0.100 CAL
Aroclor 1268 #5	12.890	31051247	0.100 CAL
SURRDCB	14.043	72149895	100.000 CAL
Aroclor 1268		314832834	0.500 CAL

PCB Analysis Report (1016/1260) *(Channel A)*

Data File: C:\Instarch\Semi7\Data\091418pcbic\012.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
User: JJY
Sample ID: Hexane
Acquired: 09/14/2018 11:42:03
Printed: 09/14/2018 17:24:43

Data Summary: {Data Description}



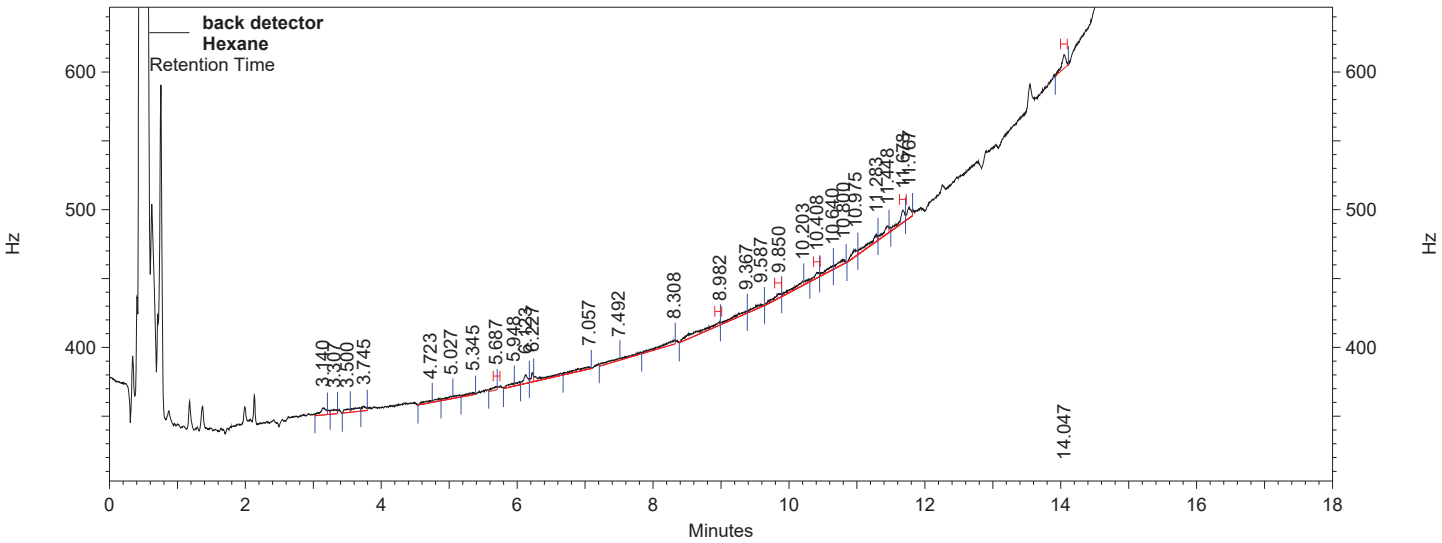
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPCB			0.000 BDL
Aroclor 1016 #1			0.000 BDL
Aroclor 1016 #2			0.000 BDL
Aroclor 1016 #3			0.000 BDL
Aroclor 1016 #4			0.000 BDL
Aroclor 1016 #5			0.000 BDL
Aroclor 1260 #1			0.000 BDL
Aroclor 1260 #2			0.000 BDL
Aroclor 1260 #3			0.000 BDL
Aroclor 1260 #4			0.000 BDL
Aroclor 1260 #5			0.000 BDL
SURRDCBPCB	12.093	123974	0.000
Aroclor 1016		0	0.000
Aroclor 1260		0	0.000

PCB Analysis Report (1016/1260) *(Channel B)*

Data File: C:\Instarch\Semi7\Data\091418pcbic\012.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091418pcbic.met
User: JJY
Sample ID: Hexane
Acquired: 09/14/2018 11:42:03
Printed: 09/14/2018 17:24:43

Data Summary: {Data Description}



back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPCB			0.000 BDL
Aroclor 1016 #1			0.000 BDL
Aroclor 1016 #2			0.000 BDL
Aroclor 1016 #3			0.000 BDL
Aroclor 1016 #4	5.687	106991	0.000
Aroclor 1016 #5			0.000 BDL
Aroclor 1260 #1			0.000 BDL
Aroclor 1260 #2	8.982	568524	0.001
Aroclor 1260 #3	9.850	213827	0.001
Aroclor 1260 #4	10.408	157532	0.001
Aroclor 1260 #5	11.678	366774	0.001
SURRDCBPCB	14.047	347263	0.179
Aroclor 1016		106991	0.000
Aroclor 1260		1306657	0.004

QC Check Standard Report

Sequence : C:\Instarch\Semi7\Sequence\091418pcbic.seq
User : JJY
Printed : 09/14/2018 12:25:24

File	Sample ID	Acquired
C:\Instarch\Semi7\Data\091418pcbic\013.dat	1221 ICV PP5753	09/14/2018 12:25:24

front detector

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
SURRTCMX	100.000	107.536	7.536	20.000	Passed
Aroclor 1221 #1	0.167	0.187	11.805	20.000	Passed
Aroclor 1221 #2	0.167	0.187	12.033	20.000	Passed
Aroclor 1221 #3	0.167	0.182	9.161	20.000	Passed
SURRDCB	100.000	102.997	2.997	20.000	Passed
Aroclor 1221	0.500	0.556	11.222	20.000	Passed

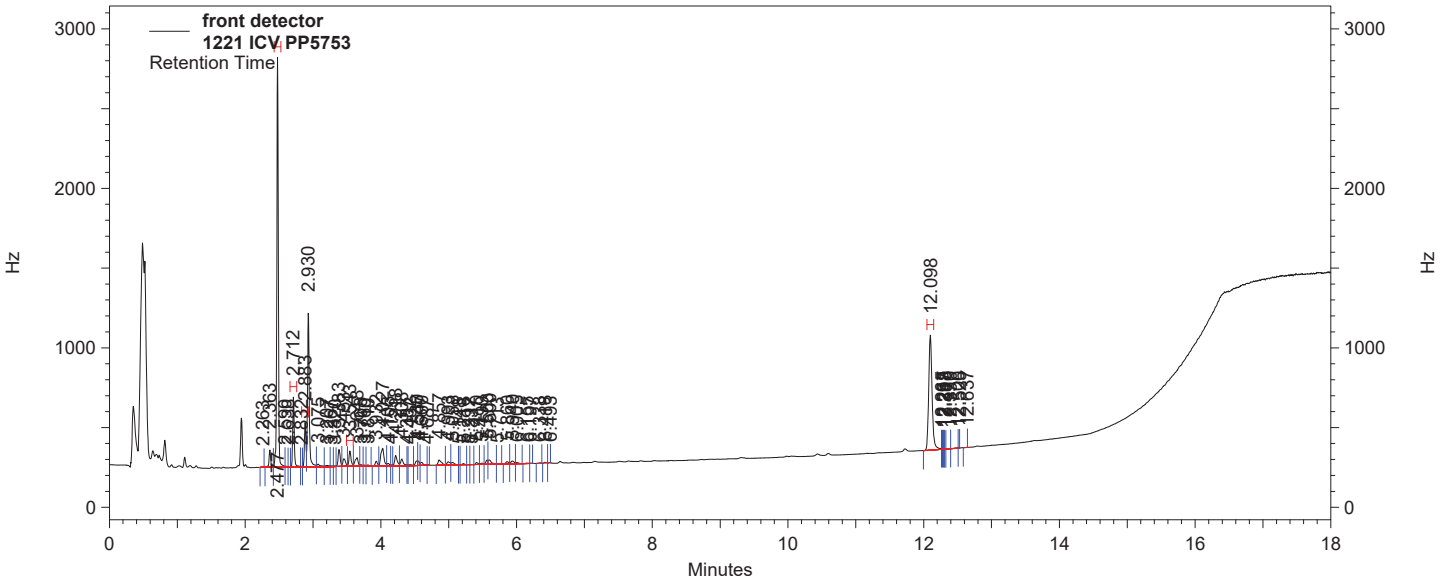
back detector

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
SURRTCMX	100.000	104.943	4.943	20.000	Passed
Aroclor 1221 #1	0.167	0.184	10.079	20.000	Passed
Aroclor 1221 #2	0.167	0.181	8.638	20.000	Passed
Aroclor 1221 #3	0.167	0.180	8.017	20.000	Passed
SURRDCB	100.000	101.930	1.930	20.000	Passed
Aroclor 1221	0.500	0.546	9.129	20.000	Passed

PCB Analysis Report (1221) *(Channel A)*

Data File: C:\Instarch\Semi7\Data\091418pcbic\013.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1221.met
User: JJY
Sample ID: 1221 ICV PP5753
Acquired: 09/14/2018 12:03:12
Printed: 09/14/2018 12:25:21

Data Summary: {Data Description}



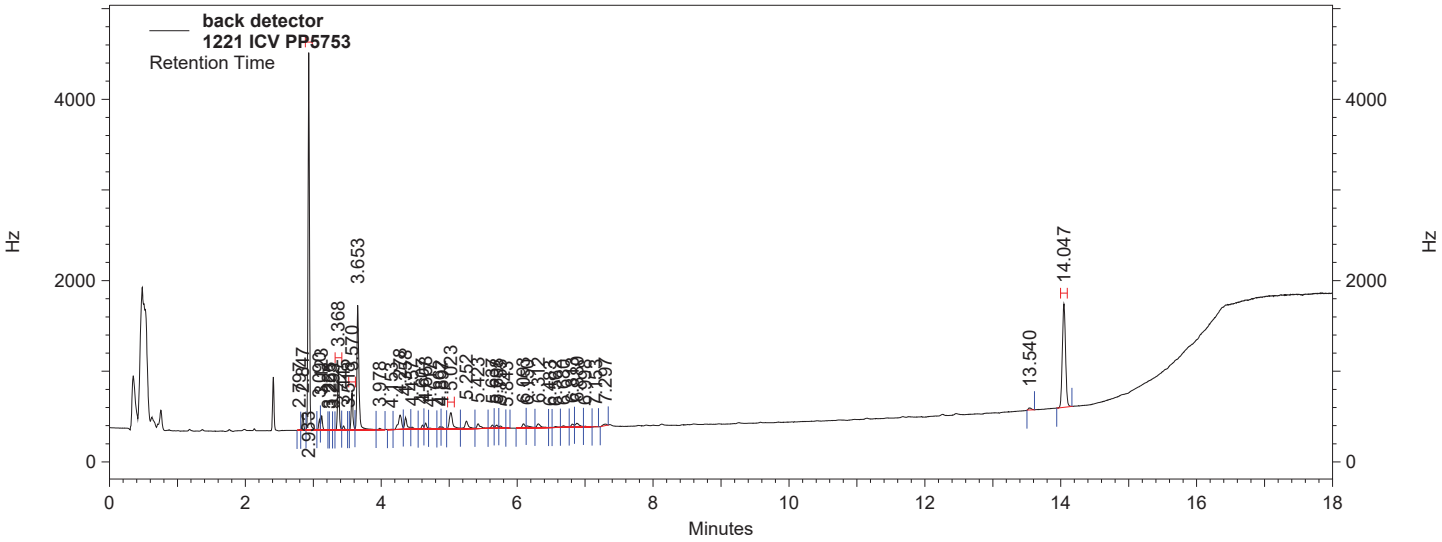
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMX	2.477	29739630	107.536
Aroclor 1221 #1	2.712	5452177	0.187
Aroclor 1221 #2	2.883	3243139	0.187
Aroclor 1221 #3	3.543	1589860	0.182
SURRDCB	12.098	18828473	102.997
Aroclor 1221		10285176	0.556

PCB Analysis Report (1221) *(Channel B)*

Data File: C:\Instarch\Semi7\Data\091418pcbic\013.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1221.met
User: JJY
Sample ID: 1221 ICV PP5753
Acquired: 09/14/2018 12:03:12
Printed: 09/14/2018 12:25:21

Data Summary: {Data Description}



back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMX	2.933	47181503	104.943
Aroclor 1221 #1	3.368	8659029	0.184
Aroclor 1221 #2	3.570	5482057	0.181
Aroclor 1221 #3	5.023	4788041	0.180
SURRDCB	14.047	28922942	101.930
Aroclor 1221		18929127	0.546

QC Check Standard Report

Sequence : C:\Instarch\Semi7\Sequence\091418pcbic.seq
User : JJY
Printed : 09/14/2018 12:43:11

File	Sample ID	Acquired
C:\Instarch\Semi7\Data\091418pcbic\014.dat	1232 ICV PP5754	09/14/2018 12:43:11

front detector

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
SURRTCMX	100.000	107.254	7.254	20.000	Passed
Aroclor 1232 #1	0.100	0.108	7.831	20.000	Passed
Aroclor 1232 #2	0.100	0.109	9.256	20.000	Passed
Aroclor 1232 #3	0.100	0.114	14.481	20.000	Passed
Aroclor 1232 #4	0.100	0.110	9.994	20.000	Passed
Aroclor 1232 #5	0.100	0.109	9.236	20.000	Passed
SURRDCB	100.000	105.106	5.106	20.000	Passed
Aroclor 1232	0.500	0.551	10.160	20.000	Passed

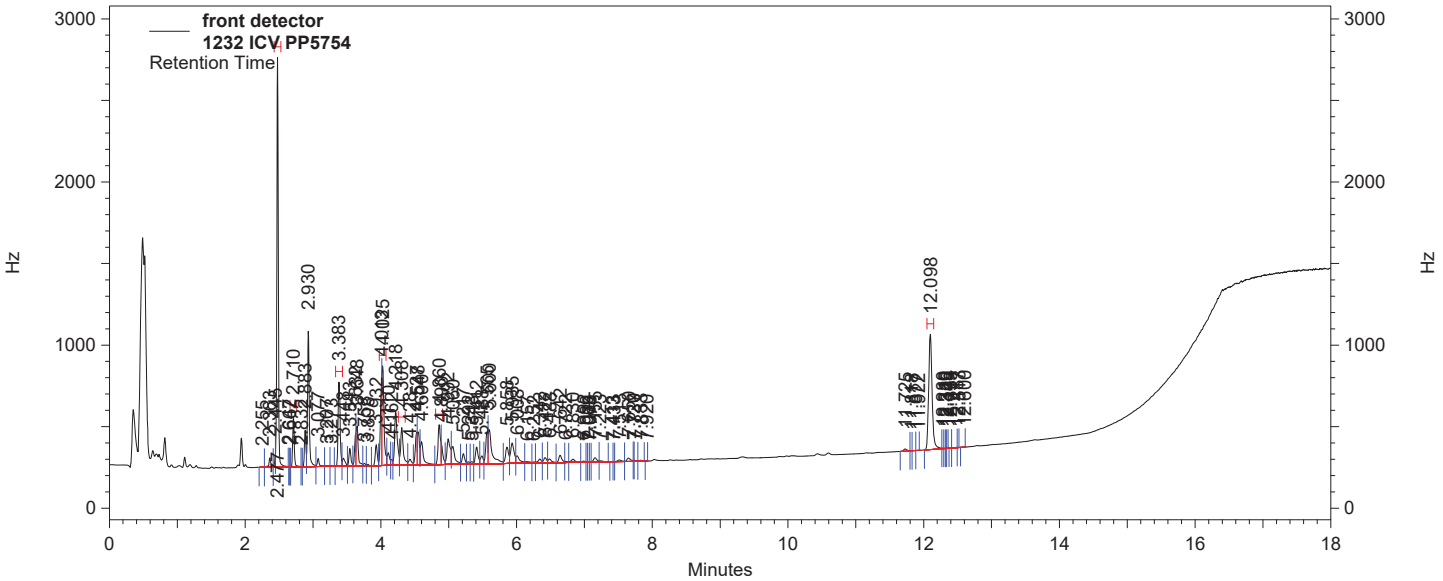
back detector

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
SURRTCMX	100.000	105.946	5.946	20.000	Passed
Aroclor 1232 #1	0.100	0.109	8.563	20.000	Passed
Aroclor 1232 #2	0.100	0.109	8.514	20.000	Passed
Aroclor 1232 #3	0.100	0.109	9.116	20.000	Passed
Aroclor 1232 #4	0.100	0.109	8.957	20.000	Passed
Aroclor 1232 #5	0.100	0.112	12.095	20.000	Passed
SURRDCB	100.000	106.901	6.901	20.000	Passed
Aroclor 1232	0.500	0.547	9.449	20.000	Passed

PCB Analysis Report (1232) *(Channel A)*

Data File: C:\Instarch\Semi7\Data\091418pcbic\014.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1232.met
User: JJY
Sample ID: 1232 ICV PP5754
Acquired: 09/14/2018 12:24:27
Printed: 09/14/2018 12:43:03

Data Summary: {Data Description}



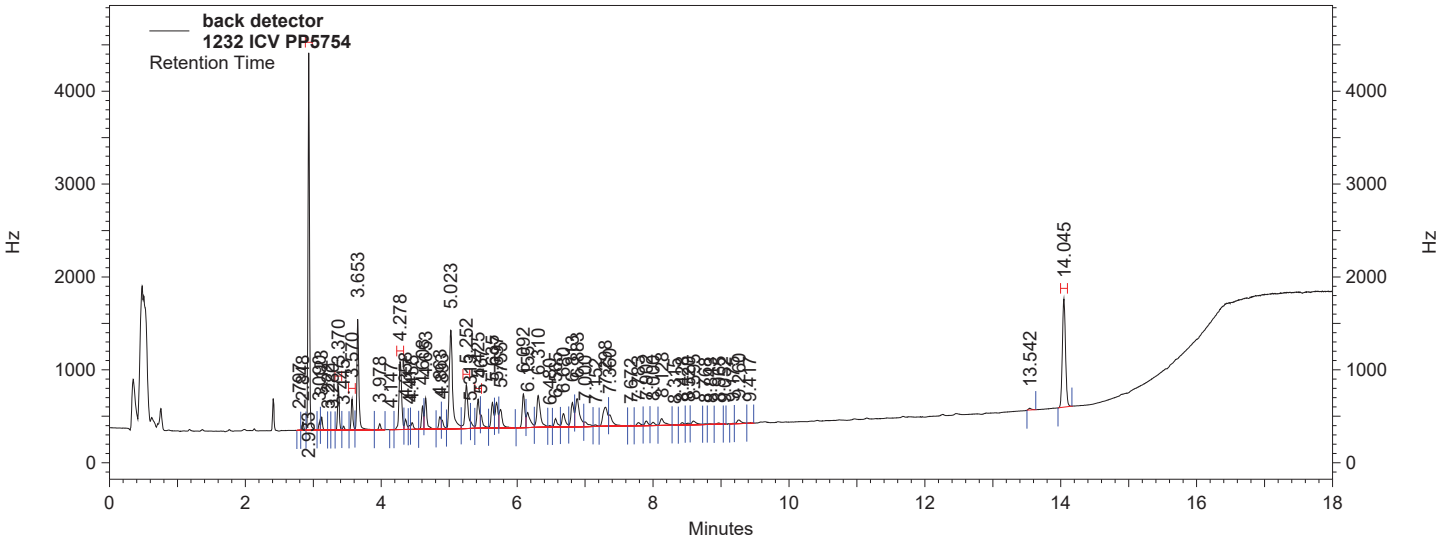
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMX	2.477	28704876	107.254
Aroclor 1232 #1	2.710	3920882	0.108
Aroclor 1232 #2	3.383	8075599	0.109
Aroclor 1232 #3	4.025	9876765	0.114
Aroclor 1232 #4	4.308	4772621	0.110
Aroclor 1232 #5	4.860	4677522	0.109
SURRDCB	12.098	18925452	105.106
Aroclor 1232		31323389	0.551

PCB Analysis Report (1232) *(Channel B)*

Data File: C:\Instarch\Semi7\Data\091418pcbic\014.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1232.met
User: JJY
Sample ID: 1232 ICV PP5754
Acquired: 09/14/2018 12:24:27
Printed: 09/14/2018 12:43:03

Data Summary: {Data Description}



back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMX	2.933	46332430	105.946
Aroclor 1232 #1	3.370	6066517	0.109
Aroclor 1232 #2	3.570	4385712	0.109
Aroclor 1232 #3	4.278	14762247	0.109
Aroclor 1232 #4	5.252	11264954	0.109
Aroclor 1232 #5	5.425	6375860	0.112
SURRDCB	14.045	29109371	106.901
Aroclor 1232		42855290	0.547

QC Check Standard Report

Sequence : C:\Instarch\Semi7\Sequence\091418pcbic.seq
User : JJY
Printed : 09/14/2018 13:04:17

File	Sample ID	Acquired
C:\Instarch\Semi7\Data\091418pcbic\015.dat	1242 ICV PP5755	09/14/2018 13:04:17

front detector

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
SURRTCMX	100.000	108.287	8.287	20.000	Passed
Aroclor 1242 #1	0.100	0.111	10.601	20.000	Passed
Aroclor 1242 #2	0.100	0.110	10.295	20.000	Passed
Aroclor 1242 #3	0.100	0.111	11.314	20.000	Passed
Aroclor 1242 #4	0.100	0.111	10.904	20.000	Passed
Aroclor 1242 #5	0.100	0.111	11.313	20.000	Passed
SURRDCB	100.000	105.234	5.234	20.000	Passed
Aroclor 1242	0.500	0.554	10.885	20.000	Passed

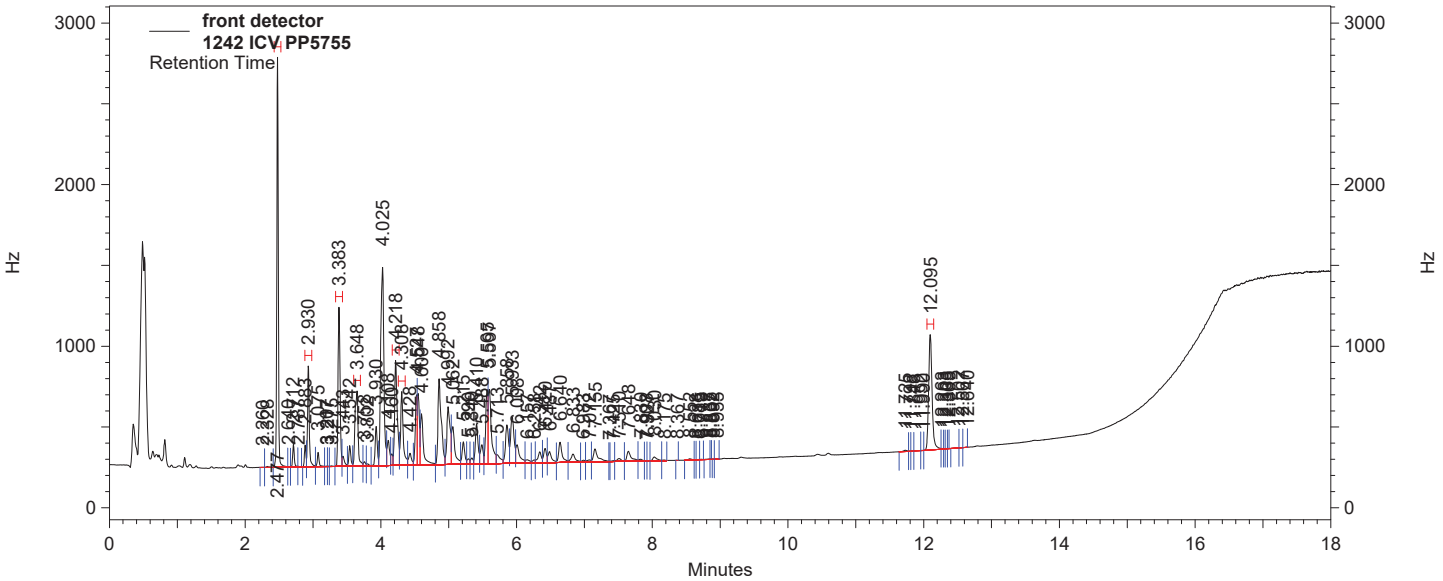
back detector

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
SURRTCMX	100.000	106.330	6.330	20.000	Passed
Aroclor 1242 #1	0.100	0.110	9.501	20.000	Passed
Aroclor 1242 #2	0.100	0.109	9.492	20.000	Passed
Aroclor 1242 #3	0.100	0.111	11.234	20.000	Passed
Aroclor 1242 #4	0.100	0.111	10.970	20.000	Passed
Aroclor 1242 #5	0.100	0.111	11.282	20.000	Passed
SURRDCB	100.000	105.220	5.220	20.000	Passed
Aroclor 1242	0.500	0.552	10.496	20.000	Passed

PCB Analysis Report (1242) *(Channel A)*

Data File: C:\Instarch\Semi7\Data\091418pcbic\015.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1242.met
User: JJY
Sample ID: 1242 ICV PP5755
Acquired: 09/14/2018 12:45:39
Printed: 09/14/2018 13:04:15

Data Summary: {Data Description}



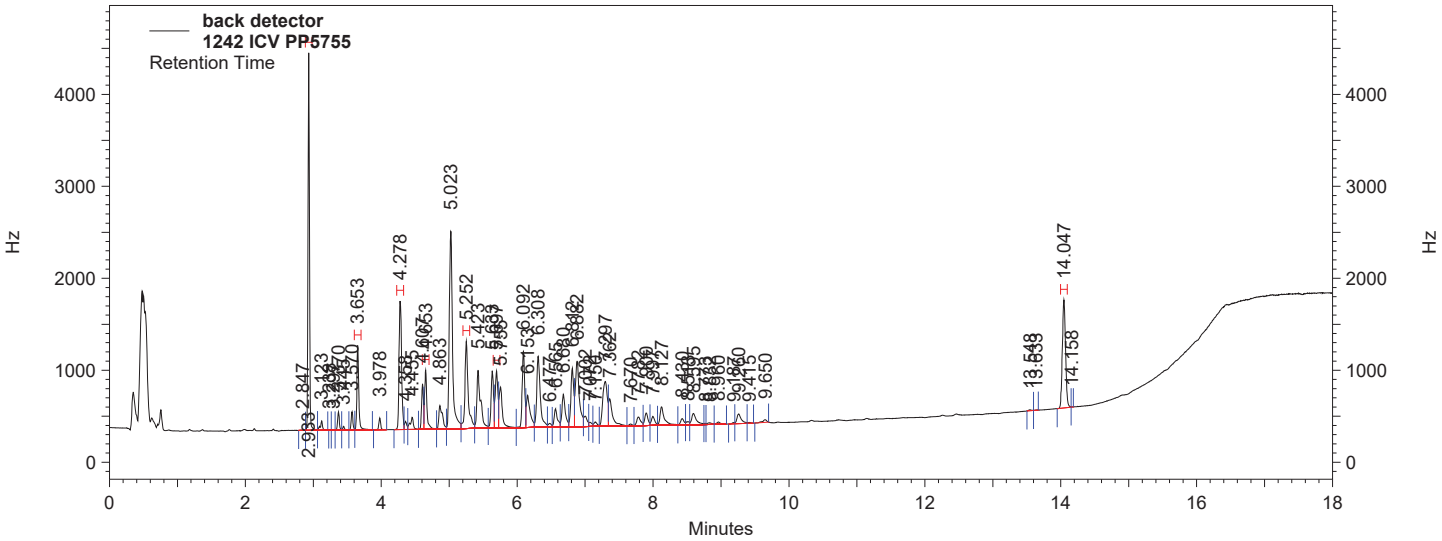
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMX	2.477	29043640	108.287
Aroclor 1242 #1	2.930	8537333	0.111
Aroclor 1242 #2	3.383	15481594	0.110
Aroclor 1242 #3	3.648	11053539	0.111
Aroclor 1242 #4	4.218	13537727	0.111
Aroclor 1242 #5	4.308	9193897	0.111
SURRDCB	12.095	19215709	105.234
Aroclor 1242		57804090	0.554

PCB Analysis Report (1242) *(Channel B)*

Data File: C:\Instarch\Semi7\Data\091418pcbic\015.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1242.met
User: JJY
Sample ID: 1242 ICV PP5755
Acquired: 09/14/2018 12:45:39
Printed: 09/14/2018 13:04:15

Data Summary: {Data Description}



back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMX	2.933	46943545	106.330
Aroclor 1242 #1	3.653	13836029	0.110
Aroclor 1242 #2	4.278	27400443	0.109
Aroclor 1242 #3	4.653	11497872	0.111
Aroclor 1242 #4	5.252	24451235	0.111
Aroclor 1242 #5	5.697	12943251	0.111
SURRDCB	14.047	29744235	105.220
Aroclor 1242		90128830	0.552

QC Check Standard Report

Sequence : C:\Instarch\Semi7\Sequence\091418pcbic.seq
User : JJY
Printed : 09/14/2018 13:26:53

File	Sample ID	Acquired
C:\Instarch\Semi7\Data\091418pcbic\016.dat	1248 ICV PP5756	09/14/2018 13:26:53

front detector

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
SURRTCMX	100.000	99.104	0.896	20.000	Passed
Aroclor 1248 #1	0.100	0.101	0.998	20.000	Passed
Aroclor 1248 #2	0.100	0.098	1.711	20.000	Passed
Aroclor 1248 #3	0.100	0.101	0.522	20.000	Passed
Aroclor 1248 #4	0.100	0.099	1.252	20.000	Passed
Aroclor 1248 #5	0.100	0.099	0.729	20.000	Passed
SURRDCB	100.000	97.187	2.813	20.000	Passed
Aroclor 1248	0.500	0.498	0.434	20.000	Passed

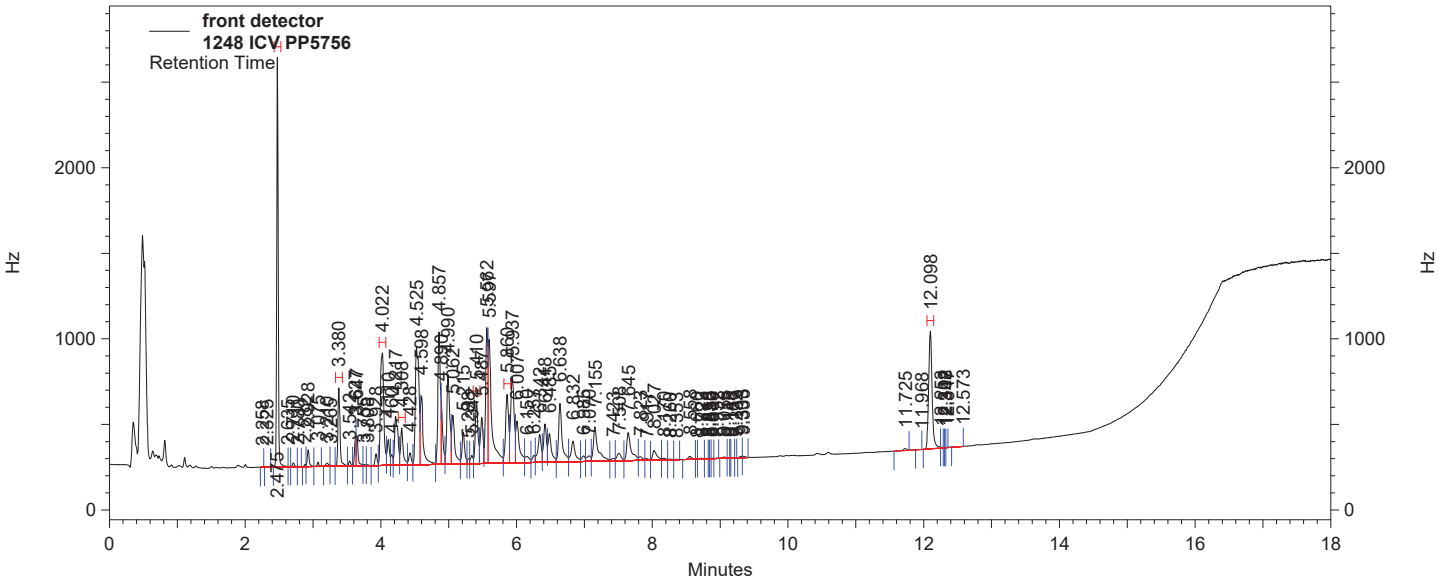
back detector

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
SURRTCMX	100.000	98.243	1.757	20.000	Passed
Aroclor 1248 #1	0.100	0.099	1.137	20.000	Passed
Aroclor 1248 #2	0.100	0.099	0.720	20.000	Passed
Aroclor 1248 #3	0.100	0.100	0.132	20.000	Passed
Aroclor 1248 #4	0.100	0.098	1.830	20.000	Passed
Aroclor 1248 #5	0.100	0.100	0.094	20.000	Passed
SURRDCB	100.000	98.270	1.730	20.000	Passed
Aroclor 1248	0.500	0.497	0.692	20.000	Passed

PCB Analysis Report (1248) *(Channel A)*

Data File: C:\Instarch\Semi7\Data\091418pcbic\016.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1248.met
User: JJY
Sample ID: 1248 ICV PP5756
Acquired: 09/14/2018 13:06:51
Printed: 09/14/2018 13:26:45

Data Summary: {Data Description}



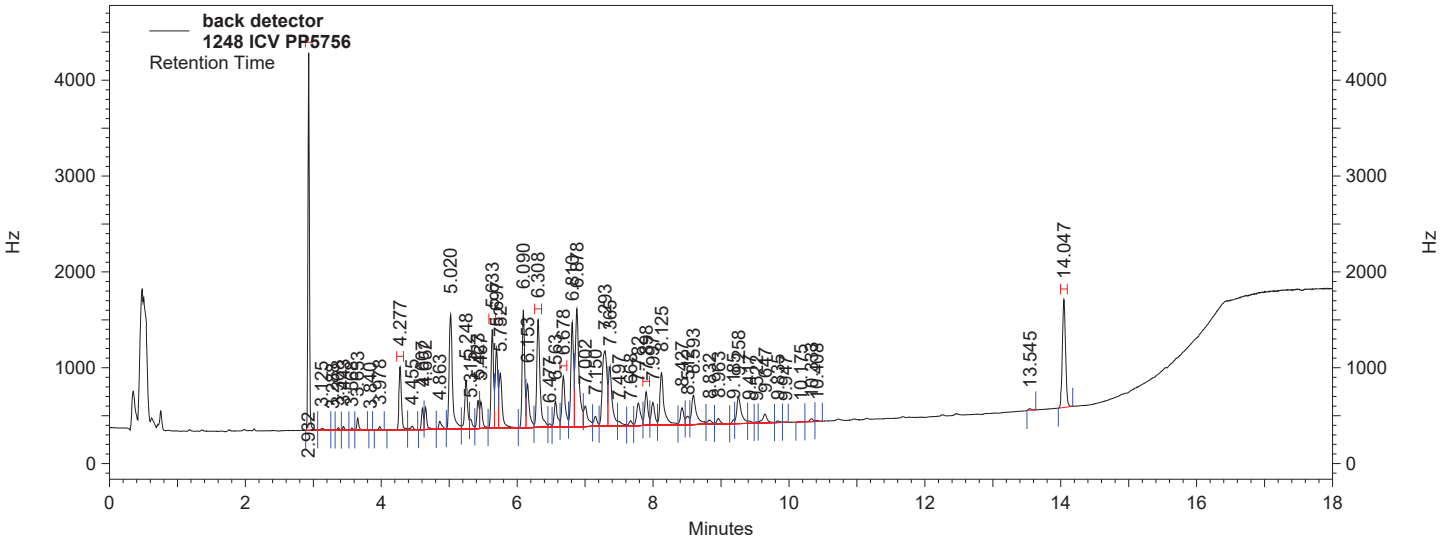
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMX	2.475	27279519	99.104
Aroclor 1248 #1	3.380	7381141	0.101
Aroclor 1248 #2	4.022	17261607	0.098
Aroclor 1248 #3	4.308	4393231	0.101
Aroclor 1248 #4	5.410	7538258	0.099
Aroclor 1248 #5	5.860	9518810	0.099
SURRDCB	12.098	18303105	97.187
Aroclor 1248		46093047	0.498

PCB Analysis Report (1248) *(Channel B)*

Data File: C:\Instarch\Semi7\Data\091418pcbic\016.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1248.met
User: JJY
Sample ID: 1248 ICV PP5756
Acquired: 09/14/2018 13:06:51
Printed: 09/14/2018 13:26:45

Data Summary: {Data Description}



back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMX	2.932	45049930	98.243
Aroclor 1248 #1	4.277	12558968	0.099
Aroclor 1248 #2	5.633	19426643	0.099
Aroclor 1248 #3	6.308	29348358	0.100
Aroclor 1248 #4	6.678	13591367	0.098
Aroclor 1248 #5	7.898	8659731	0.100
SURRDCB	14.047	28548526	98.270
Aroclor 1248		83585067	0.497

QC Check Standard Report

Sequence : C:\Instarch\Semi7\Sequence\091418pcbic.seq
User : JJY
Printed : 09/14/2018 13:59:09

File	Sample ID	Acquired
C:\Instarch\Semi7\Data\091418pcbic\017.dat	1254 ICV PP5757	09/14/2018 13:59:09

front detector

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
SURRTCMX	100.000	101.638	1.638	20.000	Passed
Aroclor 1254 #1	0.100	0.105	4.661	20.000	Passed
Aroclor 1254 #2	0.100	0.103	2.985	20.000	Passed
Aroclor 1254 #3	0.100	0.103	3.148	20.000	Passed
Aroclor 1254 #4	0.100	0.103	2.889	20.000	Passed
Aroclor 1254 #5	0.100	0.103	2.690	20.000	Passed
SURRDCB	100.000	98.195	1.805	20.000	Passed
Aroclor 1254	0.500	0.516	3.274	20.000	Passed

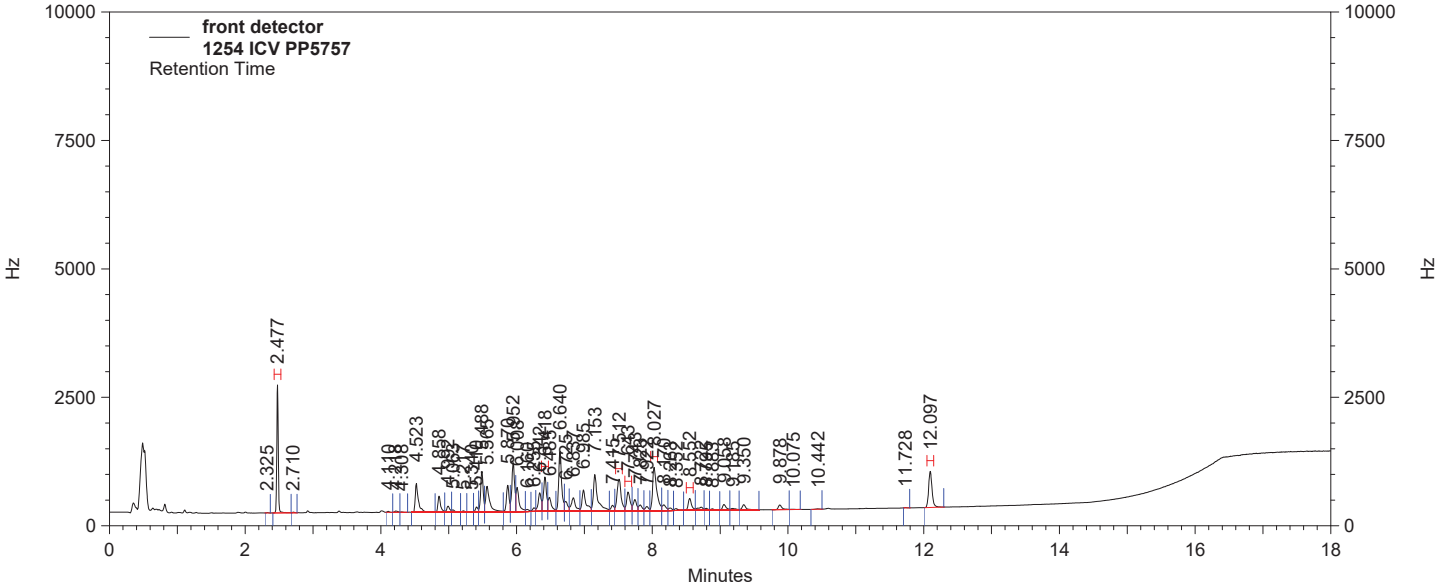
back detector

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
SURRTCMX	100.000	101.535	1.535	20.000	Passed
Aroclor 1254 #1	0.100	0.103	3.482	20.000	Passed
Aroclor 1254 #2	0.100	0.105	4.663	20.000	Passed
Aroclor 1254 #3	0.100	0.102	2.492	20.000	Passed
Aroclor 1254 #4	0.100	0.104	3.659	20.000	Passed
Aroclor 1254 #5	0.100	0.102	2.307	20.000	Passed
SURRDCB	100.000	98.575	1.425	20.000	Passed
Aroclor 1254	0.500	0.517	3.321	20.000	Passed

PCB Analysis Report (1254) *(Channel A)*

Data File: C:\Instarch\Semi7\Data\091418pcbic\017.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1254.met
User: JJY
Sample ID: 1254 ICV PP5757
Acquired: 09/14/2018 13:28:03
Printed: 09/14/2018 13:59:03

Data Summary: {Data Description}



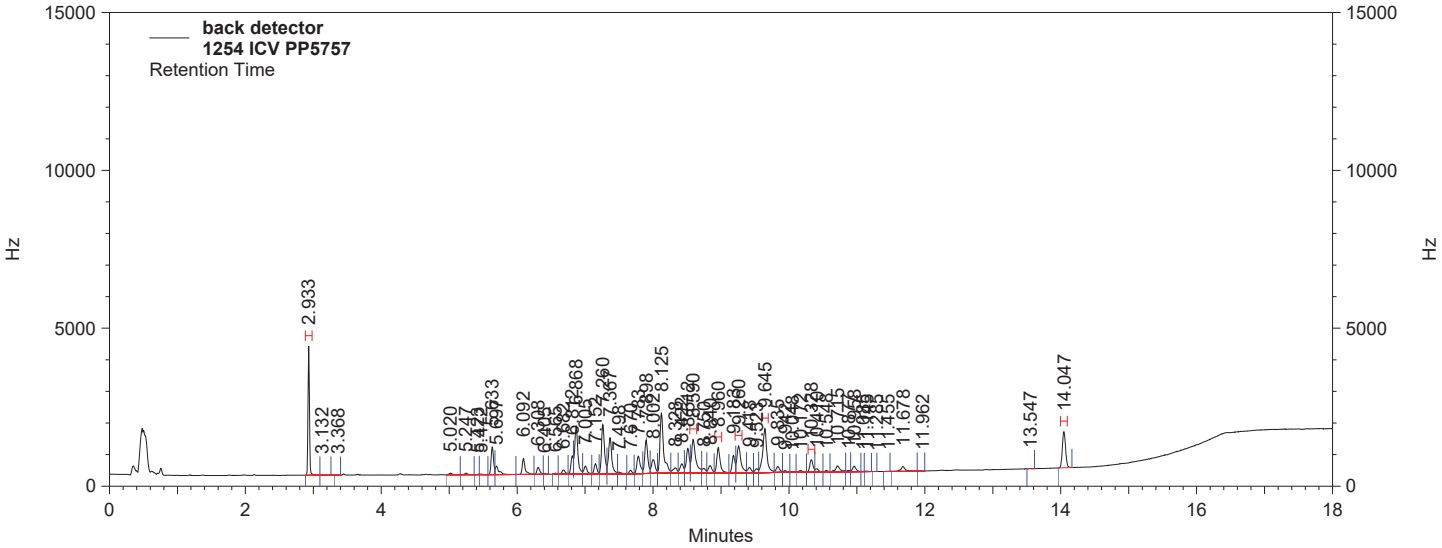
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMX	2.477	28336800	101.638
Aroclor 1254 #1	6.418	15816193	0.105
Aroclor 1254 #2	7.512	19632507	0.103
Aroclor 1254 #3	7.643	10184916	0.103
Aroclor 1254 #4	8.027	27192985	0.103
Aroclor 1254 #5	8.552	6322854	0.103
SURRDCB	12.097	18709810	98.195
Aroclor 1254		79149455	0.516

PCB Analysis Report (1254) *(Channel B)*

Data File: C:\Instarch\Semi7\Data\091418pcbic\017.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1254.met
User: JJY
Sample ID: 1254 ICV PP5757
Acquired: 09/14/2018 13:28:03
Printed: 09/14/2018 13:59:03

Data Summary: {Data Description}



back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMX	2.933	46914814	101.535
Aroclor 1254 #1	8.590	34700387	0.103
Aroclor 1254 #2	8.960	21570662	0.105
Aroclor 1254 #3	9.260	26544584	0.102
Aroclor 1254 #4	9.645	46422656	0.104
Aroclor 1254 #5	10.328	10055559	0.102
SURRDCB	14.047	29042169	98.575
Aroclor 1254		139293848	0.517

QC Check Standard Report

Sequence : C:\Instarch\Semi7\Sequence\091418pcbic.seq
User : JJY
Printed : 09/14/2018 14:08:01

File	Sample ID	Acquired
C:\Instarch\Semi7\Data\091418pcbic\018.dat	1262 ICV PP5758	09/14/2018 14:08:01

front detector

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
SURRTCMX	100.000	100.584	0.584	20.000	Passed
Aroclor 1262 #1	0.100	0.108	8.215	20.000	Passed
Aroclor 1262 #2	0.100	0.107	7.303	20.000	Passed
Aroclor 1262 #3	0.100	0.108	7.733	20.000	Passed
Aroclor 1262 #4	0.100	0.107	7.464	20.000	Passed
Aroclor 1262 #5	0.100	0.108	8.229	20.000	Passed
SURRDCB	100.000	98.311	1.689	20.000	Passed
Aroclor 1262	0.500	0.539	7.789	20.000	Passed

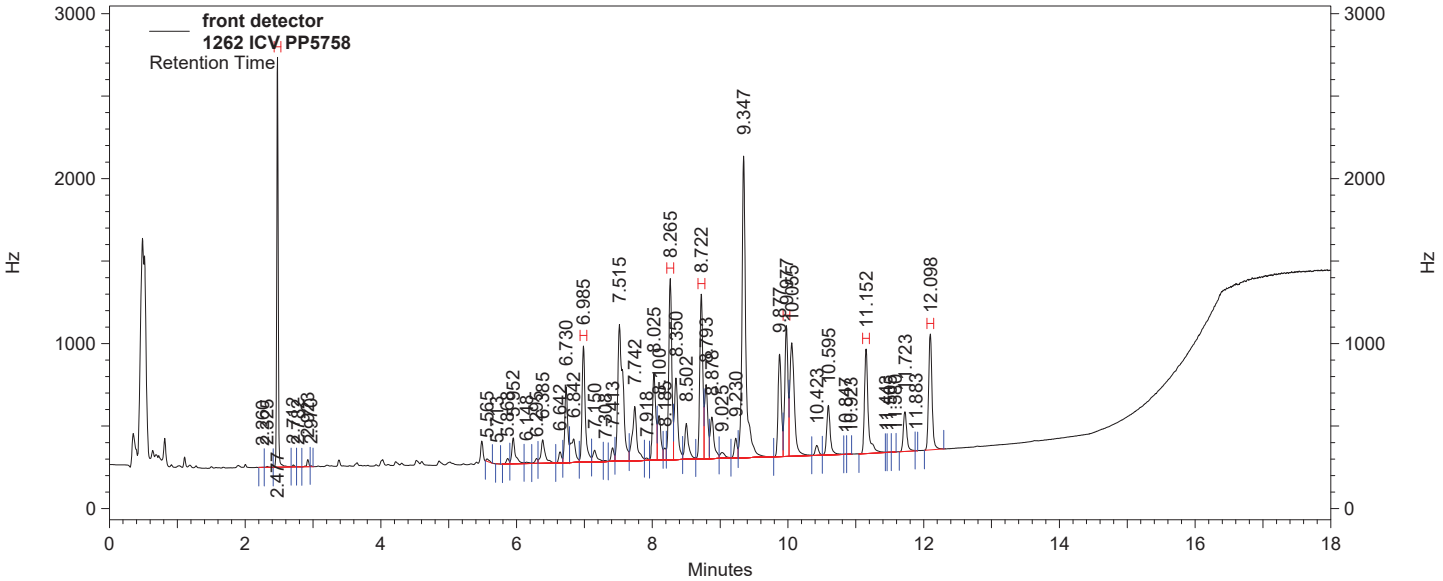
back detector

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
SURRTCMX	100.000	99.252	0.748	20.000	Passed
Aroclor 1262 #1	0.100	0.108	7.836	20.000	Passed
Aroclor 1262 #2	0.100	0.108	8.228	20.000	Passed
Aroclor 1262 #3	0.100	0.108	8.093	20.000	Passed
Aroclor 1262 #4	0.100	0.108	7.768	20.000	Passed
Aroclor 1262 #5	0.100	0.108	7.812	20.000	Passed
SURRDCB	100.000	98.843	1.157	20.000	Passed
Aroclor 1262	0.500	0.540	7.947	20.000	Passed

PCB Analysis Report (1262) *(Channel A)*

Data File: C:\Instarch\Semi7\Data\091418pcbic\018.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1262.met
User: JJY
Sample ID: 1262 ICV PP5758
Acquired: 09/14/2018 13:49:12
Printed: 09/14/2018 14:07:55

Data Summary: {Data Description}



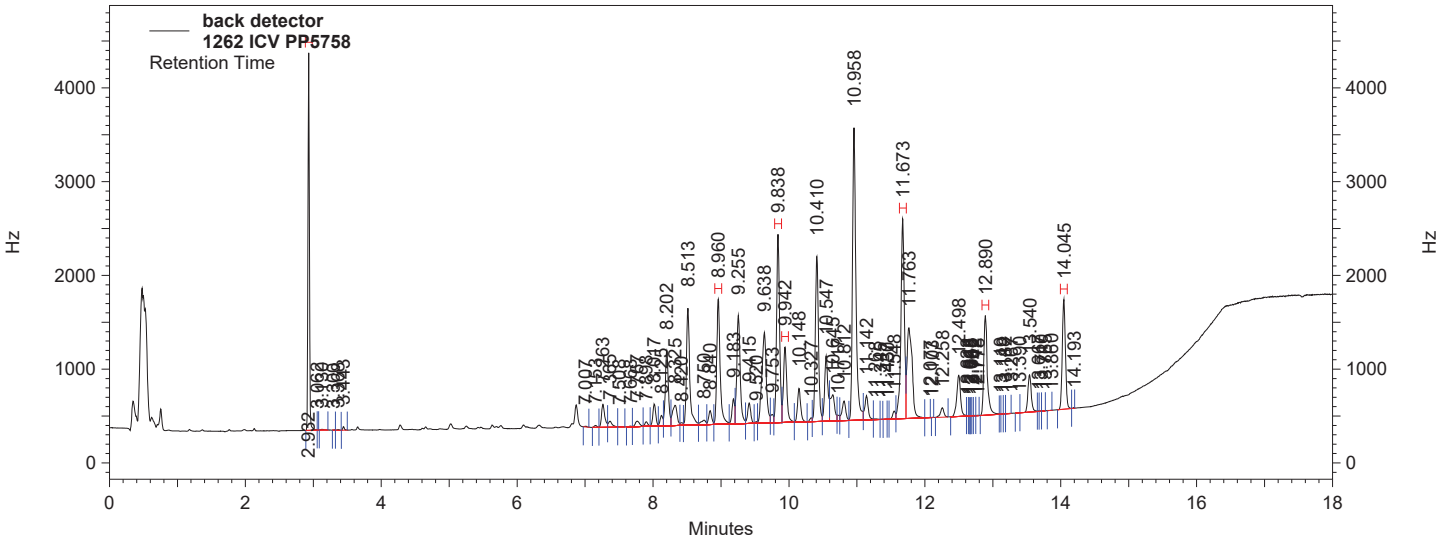
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMX	2.477	27896589	100.584
Aroclor 1262 #1	6.985	17926672	0.108
Aroclor 1262 #2	8.265	26690418	0.107
Aroclor 1262 #3	8.722	23856081	0.108
Aroclor 1262 #4	9.977	20000030	0.107
Aroclor 1262 #5	11.152	18660915	0.108
SURRDCB	12.098	18609236	98.311
Aroclor 1262		107134116	0.539

PCB Analysis Report (1262) *(Channel B)*

Data File: C:\Instarch\Semi7\Data\091418pcbic\018.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1262.met
User: JJY
Sample ID: 1262 ICV PP5758
Acquired: 09/14/2018 13:49:12
Printed: 09/14/2018 14:07:55

Data Summary: {Data Description}



back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMX	2.932	45643380	99.252
Aroclor 1262 #1	8.960	35471693	0.108
Aroclor 1262 #2	9.838	47971680	0.108
Aroclor 1262 #3	9.942	20866512	0.108
Aroclor 1262 #4	11.673	57647750	0.108
Aroclor 1262 #5	12.890	29809076	0.108
SURRDCB	14.045	29142520	98.843
Aroclor 1262		191766711	0.540

QC Check Standard Report

Sequence : C:\Instarch\Semi7\Sequence\091418pcbic.seq
User : JJY
Printed : 09/14/2018 14:31:56

File	Sample ID	Acquired
C:\Instarch\Semi7\Data\091418pcbic\019.dat	1268 ICV PP5759	09/14/2018 14:31:55

front detector

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
SURRTCMX	100.000	98.434	1.566	20.000	Passed
Aroclor 1268 #1	0.100	0.104	3.845	20.000	Passed
Aroclor 1268 #2	0.100	0.106	5.858	20.000	Passed
Aroclor 1268 #3	0.100	0.094	5.750	20.000	Passed
Aroclor 1268 #4	0.100	0.095	4.653	20.000	Passed
Aroclor 1268 #5	0.100	0.097	3.212	20.000	Passed
SURRDCB	100.000	85.595	14.405	20.000	Passed
Aroclor 1268	0.500	0.496	0.782	20.000	Passed

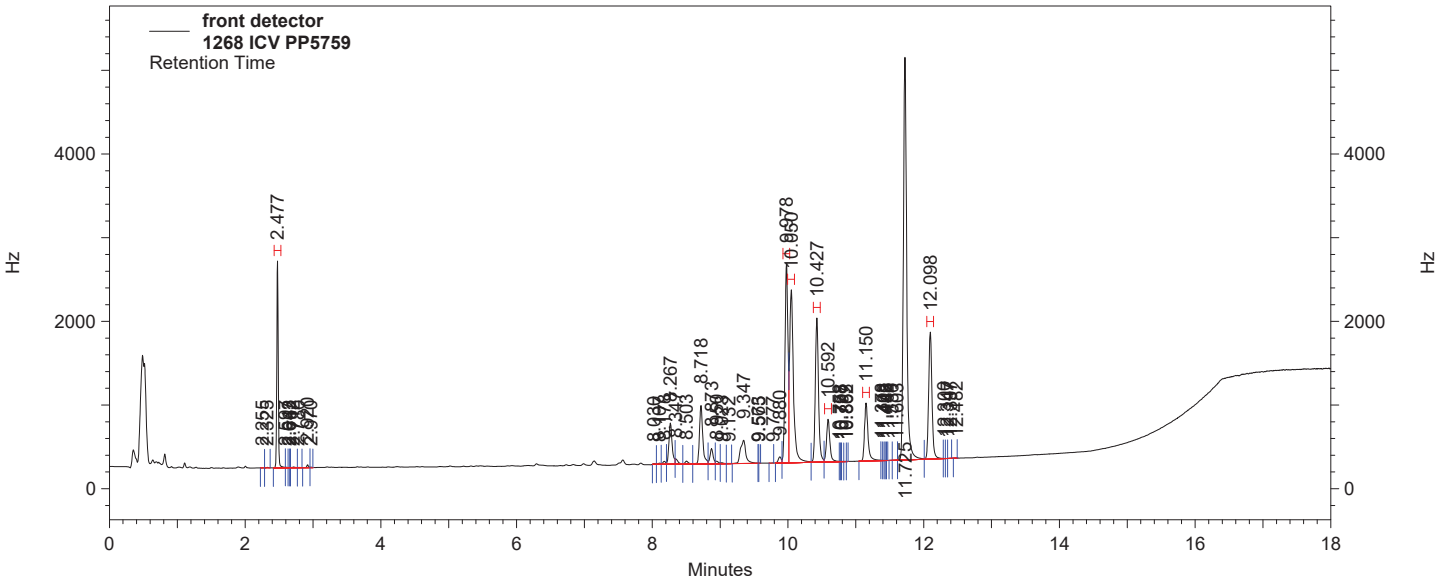
back detector

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
SURRTCMX	100.000	99.596	0.404	20.000	Passed
Aroclor 1268 #1	0.100	0.106	5.885	20.000	Passed
Aroclor 1268 #2	0.100	0.105	5.319	20.000	Passed
Aroclor 1268 #3	0.100	0.095	5.188	20.000	Passed
Aroclor 1268 #4	0.100	0.096	3.530	20.000	Passed
Aroclor 1268 #5	0.100	0.098	1.937	20.000	Passed
SURRDCB	100.000	85.413	14.587	20.000	Passed
Aroclor 1268	0.500	0.501	0.110	20.000	Passed

PCB Analysis Report (1268) *(Channel A)*

Data File: C:\Instarch\Semi7\Data\091418pcbic\019.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1268.met
User: JJY
Sample ID: 1268 ICV PP5759
Acquired: 09/14/2018 14:10:23
Printed: 09/14/2018 14:31:47

Data Summary: {Data Description}



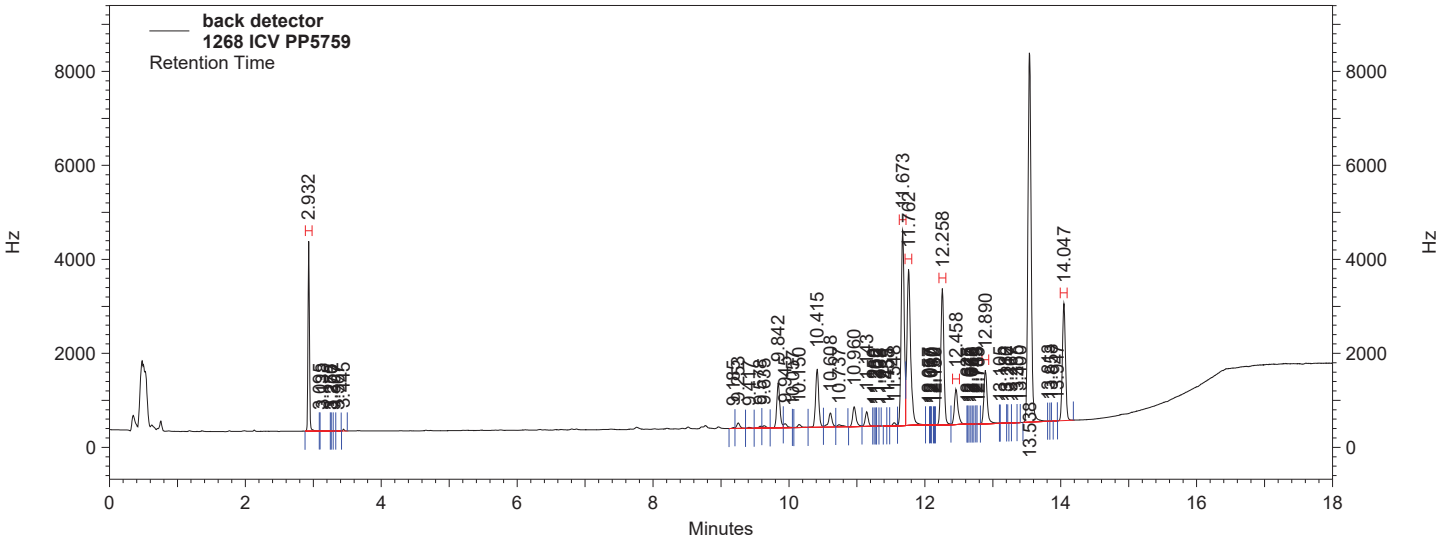
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMX	2.477	27528837	98.434
Aroclor 1268 #1	9.978	56016258	0.104
Aroclor 1268 #2	10.050	62016880	0.106
Aroclor 1268 #3	10.427	43203646	0.094
Aroclor 1268 #4	10.592	13445150	0.095
Aroclor 1268 #5	11.150	18955523	0.097
SURRDCB	12.098	39273519	85.595
Aroclor 1268		193637457	0.496

PCB Analysis Report (1268) *(Channel B)*

Data File: C:\Instarch\Semi7\Data\091418pcbic\019.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\1268.met
User: JJY
Sample ID: 1268 ICV PP5759
Acquired: 09/14/2018 14:10:23
Printed: 09/14/2018 14:31:47

Data Summary: {Data Description}



back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMX	2.932	46019782	99.596
Aroclor 1268 #1	11.673	99475245	0.106
Aroclor 1268 #2	11.762	97656805	0.105
Aroclor 1268 #3	12.258	70965953	0.095
Aroclor 1268 #4	12.458	21475400	0.096
Aroclor 1268 #5	12.890	30449751	0.098
SURRDCB	14.047	61625051	85.413
Aroclor 1268		320023154	0.501

POLYCHLORINATED BIPHENYL CONTINUING AND ENDING STANDARDS DOCUMENTS

QC Check Standard Report

Sequence : C:\Instarch\Semi7\Sequence\091818pcb.seq
User : JJY
Printed : 09/18/2018 15:17:36

File	Sample ID	Acquired
C:\Instarch\Semi7\Data\091818pcb\009.dat	PCB CCV PP 5744	09/18/2018 15:17:36

front detector

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
SURRTCMXPCB	100.000	104.281	4.281	20.000	Passed
Aroclor 1016 #1	0.100	0.106	6.447	20.000	Passed
Aroclor 1016 #2	0.100	0.104	3.988	20.000	Passed
Aroclor 1016 #3	0.100	0.112	12.495	20.000	Passed
Aroclor 1016 #4	0.100	0.101	0.867	20.000	Passed
Aroclor 1016 #5	0.100	0.101	1.008	20.000	Passed
Aroclor 1260 #1	0.100	0.100	0.196	20.000	Passed
Aroclor 1260 #2	0.100	0.098	1.512	20.000	Passed
Aroclor 1260 #3	0.100	0.099	0.643	20.000	Passed
Aroclor 1260 #4	0.100	0.102	1.891	20.000	Passed
Aroclor 1260 #5	0.100	0.094	5.645	20.000	Passed
SURRDCBPCB	100.000	103.806	3.806	20.000	Passed
Aroclor 1016	0.500	0.525	4.961	20.000	Passed
Aroclor 1260	0.500	0.494	1.221	20.000	Passed

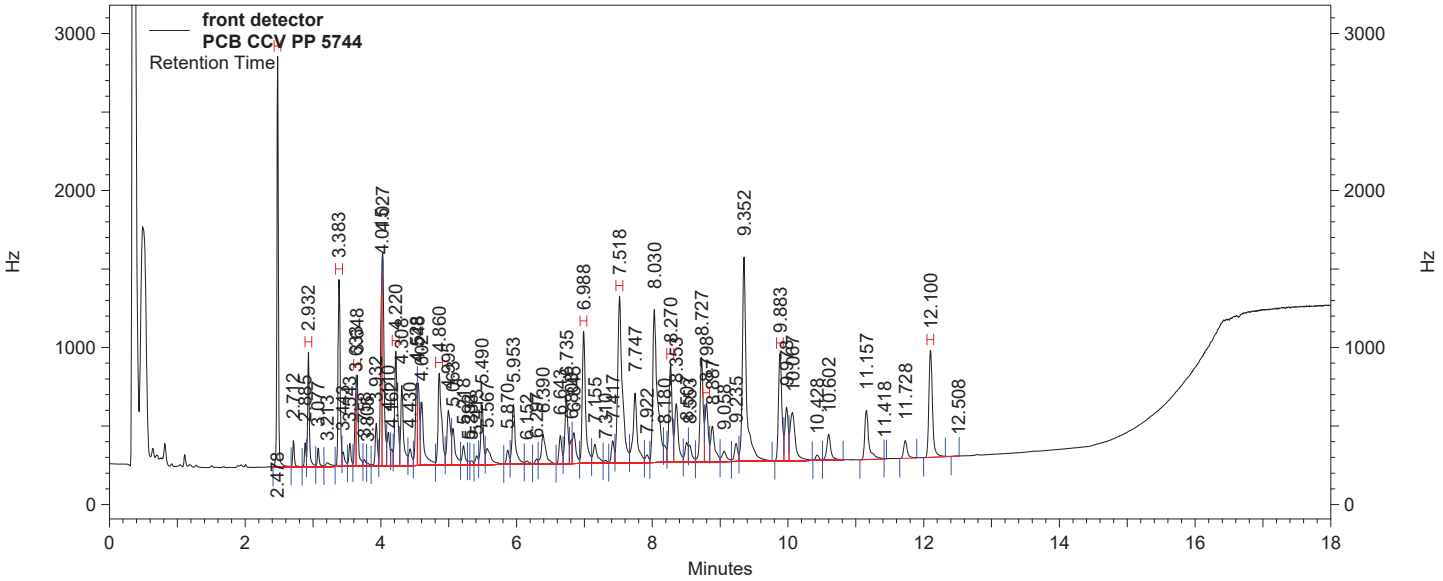
back detector

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
SURRTCMXPCB	100.000	109.480	9.480	20.000	Passed
Aroclor 1016 #1	0.100	0.110	9.540	20.000	Passed
Aroclor 1016 #2	0.100	0.117	17.036	20.000	Passed
Aroclor 1016 #3	0.100	0.112	12.084	20.000	Passed
Aroclor 1016 #4	0.100	0.108	7.912	20.000	Passed
Aroclor 1016 #5	0.100	0.115	15.158	20.000	Passed
Aroclor 1260 #1	0.100	0.105	5.374	20.000	Passed
Aroclor 1260 #2	0.100	0.105	4.807	20.000	Passed
Aroclor 1260 #3	0.100	0.106	6.263	20.000	Passed
Aroclor 1260 #4	0.100	0.106	5.851	20.000	Passed
Aroclor 1260 #5	0.100	0.101	1.144	20.000	Passed
SURRDCBPCB	100.000	108.022	8.022	20.000	Passed
Aroclor 1016	0.500	0.562	12.346	20.000	Passed
Aroclor 1260	0.500	0.523	4.688	20.000	Passed

PCB Analysis Report (1016/1260) *(Channel A)*

Data File: C:\Instarch\Semi7\Data\091818pcb\009.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091818pcb.met
User: JJY
Sample ID: PCB CCV PP 5744
Acquired: 09/18/2018 14:16:46
Printed: 09/18/2018 15:17:34

Data Summary: {Data Description}



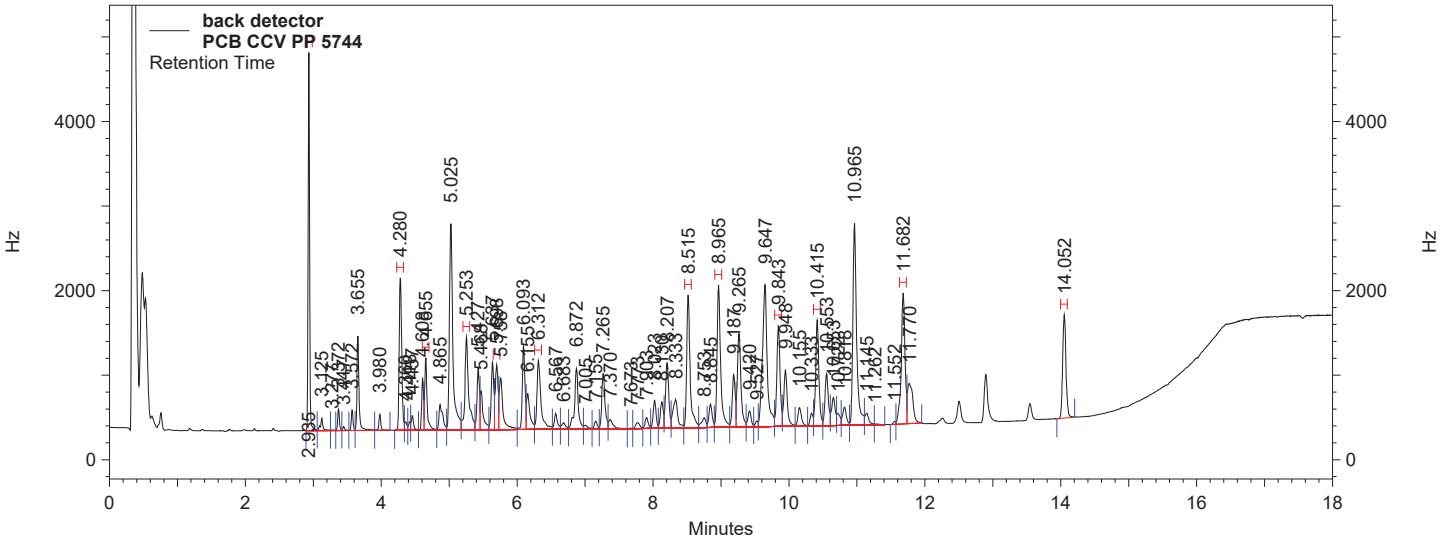
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPCB	2.478	29531594	104.281
Aroclor 1016 #1	2.932	10042023	0.106
Aroclor 1016 #2	3.383	18911458	0.104
Aroclor 1016 #3	3.648	9329214	0.112
Aroclor 1016 #4	4.220	16266777	0.101
Aroclor 1016 #5	4.860	15969848	0.101
Aroclor 1260 #1	6.988	21914671	0.100
Aroclor 1260 #2	7.518	38395701	0.098
Aroclor 1260 #3	8.270	15432466	0.099
Aroclor 1260 #4	8.798	9386525	0.102
Aroclor 1260 #5	9.883	18047657	0.094
SURRDCBPCB	12.100	19286742	103.806
Aroclor 1016		70519320	0.525
Aroclor 1260		103177020	0.494

PCB Analysis Report (1016/1260) *(Channel B)*

Data File: C:\Instarch\Semi7\Data\091818pcb\009.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091818pcb.met
User: JJY
Sample ID: PCB CCV PP 5744
Acquired: 09/18/2018 14:16:46
Printed: 09/18/2018 15:17:34

Data Summary: {Data Description}



back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPCB	2.935	50667912	109.480
Aroclor 1016 #1	4.280	35670537	0.110
Aroclor 1016 #2	4.655	16255304	0.117
Aroclor 1016 #3	5.253	33098735	0.112
Aroclor 1016 #4	5.698	16898823	0.108
Aroclor 1016 #5	6.312	26074123	0.115
Aroclor 1260 #1	8.515	42857154	0.105
Aroclor 1260 #2	8.965	47428543	0.105
Aroclor 1260 #3	9.843	30387233	0.106
Aroclor 1260 #4	10.415	31556603	0.106
Aroclor 1260 #5	11.682	45933772	0.101
SURRDCBPCB	14.052	31841840	108.022
Aroclor 1016		127997522	0.562
Aroclor 1260		198163305	0.523

QC Check Standard Report

Sequence : C:\Instarch\Semi7\Sequence\091818pcb.seq
User : JJY
Printed : 09/19/2018 07:54:47

File	Sample ID	Acquired
C:\Instarch\Semi7\Data\091818pcb\017.dat	PCB CCV PP 5744	09/19/2018 07:54:46

front detector

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
SURRTCMXPCB	100.000	103.772	3.772	20.000	Passed
Aroclor 1016 #1	0.100	0.106	5.783	20.000	Passed
Aroclor 1016 #2	0.100	0.103	3.014	20.000	Passed
Aroclor 1016 #3	0.100	0.110	10.418	20.000	Passed
Aroclor 1016 #4	0.100	0.100	0.013	20.000	Passed
Aroclor 1016 #5	0.100	0.101	1.223	20.000	Passed
Aroclor 1260 #1	0.100	0.101	0.904	20.000	Passed
Aroclor 1260 #2	0.100	0.100	0.121	20.000	Passed
Aroclor 1260 #3	0.100	0.102	1.679	20.000	Passed
Aroclor 1260 #4	0.100	0.103	3.341	20.000	Passed
Aroclor 1260 #5	0.100	0.097	3.407	20.000	Passed
SURRDCBPCB	100.000	106.701	6.701	20.000	Passed
Aroclor 1016	0.500	0.520	4.090	20.000	Passed
Aroclor 1260	0.500	0.502	0.479	20.000	Passed

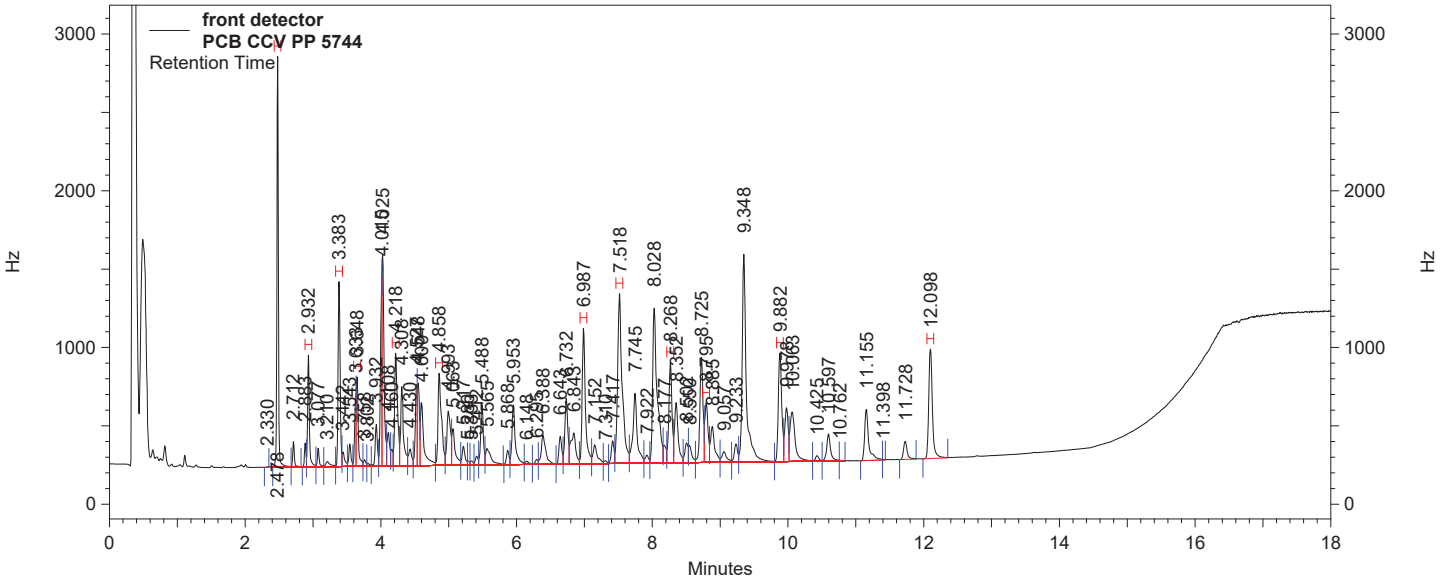
back detector

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
SURRTCMXPCB	100.000	109.077	9.077	20.000	Passed
Aroclor 1016 #1	0.100	0.109	9.346	20.000	Passed
Aroclor 1016 #2	0.100	0.118	18.218	20.000	Passed
Aroclor 1016 #3	0.100	0.112	11.676	20.000	Passed
Aroclor 1016 #4	0.100	0.109	8.591	20.000	Passed
Aroclor 1016 #5	0.100	0.116	15.822	20.000	Passed
Aroclor 1260 #1	0.100	0.107	7.430	20.000	Passed
Aroclor 1260 #2	0.100	0.107	7.129	20.000	Passed
Aroclor 1260 #3	0.100	0.109	9.064	20.000	Passed
Aroclor 1260 #4	0.100	0.109	8.903	20.000	Passed
Aroclor 1260 #5	0.100	0.104	4.223	20.000	Passed
SURRDCBPCB	100.000	111.993	11.993	20.000	Passed
Aroclor 1016	0.500	0.564	12.731	20.000	Passed
Aroclor 1260	0.500	0.537	7.350	20.000	Passed

PCB Analysis Report (1016/1260) *(Channel A)*

Data File: C:\Instarch\Semi7\Data\091818pcb\017.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091818pcb.met
User: JJY
Sample ID: PCB CCV PP 5744
Acquired: 09/18/2018 17:06:17
Printed: 09/19/2018 07:54:44

Data Summary: {Data Description}



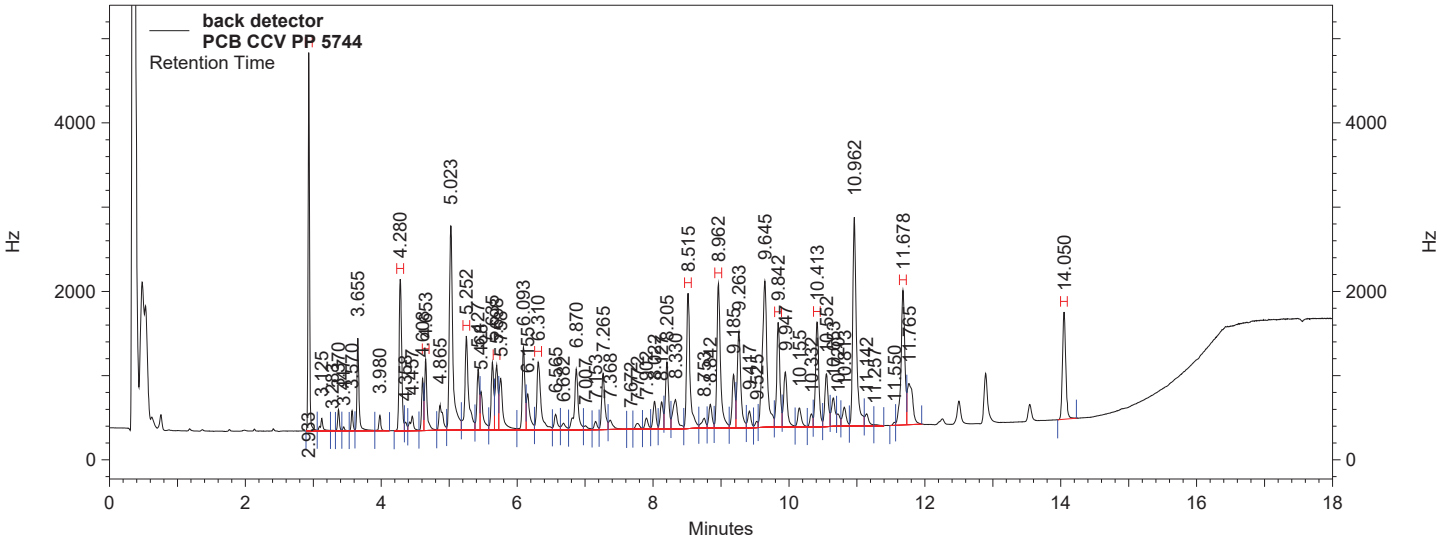
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPCB	2.478	29387607	103.772
Aroclor 1016 #1	2.932	9980476	0.106
Aroclor 1016 #2	3.383	18737668	0.103
Aroclor 1016 #3	3.648	9162448	0.110
Aroclor 1016 #4	4.218	16129858	0.100
Aroclor 1016 #5	4.858	16003471	0.101
Aroclor 1260 #1	6.987	22153710	0.101
Aroclor 1260 #2	7.518	38934506	0.100
Aroclor 1260 #3	8.268	15791915	0.102
Aroclor 1260 #4	8.795	9517702	0.103
Aroclor 1260 #5	9.882	18478295	0.097
SURRDCBPCB	12.098	19815749	106.701
Aroclor 1016		70013921	0.520
Aroclor 1260		104876128	0.502

PCB Analysis Report (1016/1260) *(Channel B)*

Data File: C:\Instarch\Semi7\Data\091818pcb\017.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091818pcb.met
User: JJY
Sample ID: PCB CCV PP 5744
Acquired: 09/18/2018 17:06:17
Printed: 09/19/2018 07:54:44

Data Summary: {Data Description}



back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPCB	2.933	50480493	109.077
Aroclor 1016 #1	4.280	35608306	0.109
Aroclor 1016 #2	4.653	16417050	0.118
Aroclor 1016 #3	5.252	32979145	0.112
Aroclor 1016 #4	5.698	17004110	0.109
Aroclor 1016 #5	6.310	26223984	0.116
Aroclor 1260 #1	8.515	43693033	0.107
Aroclor 1260 #2	8.962	48479978	0.107
Aroclor 1260 #3	9.842	31187095	0.109
Aroclor 1260 #4	10.413	32466958	0.109
Aroclor 1260 #5	11.678	47337885	0.104
SURRDCBPCB	14.050	33001335	111.993
Aroclor 1016		128232595	0.564
Aroclor 1260		203164949	0.537

QC Check Standard Report

Sequence : C:\Instarch\Semi7\Sequence\091918pcb.seq
User : JJY
Printed : 09/19/2018 15:44:05

File	Sample ID	Acquired
C:\Instarch\Semi7\Data\091918pcb\003.dat	PCB CCV PP 5744	09/19/2018 15:44:05

front detector

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
SURRTCMXPCB	100.000	102.460	2.460	20.000	Passed
Aroclor 1016 #1	0.100	0.103	3.467	20.000	Passed
Aroclor 1016 #2	0.100	0.101	0.971	20.000	Passed
Aroclor 1016 #3	0.100	0.113	13.065	20.000	Passed
Aroclor 1016 #4	0.100	0.097	2.890	20.000	Passed
Aroclor 1016 #5	0.100	0.099	0.985	20.000	Passed
Aroclor 1260 #1	0.100	0.100	0.393	20.000	Passed
Aroclor 1260 #2	0.100	0.098	2.114	20.000	Passed
Aroclor 1260 #3	0.100	0.101	0.901	20.000	Passed
Aroclor 1260 #4	0.100	0.103	3.460	20.000	Passed
Aroclor 1260 #5	0.100	0.095	5.205	20.000	Passed
SURRDCBPCB	100.000	107.173	7.173	20.000	Passed
Aroclor 1016	0.500	0.514	2.726	20.000	Passed
Aroclor 1260	0.500	0.497	0.670	20.000	Passed

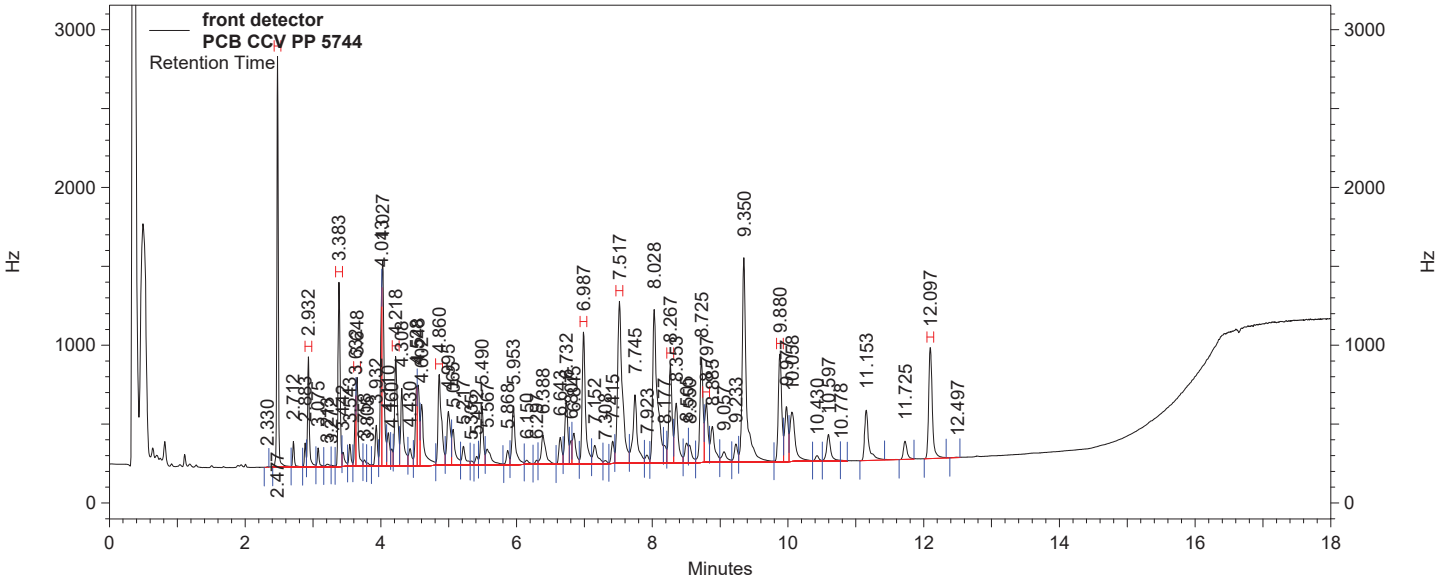
back detector

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
SURRTCMXPCB	100.000	111.700	11.700	20.000	Passed
Aroclor 1016 #1	0.100	0.111	10.952	20.000	Passed
Aroclor 1016 #2	0.100	0.121	20.504	20.000	FAILED
Aroclor 1016 #3	0.100	0.114	14.107	20.000	Passed
Aroclor 1016 #4	0.100	0.110	9.843	20.000	Passed
Aroclor 1016 #5	0.100	0.118	17.695	20.000	Passed
Aroclor 1260 #1	0.100	0.109	8.510	20.000	Passed
Aroclor 1260 #2	0.100	0.108	8.020	20.000	Passed
Aroclor 1260 #3	0.100	0.111	10.655	20.000	Passed
Aroclor 1260 #4	0.100	0.110	10.088	20.000	Passed
Aroclor 1260 #5	0.100	0.105	4.713	20.000	Passed
SURRDCBPCB	100.000	115.283	15.283	20.000	Passed
Aroclor 1016	0.500	0.573	14.620	20.000	Passed
Aroclor 1260	0.500	0.542	8.397	20.000	Passed

PCB Analysis Report (1016/1260) *(Channel A)*

Data File: C:\Instarch\Semi7\Data\091918pcb\003.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091918pcb.met
User: JJY
Sample ID: PCB CCV PP 5744
Acquired: 09/19/2018 13:17:14
Printed: 09/19/2018 15:44:03

Data Summary: {Data Description}



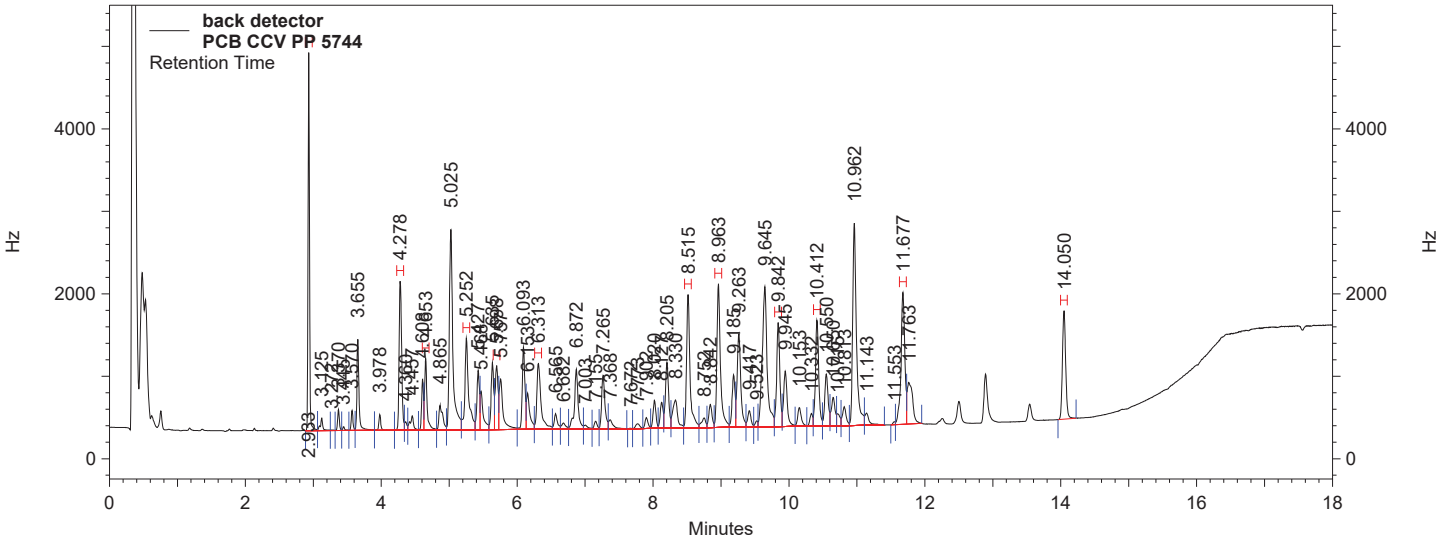
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPCB	2.477	29016120	102.460
Aroclor 1016 #1	2.932	9765788	0.103
Aroclor 1016 #2	3.383	18373213	0.101
Aroclor 1016 #3	3.648	9374999	0.113
Aroclor 1016 #4	4.218	15664885	0.097
Aroclor 1016 #5	4.860	15657895	0.099
Aroclor 1260 #1	6.987	21871804	0.100
Aroclor 1260 #2	7.517	38162848	0.098
Aroclor 1260 #3	8.267	15671587	0.101
Aroclor 1260 #4	8.797	9528456	0.103
Aroclor 1260 #5	9.880	18132402	0.095
SURRDCBPCB	12.097	19902049	107.173
Aroclor 1016		68836780	0.514
Aroclor 1260		103367097	0.497

PCB Analysis Report (1016/1260) *(Channel B)*

Data File: C:\Instarch\Semi7\Data\091918pcb\003.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091918pcb.met
User: JJY
Sample ID: PCB CCV PP 5744
Acquired: 09/19/2018 13:17:14
Printed: 09/19/2018 15:44:03

Data Summary: {Data Description}



back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPCB	2.933	51701294	111.700
Aroclor 1016 #1	4.278	36124628	0.111
Aroclor 1016 #2	4.653	16729822	0.121
Aroclor 1016 #3	5.252	33691709	0.114
Aroclor 1016 #4	5.698	17198518	0.110
Aroclor 1016 #5	6.313	26647004	0.118
Aroclor 1260 #1	8.515	44132055	0.109
Aroclor 1260 #2	8.963	48883794	0.108
Aroclor 1260 #3	9.842	31641639	0.111
Aroclor 1260 #4	10.412	32820411	0.110
Aroclor 1260 #5	11.677	47561672	0.105
SURRDCBPCB	14.050	33962265	115.283
Aroclor 1016		130391681	0.573
Aroclor 1260		205039571	0.542

QC Check Standard Report

Sequence : C:\Instarch\Semi7\Sequence\091918pcb.seq
User : JJY
Printed : 09/20/2018 11:48:30

File	Sample ID	Acquired
C:\Instarch\Semi7\Data\091918pcb\013.dat	PCB CCV PP 5744	09/20/2018 11:48:29

front detector

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
SURRTCMXPCB	100.000	103.544	3.544	20.000	Passed
Aroclor 1016 #1	0.100	0.105	4.717	20.000	Passed
Aroclor 1016 #2	0.100	0.103	2.937	20.000	Passed
Aroclor 1016 #3	0.100	0.112	12.119	20.000	Passed
Aroclor 1016 #4	0.100	0.101	0.981	20.000	Passed
Aroclor 1016 #5	0.100	0.102	1.939	20.000	Passed
Aroclor 1260 #1	0.100	0.102	2.200	20.000	Passed
Aroclor 1260 #2	0.100	0.102	1.528	20.000	Passed
Aroclor 1260 #3	0.100	0.104	3.749	20.000	Passed
Aroclor 1260 #4	0.100	0.106	6.406	20.000	Passed
Aroclor 1260 #5	0.100	0.099	0.597	20.000	Passed
SURRDCBPCB	100.000	110.760	10.760	20.000	Passed
Aroclor 1016	0.500	0.523	4.539	20.000	Passed
Aroclor 1260	0.500	0.513	2.657	20.000	Passed

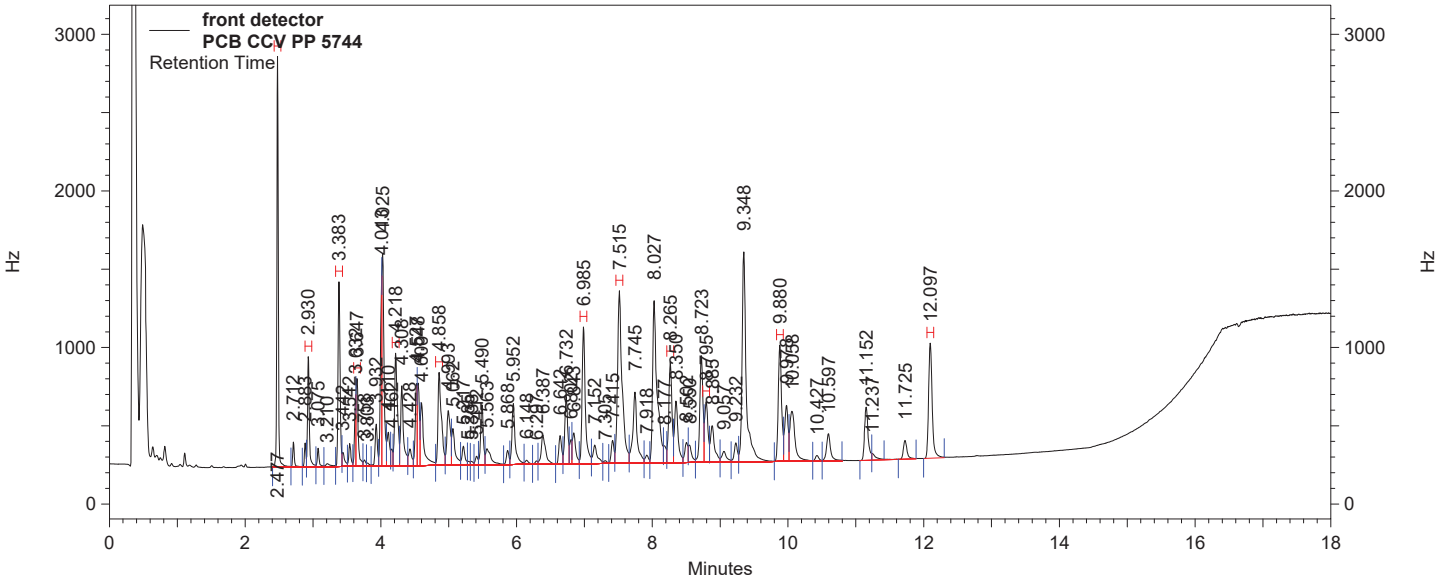
back detector

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
SURRTCMXPCB	100.000	109.561	9.561	20.000	Passed
Aroclor 1016 #1	0.100	0.110	9.846	20.000	Passed
Aroclor 1016 #2	0.100	0.117	16.651	20.000	Passed
Aroclor 1016 #3	0.100	0.113	12.882	20.000	Passed
Aroclor 1016 #4	0.100	0.110	9.727	20.000	Passed
Aroclor 1016 #5	0.100	0.116	15.545	20.000	Passed
Aroclor 1260 #1	0.100	0.109	8.785	20.000	Passed
Aroclor 1260 #2	0.100	0.109	9.221	20.000	Passed
Aroclor 1260 #3	0.100	0.111	10.957	20.000	Passed
Aroclor 1260 #4	0.100	0.111	10.851	20.000	Passed
Aroclor 1260 #5	0.100	0.108	8.486	20.000	Passed
SURRDCBPCB	100.000	116.560	16.560	20.000	Passed
Aroclor 1016	0.500	0.565	12.930	20.000	Passed
Aroclor 1260	0.500	0.548	9.660	20.000	Passed

PCB Analysis Report (1016/1260) *(Channel A)*

Data File: C:\Instarch\Semi7\Data\091918pcb\013.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091918pcb.met
User: JJY
Sample ID: PCB CCV PP 5744
Acquired: 09/19/2018 16:49:05
Printed: 09/20/2018 11:48:28

Data Summary: {Data Description}



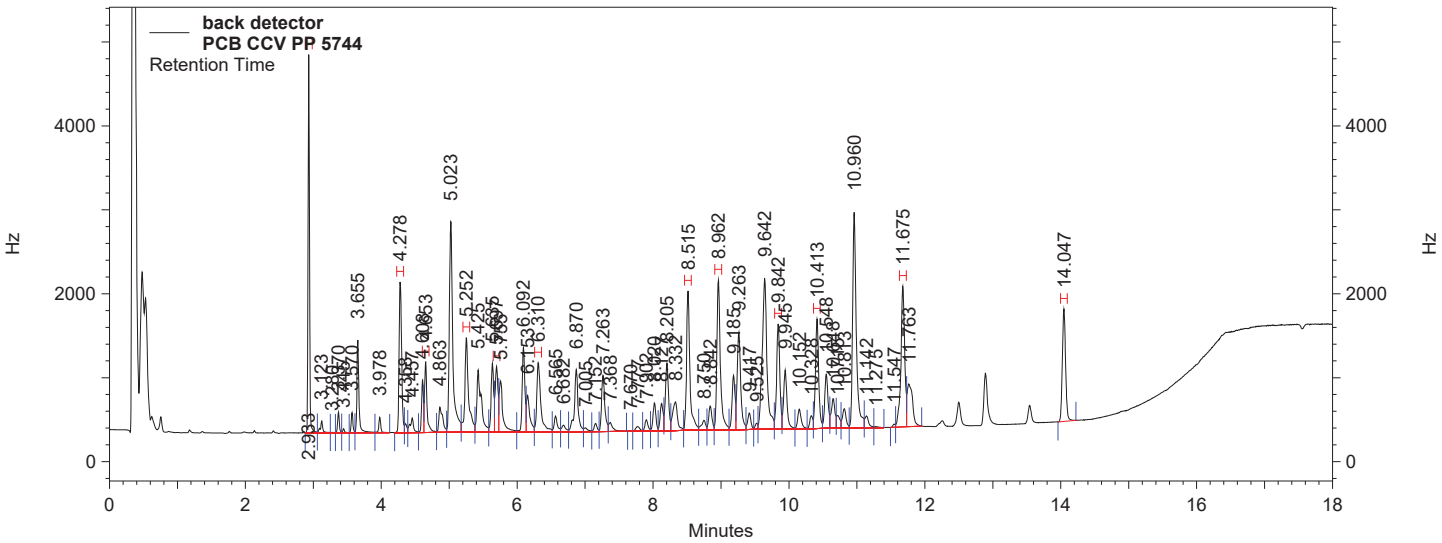
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPCB	2.477	29323022	103.544
Aroclor 1016 #1	2.930	9881658	0.105
Aroclor 1016 #2	3.383	18723929	0.103
Aroclor 1016 #3	3.647	9299039	0.112
Aroclor 1016 #4	4.218	16284961	0.101
Aroclor 1016 #5	4.858	16115471	0.102
Aroclor 1260 #1	6.985	22435681	0.102
Aroclor 1260 #2	7.515	39572924	0.102
Aroclor 1260 #3	8.265	16112372	0.104
Aroclor 1260 #4	8.795	9795006	0.106
Aroclor 1260 #5	9.880	19018805	0.099
SURRDCBPCB	12.097	20557617	110.760
Aroclor 1016		70305058	0.523
Aroclor 1260		106934788	0.513

PCB Analysis Report (1016/1260) *(Channel B)*

Data File: C:\Instarch\Semi7\Data\091918pcb\013.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091918pcb.met
User: JJY
Sample ID: PCB CCV PP 5744
Acquired: 09/19/2018 16:49:05
Printed: 09/20/2018 11:48:28

Data Summary: {Data Description}



back detector Results

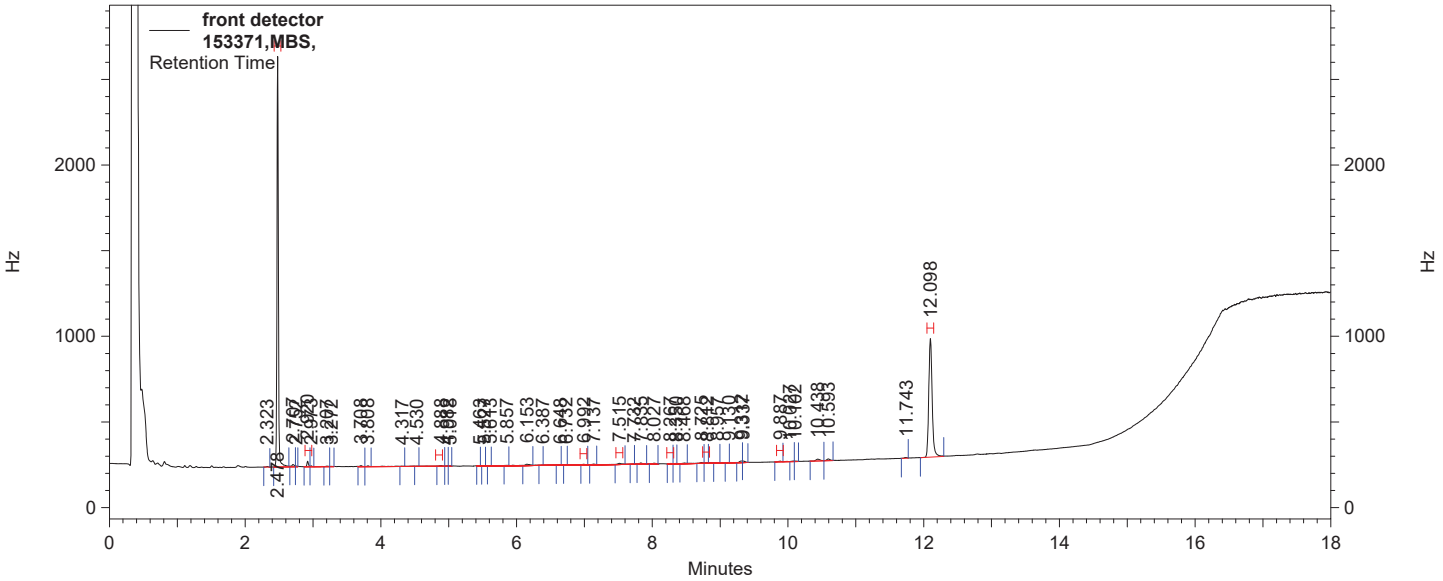
Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPCB	2.933	50705914	109.561
Aroclor 1016 #1	4.278	35769058	0.110
Aroclor 1016 #2	4.653	16202582	0.117
Aroclor 1016 #3	5.252	33332518	0.113
Aroclor 1016 #4	5.697	17180489	0.110
Aroclor 1016 #5	6.310	26161413	0.116
Aroclor 1260 #1	8.515	44243904	0.109
Aroclor 1260 #2	8.962	49427667	0.109
Aroclor 1260 #3	9.842	31727715	0.111
Aroclor 1260 #4	10.413	33047982	0.111
Aroclor 1260 #5	11.675	49282416	0.108
SURRDCBPCB	14.047	34335172	116.560
Aroclor 1016		128646060	0.565
Aroclor 1260		207729684	0.548

POLYCHLORINATED BIPHENYL QUALITY CONTROL DOCUMENTS

PCB Analysis Report (1016/1260) *(Channel A)*

Data File: C:\Instarch\Semi7\Data\091818pcb\011.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091818pcb.met
User: JJY
Sample ID: 153371,MBS,
Acquired: 09/18/2018 14:59:09
Printed: 09/18/2018 15:55:31

Data Summary: {Data Description}



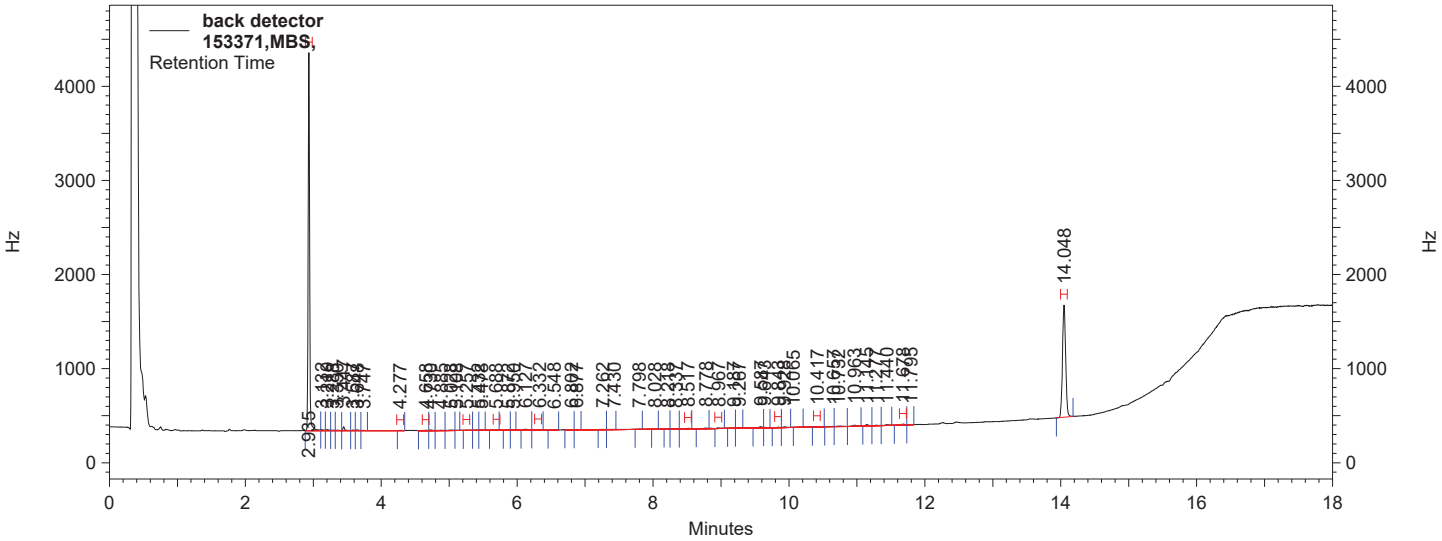
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPCB	2.478	25994541	91.785
Aroclor 1016 #1	2.920	391839	0.002
Aroclor 1016 #2			0.000 BDL
Aroclor 1016 #3			0.000 BDL
Aroclor 1016 #4			0.000 BDL
Aroclor 1016 #5	4.888	145624	0.000
Aroclor 1260 #1	6.992	110508	0.000
Aroclor 1260 #2	7.515	257506	0.000
Aroclor 1260 #3	8.267	81631	0.000
Aroclor 1260 #4	8.812	90488	0.000
Aroclor 1260 #5	9.887	111241	0.001
SURRDCBPCB	12.098	18316261	98.497
Aroclor 1016		537463	0.002
Aroclor 1260		651374	0.001

PCB Analysis Report (1016/1260) *(Channel B)*

Data File: C:\Instarch\Semi7\Data\091818pcb\011.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091818pcb.met
User: JJY
Sample ID: 153371,MBS,
Acquired: 09/18/2018 14:59:09
Printed: 09/18/2018 15:55:31

Data Summary: {Data Description}



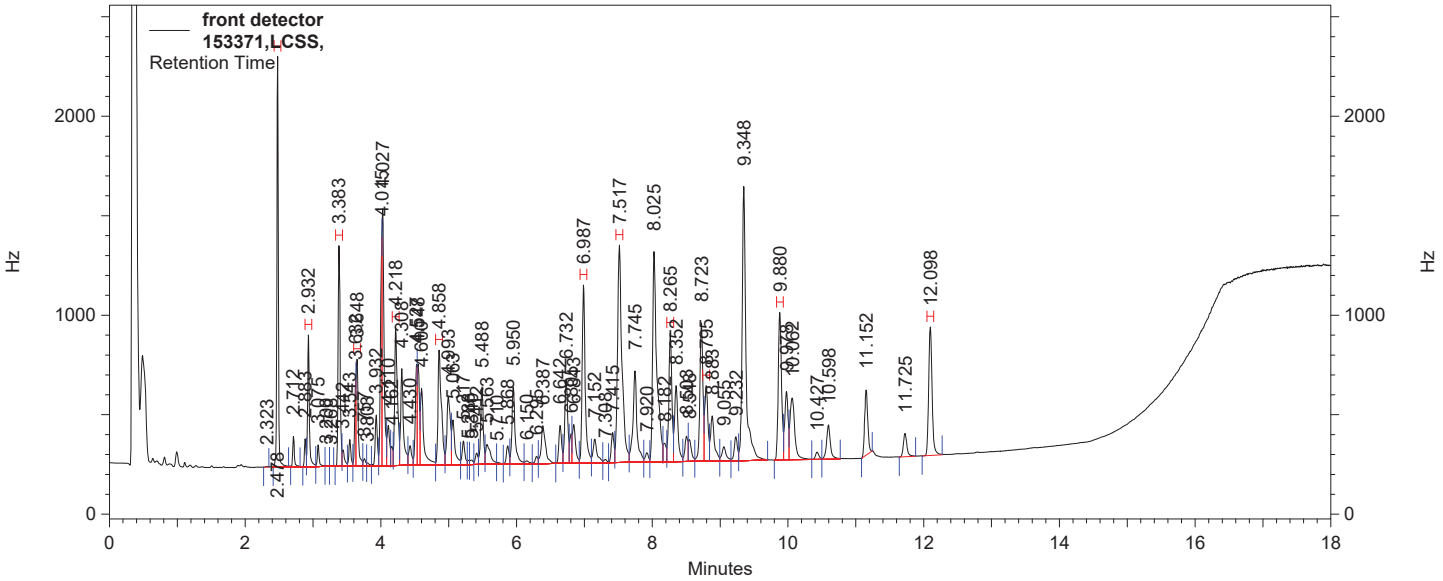
back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPCB	2.935	45868831	99.168
Aroclor 1016 #1	4.277	169777	0.000
Aroclor 1016 #2	4.658	230805	0.000
Aroclor 1016 #3	5.257	200860	0.000
Aroclor 1016 #4	5.688	245261	0.001
Aroclor 1016 #5	6.332	302323	0.001
Aroclor 1260 #1	8.517	288389	0.001
Aroclor 1260 #2	8.967	226046	0.001
Aroclor 1260 #3	9.843	160705	0.000
Aroclor 1260 #4	10.417	297054	0.001
Aroclor 1260 #5	11.678	315674	0.001
SURRDCBPCB	14.048	29838462	101.162
Aroclor 1016		1149026	0.002
Aroclor 1260		1287868	0.004

PCB Analysis Report (1016/1260) *(Channel A)*

Data File: C:\Instarch\Semi7\Data\091818pcb\012.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091818pcb.met
User: JJY
Sample ID: 153371,LCSS,
Acquired: 09/18/2018 15:20:21
Printed: 09/18/2018 15:55:38

Data Summary: {Data Description}



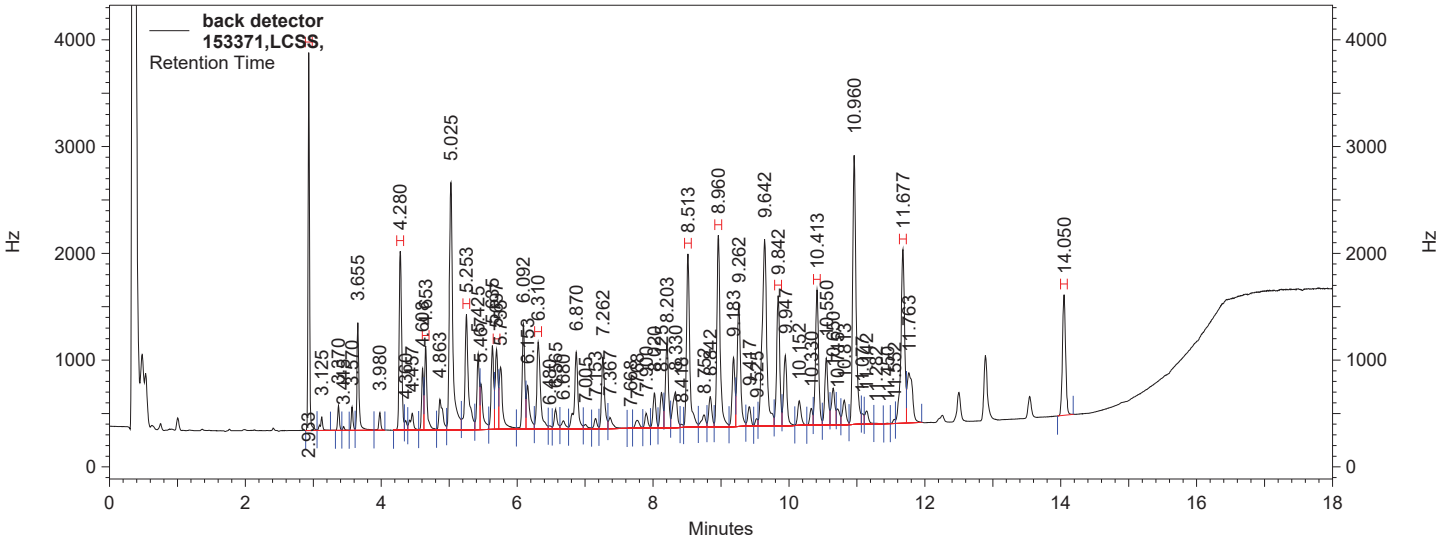
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPCB	2.478	23288790	82.225
Aroclor 1016 #1	2.932	9168819	0.097
Aroclor 1016 #2	3.383	17407820	0.096
Aroclor 1016 #3	3.648	8798441	0.106
Aroclor 1016 #4	4.218	15336570	0.095
Aroclor 1016 #5	4.858	15414258	0.097
Aroclor 1260 #1	6.987	21558020	0.098
Aroclor 1260 #2	7.517	38120393	0.098
Aroclor 1260 #3	8.265	15401510	0.099
Aroclor 1260 #4	8.795	9250024	0.100
Aroclor 1260 #5	9.880	18827527	0.098
SURRDCBPCB	12.098	17245218	92.637
Aroclor 1016		66125908	0.491
Aroclor 1260		103157474	0.494

PCB Analysis Report (1016/1260) *(Channel B)*

Data File: C:\Instarch\Semi7\Data\091818pcb\012.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091818pcb.met
User: JJY
Sample ID: 153371,LCSS,
Acquired: 09/18/2018 15:20:21
Printed: 09/18/2018 15:55:38

Data Summary: {Data Description}



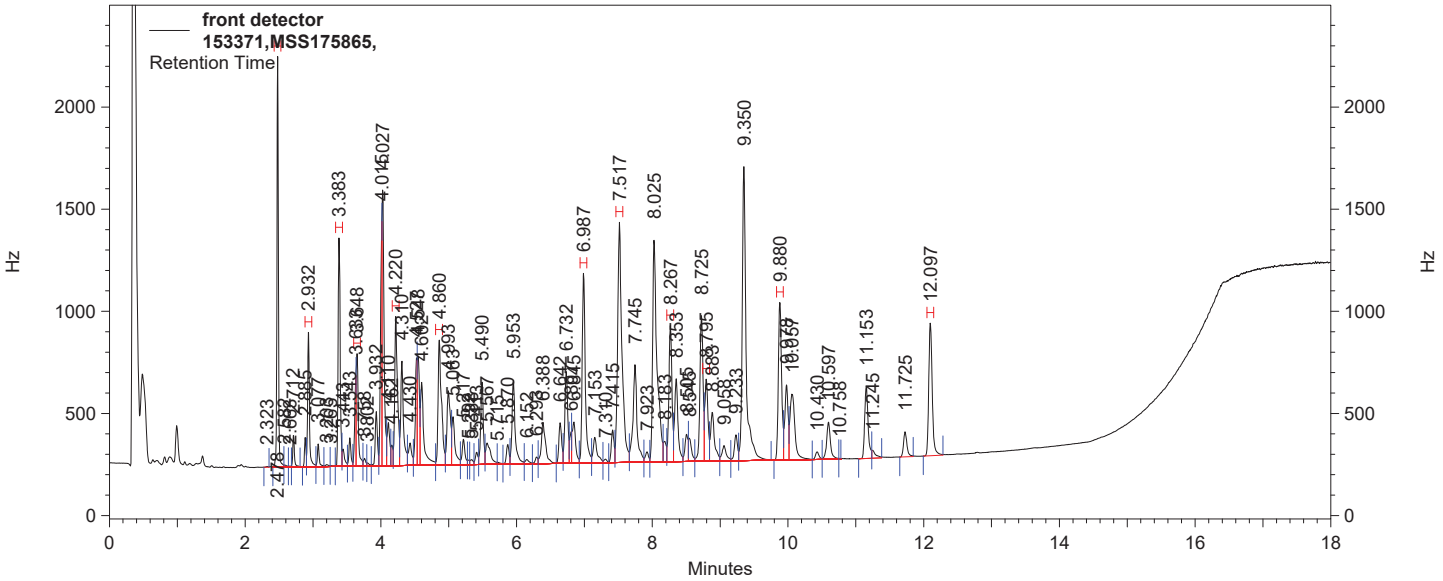
back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPCB	2.933	39734692	85.988
Aroclor 1016 #1	4.280	33011331	0.101
Aroclor 1016 #2	4.653	15088970	0.109
Aroclor 1016 #3	5.253	30649071	0.104
Aroclor 1016 #4	5.697	16193818	0.103
Aroclor 1016 #5	6.310	23864891	0.105
Aroclor 1260 #1	8.513	41659022	0.102
Aroclor 1260 #2	8.960	46236348	0.102
Aroclor 1260 #3	9.842	29865434	0.104
Aroclor 1260 #4	10.413	31028884	0.104
Aroclor 1260 #5	11.677	46780212	0.103
SURRDCBPCB	14.050	28172198	95.457
Aroclor 1016		118808081	0.522
Aroclor 1260		195569900	0.516

PCB Analysis Report (1016/1260) *(Channel A)*

Data File: C:\Instarch\Semi7\Data\091818pcb\015.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091818pcb.met
User: JJY
Sample ID: 153371,MSS175865,
Acquired: 09/18/2018 16:23:55
Printed: 09/19/2018 07:54:38

Data Summary: {Data Description}



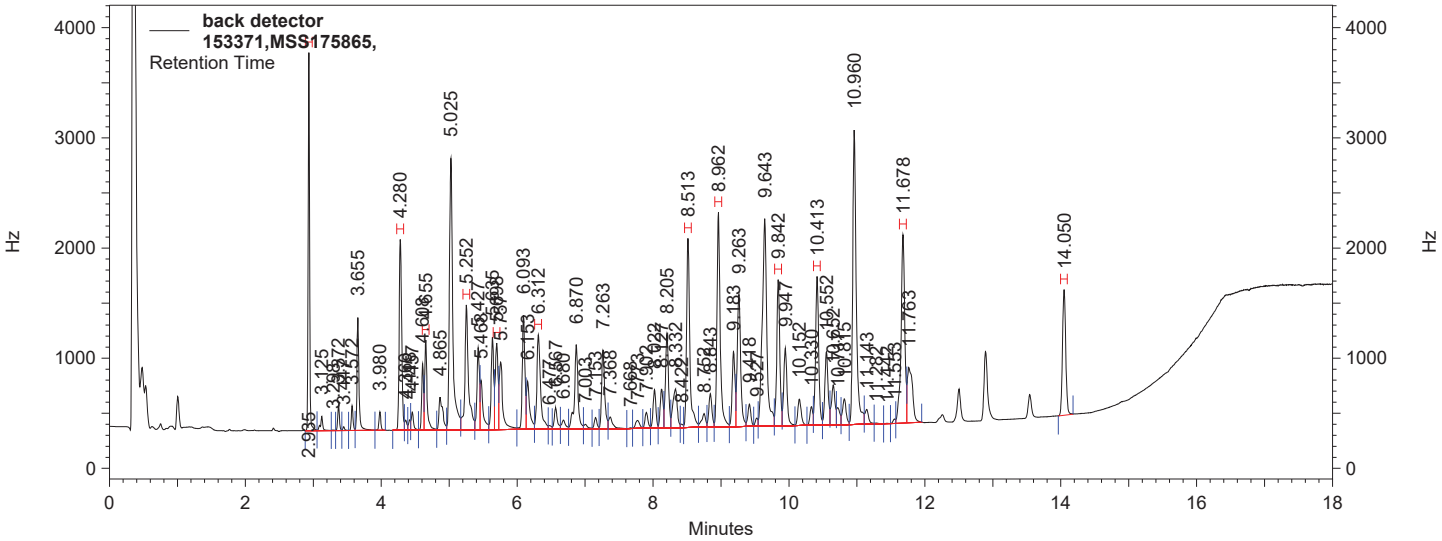
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPCB	2.478	22292035	78.704
Aroclor 1016 #1	2.932	9235908	0.098
Aroclor 1016 #2	3.383	17779395	0.098
Aroclor 1016 #3	3.648	8836490	0.106
Aroclor 1016 #4	4.220	16042944	0.099
Aroclor 1016 #5	4.860	16253163	0.103
Aroclor 1260 #1	6.987	22820147	0.104
Aroclor 1260 #2	7.517	40330215	0.103
Aroclor 1260 #3	8.267	16335580	0.105
Aroclor 1260 #4	8.795	9726194	0.106
Aroclor 1260 #5	9.880	19650821	0.103
SURRDCBPCB	12.097	17558705	94.352
Aroclor 1016		68147900	0.504
Aroclor 1260		108862957	0.521

PCB Analysis Report (1016/1260) *(Channel B)*

Data File: C:\Instarch\Semi7\Data\091818pcb\015.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091818pcb.met
User: JJY
Sample ID: 153371,MSS175865,
Acquired: 09/18/2018 16:23:55
Printed: 09/19/2018 07:54:38

Data Summary: {Data Description}



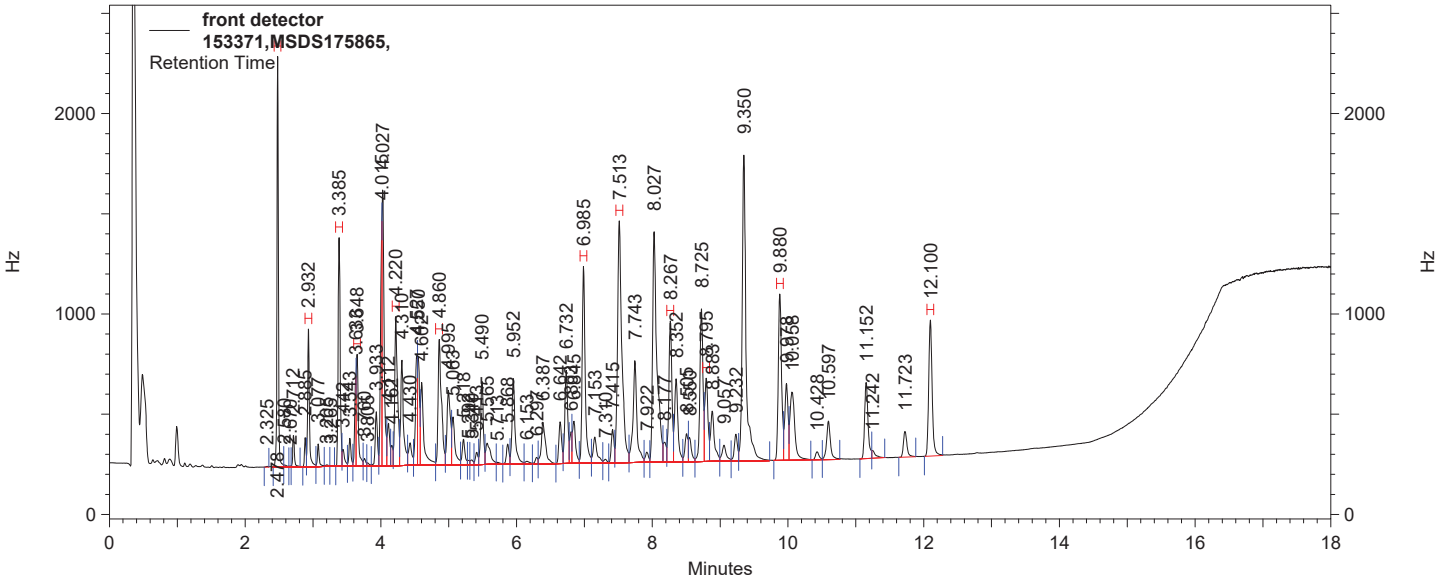
back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPCB	2.935	38505193	83.347
Aroclor 1016 #1	4.280	34016986	0.104
Aroclor 1016 #2	4.655	15370838	0.111
Aroclor 1016 #3	5.252	33010245	0.112
Aroclor 1016 #4	5.698	17059418	0.109
Aroclor 1016 #5	6.312	25152708	0.111
Aroclor 1260 #1	8.513	44372944	0.109
Aroclor 1260 #2	8.962	49442292	0.109
Aroclor 1260 #3	9.842	31801612	0.111
Aroclor 1260 #4	10.413	33067370	0.111
Aroclor 1260 #5	11.678	49708706	0.109
SURRDCBPCB	14.050	29175229	98.891
Aroclor 1016		124610195	0.547
Aroclor 1260		208392924	0.550

PCB Analysis Report (1016/1260) *(Channel A)*

Data File: C:\Instarch\Semi7\Data\091818pcb\016.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091818pcb.met
User: JJY
Sample ID: 153371,MSDS175865,
Acquired: 09/18/2018 16:45:04
Printed: 09/19/2018 07:54:41

Data Summary: {Data Description}



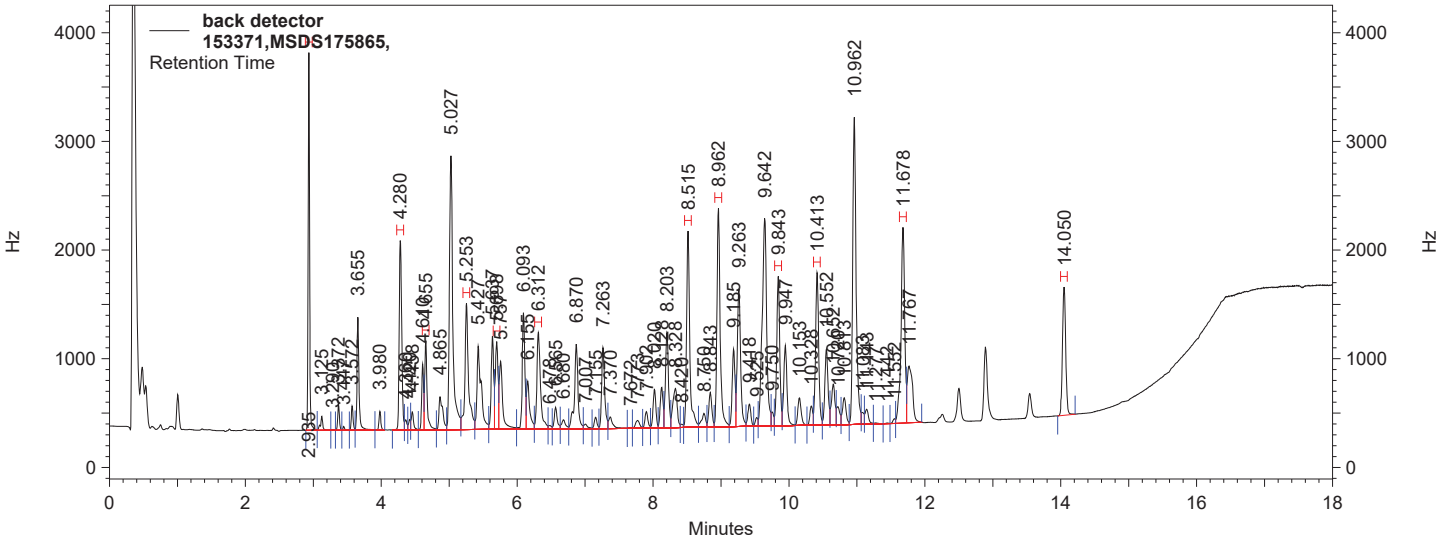
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPCB	2.478	22742024	80.294
Aroclor 1016 #1	2.932	9434199	0.100
Aroclor 1016 #2	3.385	18036190	0.099
Aroclor 1016 #3	3.648	9083597	0.109
Aroclor 1016 #4	4.220	16362815	0.101
Aroclor 1016 #5	4.860	16580724	0.105
Aroclor 1260 #1	6.985	23310882	0.106
Aroclor 1260 #2	7.513	41334632	0.106
Aroclor 1260 #3	8.267	16865335	0.109
Aroclor 1260 #4	8.795	10036624	0.109
Aroclor 1260 #5	9.880	20971594	0.110
SURRDCBPCB	12.100	18107381	97.354
Aroclor 1016		69497525	0.515
Aroclor 1260		112519067	0.540

PCB Analysis Report (1016/1260) *(Channel B)*

Data File: C:\Instarch\Semi7\Data\091818pcb\016.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091818pcb.met
User: JJY
Sample ID: 153371,MSDS175865,
Acquired: 09/18/2018 16:45:04
Printed: 09/19/2018 07:54:41

Data Summary: {Data Description}



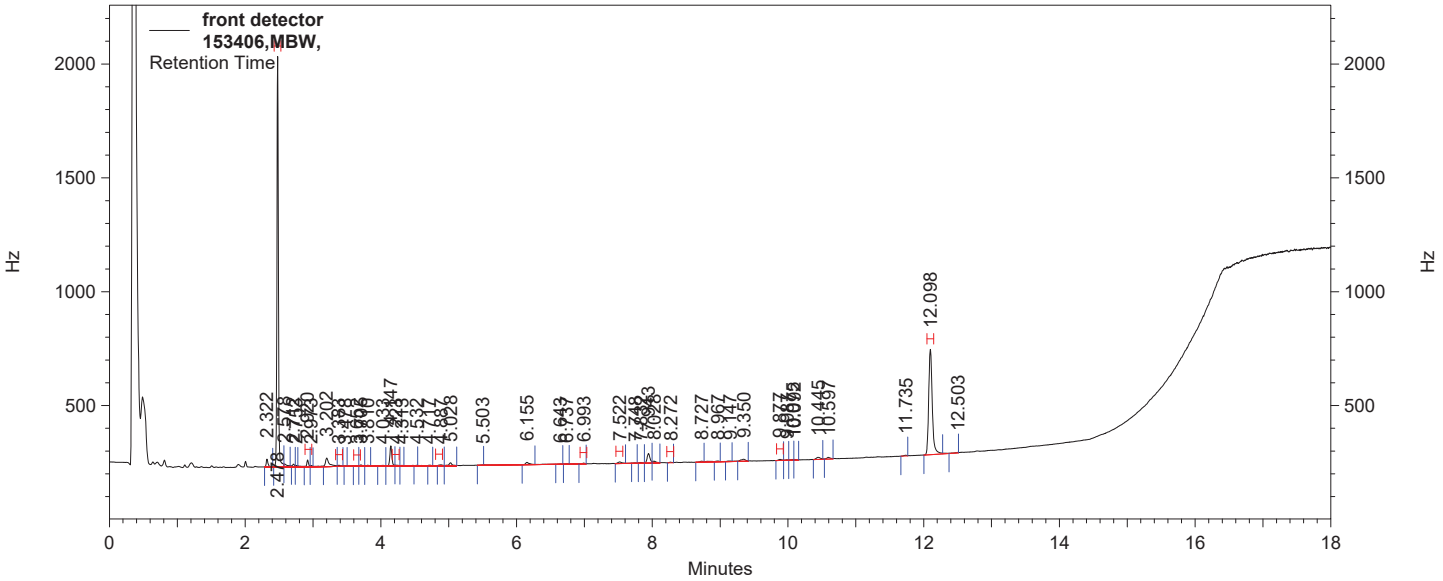
back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPCB	2.935	39175417	84.787
Aroclor 1016 #1	4.280	34402251	0.106
Aroclor 1016 #2	4.655	15548690	0.112
Aroclor 1016 #3	5.253	33556093	0.114
Aroclor 1016 #4	5.698	17405658	0.111
Aroclor 1016 #5	6.312	25380646	0.112
Aroclor 1260 #1	8.515	45423833	0.112
Aroclor 1260 #2	8.962	50868469	0.112
Aroclor 1260 #3	9.843	32869283	0.115
Aroclor 1260 #4	10.413	34296532	0.115
Aroclor 1260 #5	11.678	52480556	0.115
SURRDCBPCB	14.050	30067226	101.946
Aroclor 1016		126293338	0.554
Aroclor 1260		215938673	0.570

PCB Analysis Report (1016/1260) *(Channel A)*

Data File: C:\Instarch\Semi7\Data\091918pcb\005.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091918pcb.met
User: JJY
Sample ID: 153406,MBW,
Acquired: 09/19/2018 13:59:36
Printed: 09/19/2018 15:44:12

Data Summary: {Data Description}



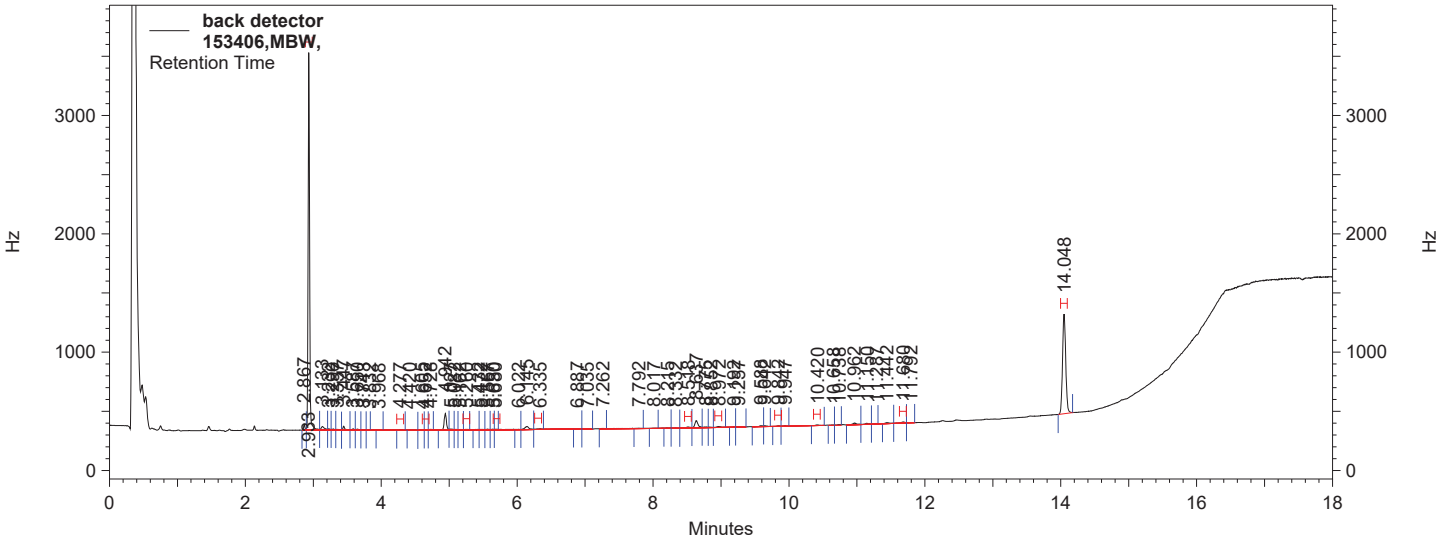
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPCB	2.478	19953202	70.441
Aroclor 1016 #1	2.920	402492	0.002
Aroclor 1016 #2	3.383	129949	0.000
Aroclor 1016 #3	3.652	84247	0.000
Aroclor 1016 #4	4.223	107746	0.000
Aroclor 1016 #5	4.887	125012	0.000
Aroclor 1260 #1	6.993	99162	0.000
Aroclor 1260 #2	7.522	236276	0.000
Aroclor 1260 #3	8.272	68557	0.000
Aroclor 1260 #4			0.000 BDL
Aroclor 1260 #5	9.877	131145	0.001
SURRDCBPCB	12.098	12788823	68.256
Aroclor 1016		849446	0.002
Aroclor 1260		535140	0.001

PCB Analysis Report (1016/1260) *(Channel B)*

Data File: C:\Instarch\Semi7\Data\091918pcb\005.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091918pcb.met
User: JJY
Sample ID: 153406,MBW,
Acquired: 09/19/2018 13:59:36
Printed: 09/19/2018 15:44:12

Data Summary: {Data Description}



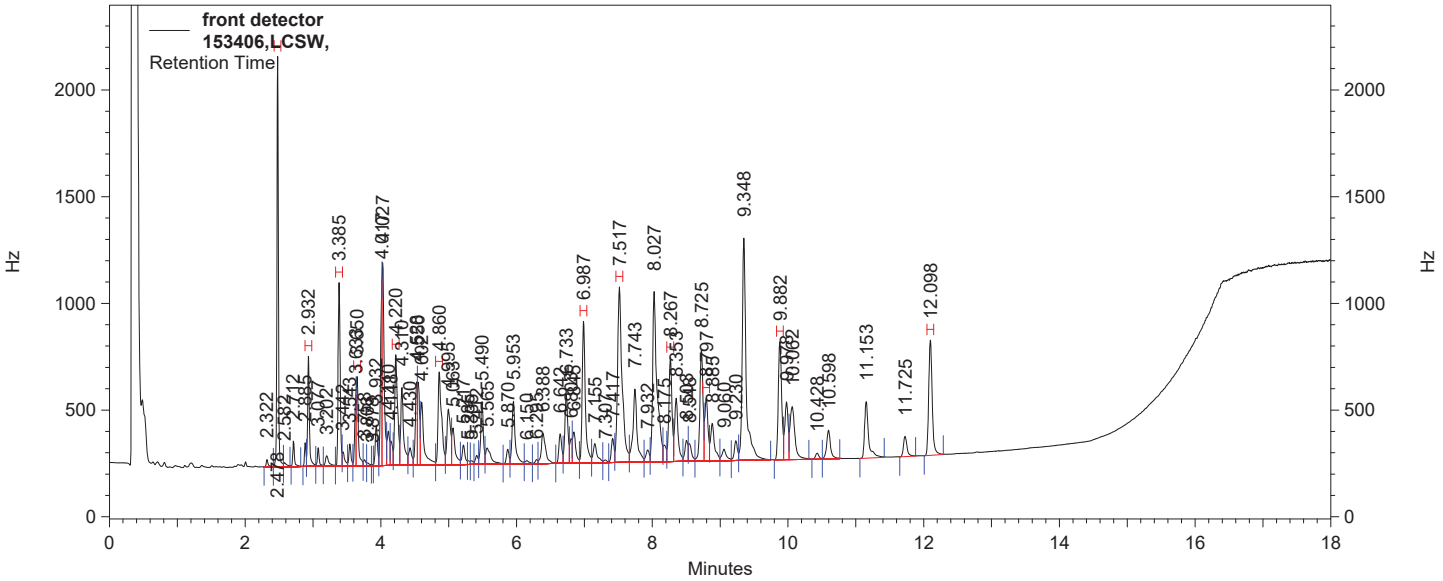
back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPCB	2.933	36576383	79.202
Aroclor 1016 #1	4.277	243837	0.000
Aroclor 1016 #2	4.652	135769	0.000
Aroclor 1016 #3	5.260	178470	0.000
Aroclor 1016 #4	5.680	115677	0.000
Aroclor 1016 #5	6.335	279581	0.001
Aroclor 1260 #1	8.518	344714	0.001
Aroclor 1260 #2	8.972	327094	0.001
Aroclor 1260 #3	9.842	129749	0.000
Aroclor 1260 #4	10.420	218318	0.001
Aroclor 1260 #5	11.680	375911	0.001
SURRDCBPCB	14.048	21125992	71.329
Aroclor 1016		953334	0.001
Aroclor 1260		1395786	0.004

PCB Analysis Report (1016/1260) *(Channel A)*

Data File: C:\Instarch\Semi7\Data\091918pcb\006.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091918pcb.met
User: JJY
Sample ID: 153406,LCSW,
Acquired: 09/19/2018 14:20:45
Printed: 09/19/2018 15:44:15

Data Summary: {Data Description}



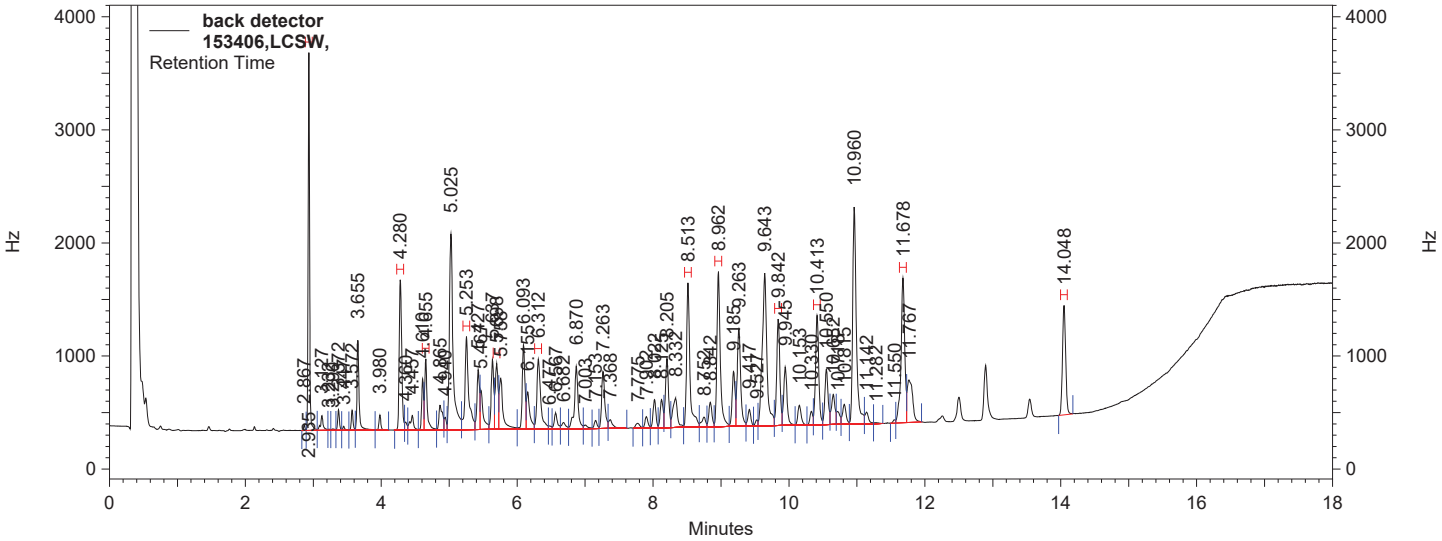
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPCB	2.478	21428072	75.651
Aroclor 1016 #1	2.932	7242114	0.076
Aroclor 1016 #2	3.385	13731420	0.075
Aroclor 1016 #3	3.650	6845394	0.082
Aroclor 1016 #4	4.220	11888389	0.074
Aroclor 1016 #5	4.860	11978393	0.076
Aroclor 1260 #1	6.987	16652016	0.076
Aroclor 1260 #2	7.517	29407890	0.075
Aroclor 1260 #3	8.267	12010234	0.077
Aroclor 1260 #4	8.797	7405352	0.080
Aroclor 1260 #5	9.882	14504606	0.076
SURRDCBPCB	12.098	14711422	78.775
Aroclor 1016		51685710	0.382
Aroclor 1260		79980098	0.384

PCB Analysis Report (1016/1260) *(Channel B)*

Data File: C:\Instarch\Semi7\Data\091918pcb\006.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091918pcb.met
User: JJY
Sample ID: 153406,LCSW,
Acquired: 09/19/2018 14:20:45
Printed: 09/19/2018 15:44:15

Data Summary: {Data Description}



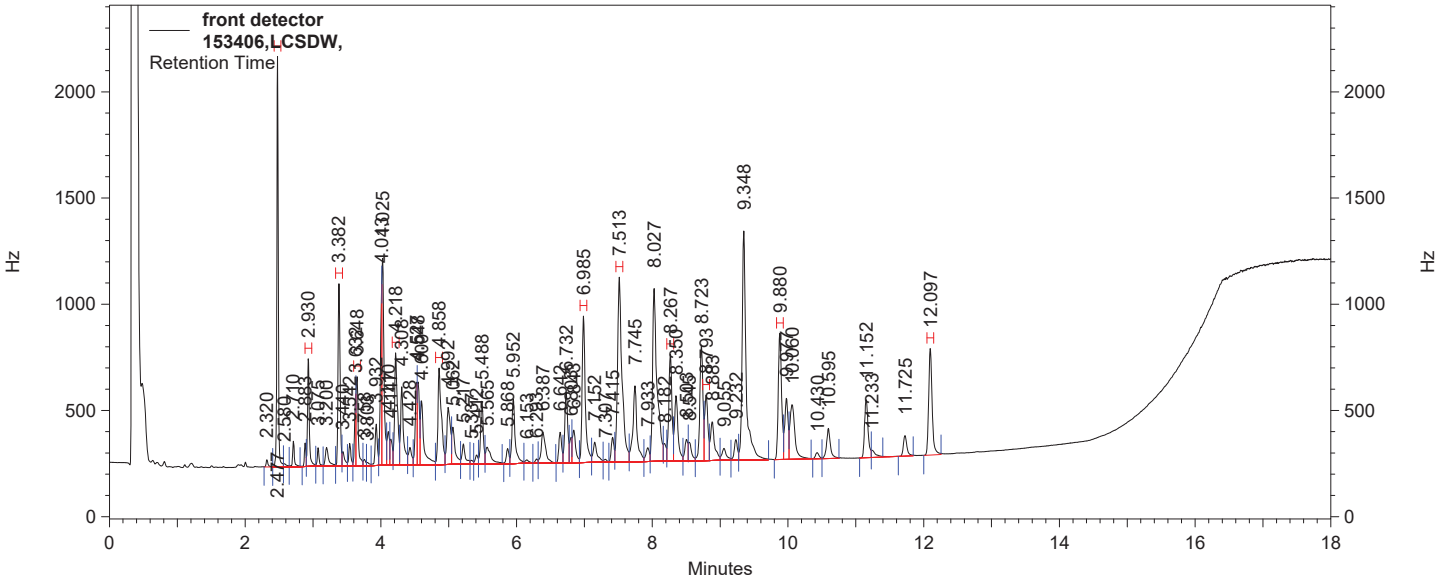
back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPCB	2.935	38209127	82.711
Aroclor 1016 #1	4.280	26469050	0.081
Aroclor 1016 #2	4.655	12028212	0.086
Aroclor 1016 #3	5.253	24592832	0.083
Aroclor 1016 #4	5.698	12547327	0.080
Aroclor 1016 #5	6.312	18746221	0.083
Aroclor 1260 #1	8.513	33659891	0.083
Aroclor 1260 #2	8.962	36293539	0.080
Aroclor 1260 #3	9.842	23463073	0.082
Aroclor 1260 #4	10.413	24425508	0.082
Aroclor 1260 #5	11.678	37051661	0.082
SURRDCBPCB	14.048	24545421	83.038
Aroclor 1016		94383642	0.413
Aroclor 1260		154893672	0.409

PCB Analysis Report (1016/1260) *(Channel A)*

Data File: C:\Instarch\Semi7\Data\091918pcb\009.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091918pcb.met
User: JJY
Sample ID: 153406,LCSDW,
Acquired: 09/19/2018 15:24:20
Printed: 09/19/2018 15:44:24

Data Summary: {Data Description}



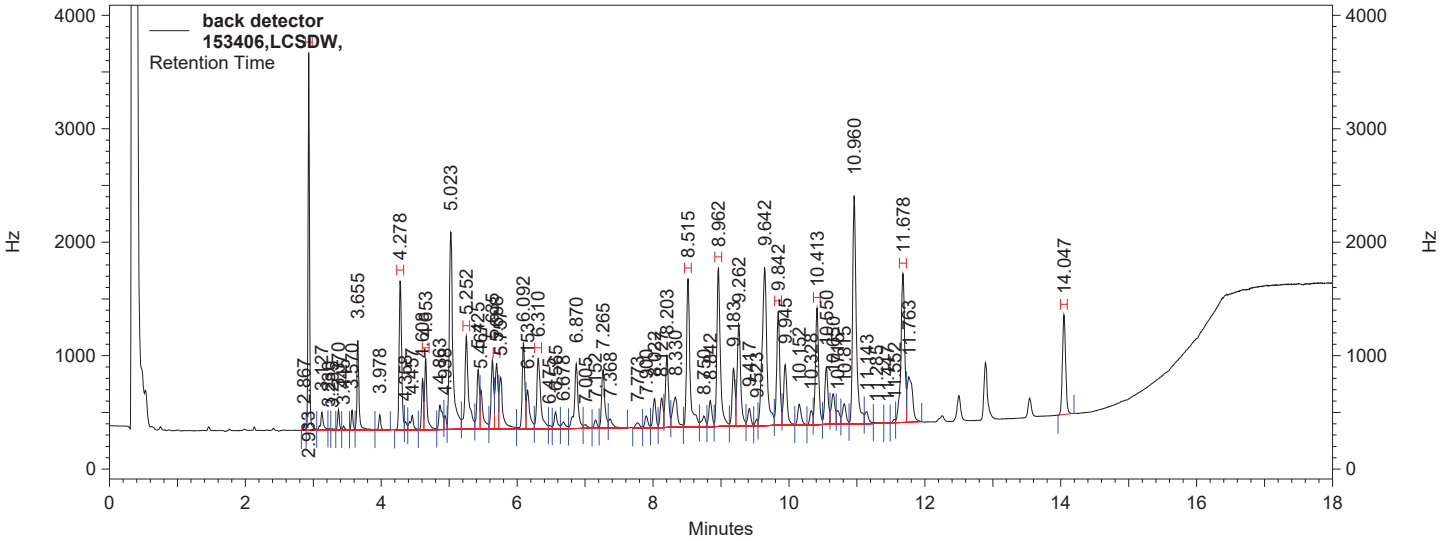
front detector Results

Component	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPCB	2.477	21392753	75.527
Aroclor 1016 #1	2.930	7234942	0.076
Aroclor 1016 #2	3.382	13665131	0.075
Aroclor 1016 #3	3.648	6919302	0.082
Aroclor 1016 #4	4.218	11999715	0.074
Aroclor 1016 #5	4.858	12173715	0.077
Aroclor 1260 #1	6.985	17407133	0.079
Aroclor 1260 #2	7.513	30730294	0.079
Aroclor 1260 #3	8.267	12483541	0.080
Aroclor 1260 #4	8.793	7586577	0.082
Aroclor 1260 #5	9.880	15155537	0.079
SURRDCBPCB	12.097	13408520	71.646
Aroclor 1016		51992805	0.384
Aroclor 1260		83363082	0.399

PCB Analysis Report (1016/1260) *(Channel B)*

Data File: C:\Instarch\Semi7\Data\091918pcb\009.dat
Method: C:\Instarch\Semi7\Methods\Aroclor\091418pcbic\091918pcb.met
User: JJY
Sample ID: 153406,LCSDW,
Acquired: 09/19/2018 15:24:20
Printed: 09/19/2018 15:44:24

Data Summary: {Data Description}



back detector Results

Name	*Retention Time*	*Area Counts*	*Concentration (ug/ml)*
SURRTCMXPCB	2.933	37767367	81.761
Aroclor 1016 #1	4.278	25997862	0.079
Aroclor 1016 #2	4.653	12004116	0.086
Aroclor 1016 #3	5.252	24434603	0.083
Aroclor 1016 #4	5.698	12801371	0.082
Aroclor 1016 #5	6.310	19178822	0.085
Aroclor 1260 #1	8.515	35615542	0.088
Aroclor 1260 #2	8.962	38200177	0.084
Aroclor 1260 #3	9.842	24546672	0.086
Aroclor 1260 #4	10.413	25639777	0.086
Aroclor 1260 #5	11.678	38986277	0.086
SURRDCBPCB	14.047	22289083	75.312
Aroclor 1016		94416774	0.414
Aroclor 1260		162988445	0.430

POLYCHLORINATED BIPHENYLS
LOGBOOK
DOCUMENTS

S PCB Analytical Run
153371 on 09/18/2018

Date Analyzed: _____ JJY Date Reviewed: _____

Date Entered: _____ 09/26/18 Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME	QC TYPE (Parent Sample)		CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
139370	175865		09/11/2018 0800			MAXXAM ANALYTICS	SI AFFF	PCB QSM 5		S	4	
		PETER-WS-001							68676			
	177836							PCB QSM 5				
				MBS					68676			
	177837							PCB QSM 5				
				LCSS					68676			
	177839		09/11/2018 0800					PCB QSM 5				
		PETER-WS-001		MSS	175865				68676			
	177840		09/11/2018 0800					PCB QSM 5				
		PETER-WS-001		MSDS	177839				68676			

5 SAMPLE COUNT ON RUN, INCLUDING METHOD AND INSTRUMENT QC

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

Distribution: C:\LIMSREPS\ANALYTICALRUN.RPT

PREP WORKSHEET
on 09/18/2018

Prep Batch **68,676** Date Prepped: 09/18/2018 Prepped By TMG

Folder #	Order	QC Type	Link	Test	Matrix	Volume	Weight	Initial Volume	SDG Level	Notes
	177836	MBS		PCB QSM 5	SOLID	10	10.00			
	177837	LCSS		PCB QSM 5	SOLID	10	10.00			
139370	175865			PCB QSM 5	SOIL	10	10.02		4	
	177839	MSS	175865	PCB QSM 5	SOIL	10	10.07			
	177840	MSDS	177839	PCB QSM 5	SOIL	10	10.18			

Notes:

Pesticides/PCB Extraction Bench Sheet

(SOP Reference # SV002 & SV004)

3510=WATER
3545=PFE or 3546=Microwave >>
(PFE=Pressurized Fluid Extraction)

Prep Batch #:	68676
Prep Method:	3546/8082
Analyst:	TMG/JLH
Date:	09/18/2018
Start Time:	09:00
End Date:	09/18/2018
End Time:	14:20

Analysis Methods
8081 = Pesticides
8082 = PCBs

Matrix: SOIL
Balance Used: SVB02
Ave MW Temp (°C): 110.0

Reagent Lots>>>

NA_2SO_4	MISC0516
Diatomaceous Earth	S3739
Dionex Solution	MISC0525C
Methylene Chloride	DS639
Acetone	DR774
Hexane	DS056
H_2SO_4	NA

Concentration By: TMG
Concentration Date: 09/18/2018

Microwave Cell #	Sample ID	Comments	(Solids) Sample Weight (g)	(Liquids) Sample Volume (L)	Final Volume (ml)	pH Adj. 5-9 (Yes/No)
F	177836	MB	10.00		10	
G	177837	LCS	10.00		10	
H	175865		10.02		10	
					10	
					10	
					10	
					10	
					10	
					10	
					10	
					10	
					10	
					10	
					10	
					10	
					10	
					10	
					10	
					10	
					10	
					10	
					10	
					10	
I	177839	(MS) Parent Sample	10.07		10	
J	177840	(MSD) 175865	10.18		10	

MB=Method Blank, LCS=Laboratory Control Sample, MS=Matrix Spike, MSD=Matrix Spike Duplicate, Tox=Toxaphene & Chlor=Technical chlordane

MS/MSD/ LCS Spike Amount (ml): 0.5
Spike Concentration (ug/mL): 10
Spike Reference #: PP5760

Surrogate Spike Amount (ml): 0.5
Surrogate Spike Conc. (ug/mL): 0.5
Surrogate Spike Reference #: PP5762

Tox/Chlor Spike Amount (ml): NA
Tox/Chlor Spike Conc. (ug/mL): NA
Tox/Chlor Spike Reference: NA

Relinquished to: AJZ
Date: 09/18/2018

Reviewed By: JJY
Date: 09/18/2018

Semi-Volatiles Sample Cleanup Record Sheet

FSV14-02, FSV25-01, FSV26-01, FSV28-01

Prep Batch Number(s): 68676 _____ _____

GPC

Cleanup Performed (Y/N):	N
Date:	
Time:	
Analyst Initials:	
$MeCl_2$ Lot:	

Florisil

Cleanup Performed (Y/N):	NA
Date:	
Time:	
Analyst Initials:	
Cartridge I.D. Number:	
Hexane Lot:	
Acetone Lot:	

Acid

Cleanup Performed (Y/N):	Y
Date:	09/18/2018
Time:	14:30
Analyst Initials:	JJY
H_2SO_4 Lot:	58032
Number of treatments:	1

Sulfur

Cleanup Performed (Y/N):	Y
Date:	09/18/2018
Time:	14:50
Analyst Initials:	JJY
Copper Lot:	617060-BC

Comments:

FSV4-01

8082 PCB Analysis Data Review Checklist

Analytical Run #: 153371	**Independent Reviewer: AJZ**
Sequence Date: 09/18/2018	**Date of Review: 09/26/2018**
Analyst/Data Interpreter: JJY	**Approval: Yes**

Instructions: Complete one checklist per *analytical run* . Enter the appropriate response for each question. Each "No" response requires an explanation in the Comments section, and may require the initiation of a Nonconformance Report.

Requirements:	Acceptance Criteria	Analyst Review		Independent Review		Comments (indicate reference to an attachment if necessary)
		Yes	No	Yes	No	
1. INITIAL CALIBRATION (ICAL)						
a. Was the PCB initial calibration performed using a minimum of five varying standard concentration levels on two dissimilar columns?	Lowest standard at or near MRL	x		X		
b. Is the variation between calibration response factors for all concentration levels <20% RSD, is r^2 >.990, or r > 0.990 for the regression line?	RSD<20%, r^2>0.990, or r>0.990	x		X		
c. Was each ICAL uniquely identified (i.e. Standard Number)?		x		X		
d. Were there Calibration Factors (CF) established for the remaining Aroclors?		x		X		
e. Was an initial calibration blank (ICB) analyzed?		x		X		
2. INITIAL CALIBRATION VERIFICATION (ICV)						
a. Were there second source ICVs for all Aroclors analyzed after the initial calibration and prior to analysis of any samples?		x		X		
b. Were the recoveries for the ICVs within program limits?	Second source	x		X		
c. Was the ICVs uniquely identified (i.e. Standard Number)?	%Recovery	x		X		
3. CONTINUING CALIBRATION VERIFICATION (CCV)						
a. Were CCVs analyzed at the beginning of the sequence, after every 12 hours or every 20 samples (which ever comes first) and at the end of the analytical run? QSM = every ten sample injections.		x		X		
b. Were the recoveries for the CCVs within program limits?	%Recovery	x		X		
c. Were confirmed Aroclor detects processed using the appropriate Aroclor method?		x		X		
d. Was each CCV uniquely identified (i.e. Standard Number)?		x		X		

Additional Comments:

Analytical Run #: 153371

FORM #: FSV4-01
Rev. #: 2.0
Effective Date: 02/25/15

FSV4-01

8082 PCB Analysis Data Review Checklist

Requirements:	Acceptance Criteria	Analyst		Independent		Comments (indicate reference to an attachment if necessary)
		Yes	No	Yes	No	
4. BLANKS						
a. Was the method blank (MB) analyzed prior to the analysis of samples?		x		X		
b. Was the MB result less than ½ the reporting limit (RL) or 5% of the sample amount?	In-house limits or client specified limits	x		X		
c. Was a MB prepped and analyzed at a frequency of one per Prep Batch?	Batch <20 samples	x		X		
5. LABORATORY CONTROL SAMPLE (LCS)						
a. Was a LCS analyzed at a frequencey of one per Prep Batch?	In-house limits or client specified limits	x		X		
b. Were the LCS recoveries in each LCS within the acceptance criteria?	Batch <20 samples	x		X		
6. MATRIX SPIKES						
a. Was a matrix spiked (MS) sample analyzed at a frequency one per Prep Batch? If no due to insufficient sample received, qualify all samples in batch with a "W".	Batch <20 samples	x		X		
b. Were MS recoveries in each MS within the acceptance criteria?	In-house limits or client specified limits	x		X		
7. LABORATORY CONTROL SPIKE / MATRIX SPIKE DUPLICATE						
a. Was a duplicate matrix spike or laboratory control spike sample analyzed at a . frequency one per Prep Batch?	Batch <20 samples	x		X		
b. Were MSD recoveries within the acceptance criteria?	In-house limits or client specified limits	x		X		
c. Is the relative percent difference (RPD) between a matrix spike (MS) and its duplicate (MSD) within the acceptance criteria?	In-house limits or client specified limits	x		X		

Additional Comments:

Analytical Run #: 153371

FORM #: FSV4-01
Rev. #: 2.0
Effective Date: 02/25/15

FSV4-01

8082 PCB Analysis Data Review Checklist

Requirements:	Acceptance Criteria	Analyst		Independent		Comments (indicate reference to an attachment if necessary)
		Yes	No	Yes	No	
8. SAMPLES (INCLUDING BLANKS, STANDARDS, AND QC SAMPLES)						
a. Are chromatogram characteristics, including peak shapes and areas, consistent with those of the CCV?		x		X		
b. Are surrogate recoveries for all samples, blanks, standards, and QC samples within acceptance criteria?		x		X		
c. Were all samples having analytes detected in amounts exceeding the calibration range diluted and reanalyzed?		x		X		
d. Were all samples extracted within holding times and analyzed within 40 days of extracting?	Analysis within 40 days of extraction	x		X		
e. Did the samples require additional cleanup steps? (i.e. acid treatment, florisil, GPC, and sulfur treatment)	Florisil, GPC, Acid, Sulfur Treatments	x		X		Acid, sulfur treatments.
f. Was there a hexane injection performed prior to sample analysis?		x		X		
g. Was there a priming standard injected prior to sample analysis?		x		X		
9. RECORDS AND REPORTING						
a. Is the Analytical Run, Prep Batch and Extraction sheets, Summary sheets, Sequence file, analytical data, and method transfer to PDF format?		x		X		
b. Are all manually integrated chromatograms stamped with initials and date?		x		X		
c. Are reported results whose amounts exceeded the acceptance criteria flagged with an appropriate qualifier in LIMS and, if needed, a NCR completed?		x		X		
d. Do all values, dilution factors and qualifiers listed on the raw reports match the LIMS data?		x		X		
e. Is the ICAL method referenced on the Raw Data?		x		X		

Additional Comments:

S PCB Analytical Run
153406 on 09/19/2018

Date Analyzed: _____ JJY 09/26/18 Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME	QC TYPE (Parent Sample)	CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
139370	175867		09/11/2018 0800		MAXXAM ANALYTICS	SI AFFF	PCB QSM 5		GW	4	
		PETER-WW-001						68675			
	177833						PCB QSM 5				
				MBW				68675			
	177834						PCB QSM 5				
				LCSW				68675			
	177835						PCB QSM 5				
				LCSDW 177834				68675			

4 SAMPLE COUNT ON RUN, INCLUDING METHOD AND INSTRUMENT QC

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

Distribution: C:\LIMSREPS\ANALYTICALRUN.RPT

PREP WORKSHEET
on 09/19/2018

Prep Batch **68,675** Date Prepped: 09/18/2018 Prepped By JLH

Folder #	Order	QC Type	Link	Test	Matrix	Volume	Weight	Initial Volume	SDG Level	Notes
	177833	MBW		PCB QSM 5	LIQUID	10		1.00		
	177834	LCSW		PCB QSM 5	LIQUID	10		1.00		
	177835	LCSD	177834	PCB QSM 5	LIQUID	10		1.00		
139370	175867			PCB QSM 5	GROUND WATER	10		0.95	4	

Notes:

Pesticides/PCB Extraction Bench Sheet

(SOP Reference # SV002 & SV004)

3510=WATER
3545=PFE or 3546=Microwave >>
(PFE=Pressurized Fluid Extraction)

Prep Batch #:	68675
Prep Method:	3510/8082
Analyst:	JLH
Date:	09/18/2018
Start Time:	13:00
End Date:	09/19/2018
End Time:	12:30

Analysis Methods
8081 = Pesticides
8082 = PCBs

Matrix: WATER
Balance Used: NA
Ave MW Temp (°C): NA

Reagent Lots>>>

NA_2SO_4	MISC0516
Diatomaceous Earth	NA
Dionex Solution	NA
Methylene Chloride	DS639
Acetone	NA
Hexane	DS056
H_2SO_4	NA

Concentration By: JLH

Concentration Date: 09/19/2018

Microwave Cell #	Sample ID	Comments	(Solids) Sample Weight (g)	(Liquids) Sample Volume (L)	Final Volume (ml)	pH Adj. 5-9 (Yes/No)
	177833	MB		1.00	10	Y
	177834	LCS		1.00	10	Y
	177835	LCSD		1.00	10	Y
	175867			0.95	10	Y
		(MS) Parent Sample				
		(MSD)				

MB=Method Blank, LCS=Laboratory Control Sample, MS=Matrix Spike, MSD=Matrix Spike Duplicate, Tox=Toxaphene & Chlor=Technical chlordane

MS/MSD/ LCS Spike Amount (ml): 0.5
Spike Concentration (ug/mL): 10
Spike Reference #: PP5780

Surrogate Spike Amount (ml): 0.5
Surrogate Spike Conc. (ug/mL): 0.5
Surrogate Spike Reference #: PP5762

Tox/Chlor Spike Amount (ml): NA
Tox/Chlor Spike Conc. (ug/mL): NA

Tox/Chlor Spike Reference: NA

Relinquished to: JJY
Date: 09/19/2018

Reviewed By: JJY
Date: 09/19/2018

Semi-Volatiles Sample Cleanup Record Sheet

FSV14-02, FSV25-01, FSV26-01, FSV28-01

Prep Batch Number(s): 68675 _____ _____

GPC

Cleanup Performed (Y/N):	N
Date:	
Time:	
Analyst Initials:	
$MeCl_2$ Lot:	

Florisil

Cleanup Performed (Y/N):	NA
Date:	
Time:	
Analyst Initials:	
Cartridge I.D. Number:	
Hexane Lot:	
Acetone Lot:	

Acid

Cleanup Performed (Y/N):	Y
Date:	09/19/2018
Time:	12:45
Analyst Initials:	JJY
H_2SO_4 Lot:	58032
Number of treatments:	1

Sulfur

Cleanup Performed (Y/N):	Y
Date:	09/19/2018
Time:	13:05
Analyst Initials:	JJY
Copper Lot:	617060-BC

Comments:

FSV4-01

8082 PCB Analysis Data Review Checklist

Analytical Run #: 153406	**Independent Reviewer: AJZ**
Sequence Date: 09/19/2018	**Date of Review: 09/27/2018**
Analyst/Data Interpreter: JJY	**Approval: Yes**

Instructions: Complete one checklist per *analytical run* . Enter the appropriate response for each question. Each "No" response requires an explanation in the Comments section, and may require the initiation of a Nonconformance Report.

Requirements:	Acceptance Criteria	Analyst Review		Independent Review		Comments (indicate reference to an attachment if necessary)
		Yes	No	Yes	No	
1. INITIAL CALIBRATION (ICAL)						
a. Was the PCB initial calibration performed using a minimum of five varying standard concentration levels on two dissimilar columns?	Lowest standard at or near MRL	x		X		
b. Is the variation between calibration response factors for all concentration levels <20% RSD, is r^2 >.990, or r > 0.990 for the regression line?	RSD<20%, r^2>0.990, or r>0.990	x		X		
c. Was each ICAL uniquely identified (i.e. Standard Number)?		x		X		
d. Were there Calibration Factors (CF) established for the remaining Aroclors?		x		X		
e. Was an initial calibration blank (ICB) analyzed?		x		X		
2. INITIAL CALIBRATION VERIFICATION (ICV)						
a. Were there second source ICVs for all Aroclors analyzed after the initial calibration and prior to analysis of any samples?		x		X		
b. Were the recoveries for the ICVs within program limits?	Second source	x		X		
c. Was the ICVs uniquely identified (i.e. Standard Number)?	%Recovery	x		X		
3. CONTINUING CALIBRATION VERIFICATION (CCV)						
a. Were CCVs analyzed at the beginning of the sequence, after every 12 hours or every 20 samples (which ever comes first) and at the end of the analytical run? QSM = every ten sample injections.		x		X		
b. Were the recoveries for the CCVs within program limits?	%Recovery	x		X		See below.
c. Were confirmed Aroclor detects processed using the appropriate Aroclor method?		x		X		
d. Was each CCV uniquely identified (i.e. Standard Number)?		x		X		

Additional Comments:

Initial CCV 003 (09/19/2018 13:17) had a high response for aroclor 1016 peak #2 on channel B. The total aroclor responses were within the QC limits on both channels.
Sample qualification not needed.

Analytical Run #: 153406

FORM #: FSV4-01
Rev. #: 2.0
Effective Date: 02/25/15

FSV4-01

8082 PCB Analysis Data Review Checklist

Requirements:	Acceptance Criteria	Analyst		Independent		Comments (indicate reference to an attachment if necessary)
		Yes	No	Yes	No	
4. BLANKS						
a. Was the method blank (MB) analyzed prior to the analysis of samples?		x		X		
b. Was the MB result less than ½ the reporting limit (RL) or 5% of the sample amount?	In-house limits or client specified limits	x		X		
c. Was a MB prepped and analyzed at a frequency of one per Prep Batch?	Batch <20 samples	x		X		
5. LABORATORY CONTROL SAMPLE (LCS)						
a. Was a LCS analyzed at a frequencey of one per Prep Batch?	In-house limits or client specified limits	x		X		
b. Were the LCS recoveries in each LCS within the acceptance criteria?	Batch <20 samples	x		X		
6. MATRIX SPIKES						
a. Was a matrix spiked (MS) sample analyzed at a frequency one per Prep Batch? If no due to insufficient sample received, qualify all samples in batch with a "W".	Batch <20 samples		x		X	LCS/LCSD
b. Were MS recoveries in each MS within the acceptance criteria?	In-house limits or client specified limits	na		NA		
7. LABORATORY CONTROL SPIKE / MATRIX SPIKE DUPLICATE						
a. Was a duplicate matrix spike or laboratory control spike sample analyzed at a . frequency one per Prep Batch?	Batch <20 samples	x		X		
b. Were MSD recoveries within the acceptance criteria?	In-house limits or client specified limits	x		X		
c. Is the relative percent difference (RPD) between a matrix spike (MS) and its duplicate (MSD) within the acceptance criteria?	In-house limits or client specified limits	x		X		

Additional Comments:

Analytical Run #: 153406

FORM #: FSV4-01
Rev. #: 2.0
Effective Date: 02/25/15

FSV4-01

8082 PCB Analysis Data Review Checklist

Requirements:	Acceptance Criteria	Analyst		Independent		Comments (indicate reference to an attachment if necessary)
		Yes	No	Yes	No	
8. SAMPLES (INCLUDING BLANKS, STANDARDS, AND QC SAMPLES)						
a. Are chromatogram characteristics, including peak shapes and areas, consistent with those of the CCV?		x		X		
b. Are surrogate recoveries for all samples, blanks, standards, and QC samples within acceptance criteria?		x		X		
c. Were all samples having analytes detected in amounts exceeding the calibration range diluted and reanalyzed?		x		X		
d. Were all samples extracted within holding times and analyzed within 40 days of extracting?	Analysis within 40 days of extraction	x		X		
e. Did the samples require additional cleanup steps? (i.e. acid treatment, florisil, GPC, and sulfur treatment)	Florisil, GPC, Acid, Sulfur Treatments	x		X		Acid, sulfur treatments.
f. Was there a hexane injection performed prior to sample analysis?		x		X		
g. Was there a priming standard injected prior to sample analysis?		x		X		
9. RECORDS AND REPORTING						
a. Is the Analytical Run, Prep Batch and Extraction sheets, Summary sheets, Sequence file, analytical data, and method transfer to PDF format?		x		X		
b. Are all manually integrated chromatograms stamped with initials and date?		x		X		
c. Are reported results whose amounts exceeded the acceptance criteria flagged with an appropriate qualifier in LIMS and, if needed, a NCR completed?		x		X		
d. Do all values, dilution factors and qualifiers listed on the raw reports match the LIMS data?		x		X		
e. Is the ICAL method referenced on the Raw Data?		x		X		

Additional Comments:

Summary Report

Instrument I... **Semi 7 (Offline)**
Data Path: **C:\Instarch\Semi7\Sequence\091418pcbic.seq**
User ID: **JJY**
Printed Date: **09/14/2018 17:23:31**

JJY
9/21/18

Run Number	Sample ID	Data Filename	Method Filename	Analysis Date	Data Description
1	PCB PRIME PP5562 1:10	001.dat	091418pcbic.met	09/14/2018 07:48:57	
2	Hexane	002.dat	091418pcbic.met	09/14/2018 08:10:08	
3	Hexane	003.dat	091418pcbic.met	09/14/2018 08:31:19	
4	1221 CF PP5745	004.dat	1221.met	09/14/2018 08:52:29	
5	1232 CF PP5746	005.dat	1232.met	09/14/2018 09:13:39	
6	1242 CF PP5747	006.dat	1242.met	09/14/2018 09:34:52	
7	1248 CF PP5748	007.dat	1248.met	09/14/2018 09:56:02	
8	1254 CF PP5749	008.dat	1254.met	09/14/2018 10:17:15	
9	1262 CF PP5750	009.dat	1262.met	09/14/2018 10:38:26	
10	1268 CF PP5751	010.dat	1268.met	09/14/2018 10:59:38	
11	Hexane	011.dat	091418pcbic.met	09/14/2018 11:20:52	
12	Hexane	012.dat	091418pcbic.met	09/14/2018 11:42:03	
13	1221 ICV PP5753	013.dat	1221.met	09/14/2018 12:03:12	
14	1232 ICV PP5754	014.dat	1232.met	09/14/2018 12:24:27	
15	1242 ICV PP5755	015.dat	1242.met	09/14/2018 12:45:39	
16	1248 ICV PP5756	016.dat	1248.met	09/14/2018 13:06:51	
17	1254 ICV PP5757	017.dat	1254.met	09/14/2018 13:28:03	
18	1262 ICV PP5758	018.dat	1262.met	09/14/2018 13:49:12	
19	1268 ICV PP5759	019.dat	1268.met	09/14/2018 14:10:23	
20	Hexane	020.dat	091418pcbic.met	09/14/2018 14:31:35	
21	Hexane	021.dat	091418pcbic.met	09/14/2018 14:52:45	
22	PCB ICAL PT 1 PP 5738	022.dat	091418pcbic.met	09/14/2018 15:13:57	
23	PCB ICAL PT 2 PP 5739	023.dat	091418pcbic.met	09/14/2018 15:35:08	
24	PCB ICAL PT 3 PP 5740	024.dat	091418pcbic.met	09/14/2018 15:56:20	
25	PCB ICAL PT 4 PP 5741	025.dat	091418pcbic.met	09/14/2018 16:17:31	
26	PCB ICAL PT 5 PP 5742	026.dat	091418pcbic.met	09/14/2018 16:38:42	
27	PCB ICAL PT 6 PP 5743	027.dat	091418pcbic.met	09/14/2018 16:59:52	
28	PCB ICV PP 5752	028.dat	091418pcbic.met	09/14/2018 17:21:03	
29	Hexane	029.dat	091418pcbic.met	09/14/2018 17:42:14	
30	PCB CCV PP 5744	030.dat	091418pcbic.met	09/14/2018 18:03:26	
31	Hexane	031.dat	091418pcbic.met	09/14/2018 18:24:37	
32	153261,MBS,	032.dat	091418pcbic.met	09/14/2018 18:45:48	
33	153261,LCSS,	033.dat	091418pcbic.met	09/14/2018 19:06:59	
34	Hexane	034.dat	091418pcbic.met	09/14/2018 19:28:10	
35	153261,175786,	035.dat	091418pcbic.met	09/14/2018 19:49:22	
36	153261,175769,	036.dat	091418pcbic.met	09/14/2018 20:10:32	
37	153261,MSS175769,	037.dat	091418pcbic.met	09/14/2018 20:31:44	
38	153261,MSDS175769,	038.dat	091418pcbic.met	09/14/2018 20:52:57	
39	Hexane	039.dat	091418pcbic.met	09/14/2018 21:14:07	
40	PCB CCV PP 5744	040.dat	091418pcbic.met	09/14/2018 21:35:19	
41	Hexane	041.dat	091418pcbic.met	09/14/2018 21:56:29	

Summary Report

Instrument I... **Semi 7 (Offline)**
Data Path: **C:\Instarch\Semi7\Sequence\091818pcb.seq**
User ID: **JJY**
Printed Date: **09/18/2018 15:17:03**

JJY
09/26/18

Run Number	Sample ID	Data Filename	Method Filename	Analysis Date	Data Description
1	PCB PRIME PP5562 1:10	001.dat	091818pcb.met	09/18/2018 11:27:17	
2	Hexane	002.dat	091818pcb.met	09/18/2018 11:48:26	
3	PCB CCV PP 5744	003.dat	091818pcb.met	09/18/2018 12:09:38	
4	Hexane	004.dat	091818pcb.met	09/18/2018 12:30:50	
5	PCB Spike check PP5780	005.dat	091818pcb.met	09/18/2018 12:52:00	
6	Hexane	006.dat	091818pcb.met	09/18/2018 13:13:12	
7	PCB Spike check PP5760	007.dat	091818pcb.met	09/18/2018 13:34:24	
8	Hexane	008.dat	091818pcb.met	09/18/2018 13:55:35	
9	PCB CCV PP 5744	009.dat	091818pcb.met	09/18/2018 14:16:46	
10	Hexane	010.dat	091818pcb.met	09/18/2018 14:37:57	
11	153371,MBS,	011.dat	091818pcb.met	09/18/2018 14:59:09	
12	153371,LCSS,	012.dat	091818pcb.met	09/18/2018 15:20:21	
13	Hexane	013.dat	091818pcb.met	09/18/2018 15:41:32	
14	153371,175865,	014.dat	091818pcb.met	09/18/2018 16:02:44	
15	153371,MSS175865,	015.dat	091818pcb.met	09/18/2018 16:23:55	
16	153371,MSDS175865,	016.dat	091818pcb.met	09/18/2018 16:45:04	
17	PCB CCV PP 5744	017.dat	091818pcb.met	09/18/2018 17:06:17	
18	Hexane	018.dat	091818pcb.met	09/18/2018 17:27:29	

Summary Report

Instrument I... **Semi 7**
Data Path: **C:\Instarch\Semi7\Sequence\091918pcb.seq**
User ID: **JJY**
Printed Date: **09/20/2018 11:49:32**

JJY
09/26/18

Run Number	Sample ID	Data Filename	Method Filename	Analysis Date	Data Description
1	PCB PRIME PP5562 1:10	001.dat	091918pcb.met	09/19/2018 12:34:54	
2	Hexane	002.dat	091918pcb.met	09/19/2018 12:56:05	
3	PCB CCV PP 5744	003.dat	091918pcb.met	09/19/2018 13:17:14	
4	Hexane	004.dat	091918pcb.met	09/19/2018 13:38:26	
5	153406,MBW,	005.dat	091918pcb.met	09/19/2018 13:59:36	
6	153406,LCSW,	006.dat	091918pcb.met	09/19/2018 14:20:45	
7	Hexane	007.dat	091918pcb.met	09/19/2018 14:41:58	
8	153406,175867,	008.dat	091918pcb.met	09/19/2018 15:03:09	
9	153406,LCSDW,	009.dat	091918pcb.met	09/19/2018 15:24:20	
10	Hexane	010.dat	091918pcb.met	09/19/2018 15:45:32	
11	153417,MBS,	011.dat	091918pcb.met	09/19/2018 16:06:43	
12	153417,LCSS,	012.dat	091918pcb.met	09/19/2018 16:27:57	
13	PCB CCV PP 5744	013.dat	091918pcb.met	09/19/2018 16:49:05	
14	Hexane	014.dat	091918pcb.met	09/19/2018 17:10:18	
15	153417,174737,	015.dat	091918pcb.met	09/19/2018 17:31:29	
16	153417,174738,	016.dat	091918pcb.met	09/19/2018 17:52:41	
17	153417,174739,	017.dat	091918pcb.met	09/19/2018 18:13:52	
18	153417,174740,	018.dat	091918pcb.met	09/19/2018 18:35:01	
19	153417,174741,	019.dat	091918pcb.met	09/19/2018 18:56:13	
20	153417,174742,	020.dat	091918pcb.met	09/19/2018 19:17:21	
21	153417,174743,	021.dat	091918pcb.met	09/19/2018 19:38:34	
22	153417,LCSDS,	022.dat	091918pcb.met	09/19/2018 19:59:45	
23	Hexane	023.dat	091918pcb.met	09/19/2018 20:20:55	
24	PCB CCV PP 5744	024.dat	091918pcb.met	09/19/2018 20:42:06	
25	Hexane	025.dat	091918pcb.met	09/19/2018 21:03:18	

Standard Number	Standard Description	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
PP5561	Pest/PCB Surrogate Intermediate Std	Hexane ChemPure lot DS056	JJY	01/18/2018	07/18/2018

STD Parent ID	Parent Concentration	Units	Standard Volume (ml)	Final Volume (ml)	Final Concentration (ug/ml)
S3760D	200	ug/ml	0.025	1.00	5.0

Standard Number	Standard Description	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
PP5562	PCB Stock (Aroclors 1016 1260)	Hexane ChemPure lot DS056	JJY	01/18/2018	07/18/2018

STD Parent ID	Parent Concentration	Units	Standard Volume (ml)	Final Volume (ml)	Final Concentration (ug/ml)
S3725B	1000	ug/ml	0.100	10.0	10.0
S3726B	1000	ug/ml	0.100	10.0	10.0
S3760D	200	ug/ml	0.025	10.0	0.50

PEST-PCB-LOGBOOK-02
SV Prep Logbook
Logbook created: 09/21/17
NOTEBOOK VIEW: LTN_PEST_PCB_LOGBOOK_02_Default, NOTEBOOK: PEST_PCB_LOGBOOK_02, PAGE: 25
Page is Unlocked
Page is not Witnessed
Project: Unassigned
Page Title: 072018

Standard Number	Standard Description	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
PP5729	Pest/PCB Surrogate Intermediate Std	Hexane ChemPure lot DS056	JJY	07/20/2018	01/20/2019

STD Parent ID	Parent Concentration	Units	Standard Volume (ml)	Final Volume (ml)	Final Concentration (ug/ml)
S3882A	200	ug/ml	0.025	1.00	5.0

Standard Number	Standard Description	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
PP5730	Pest/PCB Stock (Aroclors 1016 1260)	Hexane ChemPure lot DS056	JJY	07/20/2018	01/20/2019

STD Parent ID	Parent Concentration	Units	Standard Volume (ml)	Final Volume (ml)	Final Concentration (ug/ml)
S3883A	1000	ug/ml	0.100	10.0	10.0
S3884A	1000	ug/ml	0.100	10.0	10.0
S3882A	200	ug/ml	0.025	10.0	0.50

Standard Number	Standard Description	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
PP5731	Aroclor 1221 Stock	Hexane ChemPure lot DS056	JJY	07/20/2018	01/20/2019

STD Parent ID	Parent Concentration	Units	Standard Volume (ml)	Final Volume (ml)	Final Concentration (ug/ml)
S3681	1000	ug/ml	0.100	10.0	10.0
S3882A	200	ug/ml	0.025	10.0	0.50

Standard Number	Standard Description	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
PP5732	Aroclor 1232 Stock	Hexane ChemPure lot DS056	JJY	07/20/2018	01/20/2019

STD Parent ID	Parent Concentration	Units	Standard Volume (ml)	Final Volume (ml)	Final Concentration (ug/ml)
S3682	1000	ug/ml	0.100	10.0	10.0
S3882A	200	ug/ml	0.025	10.0	0.50

Standard Number	Standard Description	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
PP5733	Aroclor 1242 Stock	Hexane ChemPure lot DS056	JJY	07/20/2018	01/20/2019

STD Parent ID	Parent Concentration	Units	Standard Volume (ml)	Final Volume (ml)	Final Concentration (ug/ml)
S3683	1000	ug/ml	0.100	10.0	10.0
S3882A	200	ug/ml	0.025	10.0	0.50

Standard Number	Standard Description	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
PP5734	Aroclor 1248 Stock	Hexane ChemPure lot DS056	JJY	07/20/2018	01/20/2019

STD Parent ID	Parent Concentration	Units	Standard Volume (ml)	Final Volume (ml)	Final Concentration (ug/ml)
S3684	1000	ug/ml	0.100	10.0	10.0
S3882A	200	ug/ml	0.025	10.0	0.50

Standard Number	Standard Description	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
PP5735	Aroclor 1254 Stock	Hexane ChemPure lot DS056	JJY	07/20/2018	01/20/2019

STD Parent ID	Parent Concentration	Units	Standard Volume (ml)	Final Volume (ml)	Final Concentration (ug/ml)
S3685	1000	ug/ml	0.100	10.0	10.0
S3882A	200	ug/ml	0.025	10.0	0.50

Standard Number	Standard Description	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
PP5736	Aroclor 1262 Stock	Hexane ChemPure lot DS056	JJY	07/20/2018	01/20/2019

STD Parent ID	Parent Concentration	Units	Standard Volume (ml)	Final Volume (ml)	Final Concentration (ug/ml)
S3687	1000	ug/ml	0.100	10.0	10.0
S3882A	200	ug/ml	0.025	10.0	0.50

Standard Number	Standard Description	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
PP5737	Aroclor 1268 Stock	Hexane ChemPure lot DS056	JJY	07/20/2018	01/20/2019

STD Parent ID	Parent Concentration	Units	Standard Volume (ml)	Final Volume (ml)	Final Concentration (ug/ml)
S3688	1000	ug/ml	0.100	10.0	10.0
S3882A	200	ug/ml	0.025	10.0	0.50

	PCB CURVE	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
	PCB ICAL	Hexane ChemPure lot DS056	JJY	07/20/2018	01/20/2019

Standard Number	Standard Description	Parent ID	Parent Concentration	Units	Standard Volume (ml)	Final Volume (ml)	Final Concentration (ug/ml)
PP5738	PCB ICAL PT 1	PP5730	10.0	ug/ml	0.020	10.0	0.02
PP5739	PCB ICAL PT 2	PP5730	10.0	ug/ml	0.050	10.0	0.05
PP5740	PCB ICAL PT 3	PP5730	10.0	ug/ml	0.200	10.0	0.20
PP5741	PCB ICAL PT 4	PP5730	10.0	ug/ml	0.500	10.0	0.50
PP5742	PCB ICAL PT 5	PP5730	10.0	ug/ml	0.700	10.0	0.70
PP5743	PCB ICAL PT 6	PP5730	10.0	ug/ml	1.000	10.0	1.00
PP5744	PCB CCV	PP5730	10.0	ug/ml	0.500	10.0	0.50
PP5745	1221 CF	PP5731	10.0	ug/ml	0.500	10.0	0.50
PP5746	1232 CF	PP5732	10.0	ug/ml	0.500	10.0	0.50
PP5747	1242 CF	PP5733	10.0	ug/ml	0.500	10.0	0.50
PP5748	1248 CF	PP5734	10.0	ug/ml	0.500	10.0	0.50
PP5749	1254 CF	PP5735	10.0	ug/ml	0.500	10.0	0.50
PP5750	1262 CF	PP5736	10.0	ug/ml	0.500	10.0	0.50
PP5751	1268 CF	PP5737	10.0	ug/ml	0.500	10.0	0.50

Standard Number	Standard Description	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
PP5752	PCB ICV (Aroclors 1016 1260)	Hexane ChemPure lot DS056	JJY	07/20/2018	01/20/2019

STD Parent ID	Parent Concentration	Units	Standard Volume (ml)	Final Volume (ml)	Final Concentration (ug/ml)
S3727	100	ug/ml	0.050	10.0	0.500
S3728	100	ug/ml	0.050	10.0	0.500
PP5729	5.0	ug/ml	0.050	10.0	0.025

Standard Number	Standard Description	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
PP5753	Aroclor 1221 ICV	Hexane ChemPure lot DS056	JJY	07/20/2018	01/20/2019

STD Parent ID	Parent Concentration	Units	Standard Volume (ml)	Final Volume (ml)	Final Concentration (ug/ml)
S3672	100	ug/ml	0.050	10.0	0.500
PP5729	5.0	ug/ml	0.050	10.0	0.025

Standard Number	Standard Description	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
PP5754	Aroclor 1232 ICV	Hexane ChemPure lot DS056	JJY	07/20/2018	01/20/2019

STD Parent ID	Parent Concentration	Units	Standard Volume (ml)	Final Volume (ml)	Final Concentration (ug/ml)
S3673	100	ug/ml	0.050	10.0	0.500
PP5729	5.0	ug/ml	0.050	10.0	0.025

Standard Number	Standard Description	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
PP5755	Aroclor 1242 ICV	Hexane ChemPure lot DS056	JJY	07/20/2018	01/20/2019

STD Parent ID	Parent Concentration	Units	Standard Volume (ml)	Final Volume (ml)	Final Concentration (ug/ml)
S3319A	1000	ug/ml	0.005	10.0	0.500
PP5729	5.0	ug/ml	0.050	10.0	0.025

Standard Number	Standard Description	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
PP5756	Aroclor 1248 ICV	Hexane ChemPure lot DS056	JJY	07/20/2018	01/20/2019

STD Parent ID	Parent Concentration	Units	Standard Volume (ml)	Final Volume (ml)	Final Concentration (ug/ml)
S3675	100	ug/ml	0.050	10.0	0.500
PP5729	5.0	ug/ml	0.050	10.0	0.025

Standard Number	Standard Description	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
PP5757	Aroclor 1254 ICV	Hexane ChemPure lot DS056	JJY	07/20/2018	01/20/2019

STD Parent ID	Parent Concentration	Units	Standard Volume (ml)	Final Volume (ml)	Final Concentration (ug/ml)
S3317B	1000	ug/ml	0.005	10.0	0.500
PP5729	5.0	ug/ml	0.050	10.0	0.025

Standard Number	Standard Description	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
PP5758	Aroclor 1262 ICV	Hexane ChemPure lot DS056	JJY	07/20/2018	01/20/2019

STD Parent ID	Parent Concentration	Units	Standard Volume (ml)	Final Volume (ml)	Final Concentration (ug/ml)
S3678	100	ug/ml	0.050	10.0	0.500
PP5729	5.0	ug/ml	0.050	10.0	0.025

Standard Number	Standard Description	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
PP5759	Aroclor 1268 ICV	Hexane ChemPure lot DS056	JJY	07/20/2018	01/20/2019

STD Parent ID	Parent Concentration	Units	Standard Volume (ml)	Final Volume (ml)	Final Concentration (ug/ml)
S3679	100	ug/ml	0.050	10.0	0.500
PP5729	5.0	ug/ml	0.050	10.0	0.025

1

CT Laboratories, LLC

PEST-PCB-LOGBOOK-02
SV Prep Logbook
Logbook created: 09/21/17
NOTEBOOK VIEW: LTN_PEST_PCB_LOGBOOK_02_Default, NOTEBOOK: PEST_PCB_LOGBOOK_02, PAGE: 26
Page is Unlocked
Page is not Witnessed
Project: Unassigned
Page Title: 072418

Standard Number	Standard Description	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
PP5760	PCB Spike	Acetone ChemPure lot DR774	JJY	07/24/2018	01/24/2019

STD Parent ID	Parent Concentration	Units	Standard Volume (ml)	Final Volume (ml)	Final Concentration (ug/ml)
S3883B	1000	ug/ml	0.500	50.0	10.0
S3884B	1000	ug/ml	0.500	50.0	10.0

Standard Number	Standard Description	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
PP5761	Pest/PCB Surrogates	Acetone ChemPure lot DR774	JJY	07/24/2018	01/24/2019

STD Parent ID	Parent Concentration	Units	Standard Volume (ml)	Final Volume (ml)	Final Concentration (ug/ml)
S3882A	200	ug/ml	0.250	100	0.50

Standard Number	Standard Description	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
PP5762	Pest/PCB Surrogates	Acetone ChemPure lot DR774	JJY	07/24/2018	01/24/2019

STD Parent ID	Parent Concentration	Units	Standard Volume (ml)	Final Volume (ml)	Final Concentration (ug/ml)
S3882A	200	ug/ml	0.250	100	0.50

Standard Number	Standard Description	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
PP5763	Pest/PCB Surrogates	Acetone ChemPure lot DR774	JJY	07/24/2018	01/24/2019

STD Parent ID	Parent Concentration	Units	Standard Volume (ml)	Final Volume (ml)	Final Concentration (ug/ml)
S3882A	200	ug/ml	0.250	100	0.50

1

CT Laboratories, LLC

PEST-PCB-LOGBOOK-02
SV Prep Logbook
Logbook created: 09/21/17
NOTEBOOK VIEW: LTN_PEST_PCB_LOGBOOK_02_Default, NOTEBOOK: PEST_PCB_LOGBOOK_02, PAGE: 30
Page is Unlocked
Page is not Witnessed
Project: Unassigned
Page Title: 091818

Standard Number	Standard Description	Solvent Manufacturer Lot	Analyst	Prep Date	Expiration Date
PP5780	PCB Spike	Acetone ChemPure lot DR774	JJY	09/18/2018	03/18/2019

STD Parent ID	Parent Concentration	Units	Standard Volume (ml)	Final Volume (ml)	Final Concentration (ug/ml)
S3883C	1000	ug/ml	0.500	50.0	10.0
S3884C	1000	ug/ml	0.500	50.0	10.0

1

CT Laboratories, LLC

METALS
CLP FORMS
DOCUMENTS

CT LABORATORIES
delivering more than data from your environmental analyses

Sample Description

PETER-WS-001

1

INORGANIC ANALYSIS DATA SHEET

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Matrix (soil/water):	TCLP	SDG No.:	139370
% Solids:		Lab Sample ID:	175864
Analytical Method:	EPA 6010C	Date Received:	09/13/2018
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	09/18/2018 08:00
Analytical Run #:	153457	Analysis Date/Time	09/21/2018 05:01
Analytical Prep Batch #:	68685	Prep. Date/Time:	09/14/2018 13:10
ICAL Calibration #:		Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers		DL	LOD	LOQ	RL
7440-38-2	Arsenic	0.012	U		0.0040	0.012	0.024	0.024
7440-39-3	Barium	0.14		Y	0.00029	0.00090	0.0018	0.0018
7440-43-9	Cadmium	0.0010	U		0.00030	0.0010	0.0020	0.0020
7440-47-3	Chromium	0.0034	J		0.00060	0.0020	0.0040	0.0040
7439-92-1	Lead	0.0061		M,B	0.0014	0.0020	0.0040	0.0040
7782-49-2	Selenium	0.0046	J		0.0022	0.0065	0.013	0.013
7440-22-4	Silver	0.0020	U	M	0.00070	0.0020	0.0040	0.0040

CT LABORATORIES
delivering more than data from your environmental analyses

1

INORGANIC ANALYSIS DATA SHEET

Sample Description

PETER-WS-001

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Matrix (soil/water):	TCLP	SDG No.:	139370
% Solids:		Lab Sample ID:	175864
Analytical Method:	EPA 7470A	Date Received:	09/13/2018
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	09/18/2018 08:00
Analytical Run #:	153413	Analysis Date/Time	09/20/2018 09:14
Analytical Prep Batch #:	68707	Prep. Date/Time:	09/19/2018 13:00
ICAL Calibration #:	09202018	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
7439-97-6	Mercury	0.000060	U	0.00003	0.00006	0.00012	0.00012

CT LABORATORIES
delivering more than data from your environmental analyses

1

INORGANIC ANALYSIS DATA SHEET

Sample Description

PETER-WW-001

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Matrix (soil/water):	TCLP	SDG No.:	139370
% Solids:		Lab Sample ID:	175866
Analytical Method:	EPA 6010C	Date Received:	09/13/2018
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	09/19/2018 0700
Analytical Run #:	153457	Analysis Date/Time	09/21/2018 05:48
Analytical Prep Batch #:	68685	Prep. Date/Time:	09/14/2018 13:10
ICAL Calibration #:		Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
7440-38-2	Arsenic	0.012	U	0.0040	0.012	0.024	0.024
7440-39-3	Barium	0.013		0.00029	0.00090	0.0018	0.0018
7440-43-9	Cadmium	0.0010	U	0.00030	0.0010	0.0020	0.0020
7440-47-3	Chromium	0.0021	J	0.00060	0.0020	0.0040	0.0040
7439-92-1	Lead	0.0020	U	0.0014	0.0020	0.0040	0.0040
7782-49-2	Selenium	0.0065	U	0.0022	0.0065	0.013	0.013
7440-22-4	Silver	0.0020	U	0.00070	0.0020	0.0040	0.0040

CT LABORATORIES
delivering more than data from your environmental analyses

1

INORGANIC ANALYSIS DATA SHEET

Sample Description

PETER-WW-001

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Matrix (soil/water):	TCLP	SDG No.:	139370
% Solids:		Lab Sample ID:	175866
Analytical Method:	EPA 7470A	Date Received:	09/13/2018
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	09/19/2018 0700
Analytical Run #:	153413	Analysis Date/Time	09/20/2018 09:23
Analytical Prep Batch #:	68707	Prep. Date/Time:	09/19/2018 13:00
ICAL Calibration #:	09202018	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
7439-97-6	Mercury	0.000060	U	0.00003	0.00006	0.00012	0.00012

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

ICV

2A-1

INITIAL CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

SDG No.: 139370

Analytical Run #: 153413

Lab Sample ID: 180014

ICAL Calibration #: 09192018

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Mercury	9/20/18	07:44	0.00300	0.00294	98	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

ICV

2A-1

INITIAL CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

SDG No.: 139370

Analytical Run #: 153457

Lab Sample ID: 187109

ICAL Calibration #:

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Arsenic	9/20/18	13:08	2.00	1.99	100	90	110
Barium	9/20/18	13:08	2.00	1.96	98	90	110
Cadmium	9/20/18	13:08	0.0500	0.0490	98	90	110
Chromium	9/20/18	13:08	0.200	0.197	98	90	110
Lead	9/20/18	13:08	0.500	0.495	99	90	110
Selenium	9/20/18	13:08	2.00	2.10	105	90	110
Silver	9/20/18	13:08	0.0500	0.0523	105	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

LLQC

2A-1

LOWER LIMIT OF QUANTITATION CHECK (LLQC)

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

SDG No.: 139370

Analytical Run #: 153457

Lab Sample ID: 187110

ICAL Calibration #:

Concentration Units:

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Arsenic	9/20/18	13:15	0.0600	0.0637	106	80	120
Barium	9/20/18	13:15	0.0300	0.0324	108	80	120
Cadmium	9/20/18	13:15	0.0150	0.0156	104	80	120
Chromium	9/20/18	13:15	0.0300	0.0331	110	80	120
Lead	9/20/18	13:15	0.0300	0.0351	117	80	120
Selenium	9/20/18	13:15	0.0600	0.0642	107	80	120
Silver	9/20/18	13:15	0.0600	0.0488	81	80	120

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

LLQC

2A-1

LOWER LIMIT OF QUANTITATION CHECK (LLQC)

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

SDG No.: 139370

Analytical Run #: 153457

Lab Sample ID: 187114

ICAL Calibration #:

Concentration Units:

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Silver	9/20/18	14:07	0.0100	0.00890	89	80	120

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

SDG No.: 139370

Analytical Run #: 153413

Lab Sample ID: 180020

ICAL Calibration #: 09202018

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Mercury	9/20/18	09:05	0.00300	0.00289	96	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

SDG No.: 139370

Analytical Run #: 153413

Lab Sample ID: 180022

ICAL Calibration #: 09202018

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Mercury	9/20/18	09:32	0.00300	0.00300	100	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV High Level

2A-2

CONTINUING CALIBRATION VERIFICATION (LEVEL 1 - HIGH RANGE)

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

SDG No.: 139370

Analytical Run #: 153457

Lab Sample ID: 187115

ICAL Calibration #:

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Arsenic	9/21/18	04:25	5.00	4.50	90	90	110
Barium	9/21/18	04:25	5.00	4.82	96	90	110
Cadmium	9/21/18	04:25	0.500	0.472	94	90	110
Chromium	9/21/18	04:25	5.00	4.57	91	90	110
Lead	9/21/18	04:25	5.00	4.87	97	90	110
Selenium	9/21/18	04:25	5.00	4.94	99	90	110
Silver	9/21/18	04:25	0.500	0.533	107	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV Low Level

2A-2

CONTINUING CALIBRATION VERIFICATION (LEVEL 2 - LOW RANGE)

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

SDG No.: 139370

Analytical Run #: 153457

Lab Sample ID: 187116

ICAL Calibration #:

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Arsenic	9/21/18	04:31	0.500	0.466	93	90	110
Barium	9/21/18	04:31	0.500	0.482	96	90	110
Cadmium	9/21/18	04:31	0.0500	0.0497	99	90	110
Chromium	9/21/18	04:31	0.500	0.471	94	90	110
Lead	9/21/18	04:31	0.500	0.479	96	90	110
Selenium	9/21/18	04:31	0.500	0.486	97	90	110
Silver	9/21/18	04:31	0.0500	0.0463	93	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV High Level

2A-2

CONTINUING CALIBRATION VERIFICATION (LEVEL 1 - HIGH RANGE)

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

SDG No.: 139370

Analytical Run #: 153457

Lab Sample ID: 187120

ICAL Calibration #:

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Arsenic	9/21/18	06:03	5.00	4.49	90	90	110
Barium	9/21/18	06:03	5.00	4.80	96	90	110
Cadmium	9/21/18	06:03	0.500	0.473	95	90	110
Chromium	9/21/18	06:03	5.00	4.57	91	90	110
Lead	9/21/18	06:03	5.00	4.86	97	90	110
Selenium	9/21/18	06:03	5.00	4.98	100	90	110
Silver	9/21/18	06:03	0.500	0.526	105	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV Low Level

2A-2

CONTINUING CALIBRATION VERIFICATION (LEVEL 2 - LOW RANGE)

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

SDG No.: 139370

Analytical Run #: 153457

Lab Sample ID: 187121

ICAL Calibration #:

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Arsenic	9/21/18	06:10	0.500	0.467	93	90	110
Barium	9/21/18	06:10	0.500	0.475	95	90	110
Cadmium	9/21/18	06:10	0.0500	0.0492	98	90	110
Chromium	9/21/18	06:10	0.500	0.471	94	90	110
Lead	9/21/18	06:10	0.500	0.482	96	90	110
Selenium	9/21/18	06:10	0.500	0.477	95	90	110
Silver	9/21/18	06:10	0.0500	0.0466	93	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

ICB

3-1

INITIAL CALIBRATION BLANKS

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

SDG No.: 139370

Analytical Run #: 153413

Lab Sample ID: 180015

Analytical Prep Batch # 0

Preparation Date/Time:

ICAL Calibration #: 09192018

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Mercury	09/20/2018 07:46	0	U	0.00003	0.00006

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was
less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

ICB

3-1

INITIAL CALIBRATION BLANKS

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

SDG No.: 139370

Analytical Run #: 153457

Lab Sample ID: 187111

Analytical Prep Batch # 0

Preparation Date/Time:

ICAL Calibration #:

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Measured Concentration	C***	Detection Limit**	Control Limit
Arsenic	09/20/2018	13:22	-0.00192	U	0.004	0.012
Barium	09/20/2018	13:22	0.000270	U	0.00029	0.00090
Cadmium	09/20/2018	13:22	-0.000076	U	0.0003	0.0010
Chromium	09/20/2018	13:22	-0.000394	U	0.0006	0.0020
Lead	09/20/2018	13:22	0.00156		0.0014	0.0020
Selenium	09/20/2018	13:22	-0.000346	U	0.0022	0.0065
Silver	09/20/2018	13:22	-0.000860	U	0.0007	0.0020

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was
less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

SDG No.: 139370

Analytical Run #: 153413

Lab Sample ID: 180021

Analytical Prep Batch # 0

Preparation Date/Time:

ICAL Calibration #: 09202018

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Mercury	09/20/2018 09:07	0	U	0.00003	0.00006

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was
less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

SDG No.: 139370

Analytical Run #: 153413

Lab Sample ID: 180023

Analytical Prep Batch # 0

Preparation Date/Time:

ICAL Calibration #: 09202018

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Mercury	09/20/2018 09:34	0	U	0.00003	0.00006

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was
less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

SDG No.: 139370

Analytical Run #: 153457

Lab Sample ID: 187117

Analytical Prep Batch # 0

Preparation Date/Time:

ICAL Calibration #:

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Measured Concentration	C***	Detection Limit**	Control Limit
Arsenic	09/21/2018	04:38	0.00216	U	0.004	0.012
Barium	09/21/2018	04:38	0.000492		0.00029	0.00090
Cadmium	09/21/2018	04:38	-0.000121	U	0.0003	0.0010
Chromium	09/21/2018	04:38	0.000189	U	0.0006	0.0020
Lead	09/21/2018	04:38	0.00169		0.0014	0.0020
Selenium	09/21/2018	04:38	0.000803	U	0.0022	0.0065
Silver	09/21/2018	04:38	-0.00159	U	0.0007	0.0020

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was
less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

SDG No.: 139370

Analytical Run #: 153457

Lab Sample ID: 187122

Analytical Prep Batch # 0

Preparation Date/Time:

ICAL Calibration #:

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Measured Concentration	C***	Detection Limit**	Control Limit
Arsenic	09/21/2018	06:17	-0.00168	U	0.004	0.012
Barium	09/21/2018	06:17	0.000778		0.00029	0.00090
Cadmium	09/21/2018	06:17	-0.000067	U	0.0003	0.0010
Chromium	09/21/2018	06:17	0.000344	U	0.0006	0.0020
Lead	09/21/2018	06:17	0.00183		0.0014	0.0020
Selenium	09/21/2018	06:17	-0.000612	U	0.0022	0.0065
Silver	09/21/2018	06:17	-0.00183	U	0.0007	0.0020

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was
less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

MB

3-3

METHOD BLANKS

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

SDG No.: 139370

Analytical Run #: 153413

Lab Sample ID: 179097

Analytical Prep Batch # 68707

Preparation Date/Time: 09/19/2018 13:00

ICAL Calibration #: 09202018

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Mercury	09/20/2018 09:12	0	U	0.00003	0.00006

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was
less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

MB

3-3

METHOD BLANKS

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

SDG No.: 139370

Analytical Run #: 153457

Lab Sample ID: 178693

Analytical Prep Batch # 68685

Preparation Date/Time: 09/14/2018 13:10

ICAL Calibration #:

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Measured Concentration	C***	Detection Limit**	Control Limit	
Arsenic	09/21/2018	04:53	-0.00368	U	0.004	0.012	
Barium	09/21/2018	04:53	0.000268	U	0.00029	0.00090	
Cadmium	09/21/2018	04:53	-0.000084	U	0.0003	0.0010	
Chromium	09/21/2018	04:53	-0.000587	U	0.0006	0.0020	
Lead	09/21/2018	04:53	0.00181		0.0014	0.0020	FAIL
Selenium	09/21/2018	04:53	-0.000911	U	0.0022	0.0065	
Silver	09/21/2018	04:53	-0.00168	U	0.0007	0.0020	

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was
less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No:

ICSA

4-1

ICP INTERFERENCE CHECK SAMPLE (SOL. A)

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

ICP ID Number: TJA 6000

SDG No.: 139370

ICS Source: SPEX

Analytical Run #: 153457

Lab Sample ID: 187112

Inorganics MRL Standard Source: SPEX, Ultra,Inorganic Ventures and Mallinkrodt

ICAL Calibration #:

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Spiked Conc.	Measured Conc.	%R	Lower Limit (1)	Upper Limit (1)
Aluminum	09/20/2018 13:45	500.0	552.0	110	80	120
Arsenic	09/20/2018 13:45	0	0		-0.006	0.006
Barium	09/20/2018 13:45	0	0		-0.0007	0.0007
Cadmium	09/20/2018 13:45	0	-0.0000040		-0.00026	0.00026
Calcium	09/20/2018 13:45	500.0	491.0	98	80	120
Chromium	09/20/2018 13:45	0	0		-0.0019	0.0019
Iron	09/20/2018 13:45	500.0	466.0	93	80	120
Lead	09/20/2018 13:45	0	0		-0.0015	0.0015
Magnesium	09/20/2018 13:45	500.0	519.0	104	80	120
Selenium	09/20/2018 13:45	0	0.00000100		-0.012	0.012
Silver	09/20/2018 13:45	0	-0.000645		-0.0020	0.0020

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No:

ICSAB

4-2

ICP INTERFERENCE CHECK SAMPLE (SOL. AB)

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

ICP ID Number: TJA 6000

SDG No.: 139370

ICS Source: SPEX, Ultra

Analytical Run #: 153457

Lab Sample ID: 187113

Inorganics MRL Standard Source: SPEX, Ultra,Inorganic Ventures and Mallinkrodt

ICAL Calibration #:

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Spiked Conc.	Measured Conc.	%R	Lower Limit (1)	Upper Limit (1)
Aluminum	09/20/2018 13:53	500.0	571.0	114	80	120
Arsenic	09/20/2018 13:53	0.500	0.508	102	80	120
Barium	09/20/2018 13:53	0.500	0.496	99	80	120
Cadmium	09/20/2018 13:53	0.500	0.537	107	80	120
Calcium	09/20/2018 13:53	500.0	510.0	102	80	120
Chromium	09/20/2018 13:53	0.500	0.512	102	80	120
Iron	09/20/2018 13:53	500.0	478.0	96	80	120
Lead	09/20/2018 13:53	0.500	0.443	89	80	120
Magnesium	09/20/2018 13:53	500.0	536.0	107	80	120
Selenium	09/20/2018 13:53	0.500	0.525	105	80	120
Silver	09/20/2018 13:53	0.500	0.546	109	80	120

CT LABORATORIES
delivering more than data from your environmental analyses

5A

SPIKE SAMPLE RECOVERY

Sample Description

PETER-WS-001

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Matrix:	LIQUID	SDG No.:	139370
% Solids for Sample:		Concentration Units:	mg/L
Sample No	179104	Parent Sample No.:	175864
Analytical Prep Batch #	68707	Analytical Preparation Date/Time:	09/19/2018 13:00
Analytical Run #:	153413	ICAL Calibration #:	09202018

Analysis Type	*Initial Analysis*	Analysis Date: -----	09/20/2018	Analysis Time: --------	09:19

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M
Mercury	82-119	0.00177		BDL	U	0.00200	88		CV

BDL = analyte concentration was below detection limit

CT LABORATORIES
delivering more than data from your environmental analyses

5A

SPIKE SAMPLE RECOVERY

Sample Description

PETER-WS-001

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Matrix:	LIQUID	SDG No.:	139370
% Solids for Sample:		Concentration Units:	mg/L
Sample No	178696	Parent Sample No.:	175864
Analytical Prep Batch #	68685	Analytical Preparation Date/Time:	09/14/2018 13:10
Analytical Run #:	153457	ICAL Calibration #:	

Analysis Type	*Initial Analysis*	Analysis Date: -----	09/21/2018	Analysis Time: --------	05:25

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M	
Arsenic	87-113	0.728		BDL	U	0.800	91		P	
Barium	88-113	0.890		0.14		0.800	94		P	
Cadmium	88-113	0.0172		BDL	U	0.0200	86		P	*FAIL*
Chromium	90-113	0.0776		0.0034	J	0.0800	93		P	
Lead	86-113	0.170		0.0061		0.200	82		P	*FAIL*
Selenium	83-114	1.05		0.0046	J	0.800	131		P	*FAIL*
Silver	84-115	0.0161		BDL	U	0.0200	80		P	*FAIL*

BDL = analyte concentration was below detection limit

CT LABORATORIES
delivering more than data from your environmental analyses

5B

POST DIGESTION SPIKE SAMPLE RECOVERY

Sample Description

PETER-WS-001

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Matrix:	LIQUID	SDG No.:	139370
% Solids for Sample:		Concentration Units:	mg/L
Sample No	187119	Parent Sample No.:	175864
Analytical Prep Batch #	0	Analytical Preparation Date/Time:	
Analytical Run #:	153457	ICAL Calibration #:	

Analysis Type	*Initial Analysis*	Analysis Date: -----	09/21/2018	Analysis Time: --------	05:40

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M	
Arsenic	80-120	3.18		BDL	U	4	80		P	
Barium	80-120	4.05		0.14		4	98		P	
Cadmium	80-120	0.0865		BDL	U	0.1	86		P	
Chromium	80-120	0.332		0.0034	J	0.4	82		P	
Lead	80-120	0.745		0.0061		1	74		P	*FAIL*
Selenium	80-120	4.21		0.0046	J	4	105		P	
Silver	80-120	0.0756		BDL	U	0.1	76		P	*FAIL*

BDL = analyte concentration was below detection limit

CT LABORATORIES
delivering more than data from your environmental analyses

5C

SPIKE DUPLICATE SAMPLE RECOVERY

Sample Description

PETER-WS-001

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Matrix:	LIQUID	SDG No.:	139370
% Solids for Sample:		Concentration Units:	mg/L
Sample No	179105	Parent Sample No.:	179104
Analytical Prep Batch #	68707	Analytical Preparation Date/Time:	09/19/2018 13:00
Analytical Run #:	153413	ICAL Calibration #:	09202018

Analysis Type	*Initial Analysis*	Analysis Date: -----	09/20/2018	Analysis Time: --------	09:21

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M
Mercury	82-119	0.00175		BDL	U	0.00200	88		CV

BDL = analyte concentration was below detection limit

CT LABORATORIES
delivering more than data from your environmental analyses

5C

SPIKE DUPLICATE SAMPLE RECOVERY

Sample Description

PETER-WS-001

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Matrix:	LIQUID	SDG No.:	139370
% Solids for Sample:		Concentration Units:	mg/L
Sample No	178697	Parent Sample No.:	178696
Analytical Prep Batch #	68685	Analytical Preparation Date/Time:	09/14/2018 13:10
Analytical Run #:	153457	ICAL Calibration #:	

Analysis Type	*Initial Analysis*	Analysis Date: -----	09/21/2018	Analysis Time: --------	05:32

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M	
Arsenic	87-113	0.722		BDL	U	0.800	90		P	
Barium	88-113	0.891		0.14		0.800	94		P	
Cadmium	88-113	0.0176		BDL	U	0.0200	88		P	
Chromium	90-113	0.0790		0.0034	J	0.0800	94		P	
Lead	86-113	0.170		0.0061		0.200	82		P	*FAIL*
Selenium	83-114	1.03		0.0046	J	0.800	128		P	*FAIL*
Silver	84-115	0.0161		BDL	U	0.0200	80		P	*FAIL*

BDL = analyte concentration was below detection limit

CT LABORATORIES
delivering more than data from your environmental analyses

6

DUPLICATES

Sample Description

PETER-WS-001

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

Matrix: LIQUID

SDG No.: 139370

% Solid for Sample:

Concentration Units: mg/L

Analytical Prep Batch # 1

Analytical Preparation Date/Time 68707

Analytical Run #: 153413

ICAL Calibration #: 09202018

Sample #: 179103

Parent Sample #: 175864

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Original Parent Conc. (S)	C	Duplicate Conc. (D)	C	RPD	Q	M	
Mercury	09/20/2018	09:16	20	0.000030	U	0.000037	J	200		CV	*FAIL*

CT LABORATORIES
delivering more than data from your environmental analyses

6

DUPLICATES

Sample Description

PETER-WS-001

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

Matrix: LIQUID

SDG No.: 139370

% Solid for Sample:

Concentration Units: mg/L

Analytical Prep Batch # 1

Analytical Preparation Date/Time 68685

Analytical Run #: 153457

ICAL Calibration #:

Sample #: 178695

Parent Sample #: 175864

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Original Parent Conc. (S)	C	Duplicate Conc. (D)	C	RPD	Q	M	
Arsenic	09/21/2018	05:17	20	0.0040	U	0.0040	U	0		P	
Barium	09/21/2018	05:17	20	0.14		0.185		28		P	*FAIL*
Cadmium	09/21/2018	05:17	20	0.00030	U	0.00030	U	0		P	
Chromium	09/21/2018	05:17	20	0.0034	J	0.00344	J	1		P	
Lead	09/21/2018	05:17	20	0.0061		0.00411		39		P	*FAIL*
Selenium	09/21/2018	05:17	20	0.0046	J	0.00413	J	11		P	
Silver	09/21/2018	05:17	20	0.00070	U	0.00070	U	0		P	

CT LABORATORIES
delivering more than data from your environmental analyses

6A

MATRIX SPIKE DUPLICATES

Sample Description

PETER-WS-001

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

Matrix: LIQUID

SDG No.: 139370

% Solid for Sample:

Concentration Units: mg/L

Analytical Prep Batch # 68707

Analytical Preparation Date/Time 09/19/2018 13:00

Analytical Run #: 153413

ICAL Calibration #: 09202018

Sample #: 179105

Parent Sample #: 179104

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Matrix Spik Parent Conc. (S)	C	Matrix Spike Duplicate Conc. (D)	C	RPD	Q	M
Mercury	09/20/2018	09:21	20	0.00177		0.00175		1		CV

CT LABORATORIES
delivering more than data from your environmental analyses

6A

MATRIX SPIKE DUPLICATES

Sample Description

PETER-WS-001

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

Matrix: LIQUID

SDG No.: 139370

% Solid for Sample:

Concentration Units: mg/L

Analytical Prep Batch # 68685

Analytical Preparation Date/Time 09/14/2018 13:10

Analytical Run #: 153457

ICAL Calibration #:

Sample #: 178697

Parent Sample #: 178696

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Matrix Spik Parent Conc. (S)	C	Matrix Spike Duplicate Conc. (D)	C	RPD	Q	M
Arsenic	09/21/2018	05:32	20	0.728		0.722		1		P
Barium	09/21/2018	05:32	20	0.890		0.891		0		P
Cadmium	09/21/2018	05:32	20	0.0172		0.0176		2		P
Chromium	09/21/2018	05:32	20	0.0776		0.0790		2		P
Lead	09/21/2018	05:32	20	0.170		0.170		0		P
Selenium	09/21/2018	05:32	20	1.05		1.03		2		P
Silver	09/21/2018	05:32	20	0.0161		0.0161		0		P

CT LABORATORIES
delivering more than data from your environmental analyses

7-1

Sample No:

LCS

LABORATORY CONTROL SAMPLE - AQUEOUS

Lab Name: CT Laboratories

Contract MAXXAM ANALYTICS-SI AFFF

LCS Source: SPEX and Ultra

SDG No.: 139370

Concentration Units: mg/L

Analytical Run #: 153413

Sample No.:#: 179098

Analytical Prep Batch #: 68707

Preparation Date/Time: 09/19/2018 13:00

ICAL Calibration #: 09202018

Analysis Type ---------- Initial Analysis

Analyte	Analysis Date/Time	Control Limit (%R)	Spike Result	C	Spike Amount	%R	Q	M
Mercury	09/20/2018 09:10	82-119	0.00277		0.00300	92		CV

CT LABORATORIES
delivering more than data from your environmental analyses

7-1

Sample No:

LCS

LABORATORY CONTROL SAMPLE - AQUEOUS

Lab Name: CT Laboratories

Contract MAXXAM ANALYTICS-SI AFFF

LCS Source: SPEX and Ultra

SDG No.: 139370

Concentration Units: mg/L

Analytical Run #: 153457

Sample No.:#: 178694

Analytical Prep Batch #: 68685

Preparation Date/Time: 09/14/2018 13:10

ICAL Calibration #:

Analysis Type ---------- Initial Analysis

Analyte	Analysis Date/Time		Control Limit (%R)	Spike Result	C	Spike Amount	%R	Q	M
Arsenic	09/21/2018	04:46	87-113	0.780		0.800	98		P
Barium	09/21/2018	04:46	88-113	0.900		0.800	112		P
Cadmium	09/21/2018	04:46	88-113	0.0199		0.0200	100		P
Chromium	09/21/2018	04:46	90-113	0.0807		0.0800	101		P
Lead	09/21/2018	04:46	86-113	0.202		0.200	101		P
Selenium	09/21/2018	04:46	83-114	0.849		0.800	106		P
Silver	09/21/2018	04:46	84-115	0.0167		0.0200	84		P

CT LABORATORIES
delivering more than data from your environmental analyses

9

ICP SERIAL DILUTION

Sample Description

PETER-WS-001

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

Matrix: LIQUID

SDG No.: 139370

Concentration Units: ug/L

Sample No.: 187118

Parent Sample No.: 175864

LIMS Run #: 153457

ICAL Calibration #:.:

Analysis Type ---------- Initial Analysis

Analyte	Analysis Date/Time		Initial Sample Result (I)	C (I)	Serial Dilution Result (S)	C (S)	% Diff.	Q	M	
Arsenic	09/21/2018	05:09	BDL	U	2.44		0		P	*INVALID*
Barium	09/21/2018	05:09	137		166		21		P	*FAIL*
Cadmium	09/21/2018	05:09	BDL	U	0.0015	U	0		P	*INVALID*
Chromium	09/21/2018	05:09	3.42		1.99		42		P	*INVALID*
Lead	09/21/2018	05:09	6.10		10.95		80		P	*INVALID*
Selenium	09/21/2018	05:09	4.57		5.55		21		P	*INVALID*
Silver	09/21/2018	05:09	BDL	U	0.0035	U	0		P	*INVALID*

CT LABORATORIES
delivering more than data from your environmental analyses

10

METHOD DETECTION LIMITS (ANNUALLY)

Lab Name: CT Laboratories Contract: MAXXAM ANALYTICS-SI AFFF

ICP ID Number: TJA SDG No.: 139370

Matrix: LIQUID

Analyte	Wavelength (nm)	Background	CRDL (ug/L)	MDL (mg/L)	M
Arsenic	193.7			0.004	P
Barium	455.4			0.00029	P
Cadmium	226.502			0.0003	P
Chromium	267.716			0.0006	P
Lead	220.35			0.0014	P
Selenium	196.02			0.0022	P
Silver	328.068			0.0007	P

CT LABORATORIES
delivering more than data from your environmental analyses

10

METHOD DETECTION LIMITS (ANNUALLY)

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

SDG No.: 139370

Matrix: LIQUID

Analyte	Wavelength (nm)	Background	CRDL (ug/L)	MDL (mg/L)	M
Mercury	253.7			0.00003	CV

ICP INTERELEMENT CORRECTION FACTORS (ANNUAL)
ICP ID NUMBER: TA ICAP6000 / ICAP6500

Element, Wavelength and Order	Use?	# IECs	IEC	k1	k2	Calc-in-fit?
Ag 328.068 {103}	☒	2	Fe	0.000006	0.000000	No
			Ce	0.000000	0.000000	No
Ag 338.289 {100}	☒	1	Fe	0.000906	0.000000	No
Al 167.079 {501}	☒	None				
Al 308.215 {109}	☒	None				
Al 396.152 { 85}	☒	None				
As 193.759 {474}	☒	1	Al	0.001713	0.000000	No
As 197.262 {471}	☒	1	Al	-0.000113	0.000000	No
Ba 233.527 {445}	☒	3	Fe	-0.000038	0.000000	No
			V	0.000180	0.000000	No
			Al	0.000000	0.000000	No
Ba 455.403 { 74}	☒	1	Fe	0.000002	0.000000	No
Ba 493.409 { 68}	☒	1	Fe	0.000029	0.000000	No
Be 313.042 {108}	☒	1	Fe	0.000000	0.000000	No
Be 234.861 {144}	☒	1	Fe	-0.000016	0.000000	No
Ca 315.887 {107}	☒	None				
Ca 317.933 {106}	☒	None				
Ca 393.366 { 86}	☒	1	Cu	0.000000	0.000000	No
Ca 396.847 { 85}	☒	None				
Cd 226.502 {449}	☒	2	Fe	0.000090	0.000000	No
			Al	0.000000	0.000000	No
Cd 228.802 {147}	☒	None				
Co 228.616 {447}	☒	5	Fe	0.000009	0.000000	No
			Ti	0.003000	0.000000	No
			Ba	-0.001300	0.000000	No
			Ni	0.000040	0.000000	No
			Al	0.000001	0.000000	No
Co 238.892 {141}	☒	1	Fe	0.000188	0.000000	No
Cr 205.560 {464}	☒	1	Fe	-0.000004	0.000000	No
Cr 267.716 {126}	☒	1	Fe	-0.000014	0.000000	No
Cu 224.700 {450}	☒	5	Fe	0.000274	0.000000	No
			Mo	0.001320	0.000000	No
			Ni	-0.006000	0.000000	No
			Pb	0.003030	0.000000	No
			Al	0.000000	0.000000	No
Cu 324.754 {104}	☒	1	Fe	-0.000136	0.000000	No
Cu 327.396 {103}	☒	1	Fe	0.000069	0.000000	No
Fe 234.349 {144}	☒	None				
Fe 239.562 {140}	☒	None				
Fe 259.940 {129}	☒	None				
Mg 202.582 {466}	☒	None				
Mg 279.079 {121}	☒	None				
Mg 280.270 {120}	☒	None				
Mn 257.610 {131}	☒	1	Al	-0.000086	0.000000	No

CT LABORATORIES

delivering more than data from your environmental analyses

ICP INTERELEMENT CORRECTION FACTORS (ANNUAL)
ICP ID NUMBER: TA ICAP6000 / ICAP6500

Element, Wavelength and Order	Use?	# IECs	IEC	k1	k2	Calc-in-fit?
Mn 259.373 {130}	☒	1	Mg	0.001339	0.000000	No
Mo 202.030 {466}	☒	1	Fe	-0.000011	0.000000	No
Mo 203.844 {465}	☒	1	Fe	-0.000020	0.000000	No
Mo 204.598 {464}	☒	1	Fe	0.000036	0.000000	No
Ni 221.647 {452}	☒	1	Ca	0.000021	0.000000	No
Ni 231.604 {445}	☒	3	Fe	0.000012	0.000000	No
			Co	0.000000	0.000000	No
			Mo	0.000000	0.000000	No
Pb 216.999 {455}	☒	2	Al	0.001241	0.000000	No
			Na	0.000000	0.000000	No
Pb 220.353 {453}	☒	3	Si	0.000000	0.000000	No
			Al	0.000001	0.000000	No
			Fe	0.000018	0.000000	No
Pb 220.353 {153}	☒	1	Al	-0.000040	0.000000	No
Sb 206.833 {463}	☒	1	Fe	0.000009	0.000000	No
Sb 217.581 {455}	☒	3	Fe	-0.000069	0.000000	No
			V	0.002070	0.000000	No
			Pb	-0.001040	0.000000	No
Se 196.090 {472}	☒	1	Fe	-0.000360	0.000000	No
Se 206.279 {463}	☒	1	Fe	0.001308	0.000000	No
Tl 190.856 {476}	☒	5	Fe	0.000024	0.000000	No
			Be	-0.000013	0.000000	No
			Ti	0.000050	0.000000	No
			Cr	0.000251	0.000000	No
			V	-0.003800	0.000000	No
Tl 190.856 {477}	☒	1	Fe	-0.000048	0.000000	No
V 290.882 {116}	☒	1	Fe	0.000073	0.000000	No
V 292.402 {115}	☒	3	Fe	0.000020	0.000000	No
			Cr	-0.000400	0.000000	No
			Al	0.000000	0.000000	No
Zn 202.548 {466}	☒	1	Fe	-0.000239	0.000000	No
Zn 206.200 {463}	☒	1	Fe	-0.000003	0.000000	No
Zn 213.856 {457}	☒	2	Fe	0.000167	0.000000	No
			Cu	0.007413	0.000000	No
Y 324.228 {104}*	☒	None				
Y 371.030 { 91}*	☒	None				
Y 224.306 {451}*	☒	None				
Na 588.995 { 57}	☒	1	Fe	0.000106	0.000000	No
Si 251.611 {134}	☒	2	Fe	-0.000105	0.000000	No
			Mo	0.005400	0.000000	No
Ti 323.452 {104}	☒	1	Fe	0.000036	0.000000	No
Ti 334.941 {101}	☒	1	Fe	0.000052	0.000000	No
Sr 407.771 { 83}	☒	1	Fe	0.000014	0.000000	No
Sr 421.552 { 80}	☒	1	Fe	0.000014	0.000000	No

ICP INTERELEMENT CORRECTION FACTORS (ANNUAL)
ICP ID NUMBER: TA ICAP6000 / ICAP6500

Element, Wavelength and Order	Use?	# IECs	IEC	k1	k2	Calc-in-fit?
Sn 189.989 {477}	☒	1	Fe	0.000013	0.000000	No
B 249.678 {135}	☒	2	Fe	0.000001	0.000000	No
			Co	0.003970	0.000000	No
B 249.773 {135}	☒	1	Fe	0.000357	0.000000	No
Li 670.784 { 50}	☒	1	Fe	0.000011	0.000000	No
K 766.490 { 44}	☒	1	Fe	0.000216	0.000000	No
P 213.618 {457}	☒	1	Fe	-0.000079	0.000000	No
S 182.034 {485}	☒	1	Mg	0.000100	0.000000	No
Hg 184.950 {482}	☒	1	Fe	0.000001	0.000000	No
Ce 404.076 { 83}	☒	1	Fe	0.000227	0.000000	No

ICP LINEAR RANGES (QUARTERLY)

Lab Name: CT Laboratories Contract: MAXXAM ANALYTICS-SI AFFF

ICP ID Number: TA SDG No.: 139370

Analyte	Integ. Time (Sec.)	Concentration (ug/L)	M
Aluminum	15.00	1000000	P
Antimony	15.00	10000	P
Arsenic	15.00	10000	P
Barium	15.00	10000	P
Beryllium	15.00	1000	P
Boron	15.00	1000	P
Cadmium	15.00	1000	P
Calcium	15.00	1000000	P
Chromium	15.00	100000	P
Cobalt	15.00	10000	P
Copper	15.00	100000	P
Iron	15.00	1000000	P
Lead	15.00	100000	P
Lithium	15.00	10000	P
Magnesium	15.00	1000000	P
Manganese	15.00	100000	P
Molybdenum	15.00	10000	P
Nickel	15.00	10000	P
Potassium	15.00	200000	P
Selenium	15.00	10000	P
Silicon	15.00	1000	P
Silver	15.00	100	P
Sodium	15.00	200000	P
Strontium	15.00	10000	P
Thallium	15.00	10000	P
Tin	15.00	10000	P
Titanium	15.00	1000	P
Tungsten	15.00	10000	P
Vanadium	15.00	10000	P
Zinc	15.00	100000	P

CT LABORATORIES
delivering more than data from your environmental analyses

13

PREPARATION LOG

Lab Name: CT Laboratories

Project: MAXXAM ANALYTICS-SI AFFF

Method: EPA 3010A

SDG No.: 139370

Preparation Batch #: 68685

Preparation Date/Time: 09/14/2018 / 13:10

Lab Sample #	QC Type	Sample Description	Matrix	**Weight (g for solid/soil) or Volume (mL for liquid/aqueous)**
175864	Normal Sample	PETER-WS-001	TCLP	50.0
175866	Normal Sample	PETER-WW-001	TCLP	50.0
178693	Method Blank		LIQUID	50.0
178694	Lab Control Spike		LIQUID	50.0
178695	Lab Duplicate	PETER-WS-001	TCLP	50.0
178696	Matrix Spike	PETER-WS-001	TCLP	50.0
178697	Matrix Spike Duplicate	PETER-WS-001	TCLP	50.0

CT LABORATORIES
delivering more than data from your environmental analyses

13

PREPARATION LOG

Lab Name: CT Laboratories

Project: MAXXAM ANALYTICS-SI AFFF

Method: EPA 7470A

SDG No.: 139370

Preparation Batch #: 68707

Preparation Date/Time: 09/19/2018 / 13:00

Lab Sample #	QC Type	Sample Description	Matrix	**Weight (g for solid/soil) or Volume (mL for liquid/aqueous)**
175864	Normal Sample	PETER-WS-001	TCLP	25.0
175866	Normal Sample	PETER-WW-001	TCLP	25.0
179097	Method Blank		LIQUID	25.0
179098	Lab Control Spike		LIQUID	25.0
179103	Lab Duplicate	PETER-WS-001	TCLP	25.0
179104	Matrix Spike	PETER-WS-001	TCLP	25.0
179105	Matrix Spike Duplicate	PETER-WS-001	TCLP	25.0

CT LABORATORIES
delivering more than data from your environmental analyses

ANALYSIS RUN LOG

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

Lab Code: CTL

SDG No.: 139370

Instrument ID Number: TJA

Method Number: P

Start & End Date: 09/20/2018 to 09/21/2018

Analytical Run #: 153457

Sample Number	Analysis or QC Type	DF	Analysis Date/ Time	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Hg	Mo	Li	Ni	K	Se	Si	Ag	Na	Sr	Tl	Sn	W	V	Zn
187109	ICV	1.00	9/20 13:08			X	X			X		X				X								X		X							
187110	ICVLL	1.00	9/20 13:15			X	X			X		X				X								X		X							
187111	ICB	1.00	9/20 13:22			X	X			X		X				X								X		X							
187112	ICSA	1.00	9/20 13:45	X		X	X			X	X	X			X	X	X							X		X							
187113	ICSAB	1.00	9/20 13:53	X		X	X			X	X	X			X	X	X							X		X							
187114	ICVLL	1.00	9/20 14:07																							X							
187115	CCV1	1.00	9/21 04:25			X	X			X		X				X								X		X							
187116	CCV2	1.00	9/21 04:31			X	X			X		X				X								X		X							
187117	CCB	1.00	9/21 04:38			X	X			X		X				X								X		X							
178694	LCSW	1.00	9/21 04:46			X	X			X		X				X								X		X							
178693	MBW	1.00	9/21 04:53			X	X			X		X				X								X		X							
175864	Initial	1.00	9/21 05:01			X	X			X		X				X								X		X							
187118	L	5	9/21 05:09			X	X			X		X				X								X		X							
178695	DUP	1.00	9/21 05:17			X	X			X		X				X								X		X							
178696	MSW	1.00	9/21 05:25			X	X			X		X				X								X		X							
178697	MSDW	1.00	9/21 05:32			X	X			X		X				X								X		X							
187119	PDSW	1.00	9/21 05:40			X	X			X		X				X								X		X							
175866	Initial	1.00	9/21 05:48			X	X			X		X				X								X		X							
187120	CCV1	1.00	9/21 06:03			X	X			X		X				X								X		X							
187121	CCV2	1.00	9/21 06:10			X	X			X		X				X								X		X							
187122	CCB	1.00	9/21 06:17			X	X			X		X				X								X		X							

CT LABORATORIES
delivering more than data from your environmental analyses

ANALYSIS RUN LOG

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

Lab Code: CTL

SDG No.: 139370

Instrument ID Number: CETAC

Method Number: CV

Start & End Date: 09/20/2018 to 09/20/2018

Analytical Run #: 153413

Sample Number	Analysis or QC Type	DF	Analysis Date/ Time	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Hg	Mo	Li	Ni	K	Se	Si	Ag	Na	Sr	Tl	Sn	W	V	Zn
180014	ICV	1.00	9/20 07:44																X														
180015	ICB	1.00	9/20 07:46																X														
180020	CCV	1.00	9/20 09:05																X														
180021	CCB	1.00	9/20 09:07																X														
179098	LCSW	1.00	9/20 09:10																X														
179097	MBW	1.00	9/20 09:12																X														
175864	Initial	1.00	9/20 09:14																X														
179103	DUP	1.00	9/20 09:16																X														
179104	MSW	1.00	9/20 09:19																X														
179105	MSDW	1.00	9/20 09:21																X														
175866	Initial	1.00	9/20 09:23																X														
180022	CCV	1.00	9/20 09:32																X														
180023	CCB	1.00	9/20 09:34																X														

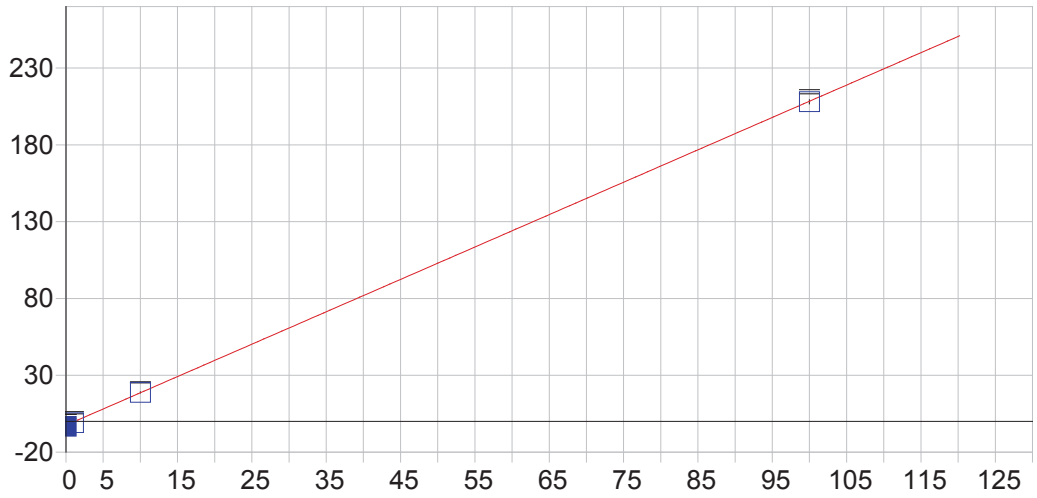
METALS
RAW DATA
DOCUMENTS

Element, Wavelength and Order	Date of Fit	Date of Cal.	Type of Fit	Weighting	A0	A1	A2	n (Exponent)	Correlation	Std Error of Est	Predicted MDL	Predicted MQL
Ag 328.068 {103}	09/21/2018 14:21:45	09/20/2018 12:03:51	Linear	1/Var	-2.447668	2.108331	0.000000	1.000000	0.999960	0.527292	0.610927	2.036423
Ag 338.289 {100}	09/21/2018 14:21:45	09/20/2018 12:11:08	Linear	1/Conc	0.000015	0.000001	0.000000	1.000000	1.000000	0.000000	4.985460	16.618201
Al 167.079 {501}	09/21/2018 14:21:45	09/20/2018 12:11:08	Linear	1/Conc	0.000133	0.000043	0.000000	1.000000	0.996765	0.000016	1.240599	4.135331
Al 308.215 {109}	09/21/2018 14:21:45	09/20/2018 12:34:39	Full Fit	1/Conc	0.000053	0.000001	0.000000	1.000000	1.000000	0.000000	12.936834	43.122782
Al 396.152 { 85}	09/21/2018 14:21:45	09/20/2018 12:53:35	Curvili	1/Var	-0.000006	0.000002	0.000000	1.000000	0.999874	0.000051	6.021630	20.072100
As 193.759 {474}	09/21/2018 14:21:45	09/20/2018 12:11:08	Linear	1/Conc	0.446130	0.089067	0.000000	1.000000	0.999541	0.011865	4.745164	15.817213
As 197.262 {471}	09/21/2018 14:21:45	09/20/2018 12:18:45	Linear	1/Conc	-0.067232	0.050632	0.000000	1.000000	0.999916	0.008465	8.624968	28.749893
Ba 233.527 {445}	09/21/2018 14:21:45	09/20/2018 12:11:08	Linear	1/Conc	-0.000002	0.000174	0.000000	1.000000	0.999522	0.000007	0.541658	1.805528
Ba 455.403 { 74}	09/21/2018 14:21:45	09/20/2018 12:18:45	Linear	1/Conc	0.000215	0.000094	0.000000	1.000000	0.999942	0.000004	0.153374	0.511245
Ba 493.409 { 68}	09/21/2018 14:21:45	09/20/2018 12:18:45	Linear	1/Conc	0.005028	0.000017	0.000000	1.000000	0.999985	0.000004	0.763067	2.543558
Be 313.042 {108}	09/21/2018 14:21:45	09/20/2018 12:11:09	Linear	1/Conc	-0.000024	0.000052	0.000000	1.000000	0.999740	0.000001	0.035733	0.119110
Be 234.861 {144}	09/21/2018 14:21:45	09/20/2018 12:11:09	Linear	1/Var	0.191176	1.990924	0.000000	1.000000	0.999811	1.123557	0.380072	1.266906
Ca 315.887 {107}	09/21/2018 14:21:45	09/20/2018 12:53:35	Linear	1/Var	3.061949	0.088364	0.000000	1.000000	0.998448	8.780126	10.298821	34.329405
Ca 317.933 {106}	09/21/2018 14:21:45	09/20/2018 12:53:35	Full Fit	1/Conc	0.002169	0.000001	0.000000	1.060000	0.999969	0.000021	6.518701	21.729004
Ca 393.366 { 86}	09/21/2018 14:21:45	09/20/2018 12:11:09	Linear	1/Var	1724.9979	119.56536	0.000000	1.000000	0.990971	2494.3038	0.026505	0.088348
Ca 396.847 { 85}	09/21/2018 14:21:45	09/20/2018 12:18:45	Linear	1/Conc	0.000746	0.000177	0.000000	1.000000	0.999396	0.000289	0.058507	0.195023
Cd 226.502 {449}	09/21/2018 14:21:45	09/20/2018 12:11:09	Linear	1/Conc	-0.000153	0.000467	0.000000	1.000000	0.999801	0.000008	0.282424	0.941414
Cd 228.802 {447}	09/21/2018 14:21:45	09/20/2018 12:11:09	Linear	1/Conc	0.000513	0.000630	0.000000	1.000000	0.999886	0.000008	0.255986	0.853287
Cd 228.802 {448}	09/21/2018 14:21:45	09/20/2018 12:11:09	Linear	None	0.000132	0.000064	0.000000	1.000000	0.999990	0.000106	1.147067	3.823556
Co 228.616 {447}	09/21/2018 14:21:45	09/20/2018 12:18:45	Linear	1/Conc	-0.000016	0.000275	0.000000	1.000000	0.999887	0.000016	0.427504	1.425012
Co 238.892 {141}	09/21/2018 14:21:45	09/20/2018 12:18:45	Linear	1/Conc	0.000001	0.000002	0.000000	1.000000	0.999932	0.000001	0.612121	2.040404
Cr 205.560 {464}	09/21/2018 14:21:45	09/20/2018 12:26:44	Curvili	1/Var	0.000239	0.000214	-0.000000	1.000000	0.999944	0.000494	0.415635	1.385451
Cr 267.716 {126}	09/21/2018 14:21:45	09/20/2018 12:18:45	Linear	1/Conc	-0.000001	0.000003	0.000000	1.000000	0.999961	0.000000	0.556908	1.856360
Cu 224.700 {450}	09/21/2018 14:21:45	09/20/2018 12:18:45	Linear	1/Var	0.970378	0.712985	0.000000	1.000000	0.999085	1.860242	1.106612	3.688706
Cu 324.754 {104}	09/21/2018 14:21:45	09/20/2018 12:26:45	Linear	1/Var	0.000972	0.000006	0.000000	1.000000	0.999793	0.000171	1.470970	4.903234
Cu 327.396 {103}	09/21/2018 14:21:45	09/20/2018 12:26:45	Linear	1/Conc	-0.000045	0.000002	0.000000	1.000000	0.999891	0.000002	3.443546	11.478488
Fe 234.349 {144}	09/21/2018 14:21:45	09/20/2018 12:53:35	Full Fit	None	0.000040	0.000000	0.000000	0.970000	1.000000	0.000054	1.626135	5.420451
Fe 239.562 {140}	09/21/2018 14:21:45	09/20/2018 12:53:35	Full Fit	1/Conc	0.000006	0.000000	0.000000	1.040000	0.999958	0.000011	6.998611	23.328704
Fe 259.940 {129}	09/21/2018 14:21:45	09/20/2018 12:53:35	Linear	1/Var	0.000003	0.000001	0.000000	1.000000	0.999442	0.000027	2.076437	6.921455
Mg 202.582 {466}	09/21/2018 14:21:45	09/20/2018 12:53:35	Full Fit	1/Var	0.000000	0.000026	-0.000000	1.010000	0.999761	0.001224	3.590532	11.968440
Mg 279.079 {121}	09/21/2018 14:21:45	09/20/2018 12:53:36	Full Fit	1/Var	0.000000	0.000000	0.000000	1.020000	0.999769	0.000004	35.839158	119.46385
Mg 280.270 {120}	09/21/2018 14:21:45	09/20/2018 12:18:46	Linear	1/Conc	0.000046	0.000028	0.000000	1.000000	0.999709	0.000031	0.030375	0.101249
Mn 257.610 {131}	09/21/2018 14:21:45	09/20/2018 12:18:46	Linear	1/Conc	-0.000000	0.000008	0.000000	1.000000	0.999231	0.000001	0.088378	0.294593
Mn 259.373 {130}	09/21/2018 14:21:45	09/20/2018 12:26:45	Linear	1/Var	1.868386	2.357258	0.000000	1.000000	0.999985	0.647580	0.432531	1.441770
Mo 202.030 {466}	09/21/2018 14:21:45	09/20/2018 12:11:10	Linear	1/Conc	-0.000000	0.000121	0.000000	1.000000	0.999773	0.000007	0.619285	2.064285
Mo 203.844 {465}	09/21/2018 14:21:45	09/20/2018 12:11:10	Linear	1/Var	0.000370	0.000104	0.000000	1.000000	0.999874	0.000262	0.915837	3.052789
Mo 204.598 {464}	09/21/2018 14:21:45	09/20/2018 12:18:46	Linear	1/Var	0.000036	0.000067	0.000000	1.000000	0.999977	0.000121	1.205727	4.019091
Ni 221.647 {452}	09/21/2018 14:21:45	09/20/2018 12:18:46	Linear	1/Conc	0.000135	0.000182	0.000000	1.000000	0.999915	0.000112	0.762485	2.541617
Ni 231.604 {445}	09/21/2018 14:21:45	09/20/2018 12:18:46	Linear	1/Conc	-0.000099	0.000176	0.000000	1.000000	0.999860	0.000011	0.759798	2.532661
Pb 216.999 {455}	09/21/2018 14:21:45	09/20/2018 12:26:45	Linear	1/Var	0.000089	0.000020	0.000000	1.000000	0.999285	0.000738	5.500107	18.333689
Pb 220.353 {453}	09/21/2018 14:21:45	09/20/2018 12:11:10	Linear	1/Conc	0.000080	0.000032	0.000000	1.000000	0.999057	0.000004	3.981183	13.270610
Pb 220.353 {153}	09/21/2018 14:21:45	09/20/2018 12:26:45	Linear	1/Conc	0.000000	0.000000	0.000000	1.000000	0.999977	0.000000	5.222209	17.407364
Sb 206.833 {463}	09/21/2018 14:21:45	09/20/2018 12:18:46	Full Fit	1/Conc	-0.000052	0.000034	0.000000	0.990000	0.999997	0.000002	2.689591	8.965302
Sb 217.581 {455}	09/21/2018 14:21:45	09/20/2018 12:18:46	Linear	1/Conc	-0.000049	0.000033	0.000000	1.000000	0.999926	0.000004	3.028308	10.094361

	Element, Wavelength and Order	Status	Reslope		QC Norm	
			Slope	Y-int	Slope factor	Offset
	Ag 328.068 {103}	OK.	1.000000	0.000000	1	0
	Ag 338.289 {100}	OK.	1.000000	0.000000	1	0
	Al 167.079 {501}	OK.	1.000000	0.000000	1	0
	Al 308.215 {109}	OK.	1.000000	0.000000	1	0
	Al 396.152 { 85}	OK.	1.000000	0.000000	1	0
	As 193.759 {474}	OK.	1.000000	0.000000	1	0
	As 197.262 {471}	OK.	1.000000	0.000000	1	0
	Ba 233.527 {445}	OK.	1.000000	0.000000	1	0
	Ba 455.403 { 74}	OK.	1.000000	0.000000	1	0
	Ba 493.409 { 68}	OK.	1.000000	0.000000	1	0
	Be 313.042 {108}	OK.	1.000000	0.000000	1	0
	Be 234.861 {144}	OK.	1.000000	0.000000	1	0
	Ca 315.887 {107}	OK.	1.000000	0.000000	1	0
	Ca 317.933 {106}	OK.	1.000000	0.000000	1	0
	Ca 393.366 { 86}	OK.	1.000000	0.000000	1	0
	Ca 396.847 { 85}	OK.	1.000000	0.000000	1	0
	Cd 226.502 {449}	OK.	1.000000	0.000000	1	0
	Cd 228.802 {447}	OK.	1.000000	0.000000	1	0
	Cd 228.802 {448}	OK.	1.000000	0.000000	1	0
	Co 228.616 {447}	OK.	1.000000	0.000000	1	0
	Co 238.892 {141}	OK.	1.000000	0.000000	1	0
	Cr 205.560 {464}	OK.	1.000000	0.000000	1	0
	Cr 267.716 {126}	OK.	1.000000	0.000000	1	0
	Cu 224.700 {450}	OK.	1.000000	0.000000	1	0
	Cu 324.754 {104}	OK.	1.000000	0.000000	1	0
	Cu 327.396 {103}	OK.	1.000000	0.000000	1	0
	Fe 234.349 {144}	OK.	1.000000	0.000000	1	0
	Fe 239.562 {140}	OK.	1.000000	0.000000	1	0
	Fe 259.940 {129}	OK.	1.000000	0.000000	1	0
	Mg 202.582 {466}	OK.	1.000000	0.000000	1	0
	Mg 279.079 {121}	OK.	1.000000	0.000000	1	0
	Mg 280.270 {120}	OK.	1.000000	0.000000	1	0
	Mn 257.610 {131}	OK.	1.000000	0.000000	1	0
	Mn 259.373 {130}	OK.	1.000000	0.000000	1	0
	Mo 202.030 {466}	OK.	1.000000	0.000000	1	0
	Mo 203.844 {465}	OK.	1.000000	0.000000	1	0
	Mo 204.598 {464}	OK.	1.000000	0.000000	1	0
	Ni 221.647 {452}	OK.	1.000000	0.000000	1	0
	Ni 231.604 {445}	OK.	1.000000	0.000000	1	0
	Pb 216.999 {455}	OK.	1.000000	0.000000	1	0
	Pb 220.353 {453}	OK.	1.000000	0.000000	1	0
	Pb 220.353 {153}	OK.	1.000000	0.000000	1	0
	Sb 206.833 {463}	Warnin	1.000000	0.000000	1	0
	Sb 217.581 {455}	OK.	1.000000	0.000000	1	0

Element, Wavelength and Order	Date of Fit	Date of Cal.	Type of Fit	Weighting	A0	A1	A2	n (Exponent)	Correlation	Std Error of Est	Predicted MDL	Predicted MQL
Se 196.090 {472}	09/21/2018 14:21:45	09/20/2018 12:11:10	Linear	1/Conc	0.000061	0.000014	0.000000	1.000000	0.999712	0.000001	6.639296	22.130986
Se 206.279 {463}	09/21/2018 14:21:45	09/20/2018 12:18:47	Linear	1/Conc	-0.000046	0.000003	0.000000	1.000000	0.999341	0.000006	28.977892	96.592974
Tl 190.856 {476}	09/21/2018 14:21:45	09/20/2018 12:18:47	Linear	1/Conc	0.000100	0.000033	0.000000	1.000000	0.999681	0.000011	2.857746	9.525821
Tl 190.856 {477}	09/21/2018 14:21:45	09/20/2018 12:18:47	Linear	1/Conc	0.000004	0.000016	0.000000	1.000000	0.999660	0.000006	5.062824	16.876079
V 290.882 {116}	09/21/2018 14:21:45	09/20/2018 12:18:47	Linear	1/Conc	0.000008	0.000001	0.000000	1.000000	0.999990	0.000000	3.572961	11.909869
V 292.402 {115}	09/21/2018 14:21:45	09/20/2018 12:18:47	Linear	1/Conc	0.000001	0.000007	0.000000	1.000000	0.999961	0.000001	0.415156	1.383854
Zn 202.548 {466}	09/21/2018 14:21:45	09/20/2018 12:26:45	Curvili	1/Var	0.000064	0.000002	-0.000000	1.000000	0.999460	0.000004	0.283371	0.944571
Zn 206.200 {463}	09/21/2018 14:21:45	09/20/2018 12:26:45	Curvili	1/Conc	0.000022	0.000187	-0.000000	1.000000	0.999992	0.000032	0.521127	1.737091
Zn 213.856 {457}	09/21/2018 14:21:45	09/20/2018 12:11:11	Linear	1/Conc	0.000004	0.000004	0.000000	1.000000	0.999763	0.000000	0.161732	0.539105
Y 324.228 {104}*	09/21/2018 14:21:45	09/20/2018 11:05:16	Linear	1/Conc	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	-1.000000	-1.000000
Y 371.030 { 91}*	09/21/2018 14:21:45	09/20/2018 11:05:16	Linear	1/Conc	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	-1.000000	-1.000000
Y 224.306 {451}*	09/21/2018 14:21:45	09/20/2018 11:05:16	Linear	1/Conc	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	-1.000000	-1.000000
Na 330.237 {102}	09/21/2018 14:21:45	09/20/2018 12:53:36	Linear	1/Conc	-0.000002	0.000000	0.000000	1.000000	0.999587	0.000001	528.19410	1760.6470
Na 588.995 { 57}	09/21/2018 14:21:45	09/20/2018 12:18:47	Curvili	1/Var	-304.51539	3.363752	0.000025	1.000000	1.000000	0.000000	3.278295	10.927651
Na 589.592 { 57}	09/21/2018 14:21:45	09/20/2018 12:53:36	Curvili	None	-0.003151	0.000405	0.000000	1.000000	1.000000	0.016632	2.966980	9.889933
Si 251.611 {134}	09/21/2018 14:21:45	09/20/2018 12:26:45	Linear	1/Var	0.653553	0.155011	0.000000	1.000000	0.999919	3.316337	6.228276	20.760919
Ti 323.452 {104}	09/21/2018 14:21:45	09/20/2018 12:18:47	Linear	1/Conc	0.000275	0.000009	0.000000	1.000000	0.999962	0.000001	0.894962	2.983205
Ti 334.941 {101}	09/21/2018 14:21:45	09/20/2018 12:18:47	Linear	1/Var	0.000014	0.000006	0.000000	1.000000	0.999910	0.000013	0.870200	2.900668
Sr 407.771 { 83}	09/21/2018 14:21:45	09/20/2018 12:18:47	Linear	1/Conc	0.000072	0.000231	0.000000	1.000000	0.999957	0.000008	0.055542	0.185140
Sr 421.552 { 80}	09/21/2018 14:21:45	09/20/2018 12:18:47	Linear	1/Conc	0.000010	0.000228	0.000000	1.000000	0.999976	0.000006	0.057695	0.192318
Sn 189.989 {477}	09/21/2018 14:21:45	09/20/2018 12:18:47	Linear	1/Conc	0.000009	0.000056	0.000000	1.000000	0.999859	0.000013	1.403674	4.678912
B 249.678 {135}	09/21/2018 14:21:45	09/20/2018 12:18:47	Linear	1/Var	0.000000	0.000002	0.000000	1.000000	0.999887	0.000002	0.903672	3.012239
B 249.773 {135}	09/21/2018 14:21:45	09/20/2018 12:18:47	Linear	1/Var	0.000003	0.000003	0.000000	1.000000	0.999907	0.000004	0.630607	2.102022
Li 670.784 { 50}	09/21/2018 14:21:45	09/20/2018 12:18:48	Linear	1/Conc	-1.784792	15.691267	0.000000	1.000000	0.999992	0.858905	0.519249	1.730829
K 766.490 { 44}	09/21/2018 14:21:45	09/20/2018 12:53:36	Linear	1/Var	17.497116	0.260118	0.000000	1.000000	0.999634	59.042908	26.361076	87.870255
P 213.618 {457}	09/21/2018 14:21:45	09/20/2018 12:18:48	Linear	1/Conc	-0.000001	0.000000	0.000000	1.000000	1.000000	0.000000	5.544725	18.482418
S 182.034 {485}	09/21/2018 14:21:45	09/20/2018 12:53:36	Curvili	1/Conc	0.000042	0.000008	0.000000	1.000000	1.000000	0.000010	8.074257	26.914191
Hg 184.950 {482}	09/21/2018 14:21:45	09/20/2018 12:11:12	Linear	1/Conc	-0.000061	0.000045	0.000000	1.000000	0.999965	0.000007	1.669710	5.565699
Ce 404.076 { 83}	09/21/2018 14:21:45	09/20/2018 12:11:12	Linear	1/Conc	-0.000005	0.000001	0.000000	1.000000	1.000000	0.000000	10.287772	34.292574

	Element, Wavelength and Order	Status	Reslope		QC Norm	
			Slope	Y-int	Slope factor	Offset
	Se 196.090 {472}	OK.	1.000000	0.000000	1	0
	Se 206.279 {463}	OK.	1.000000	0.000000	1	0
	Tl 190.856 {476}	OK.	1.000000	0.000000	1	0
	Tl 190.856 {477}	OK.	1.000000	0.000000	1	0
	V 290.882 {116}	OK.	1.000000	0.000000	1	0
	V 292.402 {115}	OK.	1.000000	0.000000	1	0
	Zn 202.548 {466}	OK.	1.000000	0.000000	1	0
	Zn 206.200 {463}	OK.	1.000000	0.000000	1	0
	Zn 213.856 {457}	OK.	1.000000	0.000000	1	0
	Y 324.228 {104}*	Warnin	1.000000	0.000000	1	0
	Y 371.030 { 91}*	Warnin	1.000000	0.000000	1	0
	Y 224.306 {451}*	Warnin	1.000000	0.000000	1	0
	Na 330.237 {102}	OK.	1.000000	0.000000	1	0
	Na 588.995 { 57}	Warnin	1.000000	0.000000	1	0
	Na 589.592 { 57}	Warnin	1.000000	0.000000	1	0
	Si 251.611 {134}	OK.	1.000000	0.000000	1	0
	Ti 323.452 {104}	OK.	1.000000	0.000000	1	0
	Ti 334.941 {101}	OK.	1.000000	0.000000	1	0
	Sr 407.771 { 83}	OK.	1.000000	0.000000	1	0
	Sr 421.552 { 80}	OK.	1.000000	0.000000	1	0
	Sn 189.989 {477}	OK.	1.000000	0.000000	1	0
	B 249.678 {135}	OK.	1.000000	0.000000	1	0
	B 249.773 {135}	OK.	1.000000	0.000000	1	0
	Li 670.784 { 50}	OK.	1.000000	0.000000	1	0
	K 766.490 { 44}	OK.	1.000000	0.000000	1	0
	P 213.618 {457}	OK.	1.000000	0.000000	1	0
	S 182.034 {485}	OK.	1.000000	0.000000	1	0
	Hg 184.950 {482}	OK.	1.000000	0.000000	1	0
	Ce 404.076 { 83}	OK.	1.000000	0.000000	1	0

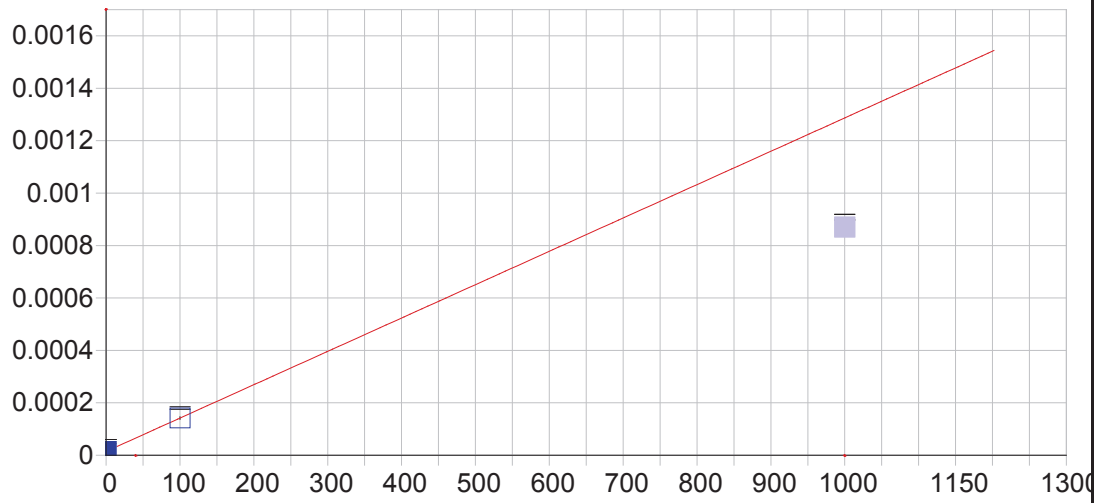


Ag 328.068 {103}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	-2.447668	Re-Slope:	1.000000
A1 (Gain):	2.108331	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999960	Status:	OK.
Std Error of Est:	0.527292		
Predicted MDL:	0.610927		
Predicted MQL:	2.036423		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.35743	-.357	.000	-3.2012	1.10	1
CalStd5=10	10.000	10.108	.108	1.08	18.862	.339	1
CalStd8=100	100.00	99.840	-.160	-.160	208.05	1.35	1
CalStd3=1	1.0000	.71753	-.282	-28.2	-.93488	.715	1

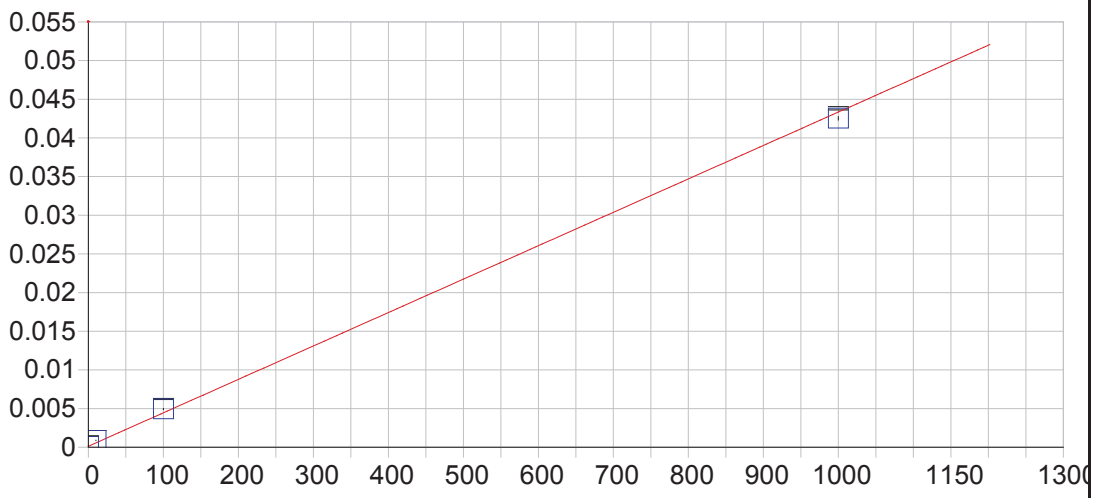


Ag 338.289 {100}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000015	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	1.000000	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	4.985460		
Predicted MQL:	16.618201		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	.00001	.000	1
CalStd8=100	100.00	100.00	.000	.000	.00014	.000	1
CalStd9=100	1000.0	672.01	-328.	-32.8	.00087	.000	0

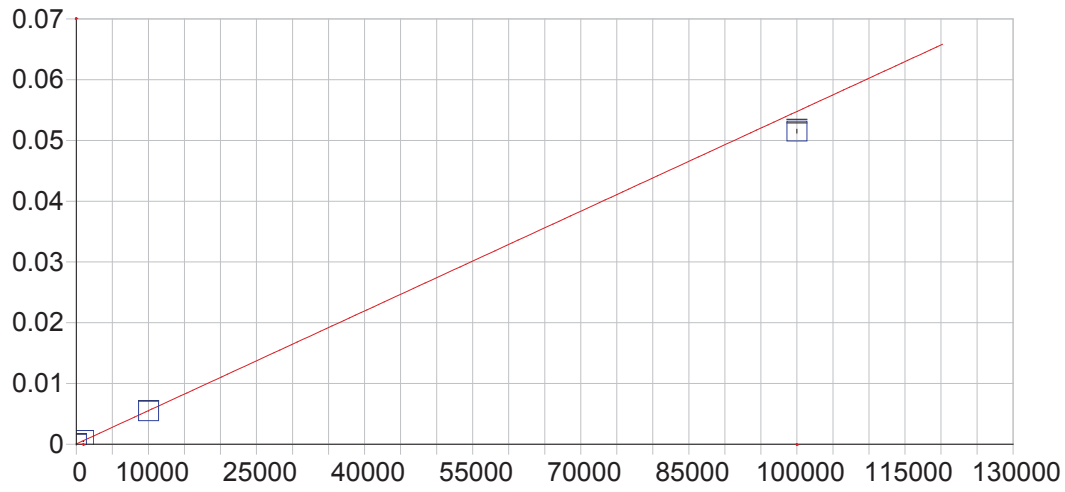


Al 167.079 {501}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000133	Re-Slope:	1.000000
A1 (Gain):	0.000043	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.996765	Status:	OK.
Std Error of Est:	0.000016		
Predicted MDL:	1.240599		
Predicted MQL:	4.135331		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00841	-.008	.000	.00013	.000	1
CalStd9=100	1000.0	981.21	-18.8	-1.88	.04253	.000	1
CalStd5=10	10.000	17.465	7.47	74.7	.00089	.000	1
CalStd8=100	100.00	111.33	11.3	11.3	.00494	.000	1

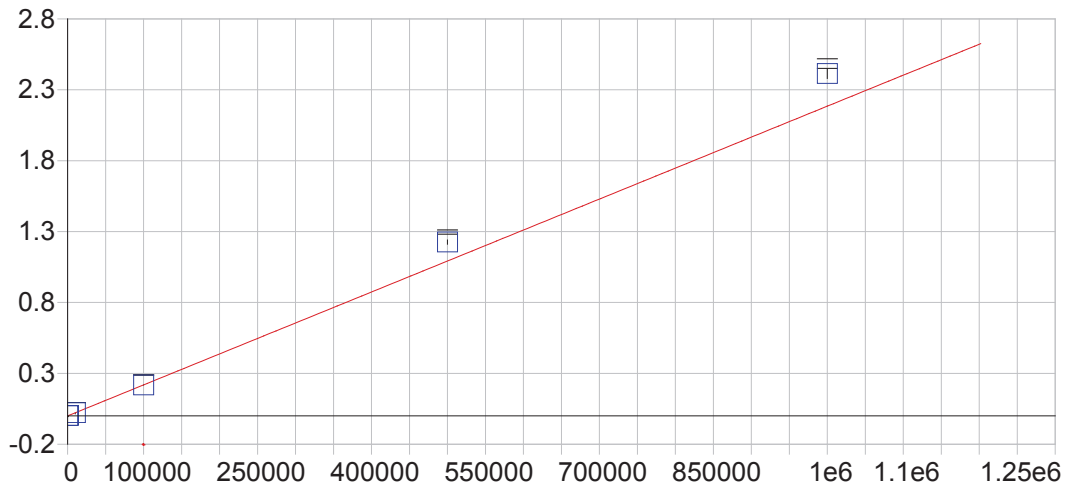


Al 308.215 {109}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Full Fit	Weighting:	1/Conc

A0 (Offset):	0.000053	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	1.000000	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	12.936834		
Predicted MQL:	43.122782		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	.00005	.000	1
CalStd10=10	10000.	9940.5	-59.5	-.595	.00549	.000	1
CalStd9=100	1000.0	999.54	-.456	-.046	.00060	.000	1
CalStd13=10	100000.	94070.	-5930.	-5.93	.05152	.000	1

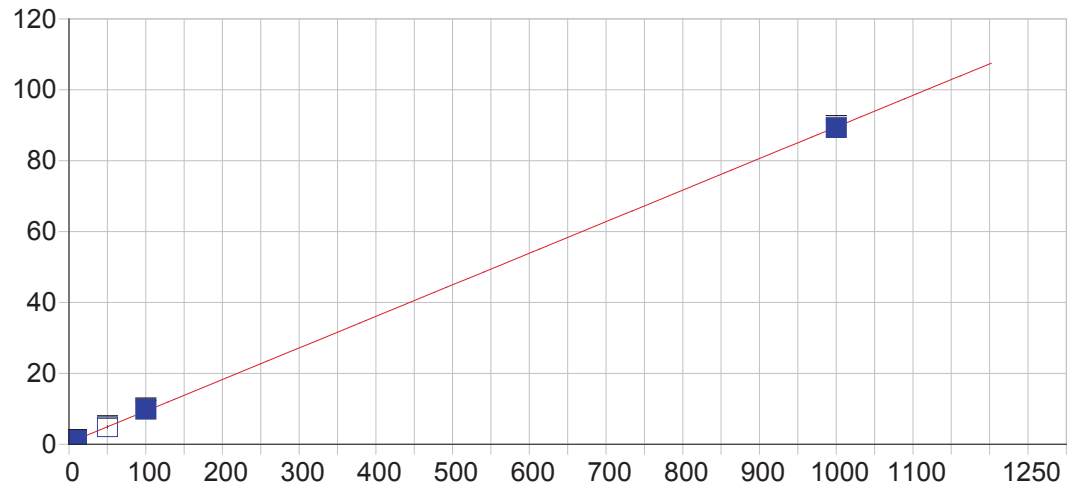


Al 396.152 { 85}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Curvilinear	Weighting:	1/Var

A0 (Offset):	-0.000006	Re-Slope:	1.000000
A1 (Gain):	0.000002	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999874	Status:	OK.
Std Error of Est:	0.000051		
Predicted MDL:	6.021630		
Predicted MQL:	20.072100		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-2.7054	-2.71	.000	-.00001	.000	1
CalStd14=50	500000.	561280.	61300.	12.3	1.2261	.015	1
CalStd13=10	100000.	99728.	-272.	-.272	.21786	.001	1
CalStd10=10	10000.	10036.	35.7	.357	.02192	.000	1
CalStd9=100	1000.0	1027.8	27.8	2.78	.00224	.000	1
CalibStd15=	1000000.	1105000.	105000.	10.5	2.4139	.034	1

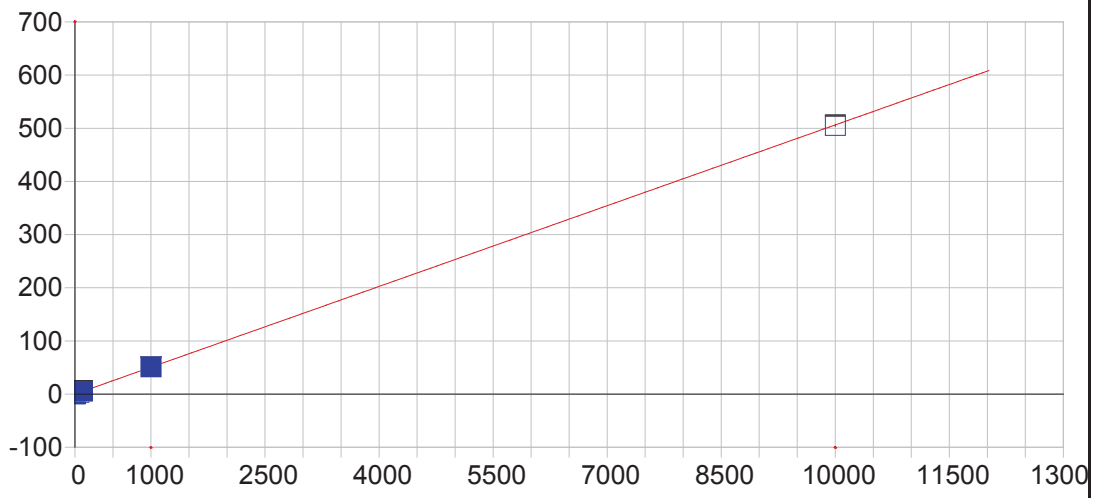


As 193.759 {474}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.446130	Re-Slope:	1.000000
A1 (Gain):	0.089067	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999541	Status:	OK.
Std Error of Est:	0.011865		
Predicted MDL:	4.745164		
Predicted MQL:	15.817213		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00227	.002	.000	.44633	.401	1
CalStd9=100	1000.0	997.43	-2.57	-.257	89.284	.604	1
CalStd7=50	50.000	49.882	-.118	-.237	4.8890	.354	1
CalStd5=10	10.000	7.2391	-2.76	-27.6	1.0909	.204	1
CalStd8=100	100.00	105.45	5.45	5.45	9.8378	.346	1

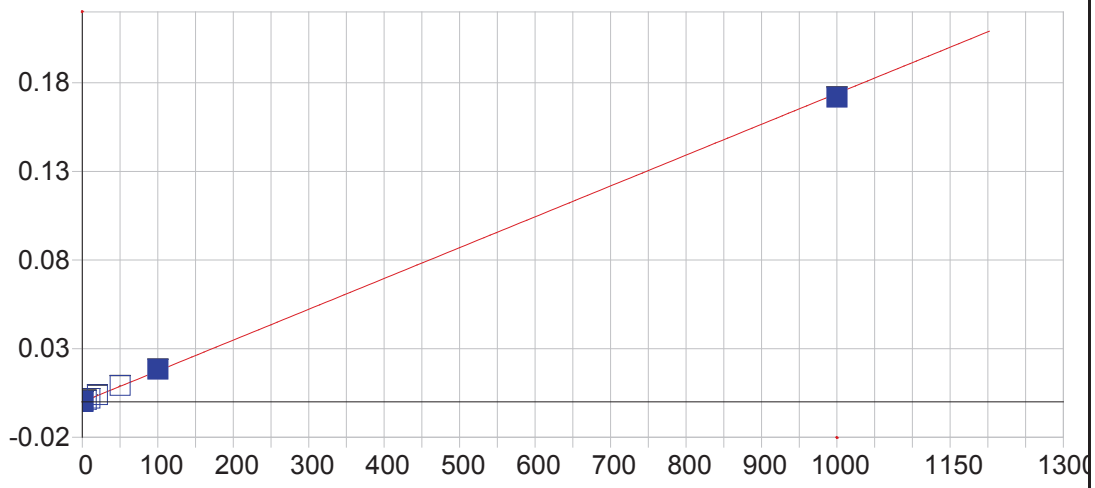


As 197.262 {471}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.067232	Re-Slope:	1.000000
A1 (Gain):	0.050632	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999916	Status:	OK.
Std Error of Est:	0.008465		
Predicted MDL:	8.624968		
Predicted MQL:	28.749893		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00407	-.004	.000	-.06744	.198	1
CalStd9=100	1000.0	1007.9	7.88	.788	50.959	.588	1
CalStd7=50	50.000	57.034	7.03	14.1	2.8205	.698	1
CalStd5=10	10.000	12.009	2.01	20.1	.54077	.204	1
CalStd8=100	100.00	105.97	5.97	5.97	5.2979	.489	1
CalStd10=10	10000.	9977.1	-22.9	-.229	505.10	.986	1

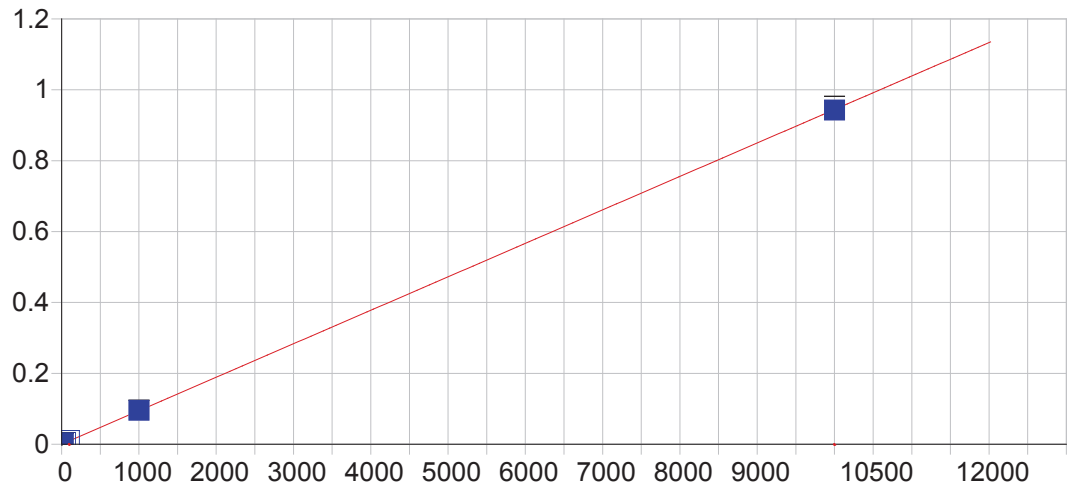


Ba 233.527 {445}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000002	Re-Slope:	1.000000
A1 (Gain):	0.000174	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999522	Status:	OK.
Std Error of Est:	0.000007		
Predicted MDL:	0.541658		
Predicted MQL:	1.805528		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00065	-.001	.000	-.00000	.000	1
CalStd7=50	50.000	52.734	2.73	5.47	.00917	.000	1
CalStd5=10	10.000	11.199	1.20	12.0	.00195	.000	1
CalStd6=20	20.000	22.479	2.48	12.4	.00391	.000	1
CalStd8=100	100.00	105.28	5.28	5.28	.01832	.000	1
CalStd4=5	5.0000	5.5496	.550	11.0	.00096	.000	1
CalStd9=100	1000.0	987.56	-12.4	-1.24	.17185	.000	1
CalStd3=1	1.0000	1.1982	.198	19.8	.00021	.000	1

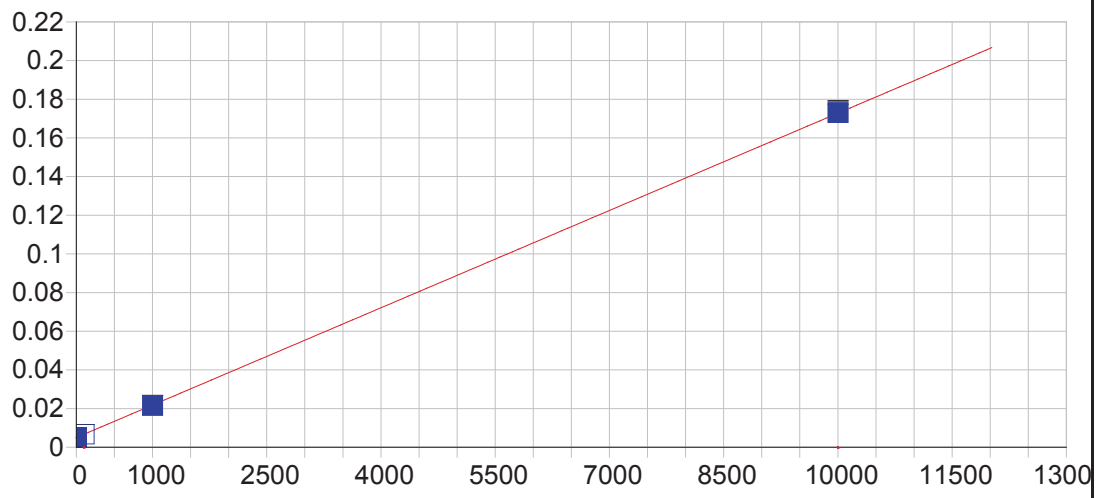


Ba 455.403 { 74}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000215	Re-Slope:	1.000000
A1 (Gain):	0.000094	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999942	Status:	OK.
Std Error of Est:	0.000004		
Predicted MDL:	0.153374		
Predicted MQL:	0.511245		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00067	-.001	.000	.00022	.000	1
CalStd7=50	50.000	53.742	3.74	7.48	.00529	.000	1
CalStd5=10	10.000	10.811	.811	8.11	.00124	.000	1
CalStd6=20	20.000	22.599	2.60	13.0	.00235	.000	1
CalStd8=100	100.00	106.09	6.09	6.09	.01023	.000	1
CalStd4=5	5.0000	5.7302	.730	14.6	.00076	.000	1
CalStd9=100	1000.0	1007.2	7.22	.722	.09532	.000	1
CalStd3=1	1.0000	1.1760	.176	17.6	.00033	.000	1
CalStd10=10	10000.	9978.6	-21.4	-.214	.94245	.011	1

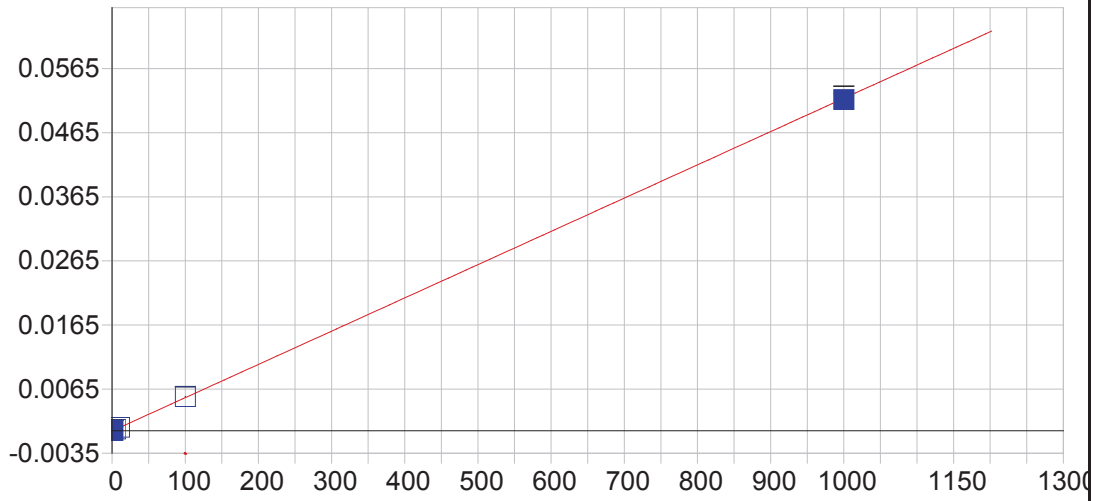


Ba 493.409 { 68}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.005028	Re-Slope:	1.000000
A1 (Gain):	0.000017	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999985	Status:	OK.
Std Error of Est:	0.000004		
Predicted MDL:	0.763067		
Predicted MQL:	2.543558		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00025	-.000	.000	.00503	.000	1
CalStd9=100	1000.0	983.20	-16.8	-1.68	.02153	.000	1
CalStd8=100	100.00	101.78	1.78	1.78	.00674	.000	1
CalStd10=10	10000.	10015.	15.0	.150	.17310	.001	1

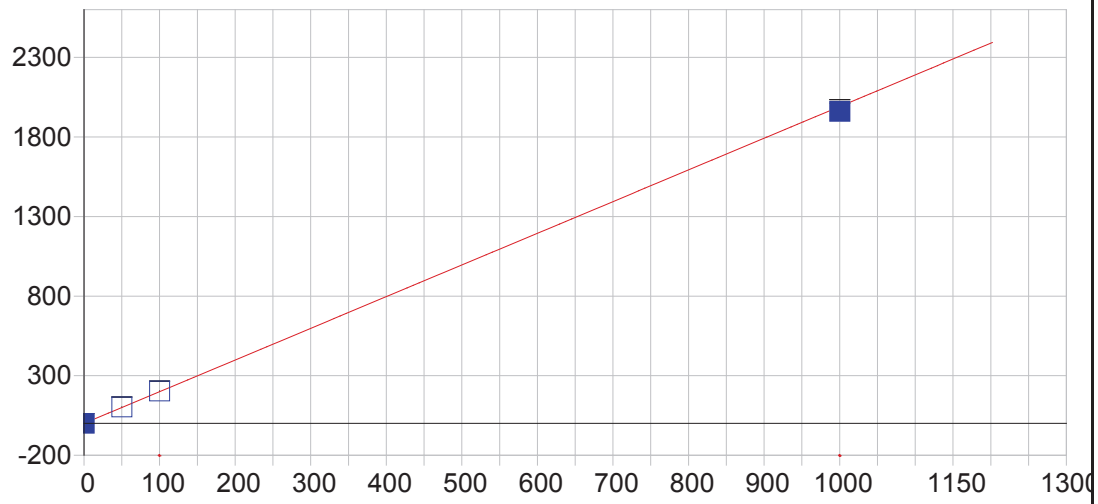


Be 313.042 {108}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000024	Re-Slope:	1.000000
A1 (Gain):	0.000052	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999740	Status:	OK.
Std Error of Est:	0.000001		
Predicted MDL:	0.035733		
Predicted MQL:	0.119110		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00043	-.000	.000	-.00002	.000	1
CalStd5=10	10.000	10.466	.466	4.66	.00052	.000	1
CalStd8=100	100.00	102.90	2.90	2.90	.00531	.000	1
CalStd2=0.5	.50000	.59511	.095	19.0	.00001	.000	1
CalStd4=5	5.0000	5.4985	.498	9.97	.00026	.000	1
CalStd1=0.2	.25000	.55277	.303	121.	.00000	.000	1
CalStd9=100	1000.0	995.59	-4.41	-.441	.05163	.001	1
CalStd3=1	1.0000	1.1450	.145	14.5	.00004	.000	1

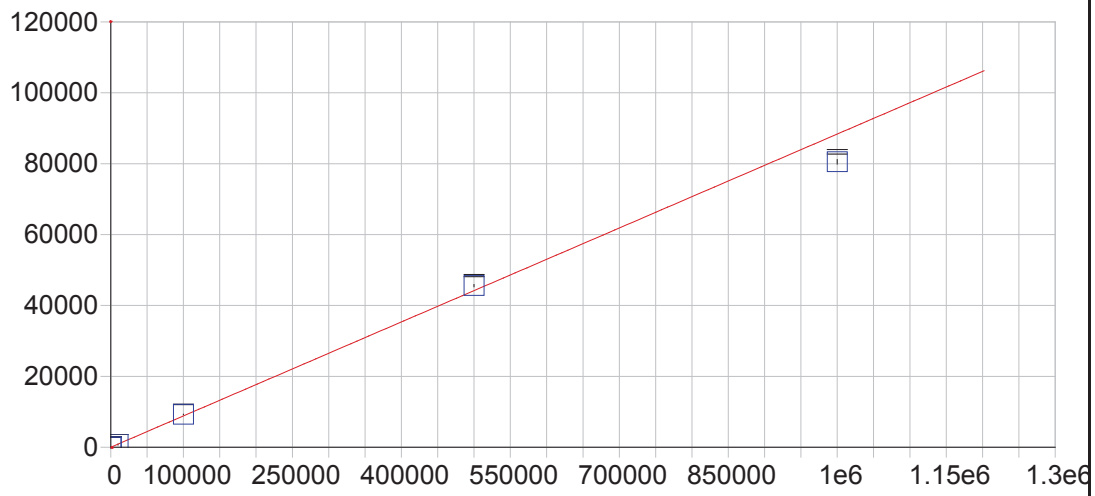


Be 234.861 {144}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.191176	Re-Slope:	1.000000
A1 (Gain):	1.990924	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999811	Status:	OK.
Std Error of Est:	1.123557		
Predicted MDL:	0.380072		
Predicted MQL:	1.266906		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.05841	-.058	.000	.07489	.174	1
CalStd9=100	1000.0	984.55	-15.4	-1.54	1960.6	10.7	1
CalStd8=100	100.00	101.73	1.73	1.73	202.73	1.66	1
CalStd7=50	50.000	51.524	1.52	3.05	102.77	1.03	1

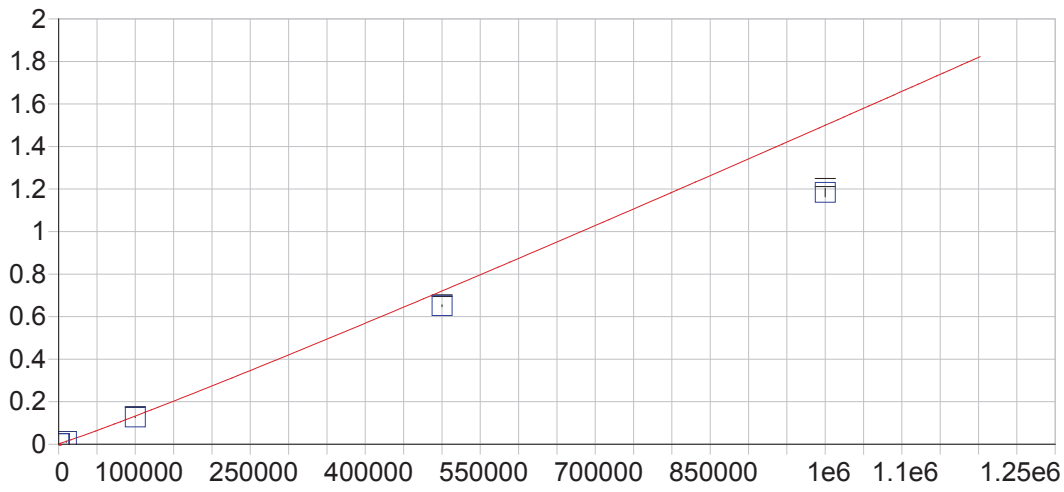


Ca 315.887 {107}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	3.061949	Re-Slope:	1.000000
A1 (Gain):	0.088364	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.998448	Status:	OK.
Std Error of Est:	8.780126		
Predicted MDL:	10.298821		
Predicted MQL:	34.329405		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-19.567	-19.6	.000	1.3329	1.16	1
CalStd10=10	10000.	10200.	200.	2.00	904.34	7.44	1
CalStd13=10	100000.	104700.	4700.	4.70	9254.9	65.5	1
CalStd14=50	500000.	516070.	16100.	3.21	45605.	325.	1
CalStd9=100	1000.0	1002.7	2.67	.267	91.662	.522	1
CalibStd15=	1000000.	911250.	-88700.	-8.87	80525.	619.	1

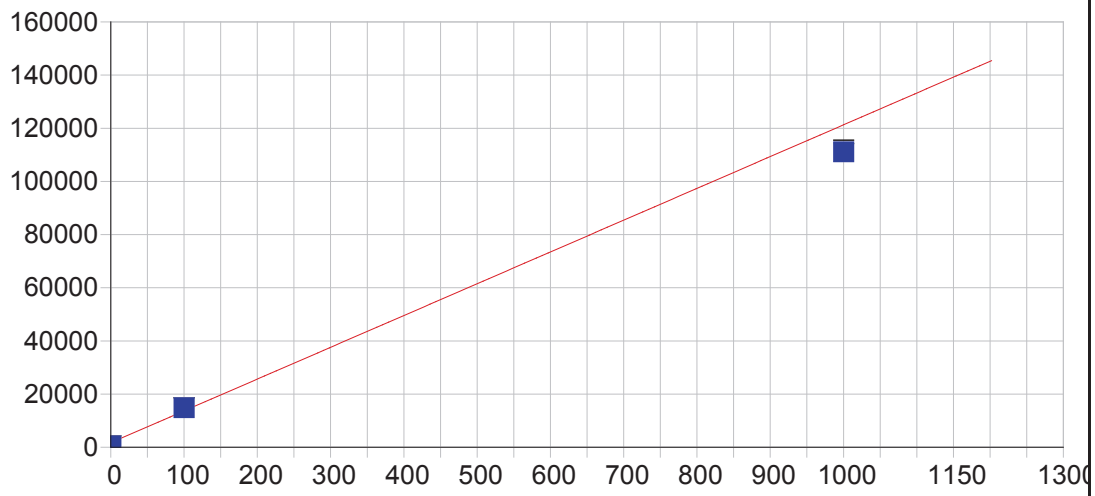


Ca 317.933 {106}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Full Fit	Weighting:	1/Conc

A0 (Offset):	0.002169	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.060000		
Correlation:	0.999969	Status:	OK.
Std Error of Est:	0.000021		
Predicted MDL:	6.518701		
Predicted MQL:	21.729004		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	.00217	.000	1
CalStd10=10	10000.	10544.	544.	5.44	.01419	.000	1
CalStd13=10	100000.	96348.	-3650.	-3.65	.12759	.001	1
CalStd14=50	500000.	454280.	-45700.	-9.14	.65118	.003	1
CalStd9=100	1000.0	1100.1	100.	10.0	.00326	.000	1
CalibStd15=	1000000.	799430.	-201000.	-20.1	1.1837	.019	1

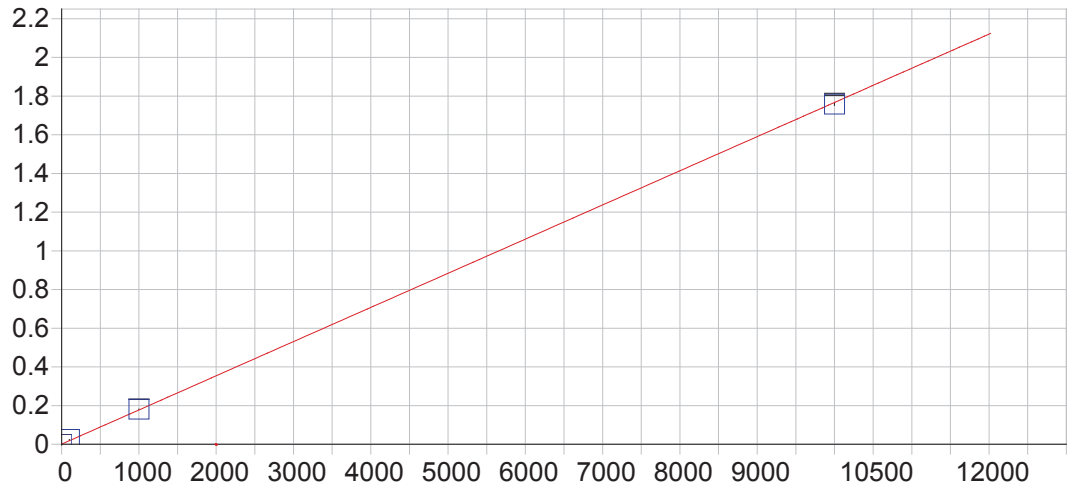


Ca 393.366 { 86}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	1724.997916	Re-Slope:	1.000000
A1 (Gain):	119.565367	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.990971	Status:	OK.
Std Error of Est:	2494.303899		
Predicted MDL:	0.026505		
Predicted MQL:	0.088348		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-10.487	-10.5	.000	471.07	76.9	1
CalStd9=100	1000.0	914.65	-85.4	-8.54	111080.	658.	1
CalStd8=100	100.00	109.66	9.66	9.66	14837.	70.0	1

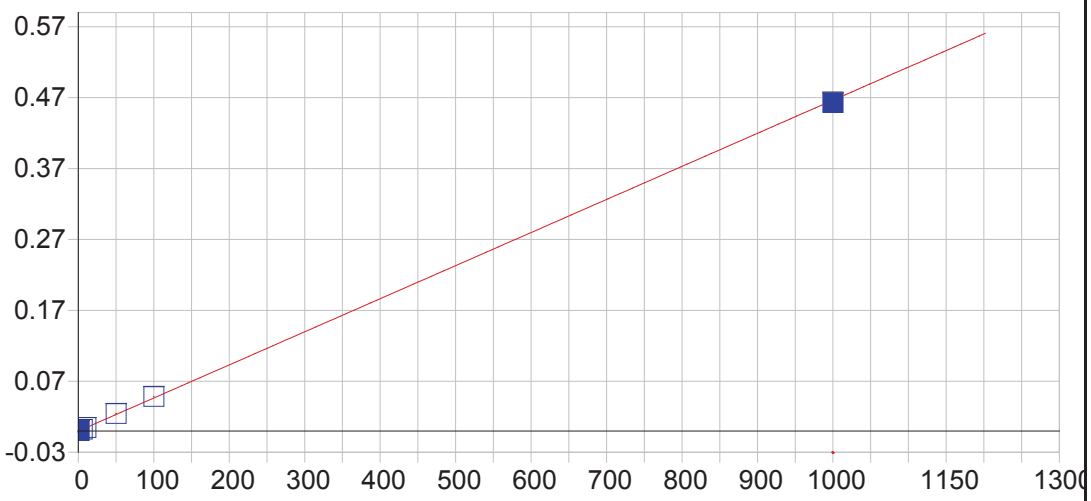


Ca 396.847 { 85}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000746	Re-Slope:	1.000000
A1 (Gain):	0.000177	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999396	Status:	OK.
Std Error of Est:	0.000289		
Predicted MDL:	0.058507		
Predicted MQL:	0.195023		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.03708	-.037	.000	.00074	.000	1
CalStd10=10	10000.	9945.0	-55.0	-.550	1.7573	.005	1
CalStd8=100	100.00	135.70	35.7	35.7	.02471	.000	1
CalStd9=100	1000.0	1019.3	19.3	1.93	.18078	.001	1

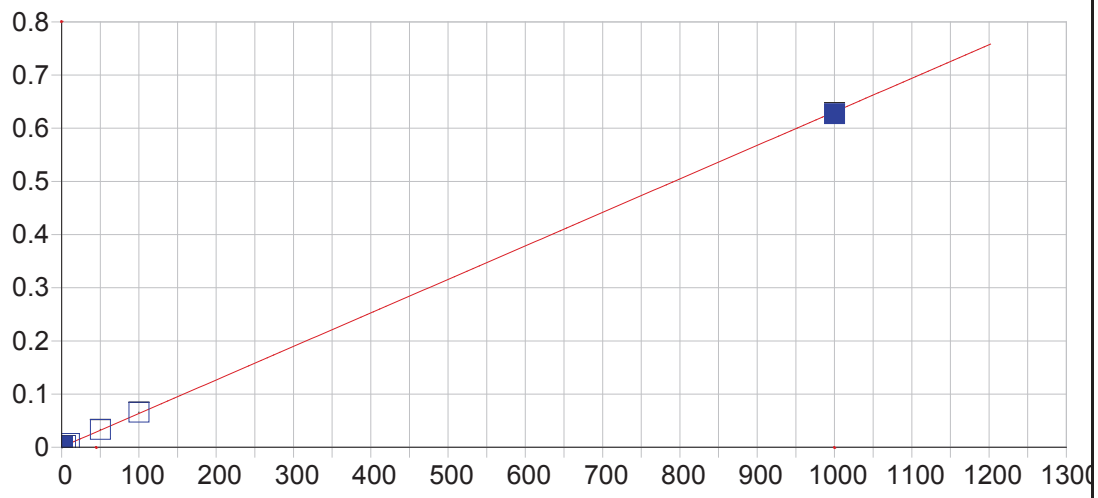


Cd 226.502 {449}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000153	Re-Slope:	1.000000
A1 (Gain):	0.000467	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999801	Status:	OK.
Std Error of Est:	0.000008		
Predicted MDL:	0.282424		
Predicted MQL:	0.941414		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00002	.000	.000	-.00015	.000	1
CalStd7=50	50.000	52.741	2.74	5.48	.02446	.000	1
CalStd3=1	1.0000	1.0522	.052	5.22	.00034	.000	1
CalStd2=0.5	.50000	.36283	-.137	-27.4	.00002	.000	1
CalStd4=5	5.0000	5.2245	.225	4.49	.00229	.000	1
CalStd8=100	100.00	104.31	4.31	4.31	.04851	.000	1
CalStd5=10	10.000	10.452	.452	4.52	.00472	.000	1
CalStd9=100	1000.0	992.36	-7.64	-.764	.46296	.001	1

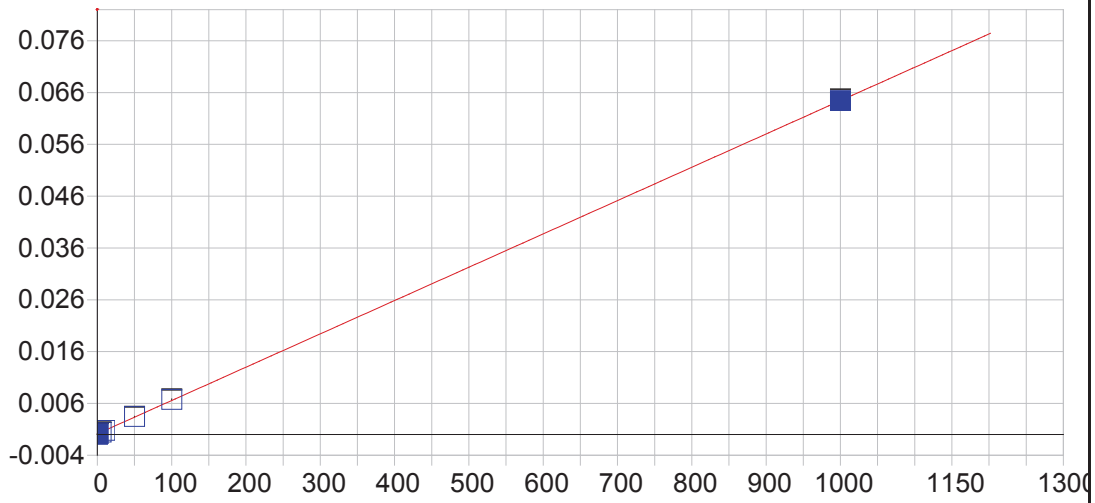


Cd 228.802 {447}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000513	Re-Slope:	1.000000
A1 (Gain):	0.000630	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999886	Status:	OK.
Std Error of Est:	0.000008		
Predicted MDL:	0.255986		
Predicted MQL:	0.853287		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00002	-.000	.000	.00051	.000	1
CalStd7=50	50.000	52.089	2.09	4.18	.03335	.000	1
CalStd3=1	1.0000	1.0300	.030	3.00	.00116	.000	1
CalStd2=0.5	.50000	.43423	-.066	-13.2	.00079	.000	1
CalStd4=5	5.0000	5.2742	.274	5.48	.00384	.000	1
CalStd8=100	100.00	103.40	3.40	3.40	.06569	.000	1
CalStd5=10	10.000	10.201	.201	2.01	.00694	.000	1
CalStd9=100	1000.0	994.07	-5.93	-.593	.62713	.002	1

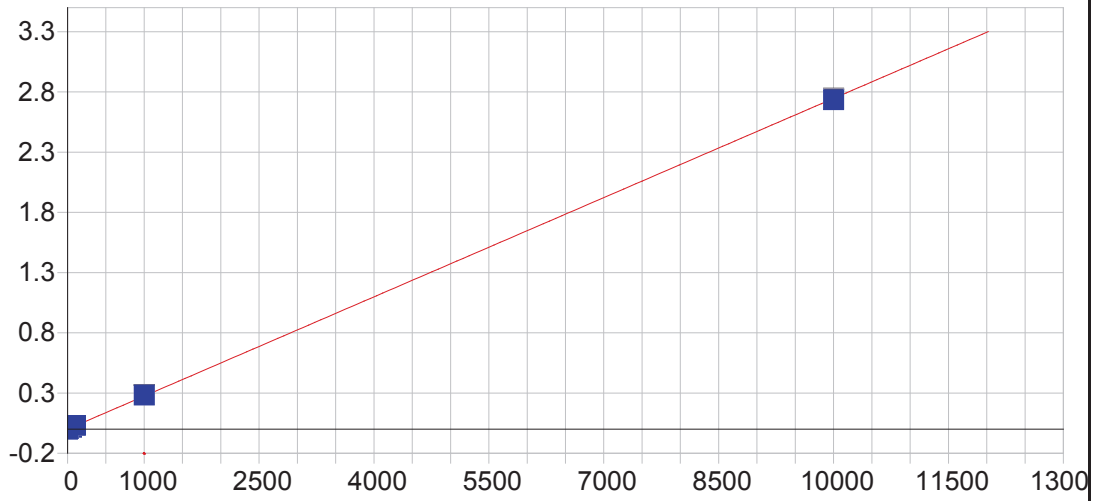


Cd 228.802 {448}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.000132	Re-Slope:	1.000000
A1 (Gain):	0.000064	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999990	Status:	OK.
Std Error of Est:	0.000106		
Predicted MDL:	1.147067		
Predicted MQL:	3.823556		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-1.3814	-1.38	.000	.00004	.000	1
CalStd7=50	50.000	51.397	1.40	2.79	.00344	.000	1
CalStd3=1	1.0000	.31419	-.686	-68.6	.00015	.000	1
CalStd2=0.5	.50000	-.97165	-1.47	-294.	.00007	.000	1
CalStd4=5	5.0000	4.5511	-.449	-8.98	.00042	.000	1
CalStd8=100	100.00	103.07	3.07	3.07	.00676	.000	1
CalStd5=10	10.000	9.8916	-.108	-1.08	.00077	.000	1
CalStd9=100	1000.0	999.63	-.372	-.037	.06444	.000	1

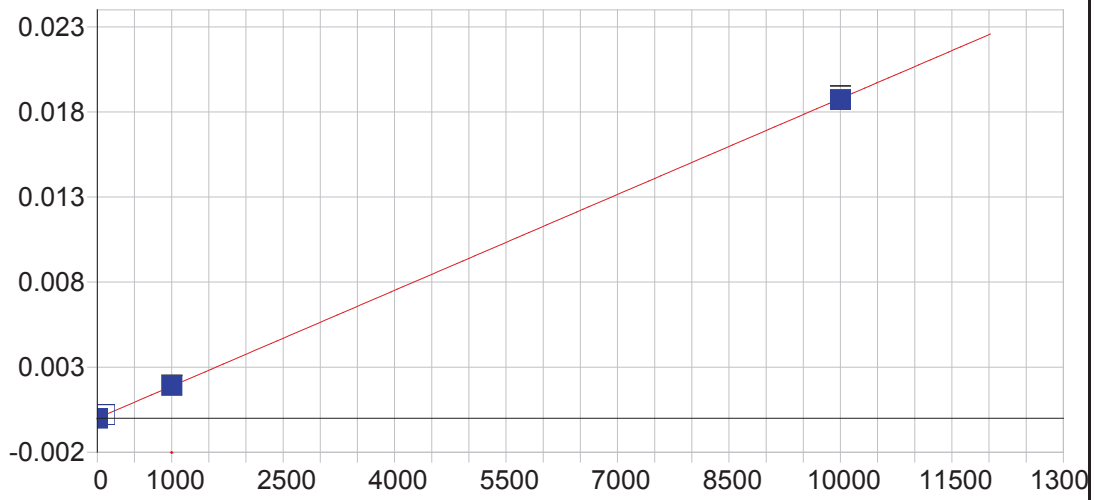


Co 228.616 {447}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000016	Re-Slope:	1.000000
A1 (Gain):	0.000275	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999887	Status:	OK.
Std Error of Est:	0.000016		
Predicted MDL:	0.427504		
Predicted MQL:	1.425012		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00039	-.000	.000	-.00002	.000	1
CalStd7=50	50.000	55.361	5.36	10.7	.01521	.000	1
CalStd5=10	10.000	10.888	.888	8.88	.00298	.000	1
CalStd4=5	5.0000	5.4807	.481	9.61	.00149	.000	1
CalStd8=100	100.00	109.05	9.05	9.05	.02998	.000	1
CalStd9=100	1000.0	1028.6	28.6	2.86	.28298	.001	1
CalStd3=1	1.0000	.98805	-.012	-1.20	.00026	.000	1
CalStd10=10	10000.	9955.7	-44.3	-.443	2.7427	.004	1

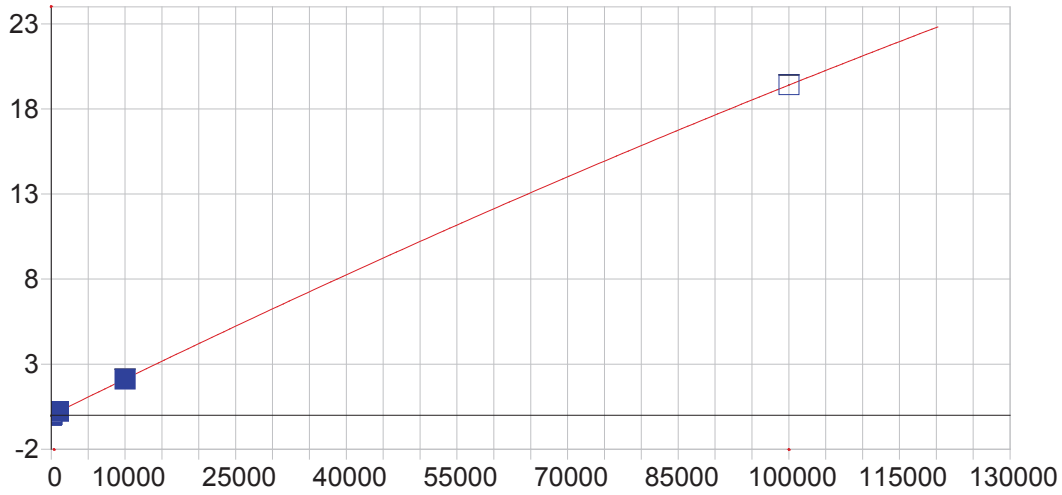


Co 238.892 {141}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000001	Re-Slope:	1.000000
A1 (Gain):	0.000002	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999932	Status:	OK.
Std Error of Est:	0.000001		
Predicted MDL:	0.612121		
Predicted MQL:	2.040404		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.01120	-.011	.000	.00000	.000	1
CalStd9=100	1000.0	1023.8	23.8	2.38	.00192	.000	1
CalStd10=10	10000.	9967.1	-32.9	-.329	.01873	.000	1
CalStd8=100	100.00	109.15	9.15	9.15	.00021	.000	1

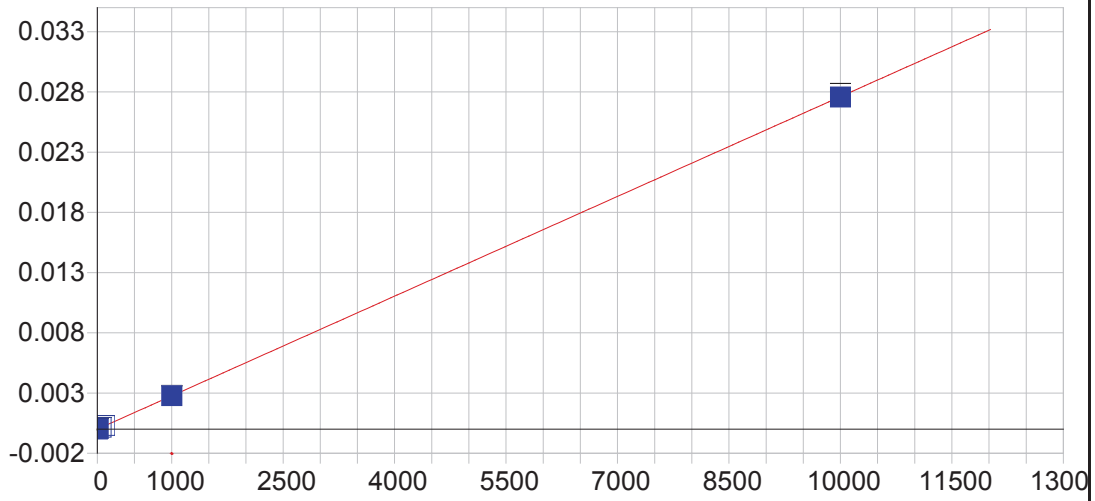


Cr 205.560 {464}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Curvilinear	Weighting:	1/Var

A0 (Offset):	0.000239	Re-Slope:	1.000000
A1 (Gain):	0.000214	Y-int:	0.000000
A2 (Curvature):	-0.000000		
n (Exponent):	1.000000		
Correlation:	0.999944	Status:	OK.
Std Error of Est:	0.000494		
Predicted MDL:	0.415635		
Predicted MQL:	1.385451		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-1.6603	-1.66	.000	-.00012	.000	1
CalStd5=10	10.000	9.1925	-.807	-8.07	.00221	.000	1
CalStd7=50	50.000	52.114	2.11	4.23	.01141	.000	1
CalStd9=100	1000.0	1014.4	14.4	1.44	.21755	.000	1
CalStd8=100	100.00	105.57	5.57	5.57	.02288	.000	1
CalStd4=5	5.0000	4.3754	-.625	-12.5	.00118	.000	1
CalStd3=1	1.0000	.16210	-.838	-83.8	.00027	.000	1
CalStd10=10	10000.	9945.4	-54.6	-.546	2.1127	.002	1
CalStd12=10	100000.	100100.	96.0	.096	19.417	.019	1

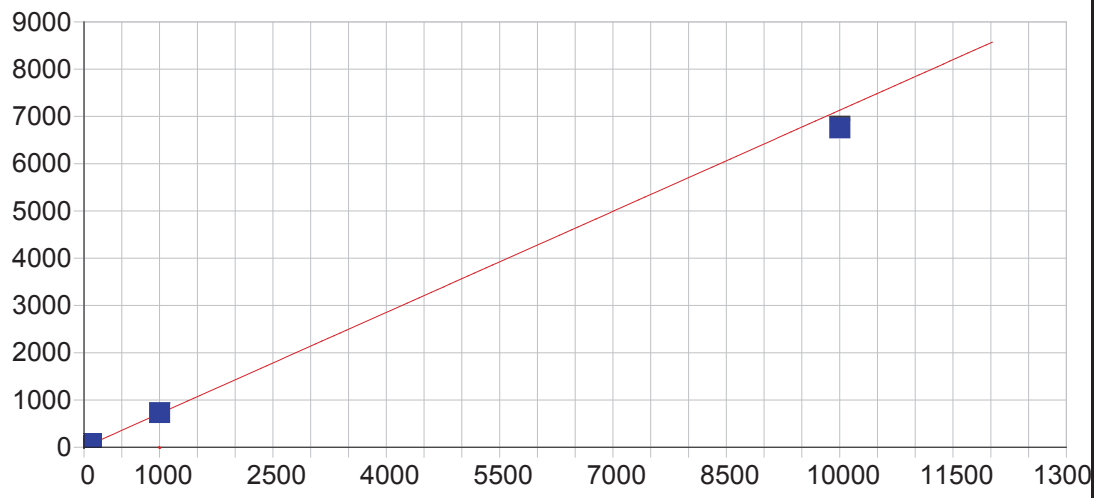


Cr 267.716 {126}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000001	Re-Slope:	1.000000
A1 (Gain):	0.000003	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999961	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	0.556908		
Predicted MQL:	1.856360		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00155	-.002	.000	-.00000	.000	1
CalStd5=10	10.000	10.431	.431	4.31	.00003	.000	1
CalStd7=50	50.000	54.409	4.41	8.82	.00015	.000	1
CalStd9=100	1000.0	1004.0	4.02	.402	.00277	.000	1
CalStd8=100	100.00	105.86	5.86	5.86	.00029	.000	1
CalStd4=5	5.0000	5.5919	.592	11.8	.00001	.000	1
CalStd10=10	10000.	9984.7	-15.3	-.153	.02757	.000	1

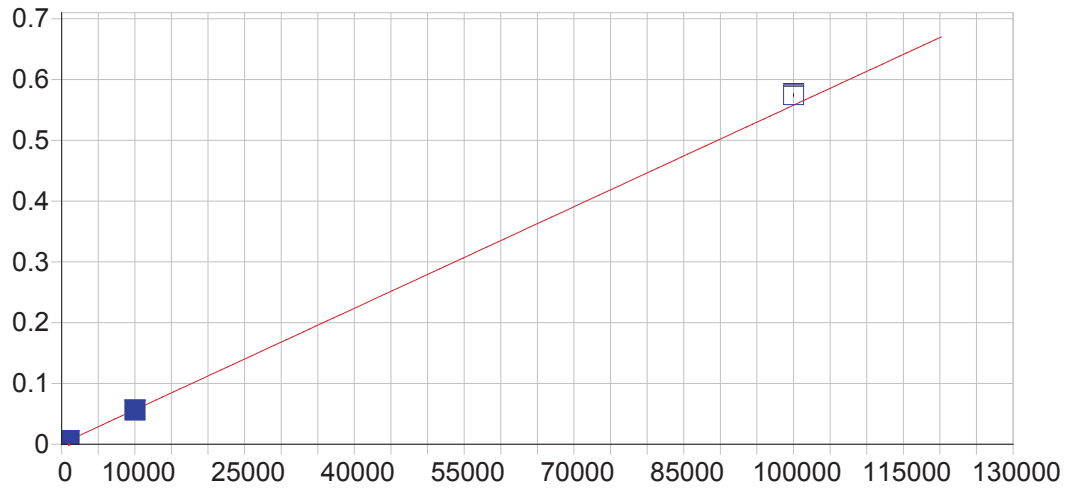


Cu 224.700 {450}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.970378	Re-Slope:	1.000000
A1 (Gain):	0.712985	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999085	Status:	OK.
Std Error of Est:	1.860242		
Predicted MDL:	1.106612		
Predicted MQL:	3.688706		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.68753	-.688	.000	.48018	.129	1
CalStd9=100	1000.0	1021.9	21.9	2.19	728.62	2.62	1
CalStd7=50	50.000	53.831	3.83	7.66	39.398	.461	1
CalStd8=100	100.00	105.74	5.74	5.74	76.241	.861	1
CalStd5=10	10.000	9.6990	-.301	-3.01	7.9166	.678	1
CalStd10=10	10000.	9479.7	-520.	-5.20	6740.9	32.5	1
CalStd4=5	5.0000	5.5854	.585	11.7	4.9574	.662	1
CalStd6=20	20.000	21.609	1.61	8.04	16.396	.818	1
CalStd3=1	1.0000	1.5662	.566	56.6	2.0871	.237	1

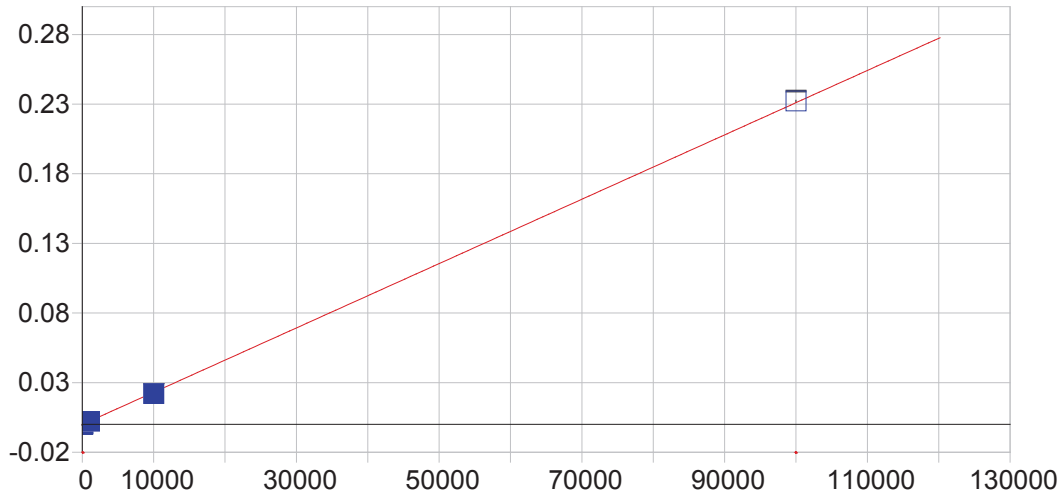


Cu 324.754 {104}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.000972	Re-Slope:	1.000000
A1 (Gain):	0.000006	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999793	Status:	OK.
Std Error of Est:	0.000171		
Predicted MDL:	1.470970		
Predicted MQL:	4.903234		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	8.0743	8.07	.000	.00102	.000	1
CalStd9=100	1000.0	995.21	-4.79	-.479	.00651	.000	1
CalStd8=100	100.00	101.93	1.93	1.93	.00154	.000	1
CalStd10=10	10000.	9864.8	-135.	-1.35	.05589	.000	1
CalStd12=10	100000.	103050.	3050.	3.05	.57475	.002	1

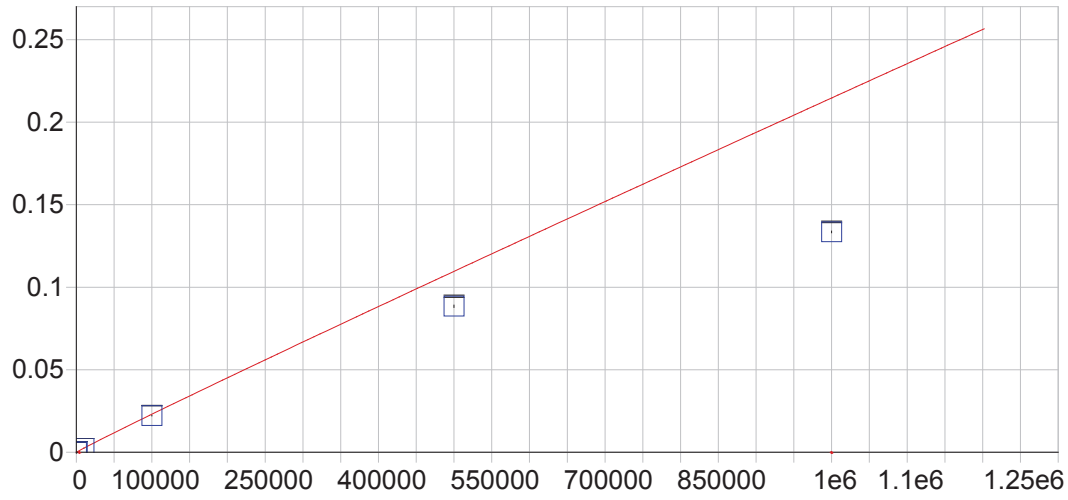


Cu 327.396 {103}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000045	Re-Slope:	1.000000
A1 (Gain):	0.000002	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999891	Status:	OK.
Std Error of Est:	0.000002		
Predicted MDL:	3.443546		
Predicted MQL:	11.478488		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00283	-.003	.000	-.00005	.000	1
CalStd6=20	20.000	21.921	1.92	9.61	.00001	.000	1
CalStd7=50	50.000	54.015	4.01	8.03	.00008	.000	1
CalStd8=100	100.00	104.25	4.25	4.25	.00020	.000	1
CalStd9=100	1000.0	962.60	-37.4	-3.74	.00218	.000	1
CalStd10=10	10000.	9553.5	-446.	-4.46	.02203	.000	1
CalStd12=10	100000.	100470.	474.	.474	.23214	.001	1

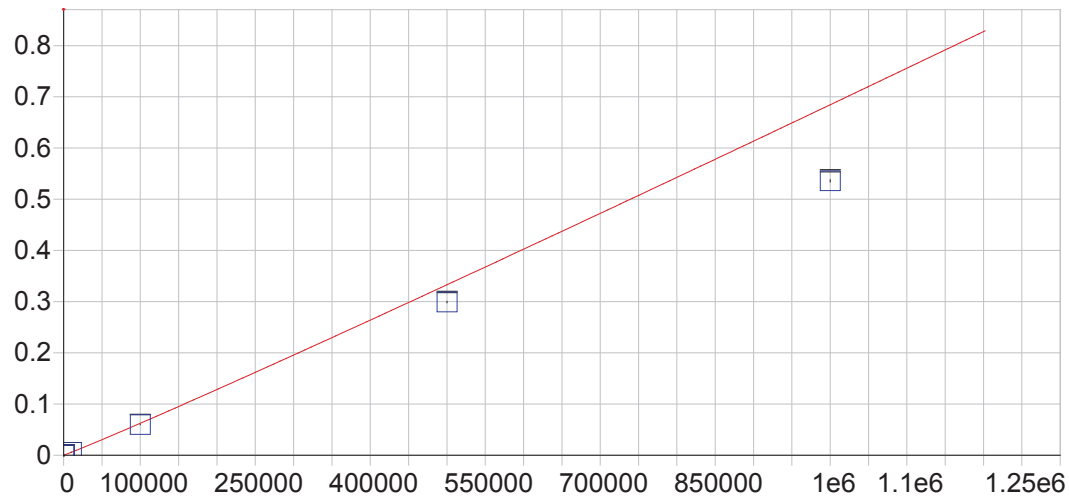


Fe 234.349 {144}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Full Fit	Weighting:	None

A0 (Offset):	0.000040	Re-Slope:	1.000000
A1 (Gain):	0.000000	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	0.970000		
Correlation:	1.000000	Status:	OK.
Std Error of Est:	0.000054		
Predicted MDL:	1.626135		
Predicted MQL:	5.420451		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	.00003	.000	1
CalStd10=10	10000.	9890.8	-109.	-1.09	.00248	.000	1
CalStd13=10	100000.	96122.	-3880.	-3.88	.02217	.000	1
CalStd14=50	500000.	400700.	-99300.	-19.9	.08843	.001	1
CalStd9=100	1000.0	913.01	-87.0	-8.70	.00028	.000	1
CalibStd15=	1000000.	612830.	-387000.	-38.7	.13352	.000	1

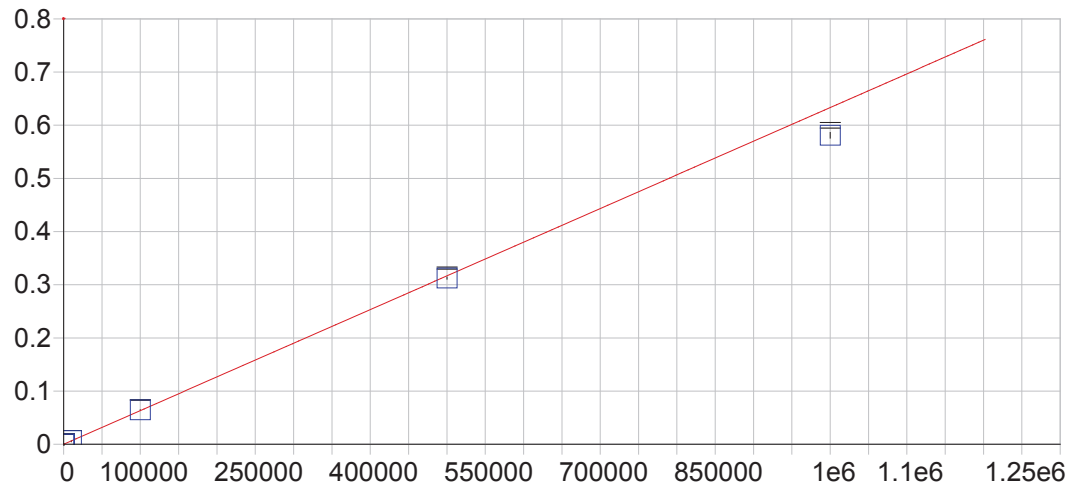


Fe 239.562 {140}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Full Fit	Weighting:	1/Conc

A0 (Offset):	0.000006	Re-Slope:	1.000000
A1 (Gain):	0.000000	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.040000		
Correlation:	0.999958	Status:	OK.
Std Error of Est:	0.000011		
Predicted MDL:	6.998611		
Predicted MQL:	23.328704		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	.00001	.000	1
CalStd10=10	10000.	10627.	627.	6.27	.00607	.000	1
CalStd13=10	100000.	96104.	-3900.	-3.90	.05991	.000	1
CalStd14=50	500000.	451310.	-48700.	-9.74	.29926	.001	1
CalStd9=100	1000.0	1155.2	155.	15.5	.00061	.000	1
CalibStd15=	1000000.	790190.	-210000.	-21.0	.53584	.002	1

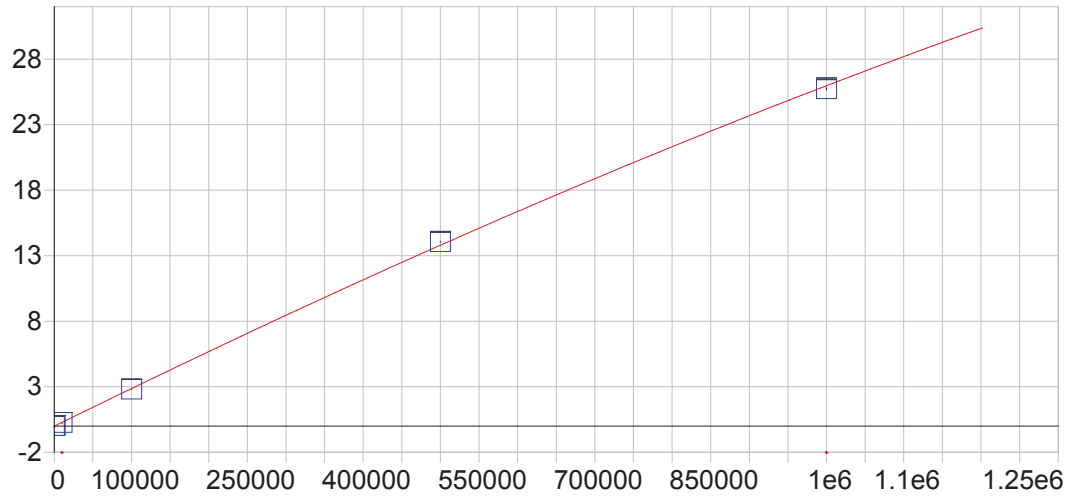


Fe 259.940 {129}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.000003	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999442	Status:	OK.
Std Error of Est:	0.000027		
Predicted MDL:	2.076437		
Predicted MQL:	6.921455		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-1.7367	-1.74	.000	.00000	.000	1
CalStd10=10	10000.	10247.	247.	2.47	.00649	.000	1
CalStd13=10	100000.	101630.	1630.	1.63	.06437	.000	1
CalStd14=50	500000.	493440.	-6560.	-1.31	.31251	.002	1
CalStd9=100	1000.0	1002.7	2.67	.267	.00064	.000	1
CalibStd15=	1000000.	917440.	-82600.	-8.26	.58104	.005	1

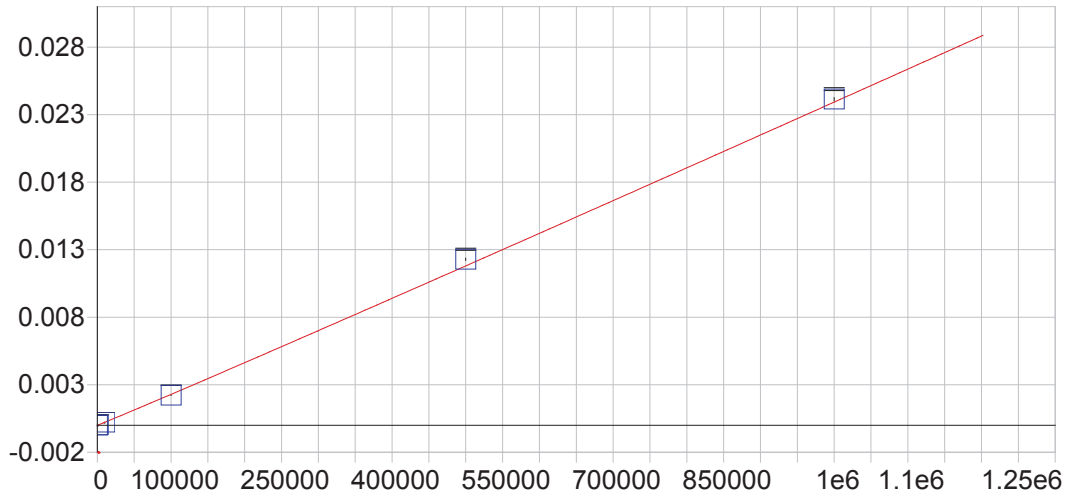


Mg 202.582 {466}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Full Fit	Weighting:	1/Var

A0 (Offset):	0.000000	Re-Slope:	1.000000
A1 (Gain):	0.000026	Y-int:	0.000000
A2 (Curvature):	-0.000000		
n (Exponent):	1.010000		
Correlation:	0.999761	Status:	OK.
Std Error of Est:	0.001224		
Predicted MDL:	3.590532		
Predicted MQL:	11.968440		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	-.00006	.000	1
CalStd13=10	100000.	98435.	-1560.	-1.56	2.8113	.012	1
CalStd10=10	10000.	9432.7	-567.	-5.67	.26599	.002	1
CalStd14=50	500000.	510150.	10100.	2.03	14.061	.035	1
CalStd9=100	1000.0	1032.0	32.0	3.20	.02849	.000	1
CalibStd15=	1000000.	989440.	-10600.	-1.06	25.730	.070	1

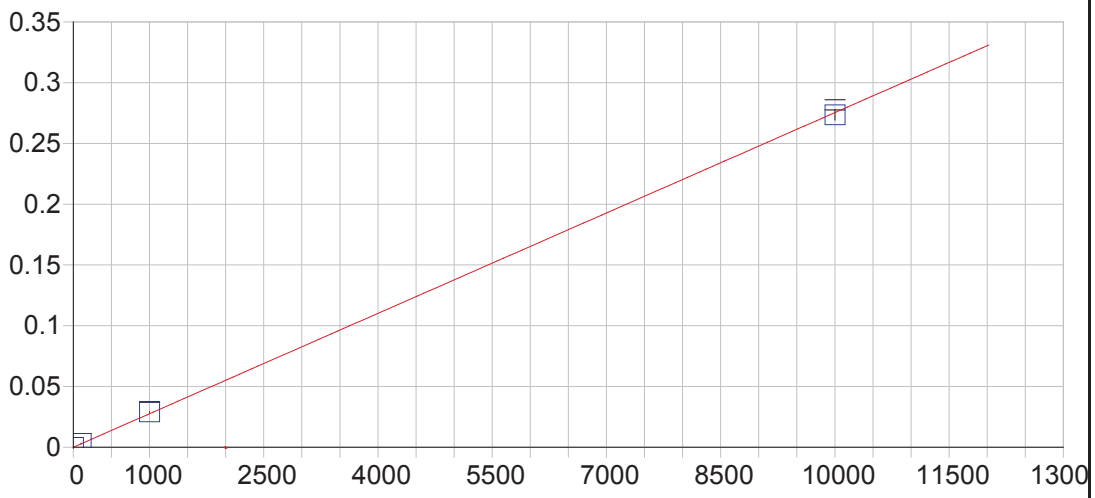


Mg 279.079 {121}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Full Fit	Weighting:	1/Var

A0 (Offset):	0.000000	Re-Slope:	1.000000
A1 (Gain):	0.000000	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.020000		
Correlation:	0.999769	Status:	OK.
Std Error of Est:	0.000004		
Predicted MDL:	35.839158		
Predicted MQL:	119.463859		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	-.00000	.000	1
CalStd13=10	100000.	97047.	-2950.	-2.95	.00222	.000	1
CalStd10=10	10000.	10125.	125.	1.25	.00022	.000	1
CalStd14=50	500000.	520180.	20200.	4.04	.01229	.000	1
CalStd9=100	1000.0	1002.0	1.97	.197	.00002	.000	1
CalibStd15=	1000000.	1009000.	8960.	.896	.02415	.000	1

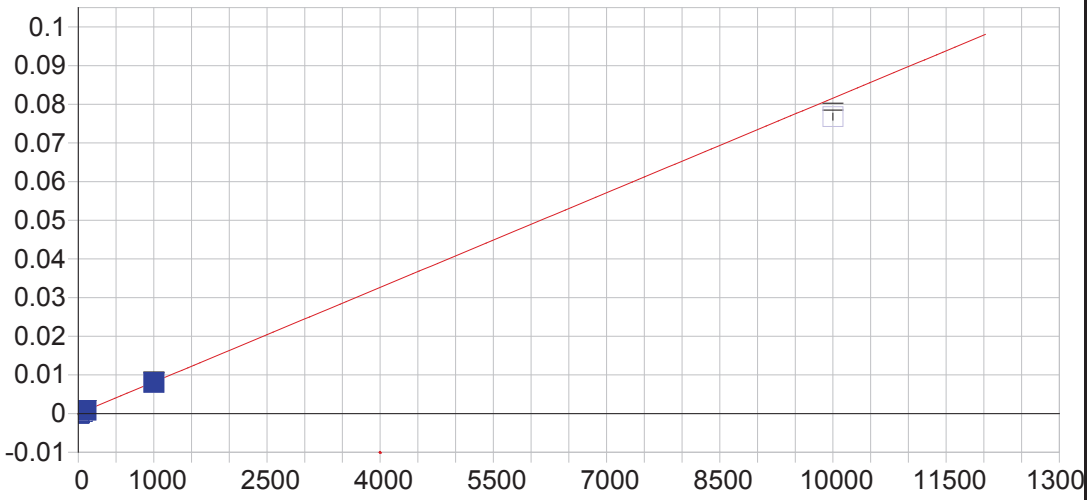


Mg 280.270 {120}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000046	Re-Slope:	1.000000
A1 (Gain):	0.000028	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999709	Status:	OK.
Std Error of Est:	0.000031		
Predicted MDL:	0.030375		
Predicted MQL:	0.101249		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.02239	-.022	.000	.00005	.000	1
CalStd9=100	1000.0	1052.8	52.8	5.28	.02903	.000	1
CalStd10=10	10000.	9929.4	-70.6	-.706	.27343	.004	1
CalStd8=100	100.00	117.82	17.8	17.8	.00329	.000	1

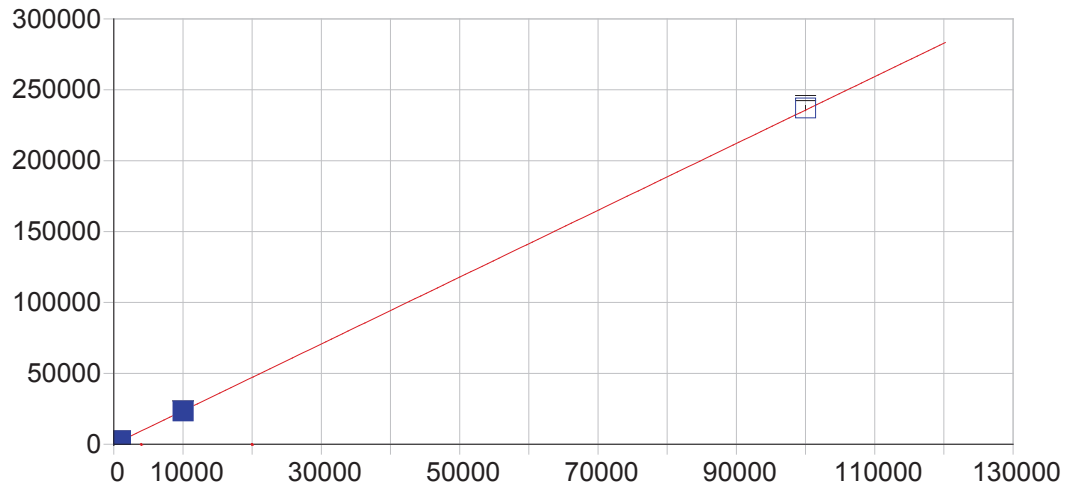


Mn 257.610 {131}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000000	Re-Slope:	1.000000
A1 (Gain):	0.000008	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999231	Status:	OK.
Std Error of Est:	0.000001		
Predicted MDL:	0.088378		
Predicted MQL:	0.294593		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00290	-.003	.000	-.00000	.000	1
CalStd5=10	10.000	10.926	.926	9.26	.00009	.000	1
CalStd7=50	50.000	54.711	4.71	9.42	.00045	.000	1
CalStd6=20	20.000	22.953	2.95	14.8	.00019	.000	1
CalStd8=100	100.00	106.37	6.37	6.37	.00087	.000	1
CalStd4=5	5.0000	5.9908	.991	19.8	.00005	.000	1
CalStd9=100	1000.0	984.05	-16.0	-1.60	.00803	.000	1
CalStd10=10	10000.	9411.0	-589.	-5.89	.07678	.001	0

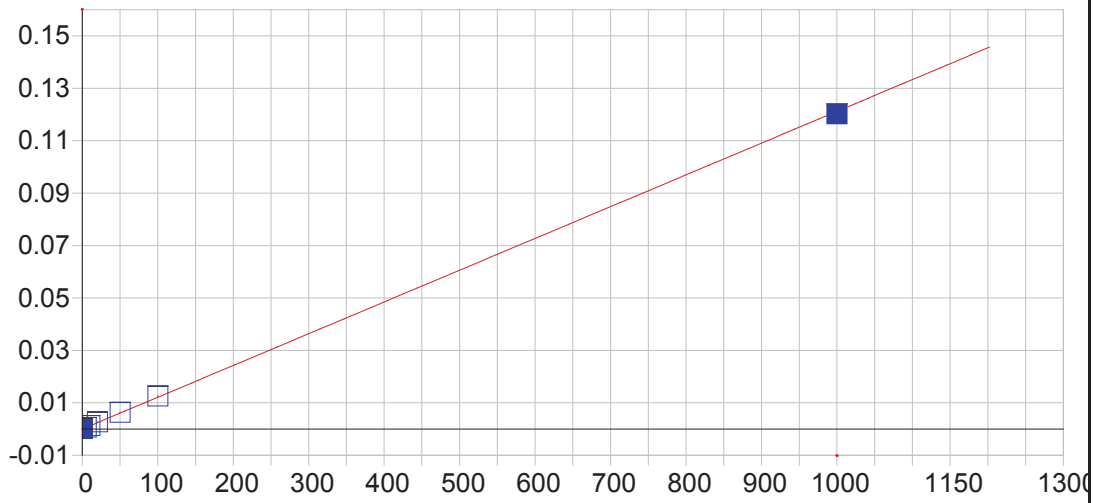


Mn 259.373 {130}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	1.868386	Re-Slope:	1.000000
A1 (Gain):	2.357258	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999985	Status:	OK.
Std Error of Est:	0.647580		
Predicted MDL:	0.432531		
Predicted MQL:	1.441770		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00122	-.001	.000	1.8655	.320	1
CalStd10=10	10000.	9950.8	-49.2	-.492	23489.	121.	1
CalStd9=100	1000.0	1006.2	6.19	.619	2376.8	20.2	1
CalStd12=10	100000.	100590.	586.	.586	237110.	1770.	1

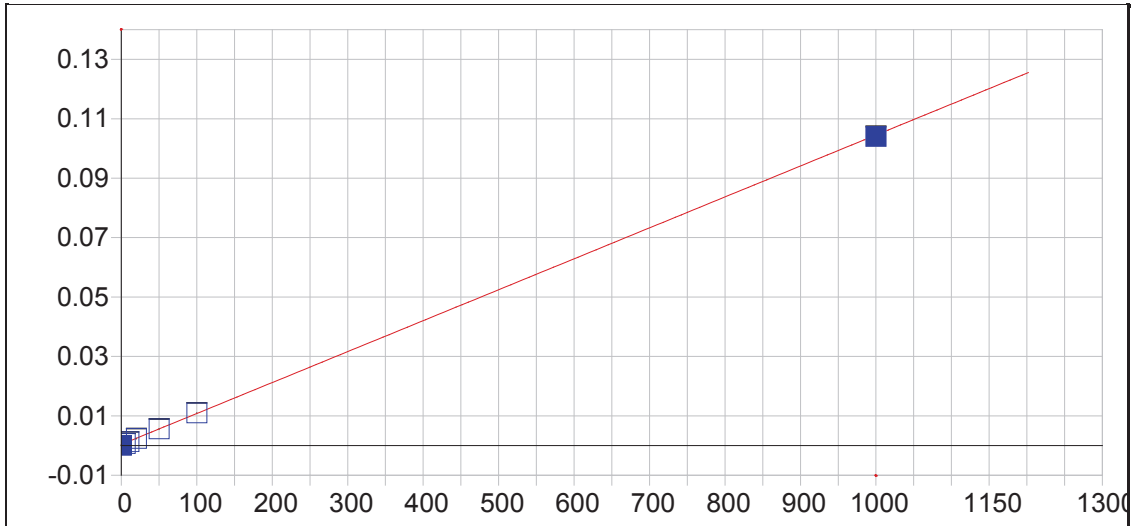


Mo 202.030 {466}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000000	Re-Slope:	1.000000
A1 (Gain):	0.000121	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999773	Status:	OK.
Std Error of Est:	0.000007		
Predicted MDL:	0.619285		
Predicted MQL:	2.064285		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00130	-.001	.000	-.00000	.000	1
CalStd7=50	50.000	52.247	2.25	4.49	.00633	.000	1
CalStd6=20	20.000	22.069	2.07	10.3	.00267	.000	1
CalStd5=10	10.000	10.405	.405	4.05	.00126	.000	1
CalStd8=100	100.00	103.52	3.52	3.52	.01255	.000	1
CalStd4=5	5.0000	5.2232	.223	4.46	.00063	.000	1
CalStd9=100	1000.0	991.54	-8.46	-.846	.12018	.000	1

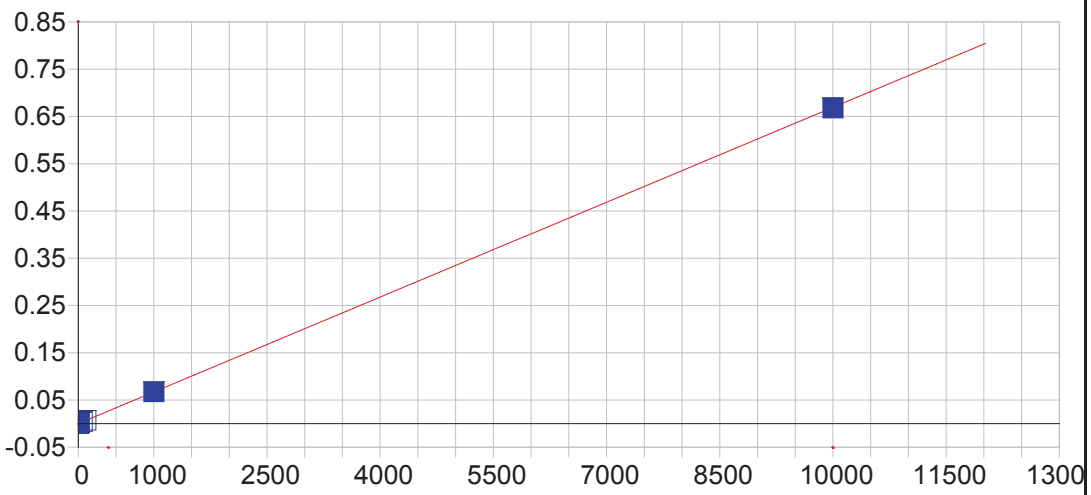


Mo 203.844 {465}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.000370	Re-Slope:	1.000000
A1 (Gain):	0.000104	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999874	Status:	OK.
Std Error of Est:	0.000262		
Predicted MDL:	0.915837		
Predicted MQL:	3.052789		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-3.1732	-3.17	.000	.00004	.000	1
CalStd7=50	50.000	49.999	-.001	-.001	.00558	.000	1
CalStd6=20	20.000	18.997	-1.00	-5.02	.00235	.000	1
CalStd5=10	10.000	8.1604	-1.84	-18.4	.00122	.000	1
CalStd8=100	100.00	101.77	1.77	1.77	.01097	.000	1
CalStd4=5	5.0000	2.5072	-2.49	-49.9	.00063	.000	1
CalStd9=100	1000.0	994.89	-5.11	-.511	.10399	.000	1

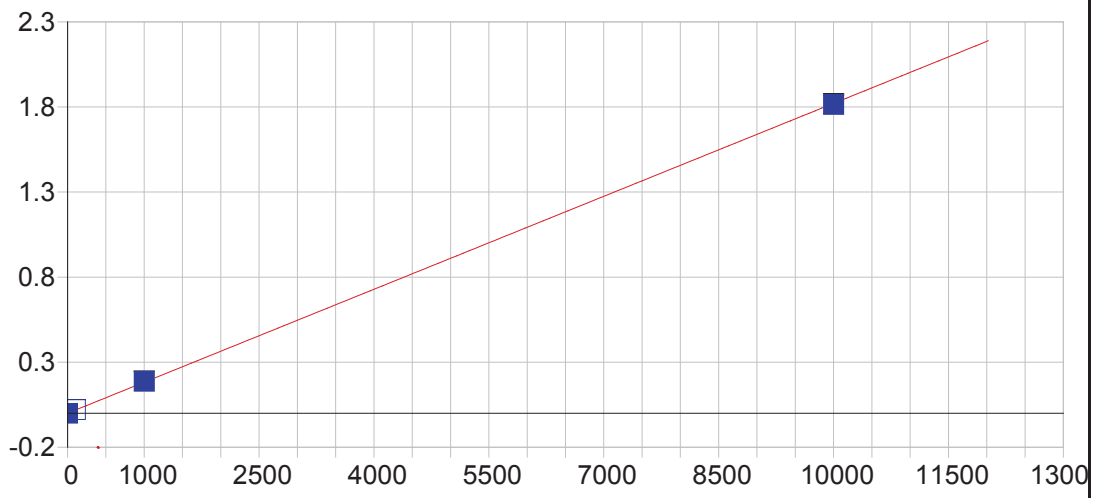


Mo 204.598 {464}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.000036	Re-Slope:	1.000000
A1 (Gain):	0.000067	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999977	Status:	OK.
Std Error of Est:	0.000121		
Predicted MDL:	1.205727		
Predicted MQL:	4.019091		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.90935	-.909	.000	-.00003	.000	1
CalStd7=50	50.000	51.950	1.95	3.90	.00351	.000	1
CalStd6=20	20.000	21.128	1.13	5.64	.00145	.000	1
CalStd5=10	10.000	8.8858	-1.11	-11.1	.00063	.000	1
CalStd8=100	100.00	103.13	3.13	3.13	.00694	.000	1
CalStd4=5	5.0000	4.1892	-.811	-16.2	.00032	.000	1
CalStd9=100	1000.0	1003.1	3.12	.312	.06717	.000	1
CalStd10=10	10000.	9975.5	-24.5	-.245	.66760	.001	1

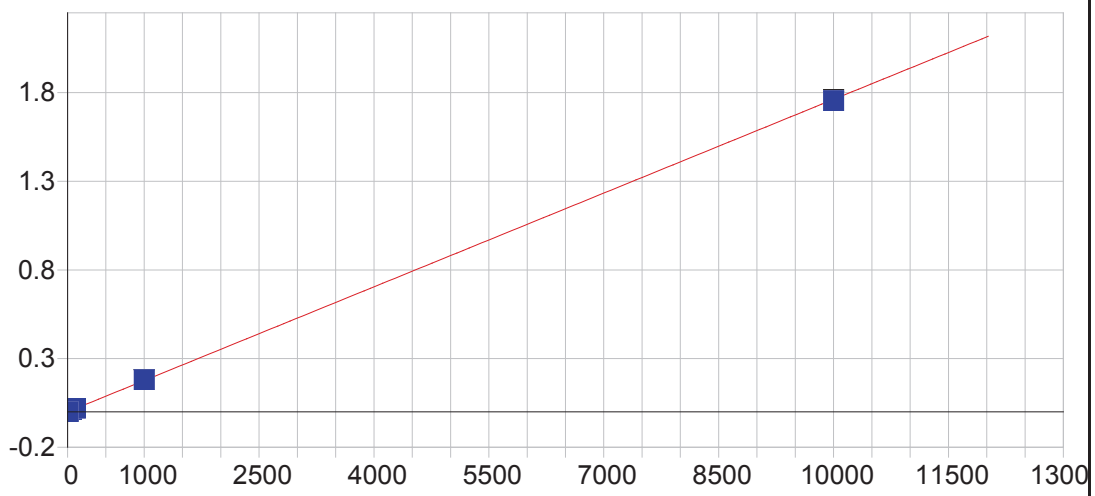


Ni 221.647 {452}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000135	Re-Slope:	1.000000
A1 (Gain):	0.000182	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999915	Status:	OK.
Std Error of Est:	0.000112		
Predicted MDL:	0.762485		
Predicted MQL:	2.541617		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.01233	-.012	.000	.00013	.000	1
CalStd10=10	10000.	9962.4	-37.6	-.376	1.8146	.004	1
CalStd8=100	100.00	109.94	9.94	9.94	.02016	.000	1
CalStd9=100	1000.0	1027.7	27.7	2.77	.18730	.001	1

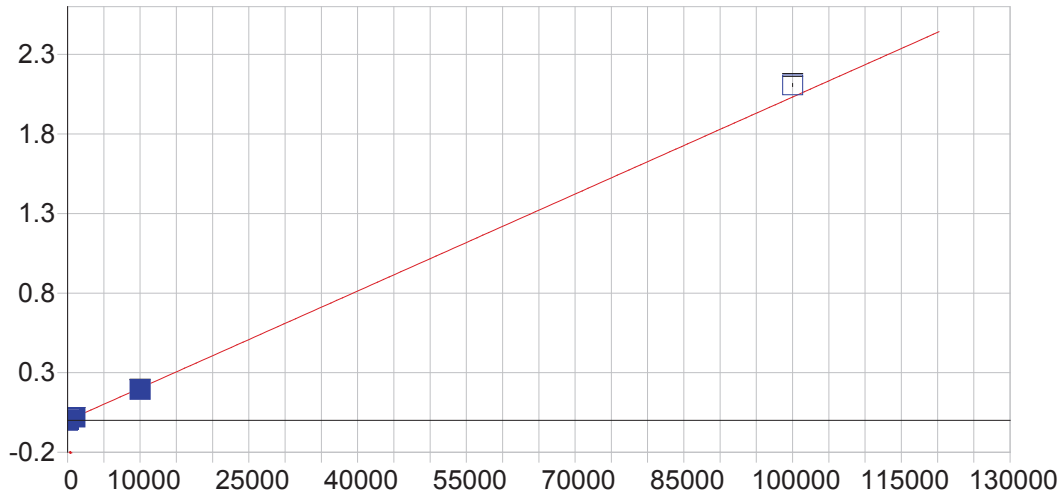


Ni 231.604 {445}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000099	Re-Slope:	1.000000
A1 (Gain):	0.000176	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999860	Status:	OK.
Std Error of Est:	0.000011		
Predicted MDL:	0.759798		
Predicted MQL:	2.532661		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00067	-.001	.000	-.00010	.000	1
CalStd7=50	50.000	56.091	6.09	12.2	.00978	.000	1
CalStd5=10	10.000	11.265	1.27	12.7	.00189	.000	1
CalStd8=100	100.00	109.91	9.91	9.91	.01927	.000	1
CalStd4=5	5.0000	6.1976	1.20	24.0	.00099	.000	1
CalStd9=100	1000.0	1027.2	27.2	2.72	.18090	.001	1
CalStd3=1	1.0000	1.0644	.064	6.44	.00009	.000	1
CalStd10=10	10000.	9954.3	-45.7	-.457	1.7539	.005	1

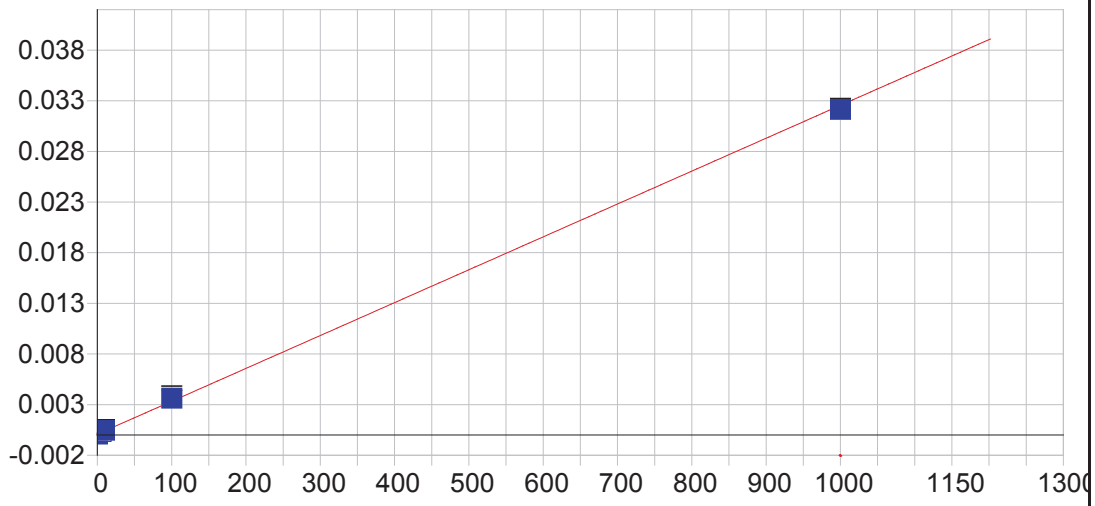


Pb 216.999 {455}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.000089	Re-Slope:	1.000000
A1 (Gain):	0.000020	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999285	Status:	OK.
Std Error of Est:	0.000738		
Predicted MDL:	5.500107		
Predicted MQL:	18.333689		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-1.5426	-1.54	.000	.00006	.000	1
CalStd9=100	1000.0	989.29	-10.7	-1.07	.02025	.000	1
CalStd10=10	10000.	9552.5	-448.	-4.48	.19420	.001	1
CalStd8=100	100.00	106.63	6.63	6.63	.00226	.000	1
CalStd5=10	10.000	11.635	1.63	16.3	.00033	.000	1
CalStd12=10	100000.	103710.	3710.	3.71	2.1075	.009	1

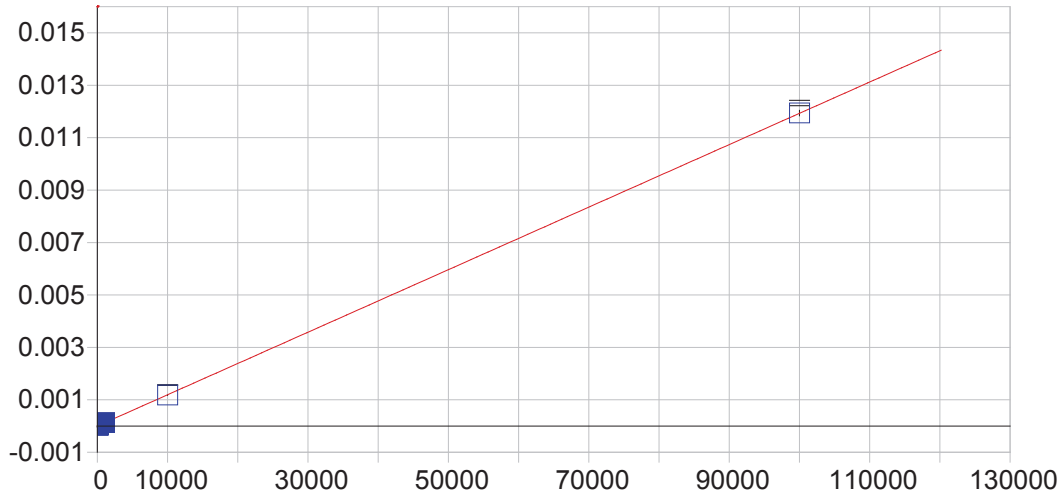


Pb 220.353 {453}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000080	Re-Slope:	1.000000
A1 (Gain):	0.000032	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999057	Status:	OK.
Std Error of Est:	0.000004		
Predicted MDL:	3.981183		
Predicted MQL:	13.270610		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00323	-.003	.000	.00008	.000	1
CalStd5=10	10.000	11.631	1.63	16.3	.00046	.000	1
CalStd8=100	100.00	109.24	9.24	9.24	.00363	.000	1
CalStd4=5	5.0000	7.0213	2.02	40.4	.00031	.000	1
CalStd9=100	1000.0	987.11	-12.9	-1.29	.03213	.000	1

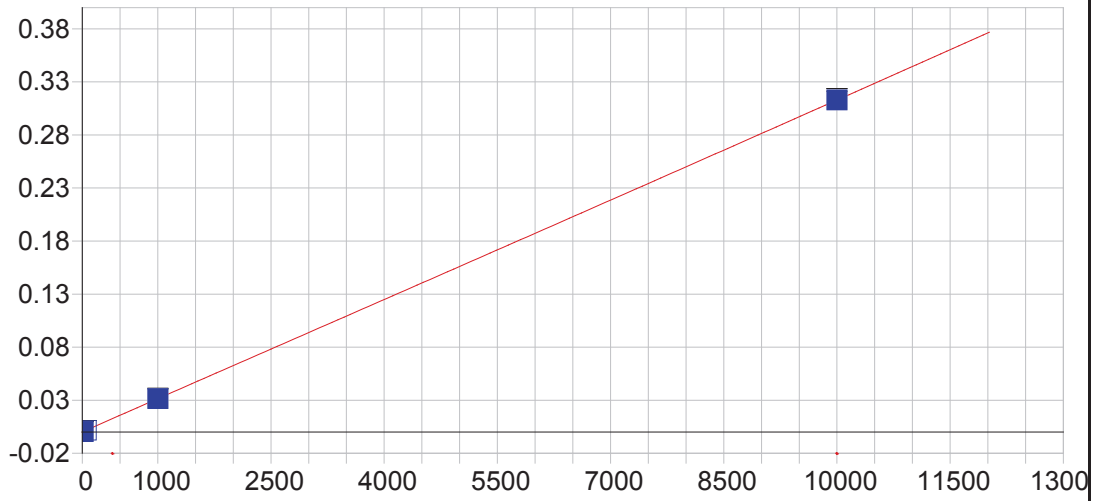


Pb 220.353 {153}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000000	Re-Slope:	1.000000
A1 (Gain):	0.000000	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999977	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	5.222209		
Predicted MQL:	17.407364		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.01619	-.016	.000	.00000	.000	1
CalStd9=100	1000.0	1041.0	41.0	4.10	.00012	.000	1
CalStd10=10	10000.	9870.0	-130.	-1.30	.00118	.000	1
CalStd8=100	100.00	113.32	13.3	13.3	.00001	.000	1
CalStd12=10	100000.	100080.	75.7	.076	.01194	.000	1

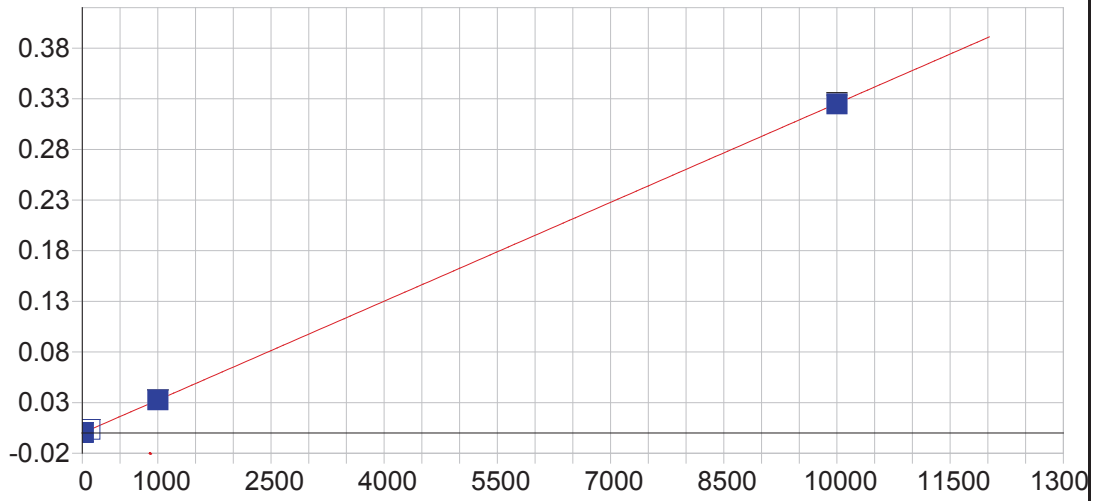


Sb 206.833 {463}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Full Fit	Weighting:	1/Conc

A0 (Offset):	-0.000052	Re-Slope:	1.000000
A1 (Gain):	0.000034	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	0.990000		
Correlation:	0.999997	Status:	Warning Positive Curvature
Std Error of Est:	0.000002		
Predicted MDL:	2.689591		
Predicted MQL:	8.965302		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00012	.000	.000	-.00005	.000	1
CalStd9=100	1000.0	998.67	-1.33	-.133	.03140	.000	1
CalStd5=10	10.000	9.5699	-.430	-4.30	.00026	.000	1
CalStd7=50	50.000	51.581	1.58	3.16	.00162	.000	1
CalStd10=10	10000.	10000.	.129	.001	.31295	.001	1

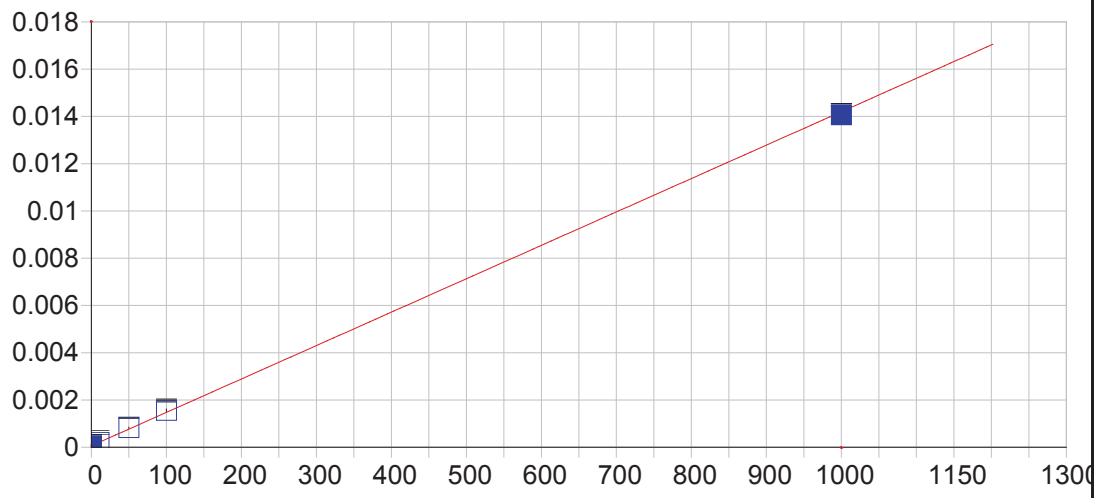


Sb 217.581 {455}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000049	Re-Slope:	1.000000
A1 (Gain):	0.000033	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999926	Status:	OK.
Std Error of Est:	0.000004		
Predicted MDL:	3.028308		
Predicted MQL:	10.094361		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00211	-.002	.000	-.00005	.000	1
CalStd9=100	1000.0	1002.8	2.79	.279	.03258	.000	1
CalStd6=20	20.000	23.201	3.20	16.0	.00071	.000	1
CalStd5=10	10.000	12.223	2.22	22.2	.00035	.000	1
CalStd8=100	100.00	107.80	7.80	7.80	.00346	.000	1
CalStd4=5	5.0000	4.7996	-.200	-4.01	.00011	.000	1
CalStd10=10	10000.	9984.2	-15.8	-.158	.32483	.001	1

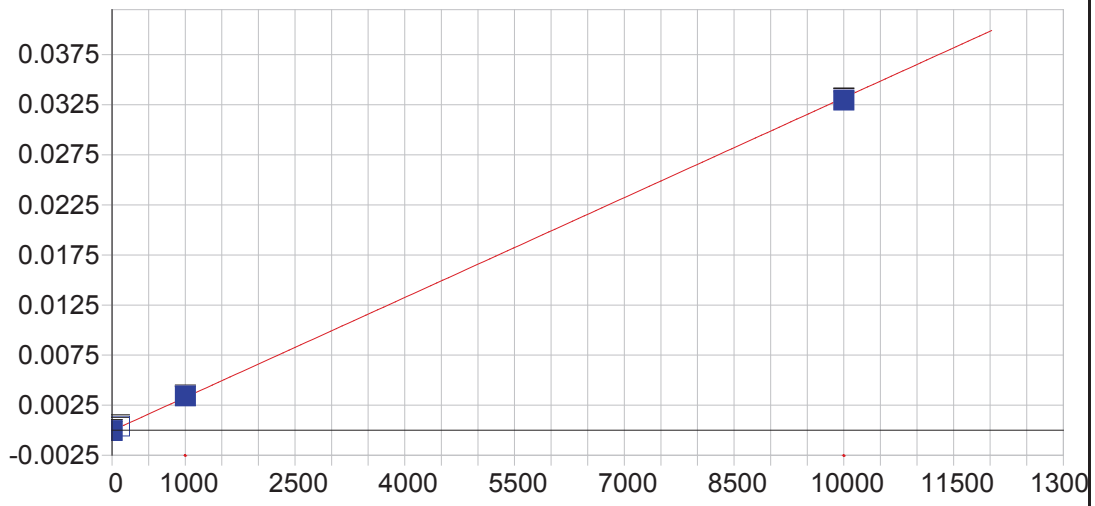


Se 196.090 {472}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000061	Re-Slope:	1.000000
A1 (Gain):	0.000014	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999712	Status:	OK.
Std Error of Est:	0.000001		
Predicted MDL:	6.639296		
Predicted MQL:	22.130986		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00140	-.001	.000	.00006	.000	1
CalStd7=50	50.000	53.822	3.82	7.64	.00082	.000	1
CalStd9=100	1000.0	990.64	-9.36	-.936	.01407	.000	1
CalStd5=10	10.000	10.194	.194	1.94	.00020	.000	1
CalStd8=100	100.00	105.34	5.34	5.34	.00155	.000	1

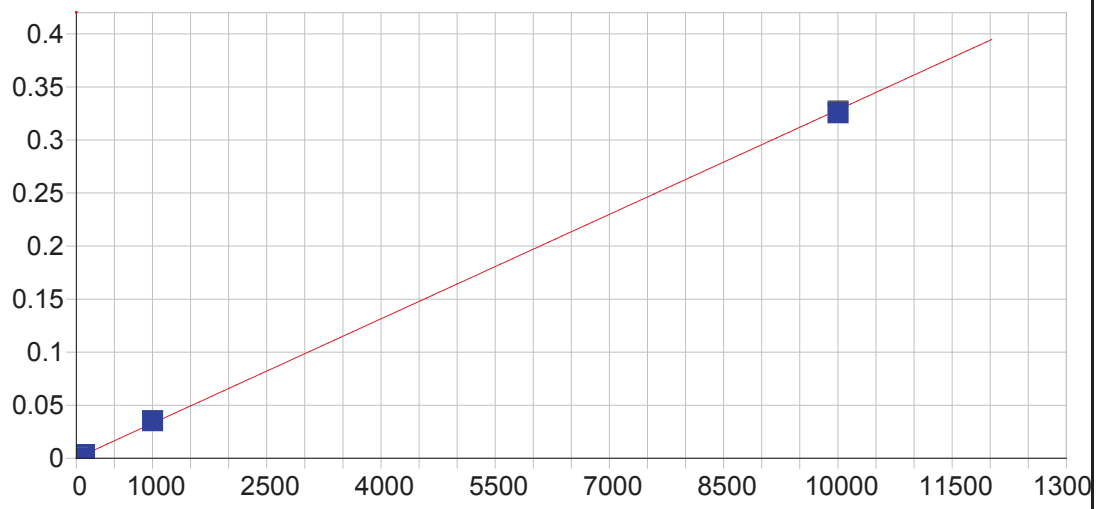


Se 206.279 {463}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000046	Re-Slope:	1.000000
A1 (Gain):	0.000003	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999341	Status:	OK.
Std Error of Est:	0.000006		
Predicted MDL:	28.977892		
Predicted MQL:	96.592974		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.03853	-.039	.000	-.00005	.000	1
CalStd9=100	1000.0	1041.8	41.8	4.18	.00342	.000	1
CalStd10=10	10000.	9923.1	-76.9	-.769	.03301	.000	1
CalStd8=100	100.00	135.12	35.1	35.1	.00040	.000	1

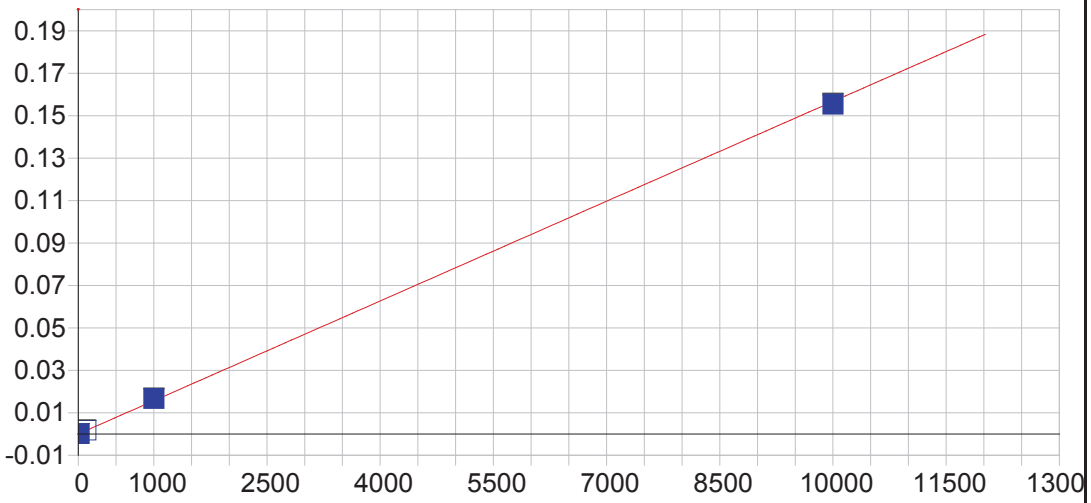


Tl 190.856 {476}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000100	Re-Slope:	1.000000
A1 (Gain):	0.000033	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999681	Status:	OK.
Std Error of Est:	0.000011		
Predicted MDL:	2.857746		
Predicted MQL:	9.525821		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00051	-.001	.000	.00010	.000	1
CalStd9=100	1000.0	1068.0	68.0	6.80	.03505	.000	1
CalStd8=100	100.00	112.69	12.7	12.7	.00379	.000	1
CalStd5=10	10.000	8.6376	-1.36	-13.6	.00038	.000	1
CalStd10=10	10000.	9920.7	-79.3	-.793	.32464	.001	1

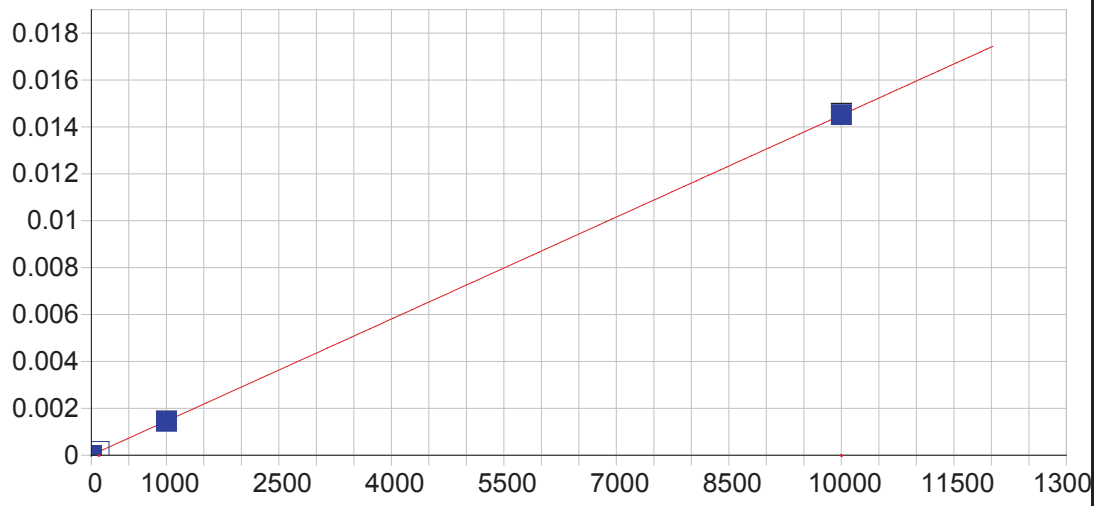


Tl 190.856 {477}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000004	Re-Slope:	1.000000
A1 (Gain):	0.000016	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999660	Status:	OK.
Std Error of Est:	0.000006		
Predicted MDL:	5.062824		
Predicted MQL:	16.876079		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00228	-.002	.000	.00000	.000	1
CalStd9=100	1000.0	1066.9	66.9	6.69	.01672	.000	1
CalStd8=100	100.00	115.46	15.5	15.5	.00181	.000	1
CalStd5=10	10.000	10.151	.151	1.51	.00016	.000	1
CalStd10=10	10000.	9917.5	-82.5	-.825	.15538	.000	1

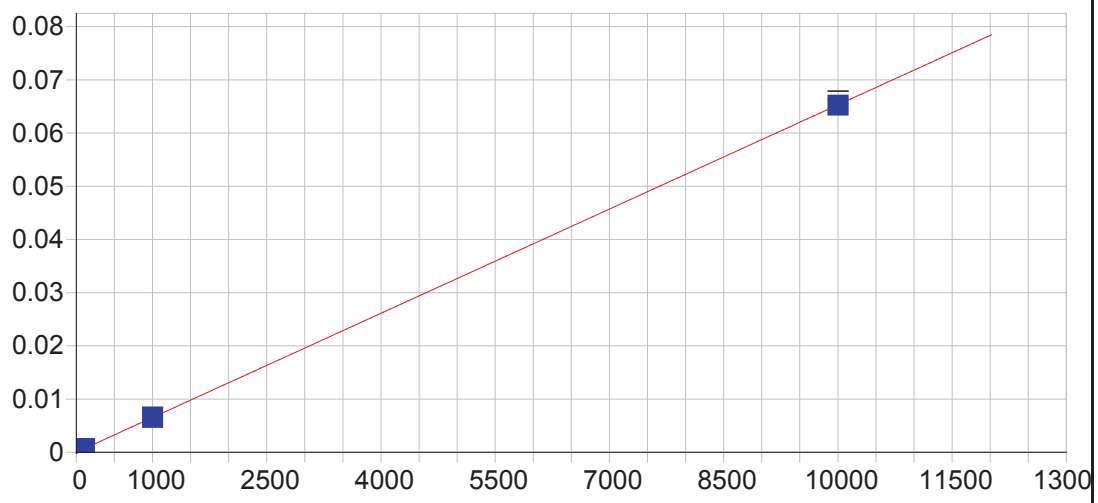


V 290.882 {116}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000008	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999990	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	3.572961		
Predicted MQL:	11.909869		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00188	-.002	.000	.00001	.000	1
CalStd9=100	1000.0	988.77	-11.2	-1.12	.00144	.000	1
CalStd10=10	10000.	10008.	8.30	.083	.01452	.000	1
CalStd8=100	100.00	102.92	2.92	2.92	.00016	.000	1

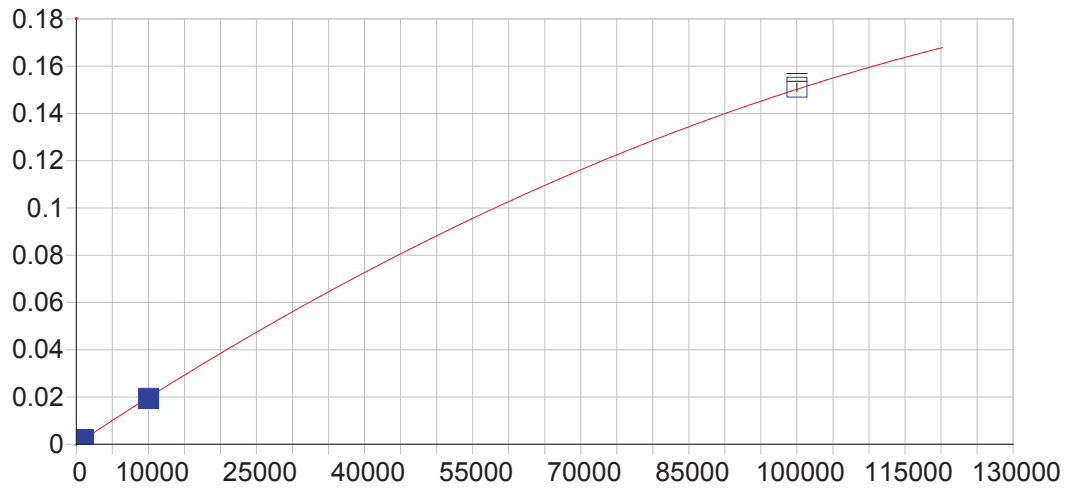


V 292.402 {115}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000001	Re-Slope:	1.000000
A1 (Gain):	0.000007	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999961	Status:	OK.
Std Error of Est:	0.000001		
Predicted MDL:	0.415156		
Predicted MQL:	1.383854		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00291	-.003	.000	.00000	.000	1
CalStd7=50	50.000	54.103	4.10	8.21	.00035	.000	1
CalStd9=100	1000.0	997.37	-2.63	-.263	.00651	.000	1
CalStd6=20	20.000	22.321	2.32	11.6	.00015	.000	1
CalStd5=10	10.000	10.502	.502	5.02	.00007	.000	1
CalStd8=100	100.00	104.65	4.65	4.65	.00068	.000	1
CalStd10=10	10000.	9991.1	-8.95	-.089	.06522	.001	1

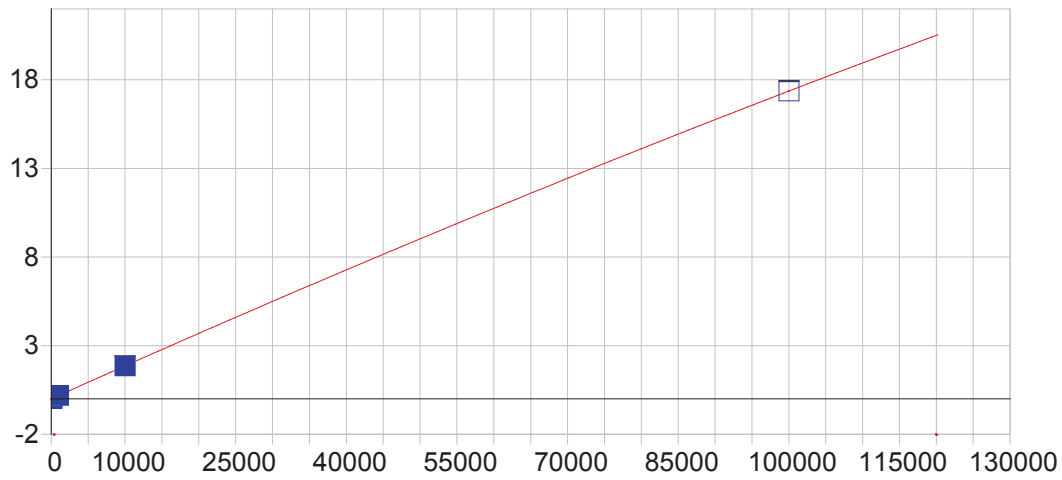


Zn 202.548 {466}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Curvilinear	Weighting:	1/Var

A0 (Offset):	0.000064	Re-Slope:	1.000000
A1 (Gain):	0.000002	Y-int:	0.000000
A2 (Curvature):	-0.000000		
n (Exponent):	1.000000		
Correlation:	0.999460	Status:	OK.
Std Error of Est:	0.000004		
Predicted MDL:	0.283371		
Predicted MQL:	0.944571		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
CalStd10=10	10000.	9727.0	-273.	-2.73	.01925	.000	1
Blank	.00000	-.50713	-.507	.000	.00006	.000	1
CalStd9=100	1000.0	985.22	-14.8	-1.48	.00205	.000	1
CalStd12=10	100000.	100800.	801.	.801	.15100	.002	1
CalStd5=10	10.000	9.7571	-.243	-2.43	.00008	.000	1
CalStd8=100	100.00	104.96	4.96	4.96	.00028	.000	1

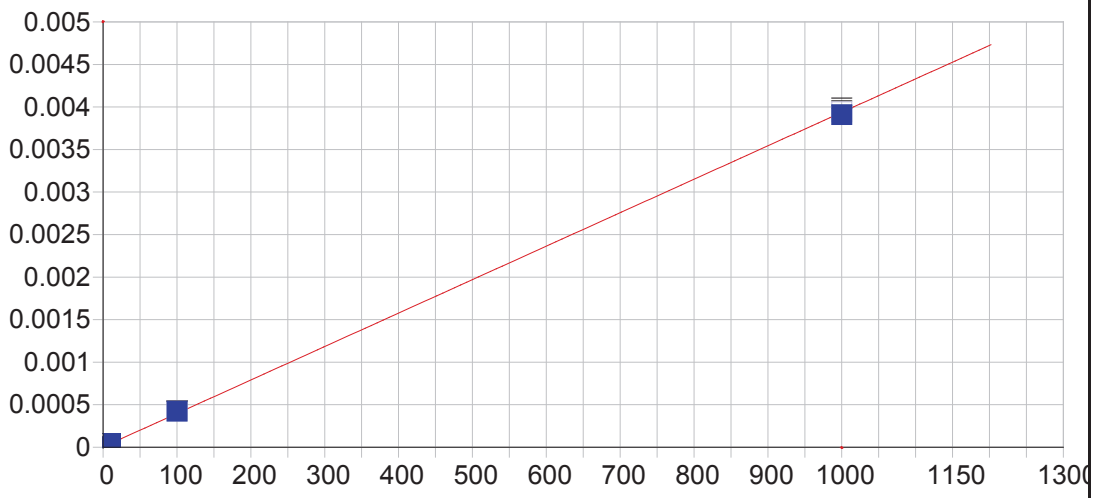


Zn 206.200 {463}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Curvilinear	Weighting:	1/Conc

A0 (Offset):	0.000022	Re-Slope:	1.000000
A1 (Gain):	0.000187	Y-int:	0.000000
A2 (Curvature):	-0.000000		
n (Exponent):	1.000000		
Correlation:	0.999992	Status:	OK.
Std Error of Est:	0.000032		
Predicted MDL:	0.521127		
Predicted MQL:	1.737091		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
CalStd10=10	10000.	9963.9	-36.1	-.361	1.8525	.003	1
Blank	.00000	-.00191	-.002	.000	.00002	.000	1
CalStd9=100	1000.0	1022.5	22.5	2.25	.19138	.000	1
CalStd12=10	100000.	100000.	3.89	.004	17.366	.036	1
CalStd5=10	10.000	10.826	.826	8.26	.00205	.000	1
CalStd8=100	100.00	108.94	8.94	8.94	.02042	.000	1

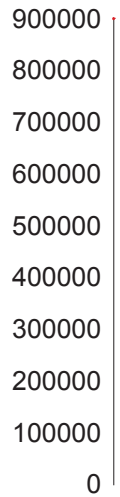


Zn 213.856 {457}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000004	Re-Slope:	1.000000
A1 (Gain):	0.000004	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999763	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	0.161732		
Predicted MQL:	0.539105		

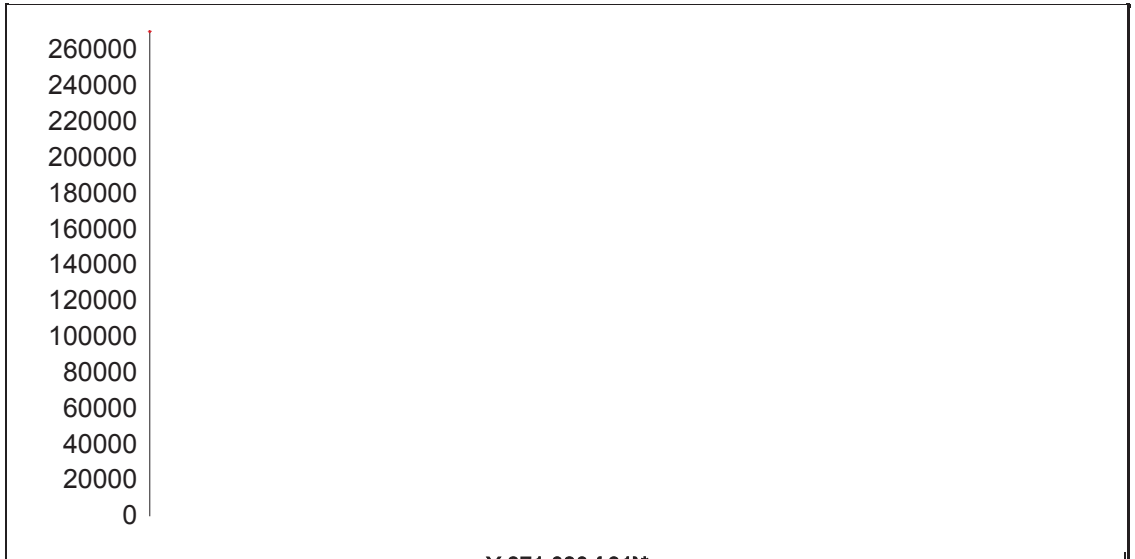
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00150	-.001	.000	.00000	.000	1
CalStd9=100	1000.0	992.78	-7.22	-.722	.00394	.000	1
CalStd5=10	10.000	10.941	.941	9.41	.00005	.000	1
CalStd8=100	100.00	106.28	6.28	6.28	.00042	.000	1



Y 324.228 {104}*

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Linear	Weighting:	1/Conc
A0 (Offset):	0.000000	Re-Slope:	1.000000		
A1 (Gain):	0.000000	Y-int:	0.000000		
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.000000	Status:	Warning	Zero Gain	
Std Error of Est:	0.000000				
Predicted MDL:	n/a				
Predicted MQL:	n/a				

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	772060.	7860.	1

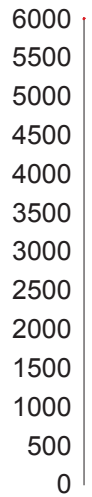


Y 371.030 { 91}*

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000000	Re-Slope:	1.000000
A1 (Gain):	0.000000	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.000000	Status:	Warning Zero Gain
Std Error of Est:	0.000000		
Predicted MDL:	n/a		
Predicted MQL:	n/a		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	255810.	1030.	1

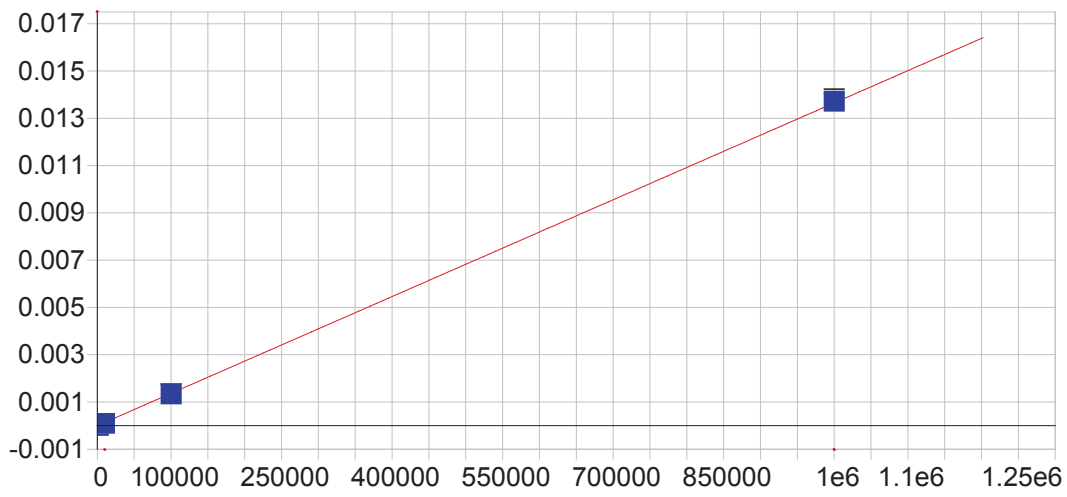


Y 224.306 {451}*

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000000	Re-Slope:	1.000000
A1 (Gain):	0.000000	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.000000	Status:	Warning Zero Gain
Std Error of Est:	0.000000		
Predicted MDL:	n/a		
Predicted MQL:	n/a		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	5475.4	6.62	1

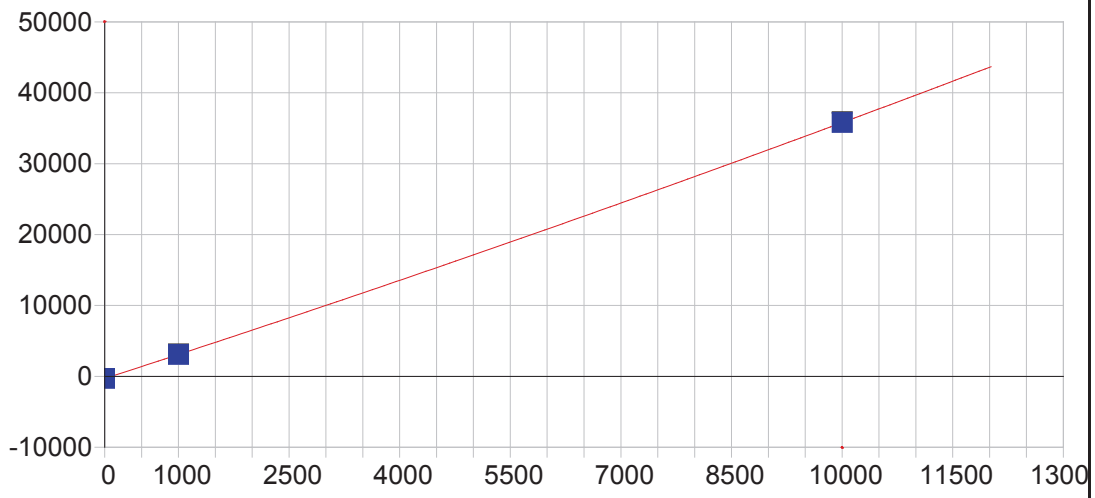


Na 330.237 {102}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000002	Re-Slope:	1.000000
A1 (Gain):	0.000000	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999587	Status:	OK.
Std Error of Est:	0.000001		
Predicted MDL:	528.194100		
Predicted MQL:	1760.647000		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.54111	.541	.000	-.00000	.000	1
CalStd9=100	1000.0	755.30	-245.	-24.5	.00001	.000	1
CalStd10=10	10000.	7198.6	-2800.	-28.0	.00010	.000	1
CalibStd15=	1000000.	1005200.	5190.	.519	.01372	.000	1
CalStd13=10	100000.	97853.	-2150.	-2.15	.00133	.000	1

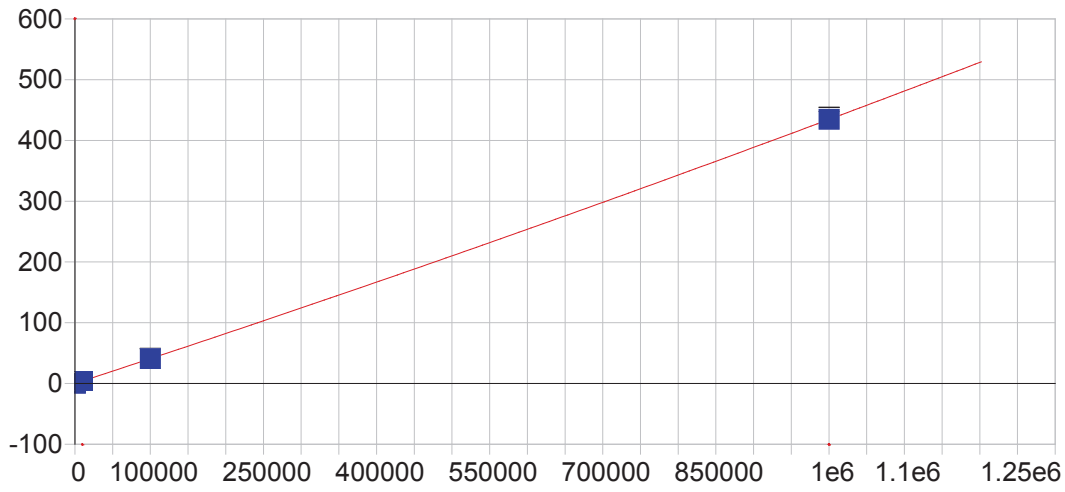


Na 588.995 { 57}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Curvilinear	Weighting:	1/Var

A0 (Offset):	-304.515394	Re-Slope:	1.000000
A1 (Gain):	3.363752	Y-int:	0.000000
A2 (Curvature):	0.000025		
n (Exponent):	1.000000		
Correlation:	1.000000	Status:	Warning Positive Curvature
Std Error of Est:	0.000000		
Predicted MDL:	3.278295		
Predicted MQL:	10.927651		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	-304.52	7.77	1
CalStd9=100	1000.0	1000.0	.000	.000	3084.2	37.1	1
CalStd10=10	10000.	10000.	-.000	-.000	35800.	77.1	1

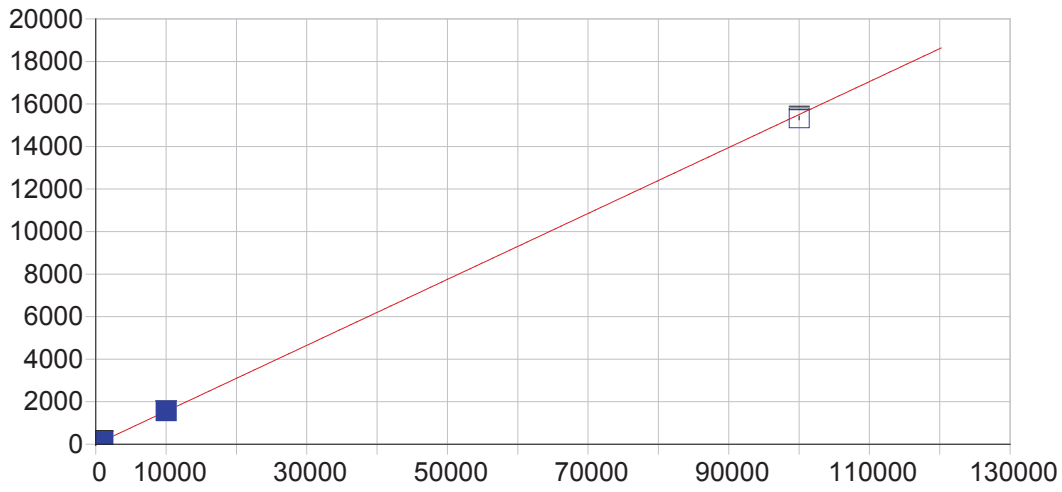


Na 589.592 { 57}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Curvilinear	Weighting:	None

A0 (Offset):	-0.003151	Re-Slope:	1.000000
A1 (Gain):	0.000405	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	1.000000	Status:	Warning Positive Curvature
Std Error of Est:	0.016632		
Predicted MDL:	2.966980		
Predicted MQL:	9.889933		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	22.903	22.9	.000	.00614	.001	1
CalStd9=100	1000.0	953.50	-46.5	-4.65	.38352	.003	1
CalStd10=10	10000.	10026.	25.9	.259	4.0652	.013	1
CalibStd15=	1000000.	1000000.	.018	.000	434.61	3.47	1
CalStd13=10	100000.	99998.	-2.30	-.002	40.837	.359	1

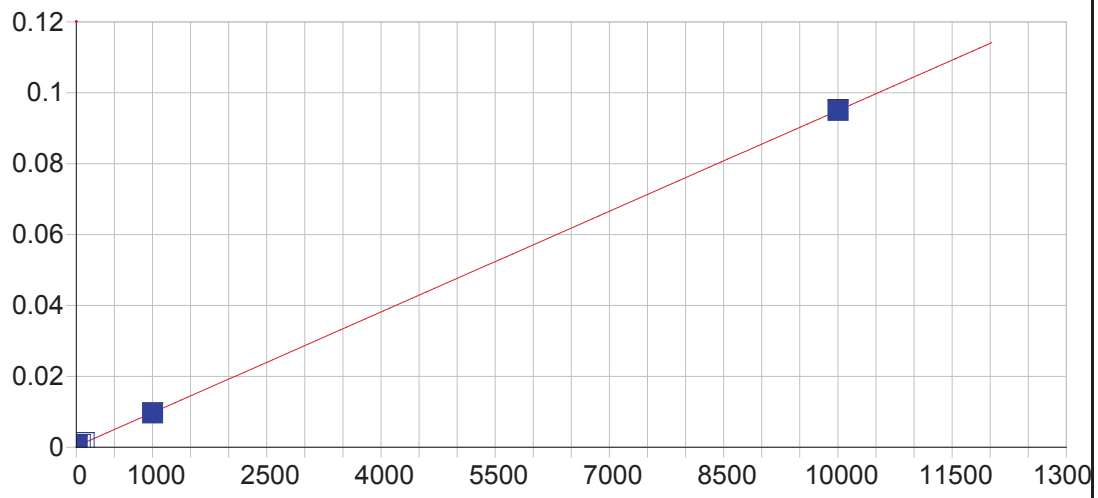


Si 251.611 {134}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.653553	Re-Slope:	1.000000
A1 (Gain):	0.155011	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999919	Status:	OK.
Std Error of Est:	3.316337		
Predicted MDL:	6.228276		
Predicted MQL:	20.760919		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	1.8012	1.80	.000	.93276	.697	1
CalStd9=100	1000.0	981.91	-18.1	-1.81	153.68	1.78	1
CalStd10=10	10000.	10129.	129.	1.29	1570.5	7.76	1
CalStd12=10	100000.	98959.	-1040.	-1.04	15340.	81.6	1

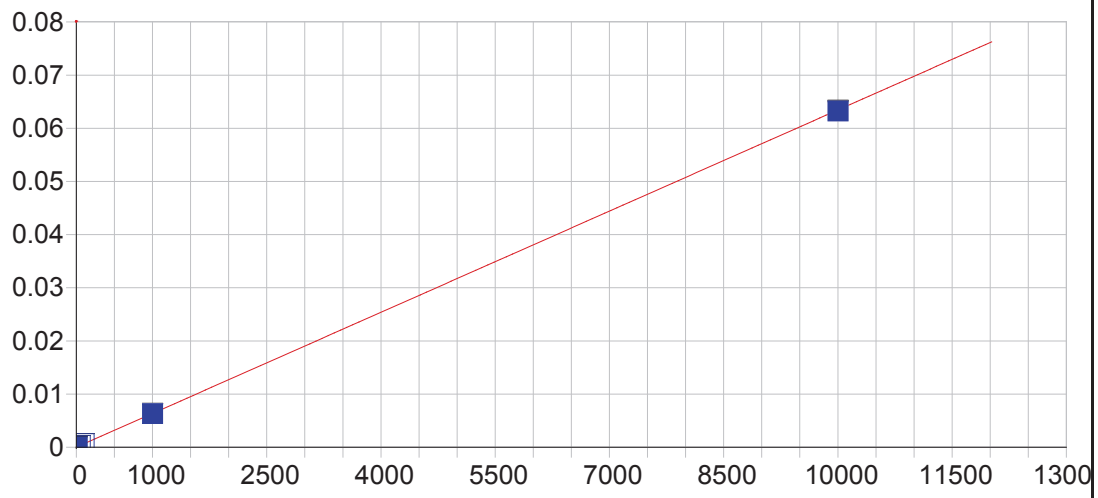


Ti 323.452 {104}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000275	Re-Slope:	1.000000
A1 (Gain):	0.000009	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999962	Status:	OK.
Std Error of Est:	0.000001		
Predicted MDL:	0.894962		
Predicted MQL:	2.983205		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00157	-.002	.000	.00028	.000	1
CalStd5=10	10.000	11.416	1.42	14.2	.00038	.000	1
CalStd8=100	100.00	105.85	5.85	5.85	.00128	.000	1
CalStd9=100	1000.0	990.03	-9.97	-.997	.00965	.000	1
CalStd10=10	10000.	9999.4	-.644	-.006	.09500	.000	1
CalStd7=50	50.000	53.026	3.03	6.05	.00078	.000	1
CalStd4=5	5.0000	5.3201	.320	6.40	.00033	.000	1

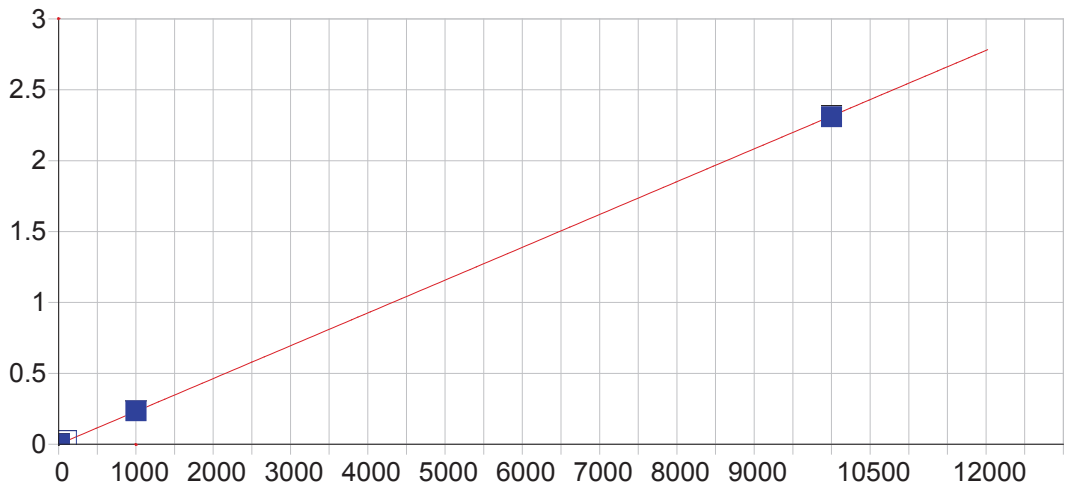


Ti 334.941 {101}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.000014	Re-Slope:	1.000000
A1 (Gain):	0.000006	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999910	Status:	OK.
Std Error of Est:	0.000013		
Predicted MDL:	0.870200		
Predicted MQL:	2.900668		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-1.5581	-1.56	.000	.00000	.000	1
CalStd5=10	10.000	9.5022	-.498	-4.98	.00007	.000	1
CalStd8=100	100.00	102.86	2.86	2.86	.00067	.000	1
CalStd9=100	1000.0	993.58	-6.42	-.642	.00632	.000	1
CalStd10=10	10000.	9966.0	-34.0	-.340	.06325	.000	1
CalStd7=50	50.000	52.428	2.43	4.86	.00035	.000	1
CalStd4=5	5.0000	4.1782	-.822	-16.4	.00004	.000	1

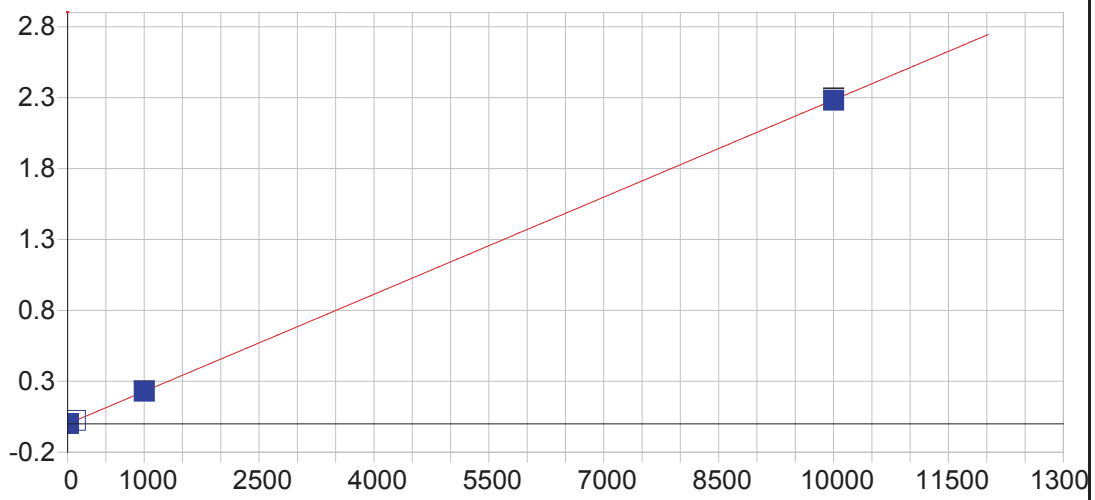


Sr 407.771 { 83}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000072	Re-Slope:	1.000000
A1 (Gain):	0.000231	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999957	Status:	OK.
Std Error of Est:	0.000008		
Predicted MDL:	0.055542		
Predicted MQL:	0.185140		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00049	-.000	.000	.00007	.000	1
CalStd3=1	1.0000	1.1902	.190	19.0	.00035	.000	1
CalStd4=5	5.0000	5.6868	.687	13.7	.00139	.000	1
CalStd5=10	10.000	10.813	.813	8.13	.00258	.000	1
CalStd8=100	100.00	106.64	6.64	6.64	.02476	.000	1
CalStd9=100	1000.0	1016.0	16.0	1.60	.23528	.001	1
CalStd10=10	10000.	9975.7	-24.3	-.243	2.3094	.007	1

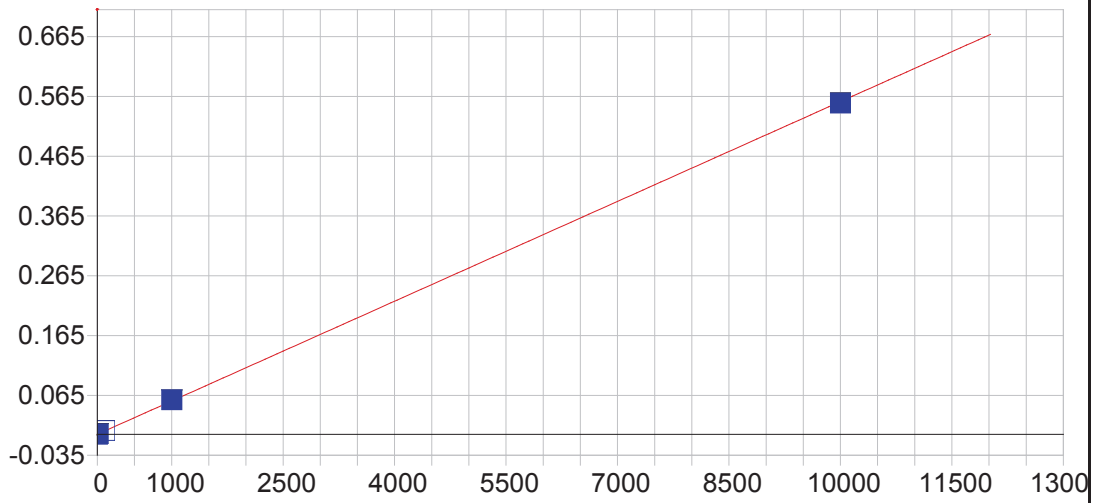


Sr 421.552 { 80}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000010	Re-Slope:	1.000000
A1 (Gain):	0.000228	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999976	Status:	OK.
Std Error of Est:	0.000006		
Predicted MDL:	0.057695		
Predicted MQL:	0.192318		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00045	-.000	.000	.00001	.000	1
CalStd3=1	1.0000	1.1926	.193	19.3	.00028	.000	1
CalStd4=5	5.0000	5.6262	.626	12.5	.00129	.000	1
CalStd5=10	10.000	10.688	.688	6.88	.00245	.000	1
CalStd8=100	100.00	105.61	5.61	5.61	.02413	.000	1
CalStd9=100	1000.0	1005.5	5.46	.546	.22966	.001	1
CalStd10=10	10000.	9987.4	-12.6	-.126	2.2811	.015	1

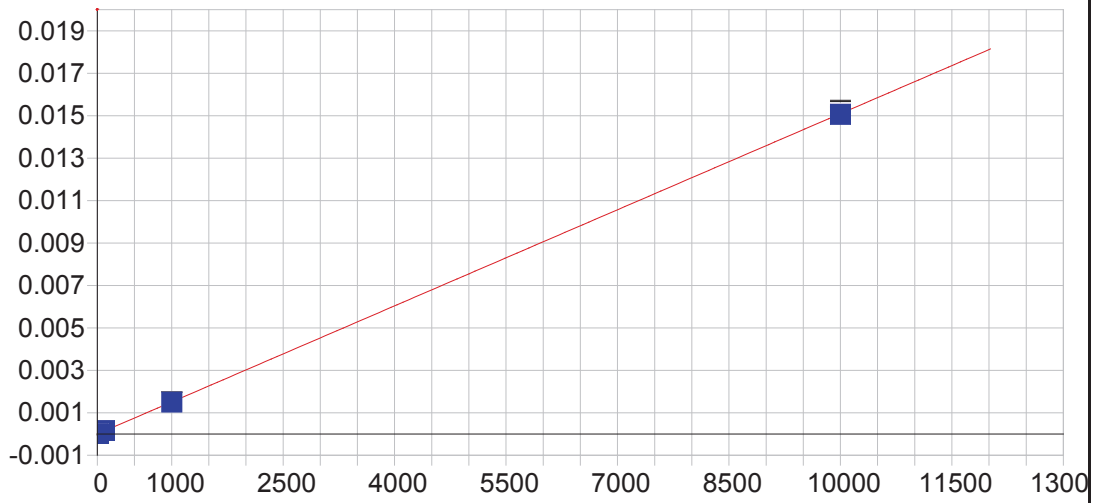


Sn 189.989 {477}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000009	Re-Slope:	1.000000
A1 (Gain):	0.000056	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999859	Status:	OK.
Std Error of Est:	0.000013		
Predicted MDL:	1.403674		
Predicted MQL:	4.678912		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00383	-.004	.000	.00001	.000	1
CalStd10=10	10000.	9953.2	-46.8	-.468	.55368	.001	1
CalStd9=100	1000.0	1033.3	33.3	3.33	.05749	.000	1
CalStd8=100	100.00	111.00	11.0	11.0	.00618	.000	1
CalStd5=10	10.000	12.448	2.45	24.5	.00070	.000	1

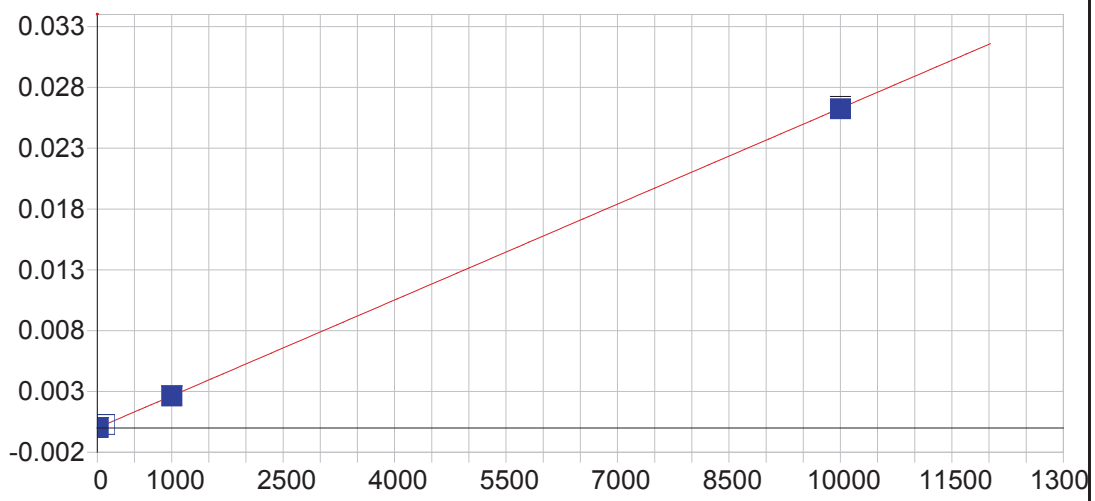


B 249.678 {135}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.000000	Re-Slope:	1.000000
A1 (Gain):	0.000002	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999887	Status:	OK.
Std Error of Est:	0.000002		
Predicted MDL:	0.903672		
Predicted MQL:	3.012239		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.17674	-.177	.000	-.00000	.000	1
CalStd8=100	100.00	103.47	3.47	3.47	.00016	.000	1
CalStd5=10	10.000	9.8644	-.136	-1.36	.00002	.000	1
CalStd9=100	1000.0	991.50	-8.50	-.850	.00150	.000	1
CalStd10=10	10000.	9970.9	-29.1	-.291	.01511	.000	1

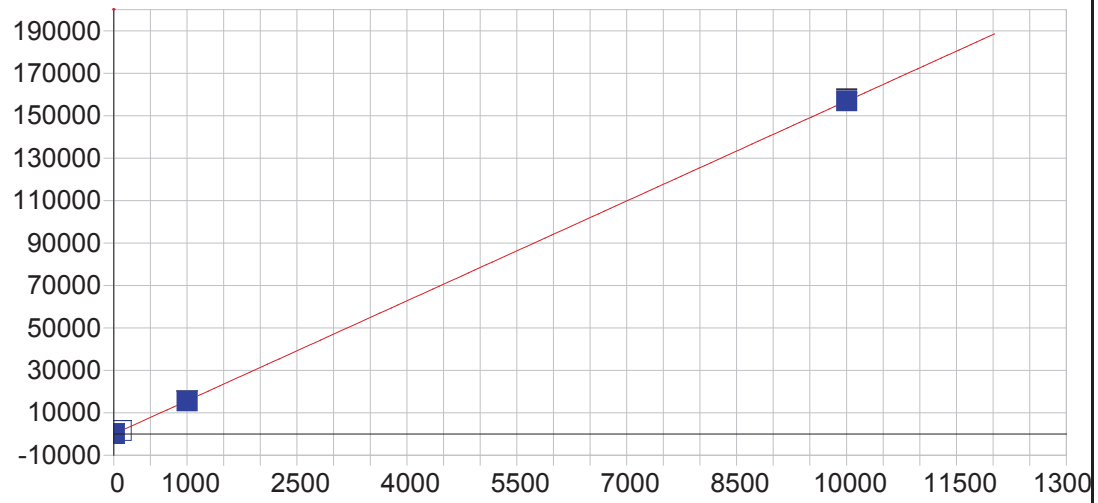


B 249.773 {135}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.000003	Re-Slope:	1.000000
A1 (Gain):	0.000003	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999907	Status:	OK.
Std Error of Est:	0.000004		
Predicted MDL:	0.630607		
Predicted MQL:	2.102022		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.91135	-.911	.000	.00000	.000	1
CalStd8=100	100.00	102.72	2.72	2.72	.00027	.000	1
CalStd5=10	10.000	10.998	.998	9.98	.00003	.000	1
CalStd9=100	1000.0	995.86	-4.14	-.414	.00262	.000	1
CalStd10=10	10000.	9978.9	-21.1	-.211	.02625	.000	1

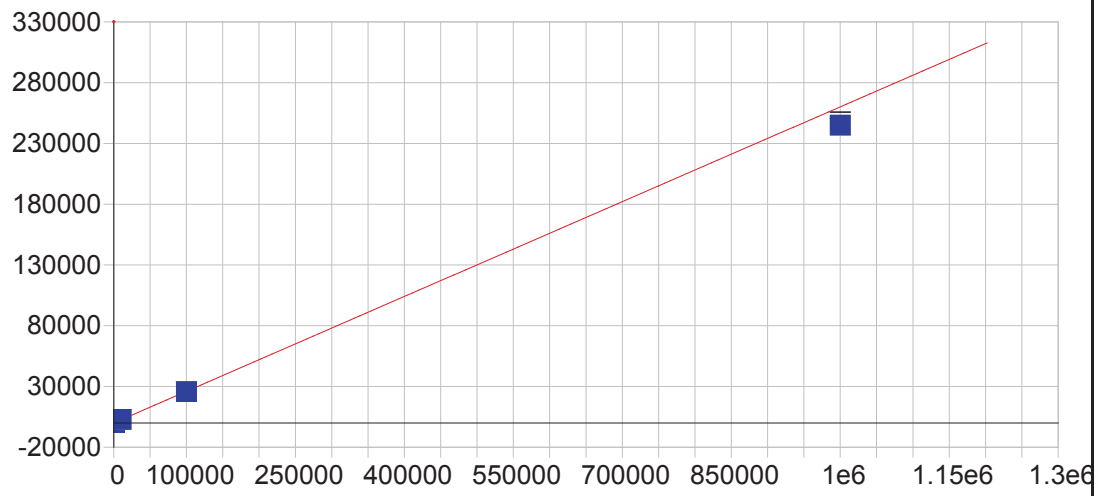


Li 670.784 { 50}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-1.784792	Re-Slope:	1.000000
A1 (Gain):	15.691267	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999992	Status:	OK.
Std Error of Est:	0.858905		
Predicted MDL:	0.519249		
Predicted MQL:	1.730829		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00071	-.001	.000	-1.7959	5.78	1
CalStd5=10	10.000	10.504	.504	5.04	163.04	2.21	1
CalStd8=100	100.00	102.81	2.81	2.81	1611.4	6.76	1
CalStd9=100	1000.0	991.47	-8.53	-.853	15556.	180.	1
CalStd10=10	10000.	10005.	5.22	.052	157000.	849.	1

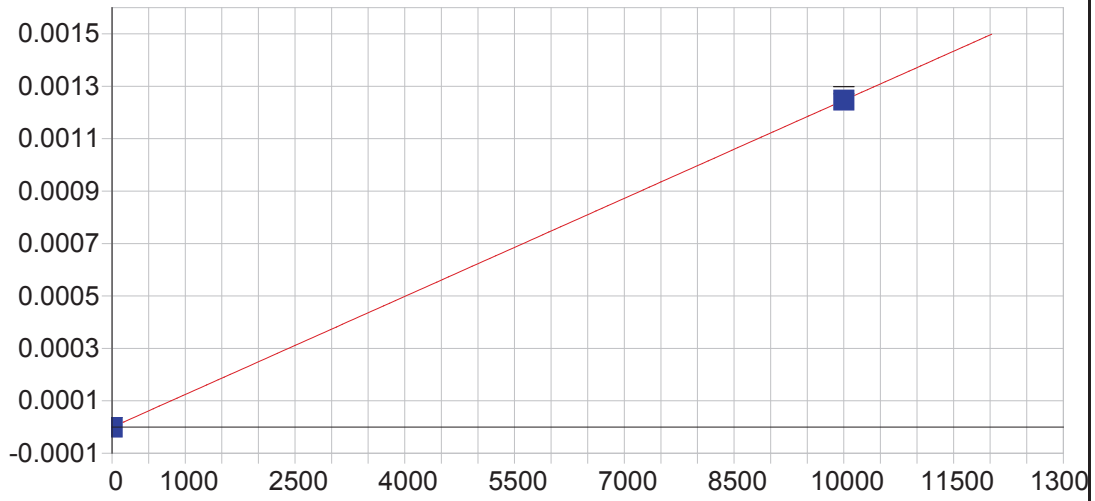


K 766.490 { 44}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	17.497116	Re-Slope:	1.000000
A1 (Gain):	0.260118	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999634	Status:	OK.
Std Error of Est:	59.042908		
Predicted MDL:	26.361076		
Predicted MQL:	87.870255		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-50.571	-50.6	.000	4.3427	5.46	1
CalStd9=100	1000.0	936.18	-63.8	-6.38	261.07	9.24	1
CalStd10=10	10000.	10320.	320.	3.20	2702.5	11.0	1
CalibStd15=	1000000.	941460.	-58500.	-5.85	244960.	2640.	1
CalStd13=10	100000.	98866.	-1130.	-1.13	25740.	81.4	1

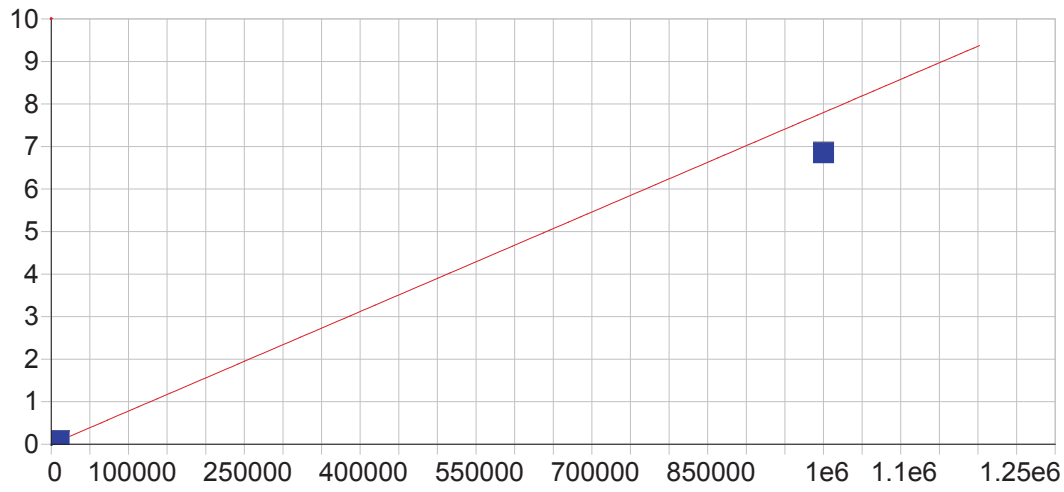


P 213.618 {457}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000001	Re-Slope:	1.000000
A1 (Gain):	0.000000	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	1.000000	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	5.544725		
Predicted MQL:	18.482418		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	-.00000	.000	1
CalStd10=10	10000.	10000.	.000	.000	.00125	.000	1

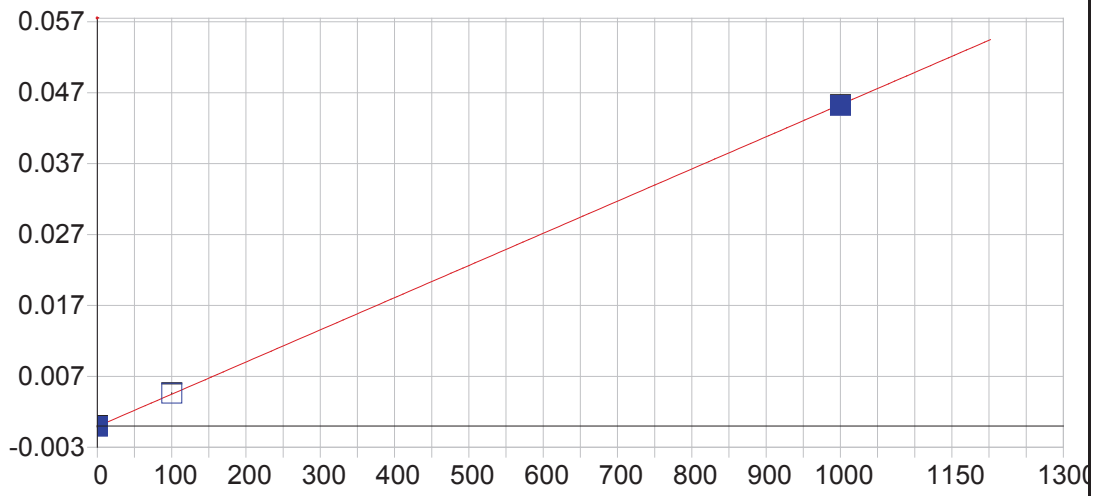


S 182.034 {485}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Curvilinear	Weighting:	1/Conc

A0 (Offset):	0.000042	Re-Slope:	1.000000
A1 (Gain):	0.000008	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	1.000000	Status:	OK.
Std Error of Est:	0.000010		
Predicted MDL:	8.074257		
Predicted MQL:	26.914191		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.01797	.018	.000	.00004	.000	1
CalStd9=100	1000.0	979.89	-20.1	-2.01	.00769	.000	1
CalStd10=10	10000.	10008.	7.97	.080	.07811	.000	1
CalibStd15=	1000000.	878010.	-122000.	-12.2	6.8489	.014	1

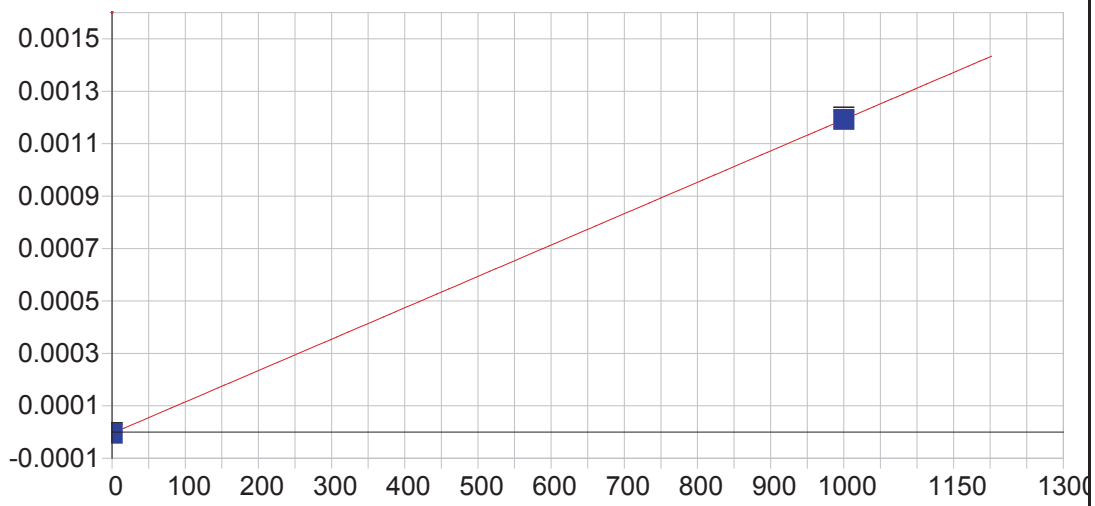


Hg 184.950 {482}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000061	Re-Slope:	1.000000
A1 (Gain):	0.000045	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999965	Status:	OK.
Std Error of Est:	0.000007		
Predicted MDL:	1.669710		
Predicted MQL:	5.565699		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00237	-.002	.000	-.00006	.000	1
CalStd8=100	100.00	102.63	2.63	2.63	.00460	.000	1
CalStd9=100	1000.0	997.37	-2.63	-.263	.04520	.000	1



Ce 404.076 { 83}

Date of Fit:	09/21/2018 14:21:45	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000005	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	1.000000	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	10.287772		
Predicted MQL:	34.292574		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	-.00000	.000	1
CalStd9=100	1000.0	1000.0	.000	.000	.00119	.000	1

Sample Name: Blank Acquired: 09/20/2018 10:57:57 Type: Cal
Method: DOD Calibration Updated 060614(v2952) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Ag3382	Al1670	Al3082	Al3961	As1937	Ba2335	Ba4934	Be3130	Be2348	Ca3158	Ca3933
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	-3.20	.000	.000	.000	-.000	.446	-.000	.005	-.000	.075	1.33	471.
Stddev	1.10	.000	.000	.000	.000	.401	.000	.000	.000	.174	1.16	77.
%RSD	34.4	51.0	40.7	16.2	44.4	89.9	3500.	.934	8.40	233.	87.3	16.3

Elem	Cd2265	Cd2288	Co2286	Co2388	Cr2055	Cr2677	Cu2247	Cu3247	Fe2599	Mg2790	Mg2802	Mn2576
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	-.000	.001	-.000	.000	-.000	-.000	.480	.001	.000	-.000	.000	-.000
Stddev	.000	.000	.000	.000	.000	.000	.129	.000	.000	.000	.000	.000
%RSD	23.9	15.3	430.	193.	60.7	119.	26.8	2.47	95.0	308.	.819	131.

Elem	Mn2593	Mo2038	Mo2045	Ni2316	Pb2169	Pb2203	Sb2068	Sb2175	Se1960	Se2062	Tl1908	V_2924
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.87	.000	-.000	-.000	.000	.000	-.000	-.000	.000	-.000	.000	.000
Stddev	.32	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	17.1	154.	228.	66.3	171.	140.	47.4	86.5	93.1	178.	57.2	28.8

Elem	Zn2062	Zn2138
Units	Cts/S	Cts/S
Avg	.000	.000
Stddev	.000	.000
%RSD	372.	10.0

Int. Std.	Y_3242	Y_3710	Y_2243
Units	Cts/S	Cts/S	Cts/S
Avg	772060.	255810.	5475.4
Stddev	7857.	1028.	6.6
%RSD	1.0177	.40170	.12098

Sample Name: CalStd1=0.25 Acquired: 09/20/2018 11:05:20 Type: Cal
Method: DOD Calibration Updated 060614(v2952) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Be3130
Units	Cts/S
Avg	.000
Stddev	.000
%RSD	40.0

Int. Std.	Y_3242
Units	Cts/S
Avg	771320.
Stddev	2754.
%RSD	.35704

Sample Name: CalStd2=0.5 Acquired: 09/20/2018 11:12:42 Type: Cal
Method: DOD Calibration Updated 060614(v2952) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Be3130	Cd2265	Cd2288
Units	Cts/S	Cts/S	Cts/S
Avg	.000	.000	.001
Stddev	.000	.000	.000
%RSD	16.0	300.	3.10

Int. Std.	Y_3242	Y_2243
Units	Cts/S	Cts/S
Avg	772410.	5535.8
Stddev	5852.	18.3
%RSD	.75761	.33125

Sample Name: CalStd3=1 Acquired: 09/20/2018 11:20:05 Type: Cal
Method: DOD Calibration Updated 060614(v2952) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Ba2335	Be3130	Cd2265	Cd2288	Co2286	Cr2055	Cu2247	Ni2316
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	-.935	.000	.000	.000	.001	.000	.000	2.09	.000
Stddev	.715	.000	.000	.000	.000	.000	.000	.24	.000
%RSD	76.5	32.2	2.51	13.8	2.84	40.7	15.5	11.4	211.

Int. Std.	Y_3242	Y_3710	Y_2243
Units	Cts/S	Cts/S	Cts/S
Avg	773010.	255090.	5529.5
Stddev	5619.	1292.	15.6
%RSD	.72685	.50647	.28162

Sample Name: CalStd4=5 Acquired: 09/20/2018 11:27:26 Type: Cal
Method: DOD Calibration Updated 060614(v2952) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ba2335	Be3130	Cd2265	Cd2288	Co2286	Cr2055	Cr2677	Cu2247	Mn2576	Mo2038	Mo2045	Ni2316
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.001	.000	.002	.004	.001	.001	.000	4.96	.000	.001	.000	.001
Stddev	.000	.000	.000	.000	.000	.000	.000	.66	.000	.000	.000	.000
%RSD	7.65	.612	4.27	3.27	3.74	4.45	4.81	13.4	.291	10.2	7.14	10.1

Elem	Pb2203	Sb2175
Units	Cts/S	Cts/S
Avg	.000	.000
Stddev	.000	.000
%RSD	31.6	54.5

Int. Std.	Y_3242	Y_3710	Y_2243
Units	Cts/S	Cts/S	Cts/S
Avg	770220.	255830.	5536.3
Stddev	3109.	671.	29.1
%RSD	.40358	.26217	.52581

Sample Name: CalStd5=10 Acquired: 09/20/2018 11:34:48 Type: Cal
Method: DOD Calibration Updated 060614(v2952) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba2335	Be3130	Cd2265	Cd2288	Co2286	Cr2055	Cr2677	Cu2247	Mn2576
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**18.9**	**.001**	**1.09**	**.002**	**.001**	**.005**	**.007**	**.003**	**.002**	**.000**	**7.92**	**.000**
Stddev	.3	.000	.20	.000	.000	.000	.000	.000	.000	.000	.68	.000
%RSD	1.80	3.20	18.7	5.99	.701	1.34	4.74	1.06	1.86	4.26	8.57	1.22

Elem	Mo2038	Mo2045	Ni2316	Pb2169	Pb2203	Sb2068	Sb2175	Se1960	Tl1908	V_2924	Zn2062	Zn2138
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.001**	**.001**	**.002**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.002**	**.000**
Stddev	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	6.01	10.4	4.22	29.3	20.9	3.09	21.1	33.1	9.70	2.08	1.09	1.61

Int. Std.	Y_3242	Y_3710	Y_2243
Units	Cts/S	Cts/S	Cts/S
Avg	**779700.**	**256340.**	**5552.4**
Stddev	6522.	1306.	26.3
%RSD	.83642	.50949	.47392

Sample Name: CalStd6=20 Acquired: 09/20/2018 11:42:10 Type: Cal
Method: DOD Calibration Updated 060614(v2952) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ba2335	Cu2247	Mn2576	Mo2038	Mo2045	Sb2175	V_2924
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.004**	**16.4**	**.000**	**.002**	**.001**	**.001**	**.000**
Stddev	.000	.8	.000	.000	.000	.000	.000
%RSD	2.69	4.99	.277	3.68	6.22	2.85	.988

Int. Std.	Y_3242	Y_3710	Y_2243
Units	Cts/S	Cts/S	Cts/S
Avg	**772510.**	**257150.**	**5526.2**
Stddev	2488.	1621.	21.6
%RSD	.32209	.63021	.39041

Sample Name: CalStd7=50 Acquired: 09/20/2018 11:49:27 Type: Cal
Method: DOD Calibration Updated 060614(v2952) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	As1937	Ba2335	Be2348	Cd2265	Cd2288	Co2286	Cr2055	Cr2677	Cu2247	Mn2576	Mo2038	Mo2045
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**4.89**	**.009**	**103.**	**.024**	**.033**	**.015**	**.011**	**.000**	**39.4**	**.000**	**.006**	**.004**
Stddev	.35	.000	1.	.000	.000	.000	.000	.000	.5	.000	.000	.000
%RSD	7.24	.987	1.00	.513	.744	.764	.370	.815	1.17	.710	1.85	1.55

Elem	Ni2316	Sb2068	Se1960	V_2924
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.010**	**.002**	**.001**	**.000**
Stddev	.000	.000	.000	.000
%RSD	.620	4.76	2.55	.696

Int. Std.	Y_3242	Y_3710	Y_2243
Units	Cts/S	Cts/S	Cts/S
Avg	**766540.**	**255820.**	**5505.3**
Stddev	3127.	2445.	8.8
%RSD	.40791	.95562	.15908

Sample Name: CalStd8=100 Acquired: 09/20/2018 11:56:42 Type: Cal
Method: DOD Calibration Updated 060614(v2952) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Ag3382	Al1670	As1937	Ba2335	Ba4934	Be3130	Be2348	Ca3933	Cd2265	Cd2288
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**208.**	**.000**	**.005**	**9.84**	**.018**	**.007**	**.005**	**203.**	**14800.**	**.049**	**.066**
Stddev	1.	.000	.000	.35	.000	.000	.000	2.	70.	.000	.000
%RSD	.647	3.56	1.33	3.52	.503	.892	.723	.819	.472	.552	.446

Elem	Co2286	Co2388	Cr2055	Cr2677	Cu2247	Cu3247	Mg2802	Mn2576	Mo2038	Mo2045	Ni2316
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.030**	**.000**	**.023**	**.000**	**76.2**	**.002**	**.003**	**.001**	**.011**	**.007**	**.019**
Stddev	.000	.000	.000	.000	.9	.000	.000	.000	.000	.000	.000
%RSD	.779	.750	.717	.824	1.13	1.40	.656	.519	.263	.737	.990

Elem	Pb2169	Pb2203	Sb2175	Se1960	Se2062	Tl1908	V_2924	Zn2062	Zn2138
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.002**	**.004**	**.003**	**.002**	**.000**	**.004**	**.001**	**.020**	**.000**
Stddev	.000	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	3.81	5.88	1.21	3.90	29.2	2.15	.376	.105	.931

Int. Std.	Y_3242	Y_3710	Y_2243
Units	Cts/S	Cts/S	Cts/S
Avg	**773120.**	**256300.**	**5533.8**
Stddev	5868.	1790.	13.5
%RSD	.75905	.69836	.24310

Sample Name: CalStd9=1000 Acquired: 09/20/2018 12:03:58 Type: Cal
Method: DOD Calibration Updated 060614(v2952) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3382	Al1670	Al3082	Al3961	As1937	Ba2335	Ba4934	Be3130	Be2348	Ca3158
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.001**	**.043**	**.001**	**.002**	**89.3**	**.172**	**.022**	**.052**	**1960.**	**91.7**
Stddev	.000	.000	.000	.000	.6	.000	.000	.001	11.	.5
%RSD	1.22	.507	1.12	.771	.677	.163	.524	1.06	.547	.569

Elem	Ca3933	Cd2265	Cd2288	Co2286	Co2388	Cr2055	Cr2677	Cu2247	Cu3247	Fe2599
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**111000.**	**.463**	**.627**	**.283**	**.002**	**.218**	**.003**	**729.**	**.007**	**.001**
Stddev	658.	.001	.002	.001	.000	.000	.000	3.	.000	.000
%RSD	.593	.126	.281	.186	.951	.152	1.05	.360	.321	.794

Elem	Mg2790	Mg2802	Mn2576	Mn2593	Mo2038	Mo2045	Ni2316	Pb2169	Pb2203	Sb2068
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.000**	**.029**	**.008**	**2380.**	**.104**	**.067**	**.181**	**.020**	**.032**	**.031**
Stddev	.000	.000	.000	20.	.000	.000	.001	.000	.000	.000
%RSD	2.32	.983	.982	.849	.152	.200	.290	.682	.358	1.01

Elem	Sb2175	Se1960	Se2062	Tl1908	V_2924	Zn2062	Zn2138
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.033**	**.014**	**.003**	**.035**	**.007**	**.191**	**.004**
Stddev	.000	.000	.000	.000	.000	.000	.000
%RSD	.477	.381	1.93	.051	.883	.141	1.14

Int. Std.	Y_3242	Y_3710	Y_2243
Units	Cts/S	Cts/S	Cts/S
Avg	**768490.**	**255850.**	**5492.5**
Stddev	7657.	1542.	20.0
%RSD	.99634	.60286	.36456

Sample Name: CalStd10=10000 Acquired: 09/20/2018 12:11:15 Type: Cal
Method: DOD Calibration Updated 060614(v2952) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Al3082	Al3961	Ba4934	Ca3158	Co2286	Co2388	Cr2055	Cr2677	Cu2247	Cu3247	Fe2599
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.005	.022	.173	904.	2.74	.019	2.11	.028	6740.	.056	.006
Stddev	.000	.000	.001	7.	.00	.000	.00	.000	33.	.000	.000
%RSD	.291	.297	.500	.823	.157	1.11	.073	1.13	.482	.254	.432

Elem	Mg2790	Mg2802	Mn2576	Mn2593	Mo2045	Ni2316	Pb2169	Sb2068	Sb2175	Se2062	Tl1908
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.000	.273	.077	23500.	.668	1.75	.194	.313	.325	.033	.325
Stddev	.000	.004	.001	121.	.001	.01	.001	.001	.001	.000	.001
%RSD	.702	1.53	1.16	.513	.132	.303	.549	.415	.339	.527	.427

Elem	V_2924	Zn2062
Units	Cts/S	Cts/S
Avg	.065	1.85
Stddev	.001	.00
%RSD	1.19	.141

Int. Std.	Y_3242	Y_3710	Y_2243
Units	Cts/S	Cts/S	Cts/S
Avg	745730.	253610.	5359.1
Stddev	5967.	1082.	17.1
%RSD	.80021	.42673	.31960

Sample Name: CalStd12=100K Acquired: 09/20/2018 12:18:51 Type: Cal
Method: DOD Calibration Updated 060614(v2952) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Cr2055	Cu3247	Mn2593	Pb2169	Zn2062
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**19.4**	**.575**	**237000.**	**2.11**	**17.4**
Stddev	.0	.002	1770.	.01	.0
%RSD	.099	.345	.748	.435	.205

Int. Std.	Y_3242	Y_3710	Y_2243
Units	Cts/S	Cts/S	Cts/S
Avg	**757310.**	**255030.**	**5227.4**
Stddev	6600.	1346.	31.8
%RSD	.87148	.52764	.60807

Sample Name: CalStd13=100000 Acquired: 09/20/2018 12:26:49 Type: Cal
Method: DOD Calibration Updated 060614(v2952) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Al3082	Al3961	Ca3158	Fe2599	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.052	.218	9250.	.064	.002
Stddev	.000	.001	66.	.000	.000
%RSD	.586	.395	.707	.763	.690

Int. Std.	Y_3242	Y_3710	Y_2243
Units	Cts/S	Cts/S	Cts/S
Avg	725440.	248650.	5159.1
Stddev	2445.	911.	26.1
%RSD	.33698	.36621	.50519

Sample Name: CalStd14=500000 Acquired: 09/20/2018 12:34:44 Type: Cal
Method: DOD Calibration Updated 060614(v2952) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Al3961	Ca3158	Fe2599	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**1.23**	**45600.**	**.313**	**.012**
Stddev	.01	325.	.002	.000
%RSD	1.19	.713	.582	.637

Int. Std.	Y_3242	Y_3710	Y_2243
Units	Cts/S	Cts/S	Cts/S
Avg	**688340.**	**235260.**	**4810.3**
Stddev	2255.	1283.	13.7
%RSD	.32764	.54536	.28532

Sample Name: CalibStd15=1000k Acquired: 09/20/2018 12:44:16 Type: Cal
Method: DOD Calibration Updated 060614(v2952) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Al3961	Ca3158	Fe2599	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**2.41**	**80500.**	**.581**	**.024**
Stddev	.03	619.	.005	.000
%RSD	1.40	.769	.912	.444

Int. Std.	Y_3242	Y_3710	Y_2243
Units	Cts/S	Cts/S	Cts/S
Avg	**613880.**	**223450.**	**4242.3**
Stddev	3293.	639.	15.7
%RSD	.53650	.28608	.37055

Sample Name: icv Acquired: 09/20/2018 13:08:23 Type: QC
Method: DOD Calibration Updated 060614(v2952) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3382	Al3082	As1937	Ba4934	Be3130	Ca3158	Cd2265	Cd2288	Co2286	Cr2677	Cu2247	Fe2599
Avg	**52.3**	**11500.**	**1990.**	**1960.**	**47.9**	**10100.**	**48.1**	**49.0**	**521.**	**197.**	**246.**	**4950.**
Stddev	.6	115.	13.	15.	.4	91.	.1	.6	1.	2.	1.	51.
%RSD	1.06	1.00	.665	.761	.914	.893	.236	1.31	.139	.954	.360	1.02
Check ?	None	None	None	None	None	None	None	None	None	None	None	None
Value												
Range												

Elem	Mg2790	Mn2576	Mo2038	Mo2045	Ni2316	Pb2169	Pb2203	Sb2068	Sb2175	Se2062	Tl1908	V_2924
Avg	**9950.**	**483.**	**524.**	**530.**	**511.**	**476.**	**495.**	**489.**	**499.**	**2100.**	**2120.**	**485.**
Stddev	139.	4.	1.	1.	1.	3.	3.	3.	2.	16.	11.	4.
%RSD	1.39	.732	.206	.147	.207	.656	.598	.602	.390	.746	.502	.916
Check ?	None	None	None	None	None	None	None	None	None	None	None	None
Value												
Range												

Elem	Zn2062	Zn2138
Avg	**504.**	**487.**
Stddev	4.	5.
%RSD	.729	.937
Check ?	None	None
Value		
Range		

Sample Name: icv Acquired: 09/20/2018 13:08:23 Type: QC
Method: DOD Calibration Updated 060614(v2952) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Int. Std.	Y_3242	Y_3710	Y_2243
Avg	**767810.**	**254280.**	**5379.4**
Stddev	4771.	2424.	13.3
%RSD	.62142	.95317	.24743

Sample Name: ICVLL Acquired: 09/20/2018 13:15:44 Type: QC
Method: DOD Calibration Updated 060614(v2952) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Ag3382	Al1670	Al3082	As1937	Ba2335	Be3130	Ca3933	Cd2265	Co2286	Cr2677	Cu2247
Avg	**48.8**	**49.6**	**1280.**	**1260.**	**63.7**	**32.4**	**12.6**	**1470.**	**15.6**	**32.8**	**33.1**	**32.4**
Stddev	.4	1.8	7.	15.	4.3	.4	.1	7.	.4	.1	.2	1.5
%RSD	.737	3.65	.546	1.20	6.78	1.11	.505	.502	2.56	.296	.587	4.49
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value												
Range												

Elem	Fe2599	Mg2802	Mn2576	Mo2038	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2924	Zn2138
Avg	**986.**	**1680.**	**32.7**	**31.6**	**33.2**	**35.1**	**69.8**	**64.2**	**66.1**	**32.6**	**32.9**
Stddev	5.	7.	.2	.5	1.0	3.3	3.0	7.1	.8	.4	.1
%RSD	.479	.393	.687	1.56	2.89	9.50	4.35	11.0	1.23	1.10	.351
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value											
Range											

Int. Std.	Y_3242	Y_3710	Y_2243
Avg	**769570.**	**256770.**	**5426.3**
Stddev	3831.	2335.	20.0
%RSD	.49784	.90933	.36768

Sample Name: icb Acquired: 09/20/2018 13:22:59 Type: QC
Method: DOD Calibration Updated 060614(v2952) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba2335	Be3130	Ca3933	Cd2265	Co2286	Cr2677	Cu2247	Fe2599	Mg2802
Avg	**-.860**	**.362**	**-1.92**	**.270**	**.064**	**-7.28**	**-.076**	**-.412**	**-.394**	**-.560**	**8.00**	**1.36**
Stddev	.243	.470	3.73	.227	.014	1.04	.094	.282	.341	.981	1.76	.02
%RSD	28.2	130.	194.	83.9	22.7	14.3	123.	68.6	86.6	175.	22.0	1.80
Check ?	None	None	None	None	None	None	None	None	None	None	None	None
Value												
Range												

Elem	Mn2576	Mo2038	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2924	Zn2138
Avg	**.158**	**-3.04**	**-.512**	**1.56**	**-1.25**	**-.346**	**-1.74**	**-.152**	**.207**
Stddev	.068	.35	.338	.65	1.21	4.84	1.17	.197	.138
%RSD	42.9	11.6	66.0	41.7	96.8	1400.	67.3	130.	67.0
Check ?	None	None	None	None	None	None	None	None	None
Value									
Range									

Int. Std.	Y_3242	Y_3710	Y_2243
Avg	**773480.**	**255170.**	**5488.2**
Stddev	688.	278.	13.0
%RSD	.08892	.10894	.23662

Sample Name: MRL/LLOQ Acquired: 09/20/2018 13:37:44 Type: QC
Method: DOD Calibration Updated 060614(v2952) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba2335	Be3130	Ca3933	Cd2265	Co2286	Cr2677	Cu2247	Fe2599	Mg2802
Avg	**14.8**	**428.**	**16.4**	**10.4**	**4.04**	**448.**	**5.05**	**10.4**	**10.3**	**9.66**	**305.**	**540.**
Stddev	1.2	2.	2.5	.5	.02	4.	.24	.6	.3	.97	2.	2.
%RSD	8.22	.419	15.2	5.24	.577	.820	4.67	5.42	3.30	10.1	.659	.389
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value												
Range												

Elem	Mn2576	Mo2038	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2924	Zn2138
Avg	**10.4**	**7.95**	**10.5**	**11.2**	**21.8**	**18.8**	**19.2**	**10.7**	**10.3**
Stddev	.1	.79	.5	1.3	2.3	5.4	2.3	.5	.2
%RSD	1.25	9.93	4.56	11.9	10.7	28.7	11.9	4.40	1.46
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Int. Std.	Y_3242	Y_3710	Y_2243
Avg	**764260.**	**255120.**	**5428.6**
Stddev	3808.	1871.	10.0
%RSD	.49823	.73319	.18466

Sample Name: icsa Acquired: 09/20/2018 13:45:04 Type: QC
Method: DOD Calibration Updated 060614(v2952) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al3961	As1937	Ba2335	Be3130	Ca3158	Cd2265	Co2286	Cr2677	Cu2247	Fe2599
Avg	**-.645**	**552000.**	**.000**	**.000**	**.000**	**491000.**	**-.004**	**.099**	**-.000**	**.007**	**466000.**
Stddev	.985	7820.	5.14	.902	.023	2880.	.427	.615	.512	1.66	2960.
%RSD	153.	1.42	8200000.	4060000.	24e6	.587	10800.	621.	2610000.	23400.	.635
Check ?	Chk Pass	None	Chk Pass	Chk Pass	Chk Pass	None	Chk Pass	Chk Pass	Chk Pass	Chk Pass	None
High Limit											
Low Limit											

Elem	Mg2790	Mn2576	Mo2038	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2924	Zn2138
Avg	**519000.**	**.000**	**.000**	**-.658**	**.000**	**-.002**	**.001**	**.000**	**-.316**	**.005**
Stddev	3740.	.236	2.12	1.01	4.41	2.99	5.20	2.72	.492	.104
%RSD	.721	812000.	1220000.	153.	2560000.	135000.	587000.	743000.	156.	2180.
Check ?	None	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit										
Low Limit										

Int. Std.	Y_3242	Y_3710	Y_2243
Avg	**681590.**	**234510.**	**4703.6**
Stddev	5218.	1431.	3.9
%RSD	.76561	.61004	.08277

Sample Name: icsab Acquired: 09/20/2018 13:53:14 Type: QC
Method: DOD Calibration Updated 060614(v2952) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3382	Al3961	As1937	Ba2335	Ba4934	Be2348	Ca3158	Cd2265	Cd2288	Co2286	Cr2055
Avg	**546.**	**571000.**	**508.**	**524.**	**496.**	**449.**	**510000.**	**460.**	**537.**	**506.**	**530.**
Stddev	9.	11800.	20.	1.	3.	2.	1570.	1.	1.	1.	2.
%RSD	1.62	2.07	3.95	.221	.654	.467	.307	.178	.117	.198	.351
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value											
Range											

Elem	Cr2677	Cu2247	Fe2599	Mg2790	Mn2576	Mo2038	Mo2045	Ni2316	Pb2203	Sb2068	Sb2175
Avg	**512.**	**419.**	**478000.**	**536000.**	**497.**	**531.**	**549.**	**489.**	**443.**	**525.**	**576.**
Stddev	1.	1.	1420.	2700.	1.	2.	3.	1.	11.	10.	3.
%RSD	.195	.347	.297	.504	.193	.313	.520	.111	2.56	1.93	.442
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value											
Range											

Elem	Se1960	Tl1908	V_2924	Zn2062	Zn2138
Avg	**525.**	**445.**	**529.**	**497.**	**527.**
Stddev	5.	4.	1.	1.	1.
%RSD	.977	.911	.145	.212	.153
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value					
Range					

Sample Name: icsab Acquired: 09/20/2018 13:53:14 Type: QC
Method: DOD Calibration Updated 060614(v2952) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Int. Std.	Y_3242	Y_3710	Y_2243
Avg	**680590.**	**234930.**	**4708.8**
Stddev	921.	925.	4.4
%RSD	.13531	.39357	.09427

Sample Name: ICVLL ag Acquired: 09/20/2018 14:07:45 Type: Unk
Method: DOD Calibration Updated 060614(v2952) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba2335	Be3130	Ca3933	Cd2265	Co2286	Cr2677	Cu2247	Fe2599	Mg2802
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**8.90**	**1.53**	**-3.08**	**.415**	**.106**	**-7.01**	**-.368**	**-.299**	**.001**	**-1.61**	**24.5**	**2.31**
Stddev	.38	1.21	5.40	.361	.026	.55	.226	.469	.297	.33	8.2	.07
%RSD	4.23	79.2	175.	86.8	24.6	7.86	61.5	157.	29000.	20.4	33.5	2.91

Elem	Mn2576	Mo2038	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2924	Zn2138
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**.235**	**-2.65**	**-.501**	**3.67**	**1.10**	**-.094**	**-2.10**	**.169**	**.720**
Stddev	.088	.61	.417	3.30	3.67	3.69	1.54	.260	.120
%RSD	37.5	23.1	83.1	89.8	333.	3940.	73.0	154.	16.6

Int. Std.	Y_3242	Y_3710	Y_2243
Units	Cts/S	Cts/S	Cts/S
Avg	**771100.**	**257070.**	**5463.4**
Stddev	8190.	1556.	22.8
%RSD	1.0621	.60539	.41690

Sample Name: ccv1 Acquired: 09/21/2018 04:25:03 Type: QC
Method: DOD Calibration Updated 060614(v2952) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Ag3382	Al3082	As1937	Ba4934	Be2348	Ca3158	Cd2265	Cd2288	Co2388	Cr2055	Cu3247
Avg	**443.**	**533.**	**4910.**	**4500.**	**4820.**	F **421.**	F **4270.**	**472.**	**429.**	**4860.**	**4570.**	**4500.**
Stddev	2.	3.	22.	16.	41.	3.	63.	1.	1.	39.	5.	19.
%RSD	.465	.498	.451	.344	.845	.711	1.47	.234	.220	.797	.117	.428
Check ?	None	None	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Fail	Chk Pass	None	Chk Pass	Chk Pass	Chk Pass
Value						500.	5000.					
Range						-10.4%	-10.4%					

Elem	Fe2599	Mg2790	Mn2593	Mo2045	Ni2316	Pb2169	Sb2068	Se2062	Tl1908	V_2924	Zn2062
Avg	F **4440.**	**4680.**	F **4430.**	**4890.**	**5080.**	**4870.**	**5060.**	**4940.**	**5030.**	**4940.**	**4970.**
Stddev	38.	31.	31.	4.	6.	16.	5.	56.	17.	37.	7.
%RSD	.851	.666	.694	.075	.127	.318	.098	1.14	.339	.751	.142
Check ?	Chk Fail	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value	5000.		5000.								
Range	-10.4%		-10.4%								

Int. Std.	Y_3242	Y_3710	Y_2243
Avg	**728910.**	**253430.**	**5166.0**
Stddev	3874.	571.	16.7
%RSD	.53144	.22532	.32335

Sample Name: ccv2 Acquired: 09/21/2018 04:31:50 Type: QC
Method: DOD Calibration Updated 060614(v2952) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Ag3382	Al1670	As1937	Ba2335	Ba4934	Be3130	Ca3933	Cd2265	Co2286	Cr2055	Cr2677
Avg	**46.3**	**53.5**	**517.**	**466.**	**494.**	**482.**	F **43.5**	F **388.**	**49.7**	**506.**	**467.**	**471.**
Stddev	.3	5.5	3.	3.	2.	5.	.3	1.	.4	.	2.	2.
%RSD	.624	10.4	.675	.579	.472	.961	.766	.269	.710	.080	.407	.442
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							50.0	500.				
Range							-10.4%	-10.4%				

Elem	Cu2247	Fe2599	Mg2802	Mn2576	Mo2038	Mo2045	Ni2316	Pb2169	Pb2203	Sb2068	Sb2175	Se1960
Avg	F **441.**	**451.**	**484.**	**488.**	**472.**	**498.**	**534.**	**516.**	**479.**	**502.**	**505.**	**486.**
Stddev	3.	6.	3.	2.	2.	1.	1.	5.	6.	2.	2.	9.
%RSD	.757	1.30	.526	.392	.403	.244	.156	.891	1.25	.463	.410	1.94
Check ?	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value	500.											
Range	-10.4%											

Elem	Tl1908	V_2924	Zn2062	Zn2138
Avg	**545.**	**506.**	**512.**	**507.**
Stddev	2.	2.	2.	2.
%RSD	.332	.461	.390	.430
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value				
Range				

Sample Name: ccv2 Acquired: 09/21/2018 04:31:50 Type: QC
Method: DOD Calibration Updated 060614(v2952) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Int. Std.	Y_3242	Y_3710	Y_2243
Avg	756860.	256330.	5399.1
Stddev	3681.	1266.	9.8
%RSD	.48638	.49372	.18218

Sample Name: ccb Acquired: 09/21/2018 04:38:47 Type: QC
Method: DOD Calibration Updated 060614(v2952) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba2335	Be3130	Ca3933	Cd2265	Co2286	Cr2677	Cu2247	Fe2599	Mg2802
Avg	-1.59	1.96	2.16	.492	.361	-4.39	-.121	.396	.189	-.637	3.34	2.83
Stddev	.41	1.07	2.48	.200	.012	.35	.237	.208	.433	.567	1.89	.21
%RSD	25.8	54.5	115.	40.7	3.30	8.04	196.	52.6	229.	89.0	56.5	7.30
Check ?	None	None	None	None	None	None	None	None	None	None	None	None
Value												
Range												

Elem	Mn2576	Mo2038	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2924	Zn2138
Avg	.623	-.660	.354	1.69	2.00	.803	-2.21	.412	3.09
Stddev	.109	1.31	.472	4.13	1.17	8.42	2.46	.218	.24
%RSD	17.5	199.	133.	244.	58.4	1050.	111.	52.9	7.67
Check ?	None	None	None	None	None	None	None	None	None
Value									
Range									

Int. Std.	Y_3242	Y_3710	Y_2243
Avg	752040.	254340.	5385.6
Stddev	1784.	651.	13.1
%RSD	.23720	.25605	.24234

Sample Name: lcsw68685 Acquired: 09/21/2018 04:46:11 Type: Unk
Method: DOD Calibration Updated 060614(v2952) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Ag3382	Al1670	As1937	Ba2335	Ba4934	Be3130	Ca3158	Cd2265	Co2286	Cr2677
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**16.7**	**49.4**	**836.**	**780.**	**835.**	**900.**	**18.1**	**181000.**	**19.9**	**212.**	**80.7**
Stddev	.8	2.4	1.	6.	2.	13.	.2	948.	.2	1.	1.1
%RSD	4.92	4.82	.115	.810	.231	1.40	.970	.524	1.19	.390	1.37

Elem	Cu2247	Fe2599	Mg2790	Mn2576	Mo2045	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2924
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**86.1**	**402.**	**101000.**	**202.**	**2140.**	**225.**	**202.**	**221.**	**849.**	**843.**	**213.**
Stddev	.7	7.	1220.	2.	4.	.	4.	4.	3.	4.	2.
%RSD	.826	1.85	1.21	1.19	.167	.202	2.14	2.01	.383	.446	1.03

Elem	Zn2138
Units	ug/L
Avg	**220.**
Stddev	2.
%RSD	.966

Int. Std.	Y_3242	Y_3710	Y_2243
Units	Cts/S	Cts/S	Cts/S
Avg	**695410.**	**247440.**	**4899.4**
Stddev	5098.	666.	21.3
%RSD	.73309	.26912	.43493

Sample Name: mbw68685 Acquired: 09/21/2018 04:53:45 Type: Unk
Method: DOD Calibration Updated 060614(v2952) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba2335	Be3130	Ca3933	Cd2265	Co2286	Cr2677	Cu2247	Fe2599	Mg2802
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**-1.68**	**.468**	**-3.68**	**.268**	**.300**	**37.6**	**-.084**	**.070**	**-.587**	**-1.78**	**-3.52**	**2.51**
Stddev	.34	.211	3.89	.251	.019	64.1	.303	.187	.403	1.48	2.25	1.10
%RSD	19.9	45.2	106.	93.9	6.25	171.	362.	269.	68.7	82.9	63.9	44.0

Elem	Mn2576	Mo2038	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2924	Zn2138
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**-.057**	**-.654**	**.173**	**-1.81**	**2.55**	**-.911**	**-2.45**	**.057**	**.951**
Stddev	.093	.365	.424	3.03	2.98	4.72	2.04	.580	.114
%RSD	163.	55.7	245.	167.	117.	517.	83.3	1010.	12.0

Int. Std.	Y_3242	Y_3710	Y_2243
Units	Cts/S	Cts/S	Cts/S
Avg	**755170.**	**255580.**	**5368.3**
Stddev	7384.	1254.	35.3
%RSD	.97775	.49050	.65794

Sample Name: 175864 Acquired: 09/21/2018 05:01:09 Type: Unk
Method: DOD Calibration Updated 060614(v2952) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba2335	Ba4934	Be3130	Ca3158	Cd2265	Co2286	Cr2677	Cu2247	Fe2599
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**-1.48**	**330.**	**-3.44**	**137.**	**189.**	**1.36**	**15800.**	**.121**	**2.67**	**3.42**	**11.3**	**48.2**
Stddev	.21	3.	3.71	1.	3.	.04	213.	.319	.37	.24	.6	.7
%RSD	14.3	.800	108.	.417	1.56	2.91	1.35	264.	13.7	6.93	5.49	1.52

Elem	Mg2790	Mn2576	Mo2038	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2924	Zn2138
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**3300.**	**578.**	**-.791**	**18.8**	**6.10**	**-1.30**	**4.57**	**-6.34**	**.367**	**138.**
Stddev	18.	5.	.712	.3	3.70	1.89	5.44	3.44	.234	1.
%RSD	.541	.856	90.0	1.68	60.6	145.	119.	54.2	63.7	.936

Int. Std.	Y_3242	Y_3710	Y_2243
Units	Cts/S	Cts/S	Cts/S
Avg	**663570.**	**244560.**	**4711.9**
Stddev	4417.	1555.	27.4
%RSD	.66562	.63592	.58062

Sample Name: I175864 Acquired: 09/21/2018 05:09:10 Type: Unk
Method: DOD Calibration Updated 060614(v2952) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba2335	Be3130	Ca3158	Cd2265	Co2286	Cr2677	Cu2247	Fe2599	Mg2802
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**-1.98**	**88.4**	**.488**	**33.2**	**.677**	**3840.**	**-.288**	**.031**	**.398**	**2.81**	**6.00**	**731.**
Stddev	.57	1.5	2.52	.1	.030	28.	.166	.165	.507	.08	1.44	6.
%RSD	28.8	1.65	517.	.408	4.42	.721	57.6	525.	127.	2.85	24.0	.876

Elem	Mn2576	Mo2038	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2924	Zn2138
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**141.**	**-2.17**	**4.39**	**2.19**	**2.48**	**1.11**	**-2.92**	**-.108**	**32.7**
Stddev	2.	.55	.62	2.33	3.71	5.98	1.60	.207	.4
%RSD	1.09	25.2	14.0	107.	150.	537.	54.9	191.	1.17

Int. Std.	Y_3242	Y_3710	Y_2243
Units	Cts/S	Cts/S	Cts/S
Avg	**715160.**	**253970.**	**5013.9**
Stddev	7871.	3045.	11.5
%RSD	1.1006	1.1991	.22945

Sample Name: dup175864 Acquired: 09/21/2018 05:17:13 Type: Unk
Method: DOD Calibration Updated 060614(v2952) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba2335	Ba4934	Be3130	Ca3158	Cd2265	Co2286	Cr2677	Cu2247	Fe2599
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**-1.50**	**330.**	**-.913**	**134.**	**185.**	**1.34**	**15300.**	**.060**	**2.33**	**3.44**	**11.3**	**46.6**
Stddev	.38	.	2.33	1.	4.	.04	173.	.058	.25	.34	1.0	2.1
%RSD	25.1	.133	255.	.647	2.23	2.79	1.14	96.4	10.7	10.0	9.06	4.47

Elem	Mg2790	Mn2576	Mo2038	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2924	Zn2138
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**3180.**	**562.**	**-.825**	**18.1**	**4.11**	**.733**	**4.13**	**-9.35**	**.435**	**134.**
Stddev	34.	6.	1.57	.6	6.90	1.72	8.44	1.45	.375	1.
%RSD	1.06	1.12	191.	3.22	168.	235.	204.	15.5	86.4	1.04

Int. Std.	Y_3242	Y_3710	Y_2243
Units	Cts/S	Cts/S	Cts/S
Avg	**663090.**	**245520.**	**4668.4**
Stddev	6656.	722.	19.4
%RSD	1.0039	.29417	.41572

Sample Name: msw175864 Acquired: 09/21/2018 05:25:14 Type: Unk
Method: DOD Calibration Updated 060614(v2952) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Ag3382	Al1670	Al3082	As1937	Ba2335	Ba4934	Be3130	Ca3158	Cd2265	Co2286
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**16.1**	**46.5**	**1050.**	**1270.**	**728.**	**890.**	**1050.**	**17.9**	**177000.**	**17.2**	**190.**
Stddev	.4	4.3	2.	24.	6.	4.	10.	.2	1800.	.1	.
%RSD	2.71	9.20	.222	1.85	.848	.419	.957	1.01	1.02	.769	.161

Elem	Cr2677	Cu2247	Fe2599	Mg2790	Mn2576	Mo2045	Ni2316	Pb2203	Sb2175	Se1960	Se2062
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**77.6**	**76.2**	**452.**	**101000.**	**712.**	**1990.**	**212.**	**170.**	**215.**	**915.**	**1050.**
Stddev	1.0	.8	5.	716.	7.	4.	1.	4.	3.	4.	11.
%RSD	1.32	1.02	1.02	.711	.948	.181	.337	2.24	1.62	.429	1.04

Elem	Tl1908	V_2924	Zn2138
Units	ug/L	ug/L	ug/L
Avg	**652.**	**199.**	**337.**
Stddev	4.	3.	2.
%RSD	.573	1.26	.688

Int. Std.	Y_3242	Y_3710	Y_2243
Units	Cts/S	Cts/S	Cts/S
Avg	**638250.**	**240170.**	**4477.7**
Stddev	3991.	720.	6.6
%RSD	.62525	.29965	.14714

Sample Name: msdw175864 Acquired: 09/21/2018 05:32:57 Type: Unk
Method: DOD Calibration Updated 060614(v2952) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Ag3382	Al1670	Al3082	As1937	Ba2335	Ba4934	Be3130	Ca3158	Cd2265	Co2286
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**16.1**	**50.5**	**1050.**	**1280.**	**722.**	**891.**	**1060.**	**18.0**	**178000.**	**17.6**	**191.**
Stddev	.1	3.0	5.	26.	3.	3.	9.	.1	1680.	.2	1.
%RSD	.638	5.99	.464	2.06	.348	.300	.822	.652	.944	.860	.279

Elem	Cr2677	Cu2247	Fe2599	Mg2790	Mn2576	Mo2045	Ni2316	Pb2203	Sb2175	Se1960	Se2062
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**79.0**	**77.8**	**452.**	**101000.**	**719.**	**2000.**	**215.**	**170.**	**215.**	**907.**	**1030.**
Stddev	.7	1.5	3.	932.	3.	5.	1.	6.	1.	12.	24.
%RSD	.918	1.88	.763	.919	.367	.226	.539	3.57	.556	1.31	2.32

Elem	Tl1908	V_2924	Zn2138
Units	ug/L	ug/L	ug/L
Avg	**658.**	**201.**	**341.**
Stddev	6.	1.	2.
%RSD	.944	.568	.533

Int. Std.	Y_3242	Y_3710	Y_2243
Units	Cts/S	Cts/S	Cts/S
Avg	**635370.**	**238780.**	**4468.6**
Stddev	2951.	224.	15.0
%RSD	.46443	.09389	.33662

Sample Name: pdsw175864 Acquired: 09/21/2018 05:40:39 Type: Unk
Method: DOD Calibration Updated 060614(v2952) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Ag3382	Al3082	As1937	Ba4934	Be3130	Ca3158	Cd2265	Cd2288	Co2286	Cr2677
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**75.6**	**128.**	**4070.**	**3180.**	**4050.**	**73.8**	**311000.**	**77.3**	**86.5**	**828.**	**332.**
Stddev	.6	3.	16.	7.	45.	.8	2190.	.2	.3	2.	4.
%RSD	.749	2.58	.385	.225	1.11	1.13	.703	.249	.337	.207	1.21

Elem	Cu2247	Fe2599	Mg2790	Mn2576	Mo2038	Ni2316	Pb2169	Pb2203	Sb2068	Se2062	Tl1908
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**302.**	**1760.**	**183000.**	**1330.**	**1.97**	**854.**	**967.**	**745.**	**971.**	**4210.**	**2870.**
Stddev	2.	22.	1760.	14.	.72	2.	7.	4.	3.	51.	4.
%RSD	.633	1.27	.963	1.03	36.3	.266	.683	.597	.316	1.21	.140

Elem	V_2924	Zn2062
Units	ug/L	ug/L
Avg	**899.**	**934.**
Stddev	10.	3.
%RSD	1.10	.280

Int. Std.	Y_3242	Y_3710	Y_2243
Units	Cts/S	Cts/S	Cts/S
Avg	**630290.**	**237230.**	**4421.3**
Stddev	4279.	758.	13.1
%RSD	.67886	.31957	.29696

Sample Name: 175866 Acquired: 09/21/2018 05:48:16 Type: Unk
Method: DOD Calibration Updated 060614(v2952) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba2335	Be3130	Ca3158	Cd2265	Co2286	Cr2677	Cu2247	Fe2599	Mg2790
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**-1.93**	**7.00**	**-1.42**	**12.9**	**.387**	**59400.**	**-.409**	**.045**	**2.09**	**-.334**	**29.5**	**6790.**
Stddev	.36	.85	2.15	.2	.024	131.	.205	.262	.24	1.04	2.9	51.
%RSD	18.8	12.2	152.	1.35	6.18	.222	50.1	575.	11.5	311.	9.96	.747

Elem	Mn2576	Mo2038	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2924	Zn2138
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**714.**	**22.6**	**2.81**	**1.15**	**.214**	**1.89**	**-2.03**	**.375**	**1.74**
Stddev	2.	.7	.44	1.92	3.30	4.37	2.50	.398	.25
%RSD	.229	3.24	15.5	167.	1540.	231.	123.	106.	14.3

Int. Std.	Y_3242	Y_3710	Y_2243
Units	Cts/S	Cts/S	Cts/S
Avg	**727100.**	**251510.**	**5138.3**
Stddev	1983.	753.	21.3
%RSD	.27270	.29946	.41359

Sample Name: ccv1 Acquired: 09/21/2018 06:03:50 Type: QC
Method: DOD Calibration Updated 060614(v2952) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Ag3382	Al3082	As1937	Ba4934	Be2348	Ca3158	Cd2265	Cd2288	Co2388	Cr2055	Cu3247
Avg	**442.**	**526.**	**4910.**	**4490.**	**4800.**	F **413.**	F **4190.**	**473.**	**430.**	**4860.**	**4570.**	**4500.**
Stddev	1.	3.	42.	4.	46.	4.	29.	1.	2.	27.	7.	31.
%RSD	.135	.507	.850	.099	.954	.852	.687	.285	.353	.546	.163	.688
Check ?	None	None	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Fail	Chk Pass	None	Chk Pass	Chk Pass	Chk Pass
Value						500.	5000.					
Range						-10.4%	-10.4%					

Elem	Fe2599	Mg2790	Mn2593	Mo2045	Ni2316	Pb2169	Sb2068	Se2062	Tl1908	V_2924	Zn2062
Avg	F **4400.**	**4650.**	F **4350.**	**4880.**	**5060.**	**4860.**	**5050.**	**4980.**	**5020.**	**4940.**	**4960.**
Stddev	45.	30.	37.	11.	10.	23.	5.	36.	9.	26.	10.
%RSD	1.03	.648	.853	.231	.202	.476	.096	.727	.170	.531	.194
Check ?	Chk Fail	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value	5000.		5000.								
Range	-10.4%		-10.4%								

Int. Std.	Y_3242	Y_3710	Y_2243
Avg	**725570.**	**251130.**	**5155.0**
Stddev	3015.	1607.	21.4
%RSD	.41559	.63989	.41459

Sample Name: ccv2 Acquired: 09/21/2018 06:10:41 Type: QC
Method: DOD Calibration Updated 060614(v2952) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Ag3382	Al1670	As1937	Ba2335	Ba4934	Be3130	Ca3933	Cd2265	Co2286	Cr2055	Cr2677
Avg	**46.6**	**53.6**	**515.**	**467.**	**493.**	**475.**	F **43.6**	F **382.**	**49.2**	**505.**	**466.**	**471.**
Stddev	.3	2.6	3.	5.	1.	4.	.1	1.	.5	.	1.	.
%RSD	.615	4.80	.559	1.03	.183	.822	.250	.265	.938	.044	.112	.075
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							50.0	500.				
Range							-10.4%	-10.4%				

Elem	Cu2247	Fe2599	Mg2802	Mn2576	Mo2038	Mo2045	Ni2316	Pb2169	Pb2203	Sb2068	Sb2175	Se1960
Avg	F **443.**	F **446.**	**483.**	**486.**	**472.**	**494.**	**532.**	**514.**	**482.**	**505.**	**502.**	**477.**
Stddev	1.	4.	1.	1.	1.	2.	1.	5.	2.	2.	3.	3.
%RSD	.142	.796	.248	.291	.198	.309	.276	1.03	.489	.376	.634	.718
Check ?	Chk Fail	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value	500.	500.										
Range	-10.4%	-10.4%										

Elem	Tl1908	V_2924	Zn2062	Zn2138
Avg	**544.**	**505.**	**511.**	**505.**
Stddev	4.	1.	1.	2.
%RSD	.723	.271	.128	.403
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value				
Range				

Sample Name: ccv2 Acquired: 09/21/2018 06:10:41 Type: QC
Method: DOD Calibration Updated 060614(v2952) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Int. Std.	Y_3242	Y_3710	Y_2243
Avg	**758420.**	**255030.**	**5415.0**
Stddev	2798.	1823.	13.3
%RSD	.36895	.71484	.24583

Sample Name: ccb Acquired: 09/21/2018 06:17:38 Type: QC
Method: DOD Calibration Updated 060614(v2952) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

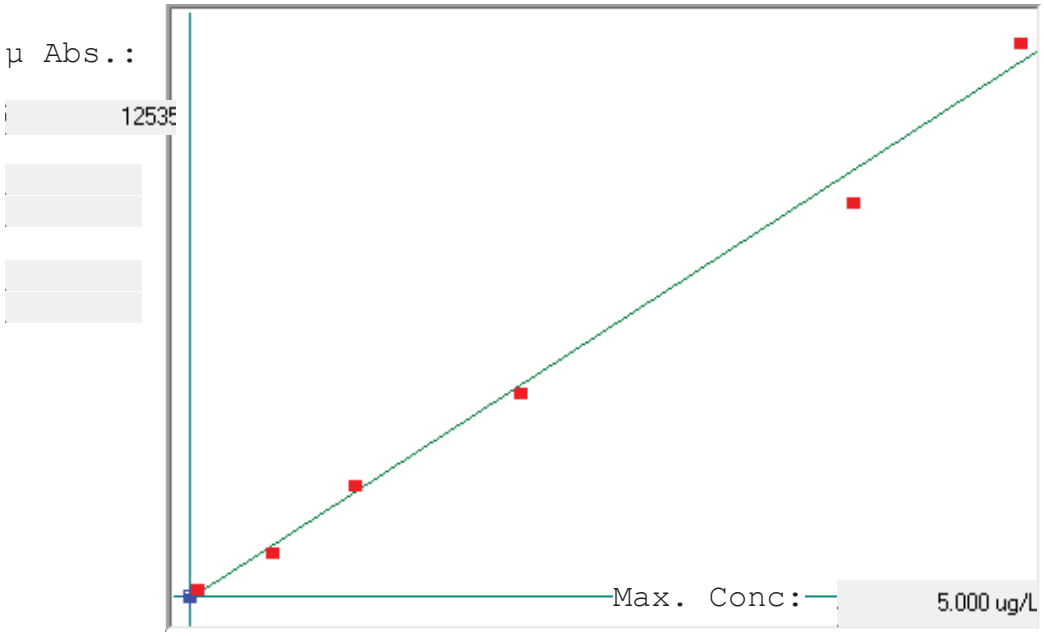
Elem	Ag3280	Al1670	As1937	Ba2335	Be3130	Ca3933	Cd2265	Co2286	Cr2677	Cu2247	Fe2599	Mg2802
Avg	-1.83	.631	-1.68	.778	.368	-7.45	-.067	.396	.344	-.798	1.13	1.28
Stddev	.44	.928	2.78	.077	.008	.39	.212	.281	.444	.436	2.10	.06
%RSD	24.1	147.	165.	9.87	2.29	5.23	316.	71.0	129.	54.7	186.	4.38
Check ?	None	None	None	None	None	None	None	None	None	None	None	None
Value												
Range												

Elem	Mn2576	Mo2038	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2924	Zn2138
Avg	.614	-.920	.754	1.83	.398	-.612	.956	.458	1.96
Stddev	.055	1.04	.752	2.84	1.66	1.69	1.40	.433	.08
%RSD	8.92	113.	99.7	155.	417.	275.	146.	94.6	3.87
Check ?	None	None	None	None	None	None	None	None	None
Value									
Range									

Int. Std.	Y_3242	Y_3710	Y_2243
Avg	758830.	255660.	5362.3
Stddev	3284.	933.	15.0
%RSD	.43276	.36479	.28018

CVAA water

Linear



A= 0.0000e+000

B= 4.1287e-004

C= 3.1214e-002

Rho= 0.9970629

Accept= Accepted

Accepted Date=

09/20/18 07:42

Std ID	Conc.	Calc.	Dev.	Mean	SD or %RSD	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
Calibration Blank	0.000	0.028	0.028	-7	6.572	3	-7	-10	-15	0
0.05	0.050	0.114	0.064	201	5.7 %	185	199	203	217	
0.5	0.500	0.452	-0.048	1019	5.9 %	935	996	1051	1097	
1.0	1.000	1.087	0.087	2556	6.4 %	2330	2489	2633	2772	
2.0	2.000	1.943	-0.057	4631	6.3 %	4224	4519	4774	5009	
4.0	4.000	3.719	-0.281	8932	6.2 %	8148	8724	9219	9639	
5.0	5.000	5.206	0.206	12534	5.7 %	11541	12259	12888	13450	

092018WA PDF

Method: CVAA water Operator: Admin Date of Analysis: 20 Sep 2018 07:05:24

Sample ID	Date	Element	Units	Extended ID	LT Mean Conc
Calibration Blank	20 Sep 2018 07:26:31	Hg	ug/L		-7.250
0.05	20 Sep 2018 07:28:44	Hg	ug/L		201.000
0.5	20 Sep 2018 07:31:00	Hg	ug/L		1019.750
1.0	20 Sep 2018 07:33:16	Hg	ug/L		2556.000
2.0	20 Sep 2018 07:35:31	Hg	ug/L		4631.500
4.0	20 Sep 2018 07:37:47	Hg	ug/L		8932.500
5.0	20 Sep 2018 07:40:03	Hg	ug/L		12534.500
ICV	20 Sep 2018 07:44:36	Hg	ug/L		2.937
ICB	20 Sep 2018 07:46:52	Hg	ug/L		-0.370
179029 MBW68705	20 Sep 2018 07:51:21	Hg	ug/L		-0.319
174585	20 Sep 2018 07:53:36	Hg	ug/L		-0.031
L174585	20 Sep 2018 07:55:50	Hg	ug/L		0.025
MSW174585	20 Sep 2018 07:58:03	Hg	ug/L		1.965
PDSW174585	20 Sep 2018 08:00:17	Hg	ug/L		1.868
176700	20 Sep 2018 08:02:32	Hg	ug/L		-0.190
176701	20 Sep 2018 08:04:48	Hg	ug/L		-0.089
176702	20 Sep 2018 08:07:02	Hg	ug/L		-0.066
176703	20 Sep 2018 08:09:17	Hg	ug/L		0.056
CCV	20 Sep 2018 08:11:33	Hg	ug/L		3.292
CCB	20 Sep 2018 08:13:46	Hg	ug/L		-0.234
L176703	20 Sep 2018 08:16:02	Hg	ug/L		-0.045
MSW176703	20 Sep 2018 08:18:17	Hg	ug/L		1.909
MSDW176703	20 Sep 2018 08:20:33	Hg	ug/L		1.779
PDSW176703	20 Sep 2018 08:22:49	Hg	ug/L		1.803
176704	20 Sep 2018 08:25:05	Hg	ug/L		-0.129
176705	20 Sep 2018 08:27:20	Hg	ug/L		0.032
176706	20 Sep 2018 08:29:35	Hg	ug/L		-0.027
176707	20 Sep 2018 08:31:49	Hg	ug/L		-0.038
177785	20 Sep 2018 08:34:03	Hg	ug/L		0.051
177869	20 Sep 2018 08:36:18	Hg	ug/L		0.067
CCV	20 Sep 2018 08:38:32	Hg	ug/L		3.146
CCB	20 Sep 2018 08:40:45	Hg	ug/L		-0.196
179026 LCSW68704	20 Sep 2018 08:54:23	Hg	ug/L		2.614
179025 MBW68704	20 Sep 2018 08:56:38	Hg	ug/L		-0.223
178980	20 Sep 2018 08:58:55	Hg	ug/L		-0.102
MSW178980	20 Sep 2018 09:01:09	Hg	ug/L		1.670
MSDW178980	20 Sep 2018 09:03:23	Hg	ug/L		1.635
CCV	20 Sep 2018 09:05:39	Hg	ug/L		2.889
CCB	20 Sep 2018 09:07:53	Hg	ug/L		-0.260
179098 LCSW68707	20 Sep 2018 09:10:09	Hg	ug/L		2.768
179097 MBW68707	20 Sep 2018 09:12:23	Hg	ug/L		-0.274
175864	20 Sep 2018 09:14:39	Hg	ug/L		-0.096
DUP175864	20 Sep 2018 09:16:54	Hg	ug/L		0.037
MSW175864	20 Sep 2018 09:19:10	Hg	ug/L		1.769
MSDW175864	20 Sep 2018 09:21:25	Hg	ug/L		1.745
175866	20 Sep 2018 09:23:42	Hg	ug/L		-0.051
179089 LCSW68706	20 Sep 2018 09:25:58	Hg	ug/L		2.710
179088 MBW68706	20 Sep 2018 09:28:12	Hg	ug/L		-0.229
175788	20 Sep 2018 09:30:28	Hg	ug/L		0.018
CCV	20 Sep 2018 09:32:42	Hg	ug/L		3.002
CCB	20 Sep 2018 09:34:55	Hg	ug/L		-0.163
175795	20 Sep 2018 09:37:11	Hg	ug/L		0.024
175796	20 Sep 2018 09:39:25	Hg	ug/L		-0.006
175797	20 Sep 2018 09:41:39	Hg	ug/L		-0.036
DUP175797	20 Sep 2018 09:43:54	Hg	ug/L		0.043
MSW175797	20 Sep 2018 09:46:08	Hg	ug/L		2.106
MSDW175797	20 Sep 2018 09:48:23	Hg	ug/L		1.987
179107 LCSW68708	20 Sep 2018 09:50:40	Hg	ug/L		2.505
179106 MBW68708	20 Sep 2018 09:52:57	Hg	ug/L		-0.249
178074	20 Sep 2018 09:55:14	Hg	ug/L		-0.048
178086	20 Sep 2018 09:57:28	Hg	ug/L		0.065
CCV	20 Sep 2018 09:59:43	Hg	ug/L		3.037
CCB	20 Sep 2018 10:01:56	Hg	ug/L		-0.214
178087	20 Sep 2018 10:04:11	Hg	ug/L		-0.021
178088	20 Sep 2018 10:06:25	Hg	ug/L		-0.042

092018WA PDF

Method: CVAA water Operator: Admin Date of Analysis: 20 Sep 2018 07:05:24

Sample ID	Date	Element	Units	Extended ID	LT Mean Conc
178089	20 Sep 2018 10:08:39	Hg	ug/L		-0.021
178824	20 Sep 2018 10:10:54	Hg	ug/L		0.063
DUP178824	20 Sep 2018 10:13:08	Hg	ug/L		0.097
MSW178824	20 Sep 2018 10:15:22	Hg	ug/L		1.648
MSDW178824	20 Sep 2018 10:17:36	Hg	ug/L		1.648
179030 LCSW68705	20 Sep 2018 10:19:53	Hg	ug/L		3.418
179019	20 Sep 2018 10:22:09	Hg	ug/L	10	0.372
L179019	20 Sep 2018 10:24:26	Hg	ug/L	10	0.497
CCV	20 Sep 2018 10:26:42	Hg	ug/L		3.056
CCB	20 Sep 2018 10:28:55	Hg	ug/L		-0.216
MSW179019	20 Sep 2018 10:31:10	Hg	ug/L	10	0.110
MSDW179019	20 Sep 2018 10:33:25	Hg	ug/L	10	0.177
PDSW179019	20 Sep 2018 10:35:39	Hg	ug/L	10	0.183
CCV	20 Sep 2018 10:37:54	Hg	ug/L		2.947
CCB	20 Sep 2018 10:40:07	Hg	ug/L		-0.164

METALS
LOGBOOK
DOCUMENTS

MICP QSM TCLP/HARDNESS Analytical Run
153457 on 10/03/2018

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME	QC TYPE (Parent Sample)		CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	187109							MICP QSM TCLP/HARDNESS				
				ICV					0			
	187110							MICP QSM TCLP/HARDNESS				
				ICVLL					0			
	187111							MICP QSM TCLP/HARDNESS				
				ICB					0			
	187112							MICP QSM TCLP/HARDNESS				
				ICSA					0			
	187113							MICP QSM TCLP/HARDNESS				
				ICSAB					0			
	187114							MICP QSM TCLP/HARDNESS				
				ICVLL					0			
	187115							MICP QSM TCLP/HARDNESS				
				CCV1					0			
	187116							MICP QSM TCLP/HARDNESS				
				CCV2					0			
	187117							MICP QSM TCLP/HARDNESS				
				CCB					0			
	178694							ICP QSM TCLP 5.0				
				LCSW					68685			
	178693							ICP QSM TCLP 5.0				
				MBW					68685			
139370	175864		09/11/2008 0800			MAXXAM ANALYTICS	SI AFFF	ICP QSM TCLP 5.0		M	**4**	
		PETER-WS-001							68685			
	187118							ICP QSM TCLP 5.0				
				L	175864				0			
	178695		09/11/2008 0800					ICP QSM TCLP 5.0				
		PETER-WS-001		DUP	175864				68685			
	178696		09/11/2008 0800					ICP QSM TCLP 5.0				
		PETER-WS-001		MSW	175864				68685			
	178697		09/11/2008 0800					ICP QSM TCLP 5.0				
		PETER-WS-001		MSDW	178696				68685			
	187119							ICP QSM TCLP 5.0				
				PDSW	175864				0			
139370	175866		09/11/2018 0800			MAXXAM ANALYTICS	SI AFFF	ICP QSM TCLP 5.0		M	**4**	
		PETER-WW-001							68685			
	187120							MICP QSM TCLP/HARDNESS				
				CCV1					0			

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

MICP QSM TCLP/HARDNESS Analytical Run
153457 on 10/03/2018

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME	QC TYPE (Parent Sample)	CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	187121						MICP QSM TCLP/HARDNESS				
				CCV2				0			
	187122						MICP QSM TCLP/HARDNESS				
				CCB				0			

21 SAMPLE COUNT ON RUN, INCLUDING METHOD AND INSTRUMENT QC

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

Distribution: C:\LIMSREPS\ANALYTICALRUN.RPT

MERCURY QSM TCLP 5.0 Analytical Run
153413 on 10/03/2018

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME	QC TYPE (Parent Sample)		CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	180014							MERCURY QSM TCLP 5.0				
				ICV					0			
	180015							MERCURY QSM TCLP 5.0				
				ICB					0			
	180020							MERCURY QSM TCLP 5.0				
				CCV					0			
	180021							MERCURY QSM TCLP 5.0				
				CCB					0			
	179098							MERCURY QSM TCLP 5.0				
				LCSW					68707			
	179097							MERCURY QSM TCLP 5.0				
				MBW					68707			
139370	175864		09/11/2008 0800			MAXXAM ANALYTICS	SI AFFF	MERCURY QSM TCLP 5.0		M	**4**	
		PETER-WS-001							68707			
	179103		09/11/2008 0800					MERCURY QSM TCLP 5.0				
		PETER-WS-001		DUP	175864				68707			
	179104		09/11/2008 0800					MERCURY QSM TCLP 5.0				
		PETER-WS-001		MSW	175864				68707			
	179105		09/11/2008 0800					MERCURY QSM TCLP 5.0				
		PETER-WS-001		MSDW	179104				68707			
139370	175866		09/11/2018 0800			MAXXAM ANALYTICS	SI AFFF	MERCURY QSM TCLP 5.0		M	**4**	
		PETER-WW-001							68707			
	180022							MERCURY QSM TCLP 5.0				
				CCV					0			
	180023							MERCURY QSM TCLP 5.0				
				CCB					0			

13 SAMPLE COUNT ON RUN, INCLUDING METHOD AND INSTRUMENT QC

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

Distribution: C:\LIMSREPS\ANALYTICALRUN.RPT

TCLP/SPLP/ASTM Extraction Summary

Batch: 2907 **Date:** 09/17/18 **Analyst (set up):** Bmm **Analyst (take down):** Bmm

Sample #	Parameter	Test			Vessel / ZHE	Buffer Determination			Sample wt.	***Free Liquids Present (Y/N)	Vol. Ext. Fluid	Initial pH	ZHE Initial Press	Time In	Date / Time Out	Ext. Time	End pH	ZHE End Press	Date / Time Filtered	Volume Filtered
	(M / SV / V / WC)	TCLP	SPLP	ASTM	#	Initial pH	* End pH	**Ext. Fluid	(g)		(mL)		(psi)			(hrs)		(psi)		(mL)
Blank	M/SV	x			15G	–	–	1	–	N	2000	4.98	–	1400	9-18-18/0800	18	4.90	–	9-18-18/0900	2000
174585	M	x			27P	6.11	4.29	1	25	N	500	6.58	–	1400	9-18-18/0800	18	6.80	–	9-18-18/0906	500
175864	M/SV	x			T2	7.35	1.76	1	100	N	2000	4.96	–	1400	9-18-18/0800	18	4.92	–	9-18-18/0910	1500
															/				/	
															/				/	
															/				/	
															/				/	
															/				/	
															/				/	
															/				/	
															/				/	
															/				/	

Bmm 9/18/18

**Extraction Fluid Used: #1 Ext. Fluid ID #: M13599 Ext. Fluid pH(+/-0.05(°C): 4.93 Date measured: 9-17-18 Ext. Start Temp (°C): 20.7

Ext. End Temp(°C): 20.6 (min: 19.9 / max: 21.1) (Acceptable Range 21-25°C) Filter Manufacturer: Env. Express Filter Lot #: 400149-8171

Balance: V0B01 pH Meter: Corning450 1N HCL: M13335 Tumbler Unit #(s): 2

Acceptable rotation rate: 30 ±2 rpm Verified Rotation rate: 30 rpm *End pH = pH of representative sample (if initially >5.0) after adding 1N HCl and heating @ 50°C (covered) for 10 minutes and then cooled to room temperature.

M=Metals, SV=Semi Volatiles, V=Volatiles, WC=Wet Chemistry

% Solids Calculation Worksheet

Sample #	Tare weights (g) A Filter wt.	B Filtrate Vessel wt.	C Transfer Vessel wt.	Transfer weights (g) D Sample + Transfer Vessel	E Sample wt {D - C}	F Vessel wt. Post Transfer	Separation weights (g) G Residue wt. {F – C}	H Total Waste Amount {E – G}	I Filtrate Vessel + Filtrate	% Solids Calculations J Liquid Phase of Sample {I – B}	K Solid Phase of Sample {H – J}	L. % Solids (**) (K/H*100)	M Waste + Filter (Dry) wt. (g)	% Solids (Dry) ({M – A}/H)*100

Bmm 9/18/18

(***) If Solids = <0.5%, treat filtrate as TCLP extract, if free liquid present use % Solids Calculation Worksheet

Reviewed By/Date: _____

PREP WORKSHEET
on 10/03/2018

Prep Batch **68,685** Date Prepped: 09/14/2018 Prepped By NAH

Folder #	Order	QC Type	Link	Test	Matrix	Volume	Weight	Initial Volume	SDG Level	Notes
	178693	MBW		ICP QSM TCLP 5.0	LIQUID	50		50.0		
	178694	LCSW		ICP QSM TCLP 5.0	LIQUID	50		50.0		
139370	175864			ICP QSM TCLP 5.0	TCLP	50		50.0	4	
	175866			ICP QSM TCLP 5.0	TCLP	50		50.0	4	
	178695	DUP	175864	ICP QSM TCLP 5.0	TCLP	50		50.0		
	178696	MSW	175864	ICP QSM TCLP 5.0	TCLP	50		50.0		
	178697	MSDW	178696	ICP QSM TCLP 5.0	TCLP	50		50.0		

Notes:

PREP WORKSHEET
on 10/03/2018

Prep Batch **68,707** Date Prepped: 09/19/2018 Prepped By LJF

Folder #	Order	QC Type	Link	Test	Matrix	Volume	Weight	Initial Volume	SDG Level	Notes
	179097	MBW		MERCURY QSM TCLP	LIQUID	25		25.0		
	179098	LCSW		MERCURY QSM TCLP	LIQUID	25		25.0		
139370	175864			MERCURY QSM TCLP	TCLP	25		25.0	4	
	175866			MERCURY QSM TCLP	TCLP	25		25.0	4	
	179103	DUP	175864	MERCURY QSM TCLP	TCLP	25		25.0		
	179104	MSW	175864	MERCURY QSM TCLP	TCLP	25		25.0		
	179105	MSDW	179104	MERCURY QSM TCLP	TCLP	25		25.0		

Notes:

Metals Digestion Bench Sheet

Program: QSM
*Matrix: liquid

Prep Methods:
200.2= ICP/GFAA Liquids
3010= ICP Liquids
3020= GFAA Liquids
3005= Sb Liquids
3050= ICP/GFAA Solids
7060/7740= GFAA, As & Se Liquids

Prep Batch #:	68685
Prep Method:	200.2
Analyst:	NAH
Date:	09/14/2018
Start Time:	13:10

Prep Analyst: NAH
Balance ID:

End Date: 09/14/2018
End Time: 21:28

Reagent:	Ref. #
Nitric Acid:	AB.665
Hydrochloric Acid:	AB.664
Hydrogen Peroxide:	

Digestion Tube Lot #: MP3065
Block Used: D2
Cell Position for Temp. Check: 60
Initial-DigestionTemp (ºC): 92
Final-Digestion Temp (ºC): 93

Sample ID			(Solids) Sample Weight (g)	(Liquids) Sample Volume (ml)	Final Volume (ml)
178693	(MB)			50.0	50
178694	(LCS)			50.0	50
175864				50.0	50
175866	Comments:			50.0	50
					50
					50
					50
					50
					50
					50
					50
					50
					50
					50
					50
					50
					50
					50
					50
					50
					50
178695	(DUP)			50.0	50
178696	(MS)	Parent Sample		50.0	50
178697	(MSD)	175864		50.0	50
	(DUP)				50
	(MS)	Parent Sample			50
	(MSD)				50
Leave >>	(DUP) if applicable				50
blank	(MS)	Parent Sample			50
if N/A	(MSD)				50

MB=Method Blank, LCS=Laboratory Control Sample, DUP=Duplicate, MS=Matrix Spike & MSD=Matrix Spike Duplicate
*Matrix: Soil, Sludge, Waste, GW=Groundwater, WW=Wastewater, Tissue, TLCP, SPLP, ASTM or other.

MS/MSD Spike Amount (ml)	Spike Ref. #
0.2	M13535
0.5	M13532
0.5	M13581
0.1	M13393
0.1	M13390

LCS Spike Amount (ml)	Spike Ref. #
0.2	M13535
0.5	M13532
0.5	M13581
0.1	M13393
0.1	M13390

Reviewed By/Date:

10/03/201815:19

FMT12-03

Mercury Digestion Bench Sheet

(Prep Methods 7470A & 7471A)

CCV ID: M13542
ICV/LCSW ID: M13541

*Matrix: TCLP

Balance ID:

Prep Batch #:	68707
Prep Method:	7470A
Analyst:	LJF
Date:	09/19/2018
Start Time:	13:00

7470A= Hg Liquids
7471A= Hg Solids

End Date: 09/19/2018
End Time: 15:00

Digestion Tube Lot #: 33417264
Block Used: A
Cell Position for Temp. Check: C-6
Initial-DigestionTemp (ºC): 90.8
Final-Digestion Temp (ºC): 90.8
Additional KMnO4 added (ml):
Aqua Regia added (ml)
Calibration Stds: M13539

Reagent:	Ref. #
HNO3:	AB.663
H2SO4:	AB.657
NaCl/Hydrox.SO4:	M13548
KMnO4:	M13559
K2S2O8:	M13513
Aqua-Regia:	

	Sample			(Solids) Sample Weight (g)	(Liquids) Sample Volume (ml)	Final Volume (ml)
	179097	(MB)			25.0	25
	179098	(LCS)			25.0	25
	175864				25.0	25
	175866	Comments:			25.0	25
						25
						25
						25
						25
						25
						25
						25
						25
						25
						25
						25
						25
						25
						25
						25
						25
						25
						25
	179103	(DUP)			25.0	25
	179104	(MS)	Parent Sample		25.0	25
	179105	(MSD)	175864		25.0	25
Leave >>		(DUP)				25
blank		(MS)	Parent Sample			25
		(MSD)				25
		(DUP)				25
		(MS)	Parent Sample			25
if N/A		(MSD)				25

MB=Method Blank, LCS=Laboratory Control Sample, DUP=Duplicate, MS=Matrix Spike & MSD=Matrix Spike Duplicate
*Matrix: Soil, Sludge, Waste, GW=Groundwater, WW=Wastewater, Tissue, TLCP, SPLP, ASTM or other.

A: Spike Amount (ml)	Spike Conc. (ug/L)	Spike Ref. #
0.5	100ug/L	M13540

B: Spike Amount (ml)	Spike Conc. (ug/L)	Spike Ref. #

Reviewed By/Date:

iCAP 6000 / 6500 Data Review Checklist	Analysis Date: 9/20/18	Data File: 0920 results	Date of review: 10/02/18
Cal Std ID: 113519 / LIMS # : 153457	Analyst: [illegible]	Reviewer: MDS	Approved? (Yes) No

Is Audit Trail turned on or Manual Manipulations addressed? Yes / No (If no, any manual manipulations must be initialed, dated, and reason(s) stated for change)

QC Parameters : 6010 / 200.7 / QSM / Other	YES	NO	YES	NO	Comments:
1) Calibration linearity: r > 0.995 / r > 0.998	✓		✓		
2) ICV: 90-110% / 95-105%	✓		✓		
2) ICVLL: 70-130% / 80-120%	✓		✓		
3) ICB: < 3X IDL / <LOD / <LOQ	✓		✓		
4) ICSA: < ABS LOD	✓		✓		
5) ICSAB: 80-120%	✓		✓		
6) MRL/LLOQ: 70-130% / 80-120%	✓		✓		
7) MDL Check: >LOD					
8) CCV1/CCB1 (CCV: 90-110%)	✓		✓		
9) CCV2/CCB2 (CCB: < 3X IDL / <LOD / <LOQ)					
10) CCV3/CCB3					
11) CCV4/CCB4					
12) CCV5/CCB5					
Preparation Batch Parameters	**YES**	**NO**	**YES**	**NO**	
Prep Batch ID#: 68685 Dig. Meth.	✓		✓		
LCS - generated limits or project specific limits	✓		✓		
MB - <LOD or ≤ ½ RL	✓	✓	✓	✓	Pb >LOD <½ RL "B"
Spiked samples in batch:					
a) 68685 matrix = M	✓	✓	✓	✓	Conv valid Rep invalid. Ba "4"
b) matrix =					MB, MSD fail.
c) matrix =					
PDS: ±15% / 20% / 25% Sample#: n	✓	✓	✓	✓	PDS fail Ag, Pb "M"
Prep Batch ID#: Dig. Meth.					
LCS - generated limits or project specific limits					
MB - <LOD or ≤ ½ RL					
Spiked samples in batch:					
a) matrix =					
b) matrix =					
c) matrix =					
PDS: ±15% / 20% / 25% Sample#:					
Prep Batch ID#: Dig. Meth.					
LCS - generated limits or project specific limits					
MB - <LOD or ≤ ½ RL					
Spiked samples in batch:					
a) matrix =					
b) matrix =					
c) matrix =					
PDS: ±15% / 20% / 25% Sample#:					
Prep Batch ID#: Dig. Meth.					
LCS - generated limits or project specific limits					
MB - <LOD or ≤ ½ RL					
Spiked samples in batch:					
a) matrix =					
b) matrix =					
c) matrix =					
PDS: ±15% / 20% / 25% Sample#:					

FORM #: FMT9-01
Rev. #: 1.0
Effective Date: 05/14/2014
Page 1 of 1

GFAA / FLAA (CVAA) Data Review checklist		Method:	200.9	7000 series AA	245.1 & 245.2	245.7	(7470a) 7471a
Instrumentation:	THERMO M SERIES AA 09/14/18 SF ~~CETAC Hg ANALYZER~~ Hydrall Hg Analyzer						
Analysis Date: 09/20/18	Data File: 092018wa		Date Review: 9/21/18	Analyte: Hg			
Cal Std ID: M13539	LIMS # : 153413	Analyst: SF	Reviewer:	Approved? Yes No			

Is Audit Trail turned on or Manual Manipulations addressed? (Yes) No (If no, any manual manipulations must be initialed, dated, and reason(s) stated for change)

Calibration Parameters -	YES	NO	YES	NO	Comments:
1) Calibration linearity - r > 0.995	✓		✓		
2) ICV: (90-110%) 95-105%	✓		✓		
2) ICVLL: 70-130% 80-120%					
3) ICB: <IDL / <LOD / <LOQ / <½ RL	✓		✓		
6) MRL: 70-130%					
7) CCV1/CCB1- (CCV: (90-110%) / 80-120%)	✓		✓		
8) CCV2/CCB2 (CCB: <IDL / <LOD / <LOQ / <½ RL)					
9) CCV3/CCB3					
10) CCV4/CCB4					
11) CCV5/CCB5					

Preparation Batch Parameters	YES	NO	YES	NO
Prep Batch ID#: 08707 Dig. Meth. 7470A	✓		✓	
LCS - generated limits or project specific limits	✓		✓	
MB - <LOD / <2.2X LOD / ≤ ½RL	✓		✓	
Spiked samples in batch:				
a) 175864 matrix = TCLP	✓		✓	
b)____ matrix = ____				
c)____ matrix = ____				
d)____ matrix = ____				
e)____ matrix = ____				
PDS: ±15% / 20% / 25% Sample#____				
MSA Performed? Yes No				
Prep Batch ID#:____ Dig. Meth.____				
LCS - generated limits or project specific limits				
MB - <LOD / <2.2X LOD / ≤ ½RL				
Spiked samples in batch:				
a)____ matrix = ____				
b)____ matrix = ____				
c)____ matrix = ____				
d)____ matrix = ____				
e)____ matrix = ____				
PDS: ±15% / 20% / 25% Sample#____				
MSA Performed? Yes No				
Prep Batch ID#:____ Dig. Meth.____				
LCS - generated limits or project specific limits				
MB - <LOD / <2.2X LOD / ≤ ½RL				
Spiked samples in batch:				
a)____ matrix = ____				
b)____ matrix = ____				
c)____ matrix = ____				
d)____ matrix = ____				
e)____ matrix = ____				
PDS: ±15% / 20% / 25% Sample#____				
MSA Performed? Yes No				

FORM #: FMT11,12-01
Rev. #: 2.0
Effective Date: 08/19/2014
Page 1 of 1

CT Laboratories, LLC

ICP-6500 Instrument Run Logbook

ANALYSTS 4 Lot 2602704

Date	Time: Start / End	Analyst	Analytes / Sequence I.D.	Method	LIMS # or Sample Description	Nebulizer Pressure (kpa)	Calib. Std ID	Version	Comments
8/29/18	1335 / 0330		082918	DOD cal u	152761 152758 152762 152759 152760 152782	300	M13519 M13567 M13479	V2921 V2920 V2919	M13565 M13481 M13479 M13482 M13480
8/30/18	1052 / 0228		0830-18	DOD cal u	152779 152774 152807 152775 152778 152777 152783 152836	300	M13519 M13567 M13479	V2930 V2928	M13565 M13481 M13479 M13482 M13480
9/4/18	0929 / 2004		090418	DOD cal u	152846 152848 152845	300	M13519 M13567 M13479	V2926 V2925	M13565 M13481 M13479 M13482 M13480
9/5/18	1331 / 0250		090518	DOD cal u	152777, 152925, 152907 152908 152924 152901 152902	300	M13519 M13567 M13579	V2930 V2928	M13565 M13481 M13479 M13482 M13480
9/6/18	1354 / 2238		090618	DOD cal u	152900 152959 152957 152848	300	M13519 M13567 M13529	V2931 V2929	M13565 M13481 M13479 M13482 M13480
9/10/18	1258 / 0300		091018	DOD cal u	151254 153044 152992 153018 153041 153037 153034 153036 152993 152995	300	M13519 M13567 M13527	V2935 V2934 V2933	M13565 M13481 M13479 M13482 M13480
9/11/18	1000 / 2114		091118	DOD cal u	153018, ~~152995, 153034~~ 153072 153073 153091	300	M13519 M13567 M13527	V2939 V2937	M13565 M13481 M13479 M13482 M13480
9/12/18	1008 / 2321		091218	DOD cal u	153108 153105 153110 153112 153109 153134 153129	300	M13519 M13567 M13527	V2942 V2940 V2938	M13565 13481 M13479 M13482 M13480
9/13/18	1311 / 9/14 2127		091318	DOD cal u	153166, 153168, 153169 153133, 153127 153103, 153126 153128 153125 153131, 153225	300	M13519 M13567 M13527	V2943 V2944 V2945 ANALYSTS tnbelo V2946	M13565 M13481 M13479 M13482 M13480
9/18/18	1143 / 9/18 1957		091418	DOD cal u	153244, 153222, 153228, 153170 153336, 153539, 153587, 153334 153284, 153298, 153299, 153297 153271, 153246, 153241, 153264	300	M13519 M13567 M13527	271964 V2949 V2950 V2946	M13565 M13481 M13479 M13482 M13480
9/19/18	1506 / 2241		091918	DOD cal u	153282, 153283, 153279, 153231, 289 153227, 289 153482 153379 153353	300	M13519 M13567 M13527	V2947	M13565 M13481 M13479 M13482 M13480
9/20/18	1057 / 0117		092018	DOD cal u	153473 153474	300	M13519 M13567 M13527	V2952	M13565 M13481 M13479 M13482 M13480

Comments: ¥ 9-13-18

Checked By / Date:

CT Laboratories

Mercury Analyzer Instrument Run Log

Instrument ID: ~~Cetac M-6000A~~ 05/11/17 LSF Teledyne Hg Ivia II

Analysis Date	Start Time	End Time	Analyst	LIMS Run # (s)	Method File ID #	Cal. Std. ID #	Lamp Current (mA)	Analysis Tube Lot #	Comments
07/17/18	07:51	11:06	LSF	151304 07/17/18 LSF 151302, ~~151303~~, 151301, 151300	071718wa	M13539	9.411	271694	SnCl2: M13544
07/19/18	08:23	11:53	LSF	151404, 151403	071918a	M13539	9.875	271694	SnCl2: M13544
07/23/18	07:43	11:01	LSF	151518, 151518, 151520	072318wa	M13539	8.794	271694	SnCl2: M13544
07/25/18	08:12	10:32	LSF	151632, 151635	072518a	M13539	8.893	271694	SnCl2: M13544
07/31/18	08:03	10:13	LSF	151840, 151838	073118wa	M13539	8.879	271694	SnCl2: M13544
08/06/18	07:35	10:37	LSF	152039, 152043, 152034, 152035, 152036	080618wa	M13539	8.886	271694	SnCl2: M13544
08/07/18	08:14	11:25	LSF	152100, 152099	080718a	M13539	8.927	271694	SnCl2: M13544
08/09/18	07:18	10:39	LSF	152243 08/09/18 LSF ~~152240~~, 152241, 152242	080918a	M13539	8.783	271694	SnCl2: M13544
08/14/18	07:18	11:19	LSF	152239, 152240, 152242 152244, 152243, 152241	081418wa	M13539	8.794	271694	SnCl2: M13544
08/15/18	06:50	08:04	LSF	152293, 152294, 152295	081518wa	M13539	8.956	271694	SnCl2: M13544
08/15/18	08:24	09:21	LSF	152140	081518a	M13539	8.956	271694	SnCl2: M13544
08/20/18	07:48	11:32	LSF	152484, 152485, 152487	082018wa	M13539	8.886	271694	SnCl2: M13544
08/22/18	07:20	08:44	LSF	~~152525~~ 08/22/18 LSF 08/22/18 LSF 152525, 152524, ~~152523~~	082218wa	M13539	8.890	271694	SnCl2: M13544
08/23/18	07:34	08:31	LSF	152525, 152522	082318wa	M13539	8.895	271694	SnCl2: M13544
08/24/18	07:29	08:53	LSF	152523	082418wa	M13539	8.897	271694	SnCl2: M13544
08/27/18	07:26	09:31	LSF	152618, 152624, 152637	082718~~wa~~ 50 08/27/18 LSF	M13539	8.889	271694	SnCl2: M13544
08/29/18	08:05	10:44	LSF	152739, 152742, 152740	082918wa	M13539	9.001	271694	SnCl2: M13544
08/31/18	07:46	09:07	LSF	152826	083118a	M13539	9.044	271694	SnCl2: M13544
09/04/18	07:31	10:53	LSF	152887, 152897	090418wa	M13539	8.809	271694	SnCl2: M13544
09/11/18	07:30	09:54	LSF	09/11/18 LSF 152942, 152940, 152929, 152931	091118wa	M13539	9.041	271964	SnCl2: M13544
09/13/18	08:06	13:11	LSF	153147 153142, 153143, 153144, 153145	091318wa	M13539	9.052	271964	SnCl2: M13544
09/14/18	07:54	10:47	LSF	153247, 153248	091418a	M13539	8.875	271964	SnCl2: M13544
09/18/18	07:45	11:14	LSF	153343 153344, 153345, 153346, 153347	091818wa	M13539	8.993	271964	SnCl2: M13544
09/20/18	07:26	10:40	LSF	153415 153409, 153411, 153413, 153414	092018wa	M13539	9.007	271964	SnCl2: M13544

Reviewed By/Date:_____

Type	Date/Time	Message	User name	Application	Sequence Name
	09/19/2018 20:20:09	Running msw178141 (15)	NAH	Analyst	S_DOD Calibration
	09/19/2018 20:27:49	Running msdw178141 (16)	NAH	Analyst	S_DOD Calibration
	09/19/2018 20:35:27	Running 179054 (17)	NAH	Analyst	S_DOD Calibration
	09/19/2018 20:42:51	Running 179055 (18)	NAH	Analyst	S_DOD Calibration
	09/19/2018 20:50:35	Running 179056 (19)	NAH	Analyst	S_DOD Calibration
	09/19/2018 20:58:16	Running 179057 (20)	NAH	Analyst	S_DOD Calibration
	09/19/2018 21:06:00	Running ccv1 (23)	NAH	Analyst	S_DOD Calibration
	09/19/2018 21:12:35	Running ccv2 (18)	NAH	Analyst	S_DOD Calibration
	09/19/2018 21:19:32	Running ccb (19)	NAH	Analyst	S_DOD Calibration
	09/19/2018 21:26:59	Running 179058 (21)	NAH	Analyst	S_DOD Calibration
	09/19/2018 21:34:38	Running 179059 (22)	NAH	Analyst	S_DOD Calibration
	09/19/2018 21:42:18	Running 179060 (23)	NAH	Analyst	S_DOD Calibration
	09/19/2018 21:50:00	Running 179061 (24)	NAH	Analyst	S_DOD Calibration
	09/19/2018 21:57:41	Running 179062 (25)	NAH	Analyst	S_DOD Calibration
	09/19/2018 22:05:20	Running msw179062 (26)	NAH	Analyst	S_DOD Calibration
	09/19/2018 22:12:57	Running msdw179062 (27)	NAH	Analyst	S_DOD Calibration
	09/19/2018 22:20:37	Running MRL/LLOQ (25)	NAH	Analyst	S_DOD Calibration
	09/19/2018 22:27:56	Running ccv1 (23)	NAH	Analyst	S_DOD Calibration
	09/19/2018 22:34:31	Running ccv2 (18)	NAH	Analyst	S_DOD Calibration
	09/19/2018 22:41:28	Running ccb (19)	NAH	Analyst	S_DOD Calibration
	09/19/2018 22:48:53	Plasma extinguished successfully	NAH	Analyst	
	09/19/2018 22:48:53	Plasma off	NAH	iTEVA Control Center	
	09/19/2018 22:48:55	Autosampler Run Completed	NAH	Analyst	S_DOD Calibration
	09/20/2018 06:43:36	Plasma On	NAH	iTEVA Control Center	
	09/20/2018 06:43:43	Plasma ignition successful	NAH	Analyst	
	09/20/2018 06:44:29	D33534 - Debug:Wavelength check : x = 0.710, y =-2.410	NAH	Analyst	
	09/20/2018 10:36:48	Sequence Started	NAH	Analyst	S_DOD Calibration
	09/20/2018 10:36:48	Autosampler Run Started	NAH	Analyst	
	09/20/2018 10:37:09	Running Blank (1)	NAH	Analyst	S_DOD Calibration
	09/20/2018 10:44:34	Running CalStd1=0.25 (2)	NAH	Analyst	S_DOD Calibration
	09/20/2018 10:46:47	Autosampler Run Completed	NAH	Analyst	S_DOD Calibration
	09/20/2018 10:57:36	Sequence Started	NAH	Analyst	S_DOD Calibration
	09/20/2018 10:57:36	Autosampler Run Started	NAH	Analyst	
	09/20/2018 10:57:57	Running Blank (1)	NAH	Analyst	S_DOD Calibration
	09/20/2018 11:05:20	Running CalStd1=0.25 (2)	NAH	Analyst	S_DOD Calibration
	09/20/2018 11:12:42	Running CalStd2=0.5 (3)	NAH	Analyst	S_DOD Calibration
	09/20/2018 11:20:05	Running CalStd3=1 (4)	NAH	Analyst	S_DOD Calibration
	09/20/2018 11:27:26	Running CalStd4=5 (5)	NAH	Analyst	S_DOD Calibration
	09/20/2018 11:34:48	Running CalStd5=10 (6)	NAH	Analyst	S_DOD Calibration
	09/20/2018 11:42:10	Running CalStd6=20 (7)	NAH	Analyst	S_DOD Calibration
	09/20/2018 11:49:27	Running CalStd7=50 (8)	NAH	Analyst	S_DOD Calibration
	09/20/2018 11:56:42	Running CalStd8=100 (9)	NAH	Analyst	S_DOD Calibration
	09/20/2018 12:00:32	Closing will close the method and all associated samples.	NAH	Analyst	
	09/20/2018 12:03:58	Running CalStd9=1000 (10)	NAH	Analyst	S_DOD Calibration
	09/20/2018 12:11:15	Running CalStd10=10000 (11)	NAH	Analyst	S_DOD Calibration
	09/20/2018 12:18:51	Running CalStd12=100K (12)	NAH	Analyst	S_DOD Calibration
	09/20/2018 12:26:49	Running CalStd13=100000 (13)	NAH	Analyst	S_DOD Calibration
	09/20/2018 12:34:44	Running CalStd14=500000 (14)	NAH	Analyst	S_DOD Calibration
	09/20/2018 12:44:16	Running CalibStd15=1000k (15)	NAH	Analyst	S_DOD Calibration
	09/20/2018 12:51:33	Closing will close the method and all associated samples.	NAH	Analyst	
	09/20/2018 12:53:43	Running blkrinse (22)	NAH	Analyst	S_DOD Calibration
	09/20/2018 13:01:03	Running icv (16)	NAH	Analyst	S_DOD Calibration

Type	Date/Time	Message	User name	Application	Sequence Name
	09/20/2018 13:08:23	Running icv (16)	NAH	Analyst	S_DOD Calibration
	09/20/2018 13:15:44	Running ICVLL (24)	NAH	Analyst	S_DOD Calibration
	09/20/2018 13:22:59	Running icb (17)	NAH	Analyst	S_DOD Calibration
	09/20/2018 13:30:22	Running icb (17)	NAH	Analyst	S_DOD Calibration
	09/20/2018 13:37:44	Running MRL/LLOQ (25)	NAH	Analyst	S_DOD Calibration
	09/20/2018 13:45:04	Running icsa (20)	NAH	Analyst	S_DOD Calibration
	09/20/2018 13:53:14	Running icsab (21)	NAH	Analyst	S_DOD Calibration
	09/20/2018 14:00:25	Running blkrinse (22)	NAH	Analyst	S_DOD Calibration
	09/20/2018 14:07:45	Running ICVLL ag (1)	NAH	Analyst	S_DOD Calibration
	09/20/2018 14:15:08	Running icsa ni cu (2)	NAH	Analyst	S_DOD Calibration
	09/20/2018 14:22:21	Running lcss68693 (3)	NAH	Analyst	S_DOD Calibration
	09/20/2018 14:29:34	Running mbs68693 (4)	NAH	Analyst	S_DOD Calibration
	09/20/2018 14:36:56	Running 178106 (5)	NAH	Analyst	S_DOD Calibration
	09/20/2018 14:44:25	Running l178106 (6)	NAH	Analyst	S_DOD Calibration
	09/20/2018 14:51:50	Running dup178106 (7)	NAH	Analyst	S_DOD Calibration
	09/20/2018 14:59:20	Running mss176106 (8)	NAH	Analyst	S_DOD Calibration
	09/20/2018 15:06:26	Running msds178106 (9)	NAH	Analyst	S_DOD Calibration
	09/20/2018 15:14:08	Running pdss178106 (10)	NAH	Analyst	S_DOD Calibration
	09/20/2018 15:21:33	Running ccv1 (23)	NAH	Analyst	S_DOD Calibration
	09/20/2018 15:28:29	Running ccv2 (18)	NAH	Analyst	S_DOD Calibration
	09/20/2018 15:35:24	Running ccb (19)	NAH	Analyst	S_DOD Calibration
	09/20/2018 15:42:49	Running lcss68709 (11)	NAH	Analyst	S_DOD Calibration
	09/20/2018 15:50:04	Running mbs68709 (12)	NAH	Analyst	S_DOD Calibration
	09/20/2018 15:57:26	Running 178768 (13)	NAH	Analyst	S_DOD Calibration
	09/20/2018 16:05:29	Running l178768 (14)	NAH	Analyst	S_DOD Calibration
	09/20/2018 16:13:00	Running dup178768 (15)	NAH	Analyst	S_DOD Calibration
	09/20/2018 16:21:08	Running mss178768 (16)	NAH	Analyst	S_DOD Calibration
	09/20/2018 16:28:55	Running msds178768 (17)	NAH	Analyst	S_DOD Calibration
	09/20/2018 16:36:42	Running pdss178768 (18)	NAH	Analyst	S_DOD Calibration
	09/20/2018 16:44:51	Running 178807 (19)	NAH	Analyst	S_DOD Calibration
	09/20/2018 16:52:59	Running 178808 (20)	NAH	Analyst	S_DOD Calibration
	09/20/2018 17:01:05	Running ccv1 (23)	NAH	Analyst	S_DOD Calibration
	09/20/2018 17:08:01	Running ccv2 (18)	NAH	Analyst	S_DOD Calibration
	09/20/2018 17:14:58	Running ccb (19)	NAH	Analyst	S_DOD Calibration
	09/20/2018 17:22:21	Running 178809 (21)	NAH	Analyst	S_DOD Calibration
	09/20/2018 17:30:17	Running 178810 (22)	NAH	Analyst	S_DOD Calibration
	09/20/2018 17:38:25	Running 178811 (23)	NAH	Analyst	S_DOD Calibration
	09/20/2018 17:46:21	Running 178812 (24)	NAH	Analyst	S_DOD Calibration
	09/20/2018 17:54:00	Running 178813 (25)	NAH	Analyst	S_DOD Calibration
	09/20/2018 18:01:31	Running 178814 (26)	NAH	Analyst	S_DOD Calibration
	09/20/2018 18:09:38	Running 178815 (27)	NAH	Analyst	S_DOD Calibration
	09/20/2018 18:17:09	Running 178816 (28)	NAH	Analyst	S_DOD Calibration
	09/20/2018 18:24:43	Running 178817 (29)	NAH	Analyst	S_DOD Calibration
	09/20/2018 18:32:14	Running 178818 (30)	NAH	Analyst	S_DOD Calibration
	09/20/2018 18:40:20	Running ccv1 (23)	NAH	Analyst	S_DOD Calibration
	09/20/2018 18:47:05	Running ccv2 (18)	NAH	Analyst	S_DOD Calibration
	09/20/2018 18:54:01	Running ccb (19)	NAH	Analyst	S_DOD Calibration
	09/20/2018 19:01:25	Running lcss68692 (31)	NAH	Analyst	S_DOD Calibration
	09/20/2018 19:08:39	Running mbs68692 (32)	NAH	Analyst	S_DOD Calibration
	09/20/2018 19:16:03	Running 177909 (33)	NAH	Analyst	S_DOD Calibration
	09/20/2018 19:23:38	Running mss177909 (34)	NAH	Analyst	S_DOD Calibration
	09/20/2018 19:30:52	Running msds177909 (35)	NAH	Analyst	S_DOD Calibration

Type	Date/Time	Message	User name	Application	Sequence Name
	09/20/2018 19:38:04	Running pdss177909 (36)	NAH	Analyst	S_DOD Calibration
	09/20/2018 19:45:37	Running lcsw68689 87 (37)	NAH	Analyst	S_DOD Calibration
	09/20/2018 19:53:11	Running mbw68689 87 (38)	NAH	Analyst	S_DOD Calibration
	09/20/2018 20:00:33	Running 177093 (39)	NAH	Analyst	S_DOD Calibration
	09/20/2018 20:07:56	Running msw177093 (40)	NAH	Analyst	S_DOD Calibration
	09/20/2018 20:15:30	Running ccv1 (23)	NAH	Analyst	S_DOD Calibration
	09/20/2018 20:22:19	Running ccv2 (18)	NAH	Analyst	S_DOD Calibration
	09/20/2018 20:29:15	Running ccb (19)	NAH	Analyst	S_DOD Calibration
	09/20/2018 20:36:39	Running msdw177093 (41)	NAH	Analyst	S_DOD Calibration
	09/20/2018 20:44:13	Running pdsw177093 (42)	NAH	Analyst	S_DOD Calibration
	09/20/2018 20:51:40	Running 178031 (43)	NAH	Analyst	S_DOD Calibration
	09/20/2018 20:59:24	Running 178980 (44)	NAH	Analyst	S_DOD Calibration
	09/20/2018 21:07:08	Running 179009 (45)	NAH	Analyst	S_DOD Calibration
	09/20/2018 21:14:57	Running 179011 (46)	NAH	Analyst	S_DOD Calibration
	09/20/2018 21:22:45	Running 179012 (47)	NAH	Analyst	S_DOD Calibration
	09/20/2018 21:30:33	Running 179013 (48)	NAH	Analyst	S_DOD Calibration
	09/20/2018 21:38:23	Running 179014 (49)	NAH	Analyst	S_DOD Calibration
	09/20/2018 21:46:11	Running 179015 (50)	NAH	Analyst	S_DOD Calibration
	09/20/2018 21:53:58	Running ccv1 (23)	NAH	Analyst	S_DOD Calibration
	09/20/2018 22:00:46	Running ccv2 (18)	NAH	Analyst	S_DOD Calibration
	09/20/2018 22:07:42	Running ccb (19)	NAH	Analyst	S_DOD Calibration
	09/20/2018 22:15:05	Running 179016 (51)	NAH	Analyst	S_DOD Calibration
	09/20/2018 22:22:53	Running 179017 (52)	NAH	Analyst	S_DOD Calibration
	09/20/2018 22:30:26	Running 179018 (53)	NAH	Analyst	S_DOD Calibration
	09/20/2018 22:38:54	Running 179050 (54)	NAH	Analyst	S_DOD Calibration
	09/20/2018 22:46:42	Running 179051 (55)	NAH	Analyst	S_DOD Calibration
	09/20/2018 22:54:21	Running 179052 (56)	NAH	Analyst	S_DOD Calibration
	09/20/2018 23:02:26	Running 179161 (57)	NAH	Analyst	S_DOD Calibration
	09/20/2018 23:10:34	Running 179162 (58)	NAH	Analyst	S_DOD Calibration
	09/20/2018 23:18:21	Running lcsw68715 12 (59)	NAH	Analyst	S_DOD Calibration
	09/20/2018 23:25:56	Running mbw68715 12 (60)	NAH	Analyst	S_DOD Calibration
	09/20/2018 23:33:20	Running ccv1 (23)	NAH	Analyst	S_DOD Calibration
	09/20/2018 23:40:04	Running ccv2 (18)	NAH	Analyst	S_DOD Calibration
	09/20/2018 23:46:59	Running ccb (19)	NAH	Analyst	S_DOD Calibration
	09/20/2018 23:54:23	Running 179150 (61)	NAH	Analyst	S_DOD Calibration
	09/21/2018 00:02:12	Running msw179150 (62)	NAH	Analyst	S_DOD Calibration
	09/21/2018 00:09:45	Running msdw179150 (63)	NAH	Analyst	S_DOD Calibration
	09/21/2018 00:17:18	Running pdsw179150 (64)	NAH	Analyst	S_DOD Calibration
	09/21/2018 00:24:53	Running 179151 (65)	NAH	Analyst	S_DOD Calibration
	09/21/2018 00:32:42	Running 179152 (66)	NAH	Analyst	S_DOD Calibration
	09/21/2018 00:40:31	Running 179153 (67)	NAH	Analyst	S_DOD Calibration
	09/21/2018 00:48:20	Running 179154 (68)	NAH	Analyst	S_DOD Calibration
	09/21/2018 00:56:08	Running 179063 (69)	NAH	Analyst	S_DOD Calibration
	09/21/2018 01:03:53	Running msw179063 (70)	NAH	Analyst	S_DOD Calibration
	09/21/2018 01:11:24	Running ccv1 (28)	NAH	Analyst	S_DOD Calibration
	09/21/2018 01:18:14	Running ccv2 (26)	NAH	Analyst	S_DOD Calibration
	09/21/2018 01:25:11	Running ccb (27)	NAH	Analyst	S_DOD Calibration
	09/21/2018 01:32:35	Running msdw179063 (71)	NAH	Analyst	S_DOD Calibration
	09/21/2018 01:40:07	Running pdsw179063 (72)	NAH	Analyst	S_DOD Calibration
	09/21/2018 01:47:44	Running 179073 (73)	NAH	Analyst	S_DOD Calibration
	09/21/2018 01:55:16	Running 179077 (74)	NAH	Analyst	S_DOD Calibration
	09/21/2018 02:02:51	Running msw179077 (75)	NAH	Analyst	S_DOD Calibration

Type	Date/Time	Message	User name	Application	Sequence Name
	09/21/2018 02:10:17	Running msdw179077 (76)	NAH	Analyst	S_DOD Calibration
	09/21/2018 02:17:42	Running pdsw179077 (77)	NAH	Analyst	S_DOD Calibration
	09/21/2018 02:25:11	Running lcsw68691 (78)	NAH	Analyst	S_DOD Calibration
	09/21/2018 02:32:46	Running mbw68691 (79)	NAH	Analyst	S_DOD Calibration
	09/21/2018 02:40:09	Running 178074 (80)	NAH	Analyst	S_DOD Calibration
	09/21/2018 02:47:50	Running ccv1 (28)	NAH	Analyst	S_DOD Calibration
	09/21/2018 02:54:36	Running ccv2 (26)	NAH	Analyst	S_DOD Calibration
	09/21/2018 03:01:33	Running ccb (27)	NAH	Analyst	S_DOD Calibration
	09/21/2018 03:08:57	Running 178086 (81)	NAH	Analyst	S_DOD Calibration
	09/21/2018 03:16:35	Running 178087 (82)	NAH	Analyst	S_DOD Calibration
	09/21/2018 03:24:20	Running 178088 (83)	NAH	Analyst	S_DOD Calibration
	09/21/2018 03:31:58	Running 178089 (84)	NAH	Analyst	S_DOD Calibration
	09/21/2018 03:39:35	Running 178824 (85)	NAH	Analyst	S_DOD Calibration
	09/21/2018 03:47:10	Running l178824 (86)	NAH	Analyst	S_DOD Calibration
	09/21/2018 03:54:53	Running dup178824 (87)	NAH	Analyst	S_DOD Calibration
	09/21/2018 04:02:29	Running msw178824 (88)	NAH	Analyst	S_DOD Calibration
	09/21/2018 04:09:59	Running msdw178824 (89)	NAH	Analyst	S_DOD Calibration
	09/21/2018 04:17:28	Running pdsw178824 (90)	NAH	Analyst	S_DOD Calibration
	09/21/2018 04:25:03	Running ccv1 (28)	NAH	Analyst	S_DOD Calibration
	09/21/2018 04:31:50	Running ccv2 (26)	NAH	Analyst	S_DOD Calibration
	09/21/2018 04:38:47	Running ccb (27)	NAH	Analyst	S_DOD Calibration
	09/21/2018 04:46:11	Running lcsw68685 (91)	NAH	Analyst	S_DOD Calibration
	09/21/2018 04:53:45	Running mbw68685 (92)	NAH	Analyst	S_DOD Calibration
	09/21/2018 05:01:09	Running 175864 (93)	NAH	Analyst	S_DOD Calibration
	09/21/2018 05:09:10	Running l175864 (94)	NAH	Analyst	S_DOD Calibration
	09/21/2018 05:17:13	Running dup175864 (95)	NAH	Analyst	S_DOD Calibration
	09/21/2018 05:25:14	Running msw175864 (96)	NAH	Analyst	S_DOD Calibration
	09/21/2018 05:32:57	Running msdw175864 (97)	NAH	Analyst	S_DOD Calibration
	09/21/2018 05:40:39	Running pdsw175864 (98)	NAH	Analyst	S_DOD Calibration
	09/21/2018 05:48:16	Running 175866 (99)	NAH	Analyst	S_DOD Calibration
	09/21/2018 05:56:01	Running 179150 (100)	NAH	Analyst	S_DOD Calibration
	09/21/2018 06:03:50	Running ccv1 (28)	NAH	Analyst	S_DOD Calibration
	09/21/2018 06:10:41	Running ccv2 (26)	NAH	Analyst	S_DOD Calibration
	09/21/2018 06:17:38	Running ccb (27)	NAH	Analyst	S_DOD Calibration
	09/21/2018 06:25:03	Running 179151 (101)	NAH	Analyst	S_DOD Calibration
	09/21/2018 06:32:52	Running 179152 (102)	NAH	Analyst	S_DOD Calibration
	09/21/2018 06:40:42	Running 179153 (103)	NAH	Analyst	S_DOD Calibration
	09/21/2018 06:48:31	Running 179154 (104)	NAH	Analyst	S_DOD Calibration
	09/21/2018 06:56:18	Running MRL/LLOQ (25)	NAH	Analyst	S_DOD Calibration
	09/21/2018 07:03:39	Running ccv1 (28)	NAH	Analyst	S_DOD Calibration
	09/21/2018 07:10:29	Running ccv2 (26)	NAH	Analyst	S_DOD Calibration
	09/21/2018 07:17:27	Running ccb (27)	NAH	Analyst	S_DOD Calibration
	09/21/2018 07:24:48	Autosampler Run Completed	NAH	Analyst	S_DOD Calibration
	09/21/2018 10:29:32	Autosampler Run Started	NAH	Analyst	
	09/21/2018 10:29:32	Sequence Started	NAH	Analyst	S_As & Pb & Cu(v2)
	09/21/2018 10:29:53	Running Blank (1)	NAH	Analyst	S_As & Pb & Cu(v2)
	09/21/2018 10:35:19	Running CalStd4=5 (2)	NAH	Analyst	S_As & Pb & Cu(v2)
	09/21/2018 10:40:45	Running CalStd5=10 (3)	NAH	Analyst	S_As & Pb & Cu(v2)
	09/21/2018 10:46:11	Running CalStd8=100 (4)	NAH	Analyst	S_As & Pb & Cu(v2)
	09/21/2018 10:51:38	Running CalStd9=1000 (5)	NAH	Analyst	S_As & Pb & Cu(v2)
	09/21/2018 10:57:01	Running CalStd10=10000 (6)	NAH	Analyst	S_As & Pb & Cu(v2)
	09/21/2018 11:02:12	Running CalStd11-100k (7)	NAH	Analyst	S_As & Pb & Cu(v2)

Standard ID#:	M13618	Vendor:	CPI
Analyst:	NAH	Chemical:	Cu 10000 mg/L
Date Received:	09/20/2018	Lot #:	148796-39
Expiration Date (if any):	03/2020	Catalog #:	S4400-10M141

		Instrument:	CETAC
Standard Log #:	M13619	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	09/19/2018	Expiration Date:	09/19/2018
Prep:	Carefully mixed **3** parts HCl AB.664 with **1** part HNO_3 AB.665 in a hood.		

Standard ID#:	M13620	Vendor:	FISHER
Analyst:	LJF	Chemical:	SODIUM CHLORIDE
Date Received:	09/04/2018	Lot #:	177409
Expiration Date (if any):		Catalog #:	S271-500

Standard ID#:	M13611	Vendor:	CPI
Analyst:	NAH	Chemical:	Al 10000 mg/L
Date Received:	09/20/2018	Lot #:	169484-18
Expiration Date (if any):	03/2020	Catalog #:	4400-10M11

Standard ID#:	M13612	Vendor:	CPI
Analyst:	NAH	Chemical:	K 10000 mg/L
Date Received:	09/20/2018	Lot #:	172053-36
Expiration Date (if any):	03/2020	Catalog #:	440010M411

Standard ID#:	M13613	Vendor:	CPI
Analyst:	NAH	Chemical:	Ca 10000 mg/L
Date Received:	09/20/2018	Lot #:	855297-1
Expiration Date (if any):	03/2020	Catalog #:	4400-10M91

Standard ID#:	M13614	Vendor:	CPI
Analyst:	NAH	Chemical:	Mg 10000 mg/L
Date Received:	09/20/2018	Lot #:	148250-72
Expiration Date (if any):	03/2020	Catalog #:	4400-10M311

Standard ID#:	M13615	Vendor:	CPI
Analyst:	NAH	Chemical:	Pb 10000 mg/L
Date Received:	09/20/2018	Lot #:	168223-17
Expiration Date (if any):	03/2020	Catalog #:	4400-10M281

Standard ID#:	M13616	Vendor:	CPI
Analyst:	NAH	Chemical:	Mn 10000 mg/L
Date Received:	09/20/2018	Lot #:	167540-6
Expiration Date (if any):	03/2020	Catalog #:	S4400-10M321

Standard ID#:	M13617	Vendor:	CPI
Analyst:	NAH	Chemical:	Cr 10000 mg/L
Date Received:	09/20/2018	Lot #:	158236-7
Expiration Date (if any):	03/2020	Catalog #:	s4400-10M121

Standard ID#:	M13604	Vendor:	CPI
Analyst:	NAH	Chemical:	Sulfur 10000 mg/L
Date Received:	09/20/2018	Lot #:	167967-37
Expiration Date (if any):	03/2020	Catalog #:	4400-10M544

Standard ID#:	M13605	Vendor:	CPI
Analyst:	NAH	Chemical:	Sodium 10000 mg/L
Date Received:	09/20/2018	Lot #:	752887-3
Expiration Date (if any):	03/2020	Catalog #:	4400-10M521

Standard ID#:	M13606	Vendor:	CPI
Analyst:	NAH	Chemical:	K 1000 mg/L
Date Received:	09/20/2018	Lot #:	144467-179
Expiration Date (if any):	03/2020	Catalog #:	4400-1000411-500

Standard ID#:	M13607	Vendor:	CPI
Analyst:	NAH	Chemical:	Na 1000 mg/L
Date Received:	09/20/2018	Lot #:	158237-113
Expiration Date (if any):	03/2020	Catalog #:	4400-1000521-500

Standard ID#:	M13608	Vendor:	CPI
Analyst:	NAH	Chemical:	Mo 1000 mg/L
Date Received:	09/20/2018	Lot #:	169424-37
Expiration Date (if any):	03/2020	Catalog #:	S4400-1000343

Standard ID#:	M13609	Vendor:	CPI
Analyst:	NAH	Chemical:	Fe 10000 mg/L
Date Received:	09/20/2018	Lot #:	156651-53
Expiration Date (if any):	03/2020	Catalog #:	4400-10M261

Standard ID#:	M13610	Vendor:	CPI
Analyst:	NAH	Chemical:	Zn 10000 mg/L
Date Received:	09/20/2018	Lot #:	979871-2
Expiration Date (if any):	03/2020	Catalog #:	4400-10M681

Standard Log #:	M13603	Standard:	GFAA Instrument Check
Analyst:	MDS	Final Concentration:	10 µg/L As 6 µg/L Pb 12 µg/L Sb 20 µg/L Se 14 µg/L Tl 0.6 µg/L Ag
Prep Date:	09/19/2018	Expiration Date:	10/20/2018

Into six, 100 mL volumetric flasks, add the following and bring up to volume with milli-Q H_2O.

Element	Volume Pipetted (mL)	Standard Conc. (µg/mL)	Standard ID	New Conc. (µg/L)
As	1	1000	M13392	10,000
Pb	0.1	10,000	M13169	10,000
Tl	1	1000	M13583	10,000
Se	1	1000	M13460	10,000
Sb	1	1000	M13459	10,000
Ag	0.1	1000	M13458	1000

Into a 1 L volumetric flask, add the following and bring up to volume with Milli-Q H_20. (1% HNO_3)

Element	Volume Pipetted (mL)	Standard Conc. (µg/L)	New Conc. (µg/L)
As	1.0	10,000	10
Pb	0.6	10,000	6
Tl	1.4	10,000	14
Se	2.0	10,000	20
Sb	1.2	10,000	12
Ag	0.6	1000	0.6

Standard Log #:	M13601	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	09/12/2018	Expiration Date:	09/12/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.659 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard ID#:	M13602	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	09-12-2018	Lot #:	1-124AB
Expiration Date (if any):	09-30-2019	Catalog #:	XCTWI-5-500

Standard ID#:	M13600	Vendor:	Environmental Express
Analyst:	MDS	Chemical:	1% Pd Matrix Modifier
Date Received:	09/11/2018	Lot #:	1808015
Expiration Date (if any):	09/30/2019	Catalog #:	HP1900-100

Standard Log #:	M13599	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	09/08/2018	Expiration Date:	09/08/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.659 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard ID#:	M13595	Vendor:	SPEX CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Std
Date Received:	08/29/2018	Lot #:	49-151CR
Expiration Date (if any):	08/30/2019	Catalog #:	XSPIKE-1-250

		Instrument:	CETAC
Standard Log #:	M13596	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	08/30/2018	Expiration Date:	08/30/2018
Prep:	Carefully mixed **3** parts HCl AB.664 with **1** part HNO_3 AB.665 in a hood.		

		Instrument:	ICP 6000
Standard Log #:	M13597	Standard:	Na & K ICAL
Analyst:	MDS	Concentrations:	0.5, 1, 5, 10, 50, 100, and 200 mg/L (Na,K)
Prep Date:	08/30/2018	Expiration Date:	05/2019
Prep:	Into seven, 200 mL volumetric flasks, pipetted the following from Na (1000 µg/mL) M13339 and K (1000 µg/mL) M13340 and brought up to volume using milli-Q H_2O. (2% HNO_3) *0.5 mg/L std.* - **0.1 mL** of each *1.0 mg/L std.* - **0.2 mL** of each *5.0 mg/L std.* - **1.0 mL** of each *10 mg/L std.* - **2.0 mL** of each *50 mg/L std.* - **10 mL** of each *100 mg/L std.* -**20 mL** of each, also used for Continuing Calibration Verification *200 mg/L std.* - **40 mL** of each		

		Instrument:	ICP 6000
Standard Log #:	M13598	Standard:	Na,K MRL
Analyst:	MDS	Concentrations:	1 mg/L (Na,K)
Prep Date:	08/30/2018	Expiration Date:	05/2019
Prep:	Into a 500 mL volumetric flask, pipetted **0.5 mL** of Na (1000 µg/mL) M13339 and **0.5 mL** K (1000 µg/mL) M13340 and brought to volume with Milli-Q H_2O. (2% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13591	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	08/23/2018	Expiration Date:	05/17/2019
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13497 and brought to volume with Milli-Q H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13592	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	08/23/2018	Expiration Date:	05/17/2019
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13497 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13593	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	08/23/2018	Expiration Date:	05/17/2019
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13498 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	CETAC
Standard Log #:	M13594	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	08/23/2018	Expiration Date:	08/23/2018
Prep:	Carefully mixed **3** parts HCl AB.664 with **1** part HNO_3 AB.665 in a hood.		

Standard Log #:	M13588	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	08/21/2018	Expiration Date:	08/21/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.659 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard Log #:	M13589	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	08/21/2018	Expiration Date:	08/21/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.659 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard ID#:	M13590	Vendor:	AMCO Clear
Analyst:	NAH	Chemical:	turbidity std 2.0 ntu
Date Received:	08/21/2018	Lot #:	18272791
Expiration Date (if any):	08/2019	Catalog #:	8008

		Instrument:	ICP 6000
Standard Log #:	M13586	Standard:	L2 ICV
Analyst:	MDS	Concentrations:	1000 µg/L (Li, Sn, Sr, Ti, W)
Prep Date:	08/20/2018	Expiration Date:	01/2020
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of the following and brought up to volume using milli-Q H_2O. (0.5% HNO_3, 0.5% HCl) Li (1000 µg/mL) M13577 Sn (1000 µg/mL) M13572 Sr (1000 µg/mL) M13580 Ti (1000 µg/mL) M13573 W (1000 µg/mL) MXXX		

		Instrument:	ICP 6000
Standard Log #:	M13587	Standard:	List 2 MRL/ICVLL Prep Solution
Analyst:	MDS	Concentrations:	5000 µg/L (W) 1000 µg/L (Li, Sn) 500 µg/L (Ti, Sr)
Prep Date:	08/20/2018	Expiration Date:	01/2020

Prep:

Analyte	MRL/ICVLL Conc. (µg/L)	Standard ID	Std. Conc. (µg/mL)	Volume (mL) Pipetted into 1 L	Expiration Date
Li	20/60	M13577	1000	1	02/2020
W	100/300	XXX	1000	5	XXX
Ti	10/30	M13573	1000	0.5	01/2020
Sr	10/30	M13580	1000	0.5	02/2020
Sn	20/60	M13572	1000	1	01/2020

Pipette **10 mL** into a 500 mL volumetric flask to create a working MRL std. or **1 mL** into a 50 mL digestion tube for a digested MRL standard. Pipette **30 mL** into 500 mL for a working ICVLL std. or **3 mL** into a 50 mL digestion tube for a digested ICVLL standard.

(0.5% HNO_3, 0.5% HCl)

		Instrument:	ICP
Standard Log #:	M13584	Standard:	L2 ICAL
Analyst:	MDS	Concentrations:	1 (µg/L) 10 (µg/L) 100 (µg/L) 1000 (µg/L) 10,000 (µg/L)
Prep Date:	08/20/2018	Expiration Date:	07/30/2019
Prep:	Standard Conc. (ug/L) — Pipette the following: 1 — **0.01 mL** of Custom Assurance Standard XCTWI-5-500 M13576 and **0.001 mL** W (1000 µg/mL) MXXX into 1L = *1 µg/L* 10 — **0.10 mL** of Custom Assurance Standard XCTWI-5-500 M13576 and **0.01 mL** W (1000 µg/mL) MXXX into 1L = *10 µg/L* 100 — **1 mL** of Custom Assurance Standard XCTWI-5-500 M13576 and **0.1 mL** W (1000 µg/mL) MXXX into 1L = *100 µg/L* 1000 (CCV) — **2 mL** of Custom Assurance Standard XCTWI-5-500 M13576 and **0.2 mL** W (1000 µg/mL) MXXX into 200mL = *1000 µg/L* 10000 — **20 mL** of Custom Assurance Standard XCTWI-5-500 M13576 and **2 mL** W (1000 µg/mL) MXXX into 200mL = *10000 µg/L*		

		Instrument:	ICP 6000
Standard Log #:	M13585	Standard:	List 2 ICSAB
Analyst:	MDS	Concentrations:	500,000 µg/L (Al, Ca, Fe, Mg) 500 µg/L (Li, Sn, Sr, Ti, W)
Prep Date:	08/20/2018	Expiration Date:	
Prep:	Into a 200 mL volumetric flask, pipetted **20 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13410, **6 mL** of Fe (10,000 mg/L) M13463, **0.1 mL** of Li (1000 µg/mL) M13577, **0.1 mL** of Sn (1000 µg/mL) M13572, **0.1 mL** of Sr (1000 µg/mL) M13580, **0.1 mL** of Ti (1000 µg/mL) M13573, and **0.1 mL** of W (1000 µg/mL) MXXX and brought up to volume using Milli-Q H_2O. (0.5% HNO_3, 0.5% HCl)		

Standard ID#:	M13577	Vendor:	CPI
Analyst:	NAH	Chemical:	Li 1000 mg/L
Date Received:	08/17/2018	Lot #:	751942-25
Expiration Date (if any):	02/2020	Catalog #:	S4400-1000291

Standard ID#:	M13578	Vendor:	CPI
Analyst:	NAH	Chemical:	V 1000 mg/L
Date Received:	08/17/2018	Lot #:	152207-68
Expiration Date (if any):	02/2020	Catalog #:	S4400-1000651

Standard ID#:	M13579	Vendor:	CPI
Analyst:	NAH	Chemical:	Be 1000 mg/L
Date Received:	08/17/2018	Lot #:	660981-5
Expiration Date (if any):	02/2020	Catalog #:	S4400-100051

Standard ID#:	M13580	Vendor:	CPI
Analyst:	NAH	Chemical:	Sr 1000 mg/L
Date Received:	08/17/2018	Lot #:	168227-29
Expiration Date (if any):	02/2020	Catalog #:	S4400-1000531

Standard ID#:	M13581	Vendor:	CPI
Analyst:	NAH	Chemical:	K 10000 mg/L
Date Received:	08/17/2018	Lot #:	172053-36
Expiration Date (if any):	02/2020	Catalog #:	4400-10411

Standard ID#:	M13582	Vendor:	Environmental Express
Analyst:	NAH	Chemical:	Y 10000 mg/L
Date Received:	08/17/2018	Lot #:	1805105
Expiration Date (if any):	02/2020	Catalog #:	HP10M67-1

Standard ID#:	M13583	Vendor:	CPI
Analyst:	NAH	Chemical:	Tl 1000 mg/L
Date Received:	08/17/2018	Lot #:	148983-70
Expiration Date (if any):	02/2020	Catalog #:	S4400-1000581

Standard ID#:	M13576	Vendor:	Spex Certiprep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	08/04/2018	Lot #:	49-045CR
Expiration Date (if any):	07/30/2019	Catalog #:	XCTWI-5-500

Standard ID#:	M13569	Vendor:	CPI
Analyst:	NAH	Chemical:	Ni 1000 mg/L
Date Received:	07/27/2018	Lot #:	166665-86
Expiration Date (if any):	01/2020	Catalog #:	s4400-1000361

Standard ID#:	M13570	Vendor:	CPI
Analyst:	NAH	Chemical:	Cd 1000 mg/L
Date Received:	07/27/2018	Lot #:	160499-32
Expiration Date (if any):	01/2020	Catalog #:	s4400-100081

Standard ID#:	M13571	Vendor:	CPI
Analyst:	NAH	Chemical:	Si 1000 mg/L
Date Received:	07/27/2018	Lot #:	175213-28
Expiration Date (if any):	01/2020	Catalog #:	s4400-1000504F

Standard ID#:	M13572	Vendor:	CPI
Analyst:	NAH	Chemical:	Sn 1000 mg/L
Date Received:	07/27/2018	Lot #:	144466-74
Expiration Date (if any):	01/2020	Catalog #:	s4400-1000613

Standard ID#:	M13573	Vendor:	CPI
Analyst:	NAH	Chemical:	Ti 1000 mg/L
Date Received:	07/27/2018	Lot #:	152616-55
Expiration Date (if any):	01/2020	Catalog #:	s4400-1000623

Standard ID#:	M13574	Vendor:	CPI
Analyst:	NAH	Chemical:	Hg 1000 mg/L
Date Received:	07/27/2018	Lot #:	175191-22
Expiration Date (if any):	01/2020	Catalog #:	s4400-1000331

Standard ID#:	M13575	Vendor:	CPI
Analyst:	NAH	Chemical:	Co 1000 mg/L
Date Received:	07/27/2018	Lot #:	161693-10
Expiration Date (if any):	01/2020	Catalog #:	s4400-1000131

		Instrument:	ICP
Standard Log #:	M13567	Standard:	As Pb ICV1
Analyst:	NAH	Concentrations:	5000 ug/L (As,Pb)
Prep Date:	07/25/2018	Expiration Date:	10/2018
Prep:	Into a 1 L volumetric flask, pipetted **5 mL** of As (1000 mg/L) M13392 and **0.5 mL** Pb (10,000 mg/L) M13169 and brought to volume with Milli-Q H_2O. (2% HNO_3, 2% HCl)		

		Instrument:	ICP 6500
Standard Log #:	M13568	Standard:	ICV Std.
Analyst:	NAH	Concentrations:	**12,000 mg/L** Al **10,000 mg/L** Ca, Mg **5000 mg/L** Fe **2000 mg/L** As, Ba, Se, Tl **500 mg/L** B, Co, Li, Mn, Mo, Ni, Pb, Sb, Sn, Sr, Ti, V, Zn **250 mg/L** Cu **200 mg/L** Cr **50 mg/L** Ag, Be, Cd
Prep Date:	07/25/2018	Expiration Date:	10/2018
Prep:	Into a 1 L volumetric flask, pipetted the following and brought up to volume with milli-Q H_2O. **10 mL** Custom Assurance Standard #18 ((200 mg/L Al, As, Ba, Se, Tl) (100 mg/L Fe) (50 mg/L Co, Mn, Ni, Pb, Sb, V, Zn) (25 mg/L Cu) (20 mg/L Cr) (5 mg/L Ag, Be, Cd)) M13535, **2 mL** Interferents A Standard ((5000 mg/L Al, Ca, Mg) (2000 mg/L Fe)) M13410, **0.5 mL** Mo (1000 mg/L) M13393, **0.5 mL** B (1000 mg/L) M13531, **0.5 mL** Sr (1000 mg/L) M13129, **0.5 mL** Li (1000 mg/L) M13130, **0.5 mL** Sn (1000 mg/L) M13134, **0.5 mL** Ti (1000 mg/L) M13128, **0.5 mL** W (1000 mg/L) xxxxxx, **0.5 mL** Si (1000 mg/L) M13528, **0.5 mL** S (10000 mg/L) M13466, **0.5 mL** K (10000 mg/L) M13527, and **0.5 mL** Na (10000 mg/L) M13461		

		Instrument:	ICP 6500
Standard Log #:	M13565	Standard:	ICSAB
Analyst:	NAH	Concentrations:	**500,000 ug/L** Al, Ca, Fe, Mg **500 ug/L** Ag, As, Ba, Be, Cd, Co, Cr, Cu, Mn, Mo, Ni, Pb, Sb, Se, Tl, V, Zn
Prep Date:	07/23/2018	Expiration Date:	02/28/2018
Prep:	Into a 500 mL volumetric flask, pipetted **50 mL** Interferents A Standard ((5000 mg/L Al, Ca, Mg) (2000 mg/L Fe)) M13410, **15 mL** Fe (10,000 mg/L) M13463, **2.5 mL** of Custom Assurance Std. #3 (100 mg/L Ag, Be, Cd) M13506 and **2.5 mL** Custom Assurance Std. #23 (100 mg/L Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M13518 and brought up to volume with milli-Q H_2O.		

		Instrument:	ICP 6000
Standard Log #:	M13564	Standard:	List 2 ICSAB
Analyst:	MDS	Concentrations:	500,000 µg/L (Al, Ca, Fe, Mg) 500 µg/L (Li, Sn, Sr, Ti, W)
Prep Date:	07/20/2018	Expiration Date:	09/18/2018
Prep:	Into a 200 mL volumetric flask, pipetted **20 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13410, **6 mL** of Fe (10,000 mg/L) M13463, **0.1 mL** of Li (1000 µg/mL) M13130, **0.1 mL** of Sn (1000 µg/mL) M13134, **0.1 mL** of Sr (1000 µg/mL) M13129, **0.1 mL** of Ti (1000 µg/mL) M13128, and **0.1 mL** of W (1000 µg/mL) M and brought up to volume using Milli-Q H_2O. (0.5% HNO_3, 0.5% HCl)		

Standard Log #:	M13563	Instrument:	ICP
Analyst:	LJF	Standard:	LOQ 3050 S Spiking Solution
Prep Date:	07/19/2018	Expiration Date:	10/2019

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
S	240	M13466	10000	1.2

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M13562	Instrument:	ICP 6500
Analyst:	LJF	Standard:	LOQ 3050 DOD Metals Spiking S
Prep Date:	07/19/2018	Expiration Date:	09/18/2018

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3, 5% HCl)

Analyte	MDL Conc. (ug/L)	Std. ID #	Std Conc	Volume (mL) pipetted into 1 L
Ag	4	M13458	1000	0.2
Al	9.6	M13322	**10000**	0.048
As	32	M13392	1000	1.6
Ba	2	M13457	1000	0.1
Be	1.6	M13126	1000	0.08
Ca	56	M13324	**10000**	0.28
Cd	1.6	M13127	1000	0.08
Co	9.6	M13132	1000	0.48
Cr	5.6	M13165	**10000**	0.028
Cu	16	M13166	**10000**	0.08
Fe	72	M13321	**10000**	0.36
Mg	32	M13319	**10000**	0.16
Mn	6	M13167	**10000**	0.03
Mo	9.6	M13397	1000	0.48
Ni	4.8	M13133	1000	0.24
Pb	10	M13169	**10000**	0.05
Sb	32	M13459	1000	1.6
Se	16	M13460	1000	0.8
Tl	19	M13124	1000	0.95
V	3.2	M13125	1000	0.16
Zn	12	M13168	**10000**	0.06

Of this Base standard, pipet **10 mL** into a 500 mL volumetric flask to create a working std or **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M13561	Instrument:	ICP
Analyst:	LJF	Standard:	LOQ 3050 L2 Spiking Solution
Prep Date:	07/19/2018	Expiration Date:	09/18/2018

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
Li	14.4	M13130	1000	0.72
Sn	20	M13134	1000	1
Sr	3.2	M13129	1000	0.16
Ti	9.6	M13128	1000	0.48
W	24	M	1000	1.2

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

		Instrument:	CETAC
Standard Log #:	M13560	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	07/18/2018	Expiration Date:	07/18/2018
Prep:	Carefully mixed **3** parts HCl AB.656 with **1** part HNO_3 AB.660 in a hood.		

Standard ID#:	M13557	Vendor:	Alfa Aesar Specpure
Analyst:	MDS	Chemical:	1% Nickel Nitrate Matrix Modifier
Date Received:	07/17/2018	Lot #:	8137324
Expiration Date (if any):	12/31/2019	Catalog #:	39043

		Instrument:	ICP 6000
Standard Log #:	M13558	Standard:	B&Si ICV
Analyst:	MDS	Concentrations:	1000 ug/L (B, Si)
Prep Date:	07/17/2018	Expiration Date:	05/2019
Prep:	Into a 1 L volumetric flask, pipetted **10 mL** of Custom Assurance Std. #23 (100 mg/L Al, As, **B**, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M13518 and **1.0 mL** Si (1000 mg/L) M13338 and brought up to volume using milli-Q H_2O.		

Standard Log #:	M13559	Reagent:	Potassium Permanganate Solution
Analyst:	LJF		
Prep Date:	07/17/2018	Expiration Date:	01/17/2019
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13559 and brought up to volume.		

Standard Log #:	M13556	Instrument:	ICP 6500
Analyst:	LJF	Standard:	LOQ 3010 DOD Metals Spiking S
Prep Date:	07/13/2018	Expiration Date:	09/18/2018

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3, 5% HCl)

Analyte	MDL Conc. (ug/L)	Std. ID #	Std Conc	Volume (mL) pipetted into 1 L
Ag	4	M13458	1000	0.2
Al	36	M13322	**10000**	0.18
As	24	M13392	1000	1.2
Ba	1.8	M13457	1000	0.09
Be	0.6	M13126	1000	0.03
Ca	100	M13324	**10000**	0.5
Cd	2.0	M13127	1000	0.1
Co	4	M13132	1000	0.2
Cr	4	M13165	**10000**	0.02
Cu	7	M13166	**10000**	0.035
Fe	100	M13321	**10000**	0.5
Mg	40	M13319	**10000**	0.2
Mn	4	M13167	**10000**	0.02
Mo	7	M13393	1000	0.35
Ni	6	M13133	1000	0.2
Pb	4	M13169	**10000**	0.02
Sb	12	M13459	1000	0.6
Se	13	M13460	1000	0.65
Tl	20	M13124	1000	0.75
V	5	M13125	1000	0.25
Zn	10	M13168	**10000**	0.05

Of this Base standard, pipet **10 mL** into a 500 mL volumetric flask to create a working std or **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M13554	Instrument:	ICP
Analyst:	LJF	Standard:	LOQ 3010 B&Si Spiking Solution
Prep Date:	07/13/2018	Expiration Date:	05/2019

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
B	16	M13390	1000	0.8
Si	200	M13338	1000	10

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M13555	Instrument:	ICP
Analyst:	LJF	Standard:	LOQ 3010 S Spiking Solution
Prep Date:	07/13/2018	Expiration Date:	10/2019

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
S	200	M13466	10000	1.0

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

		Instrument:	GFAA
Standard Log #:	M13553	Standard:	Sb ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 µg/L (Sb)
Prep Date:	07/12/2018	Expiration Date:	10/2019
Prep:	Into a 1 L volumetric flask, pipetted **0.01 mL** of Antimony Stock Std. (1000 µg/mL Sb) M13459 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13550	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	07/10/2018	Expiration Date:	05/17/2019
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13497 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13551	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	07/10/2018	Expiration Date:	05/17/2019
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13498 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13547	Standard:	LODW/LOQW Ag Spiking Sol'n
Analyst:	MDS	Concentrations:	10 ug/L (Ag)
Prep Date:	07/09/2018	Expiration Date:	10/2019
Prep:	Into a 100 mL volumetric flask, pipetted **0.1 mL** of Ag (1000mg/L) M13458 and brought to volume with Milli-Q H_2O to make a 1000 ug/L Ag std. Into a 1 L volumetric flask, pipetted **10 mL** of Ag (*1000 ug/L*) std. and brought to volume with Milli-Q H_2O. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (*0.2 ug/L*) and **2 mL** spiking solution for LOQ (*0.4 ug/L*)		

Standard Log #:	M13548	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	LJF		
Prep Date:	07/10/2018	Expiration Date:	01/10/2019
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M13226 and **60 g** hydroxylamine sulfate M13468 and brought up to volume.		

		Instrument:	GFAA
Standard Log #:	M13549	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	07/10/2018	Expiration Date:	05/17/2019
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13497 and brought to volume with Milli-Q H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13545	Standard:	LODS/LOQS Spiking Sol'n
Analyst:	MDS	Concentrations:	60 ug/L (Sb) 160 ug/L (As,Se) 40 ug/L (Pb) 50 ug/L (Tl)
Prep Date:	07/09/2018	Expiration Date:	09/16/2018
Prep:	Into a 200 mL volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. **1.2 mL** of Sb (1000 mg/L) M13459 **3.2 mL** of As (1000 mg/L) M13392 **3.2 mL** of Se (1000 mg/L) M13460 **0.08 mL** of Pb (10,000 mg/L) M13169 **1.0 mL** of Tl (1000 mg/L) M13124 From this diluted standard solution, pipetted **10 mL** into a 1 L volumetric flask and brought up to volume with Milli-Q H_2O to make the spiking solution. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (1.2 *ug/L* Sb, *3.2 ug/L* As, *3.2 ug/L* Se, *0.8 ug/L* Pb, *1 ug/L* Tl) and **2 mL** spiking solution for LOQ (2.4 *ug/L* Sb, *6.4 ug/L* As, *6.4 ug/L* Se, *1.6 ug/L* Pb, *2 ug/L* Tl)		

		Instrument:	GFAA
Standard Log #:	M13546	Standard:	LODW/LOQW Spiking Sol'n
Analyst:	MDS	Concentrations:	150 ug/L (Sb) 100 ug/L (As) 200 ug/L (Se) 45 ug/L (Pb) 40 ug/L (Tl)
Prep Date:	07/09/2018	Expiration Date:	09/16/2018
Prep:	Into a 100 mL volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. **1.5 mL** of Sb (1000 mg/L) M13459 **1.0 mL** of As (1000 mg/L) M13392 **2.0 mL** of Se (1000 mg/L) M13460 **0.045 mL** of Pb (10,000 mg/L) M13169 **0.4 mL** of Tl (1000 mg/L) M13124 From this diluted standard solution, pipetted **10 mL** into a 1 L volumetric flask and brought up to volume with Milli-Q H_2O to make the spiking solution. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (*3 ug/L* Sb, *2 ug/L* As, *4 ug/L* Se, *0.9 ug/L* Pb, *0.8 ug/L* Tl) and **2 mL** spiking solution for LOQ (*6 ug/L* Sb, *4 ug/L* As, *8 ug/L* Se, *1.8 ug/L* Pb, *1.6 ug/L* Tl)		

		Instrument:	CETAC
Standard Log #:	M13542	Standard:	Hg CCV
Analyst:	LJF	Concentration:	3.0 ug/L Hg
Prep Date:	07/09/2018	Expiration Date:	07/22/2018
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13104 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	CETAC
Standard Log #:	M13543	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	07/09/2018	Expiration Date:	07/09/2018
Prep:	Carefully mixed **3** parts HCl AB.656 with **1** part HNO_3 AB.660 in a hood.		

		Instrument:	CETAC
Standard Log #:	M13544	Reagent:	Stannous Chloride Solution
Analyst:	LJF		
Prep Date:	07/09/2018	Expiration Date:	01/09/2018
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.656 and dissolved **100 g** Stannous chloride M13246 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13539	Standard:	Hg ICAL
Analyst:	LJF	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	07/09/2018	Expiration Date:	07/22/2018
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13104 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	CETAC
Standard Log #:	M13540	Standard:	Alt. Source Working Std.
Analyst:	LJF	Concentrations:	10,000 and 100 ug/L
Prep Date:	07/09/2018	Expiration Date:	04/30/2018
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* **- 1 mL** of Hg (1000 mg/L) M13444 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	CETAC
Standard Log #:	M13541	Standard:	Hg ICV/LCS
Analyst:	LJF	Concentration:	3 ug/L
Prep Date:	07/09/2018	Expiration Date:	04/30/2019
Prep:	Into a 100 mL volumetric flask, pipetted **3 mL** of Hg (*100 ug/L working Std.*) M13444 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

Standard Log #:	M13536	Reagent:	Potassium Permanganate Solution
Analyst:	LJF		
Prep Date:	07/03/2018	Expiration Date:	01/03/2019
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard Log #:	M13537	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	07/03/2018	Expiration Date:	07/03/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.659 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard Log #:	M13538	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	07/03/2018	Expiration Date:	07/05/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.659 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard Log #:	M13534	Standard:	GFAA Instrument Check
Analyst:	MDS	Final Concentration:	10 µg/L As 6 µg/L Pb 12 µg/L Sb 20 µg/L Se 14 µg/L Tl 0.6 µg/L Ag
Prep Date:	07/02/2018	Expiration Date:	09/16/2018

Into six, 100 mL volumetric flasks, add the following and bring up to volume with milli-Q H_2O.

Element	Volume Pipetted (mL)	Standard Conc. (µg/mL)	Standard ID	New Conc. (µg/L)
As	1	1000	M13392	10,000
Pb	0.1	10,000	M13169	10,000
Tl	1	1000	M13124	10,000
Se	1	1000	M13460	10,000
Sb	1	1000	M13459	10,000
Ag	0.1	1000	M13458	1000

Into a 1 L volumetric flask, add the following and bring up to volume with Milli-Q H_20. (1% HNO_3)

Element	Volume Pipetted (mL)	Standard Conc. (µg/L)	New Conc. (µg/L)
As	1.0	10,000	10
Pb	0.6	10,000	6
Tl	1.4	10,000	14
Se	2.0	10,000	20
Sb	1.2	10,000	12
Ag	0.6	1000	0.6

Standard ID#:	M13535	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	07/02/2018	Lot #:	48-179CR
Expiration Date (if any):	06/30/2019	Catalog #:	XSPIKE-1-250

		Instrument:	ICP 6000
Standard Log #:	M13533	Standard:	NaK ICSAB
Analyst:	MDS	Concentrations:	500 mg/L (Al, Ca, Fe, Mg) 100 mg/L (Na, K)
Prep Date:	06/29/2018	Expiration Date:	02/28/2019
Prep:	Into a 250 mL volumetric flask, pipetted **25 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13410 , **2.5 mL** of K (10,000 mg/L) M13400 , **2.5 mL** of Na (10,000 mg/L) M13402 and **7.5 mL** of Fe (10,000 mg/L) M13321 and brought up to volume using Milli-Q H_2O. (2% HNO_3)		

Standard ID#:	M13526	Vendor:	CPI
Analyst:	NAH	Chemical:	YTTRIUM 10,000 ug/mL
Date Received:	06/22/2018	Lot #:	138448-54
Expiration Date (if any):	12/2019	Catalog #:	4400-10M671

Standard ID#:	M13527	Vendor:	CPI
Analyst:	NAH	Chemical:	POTASSIUM 10,000
Date Received:	06/22/2018	Lot #:	172053-32
Expiration Date (if any):	12/2019	Catalog #:	4400-104411

Standard ID#:	M13528	Vendor:	CPI
Analyst:	NAH	Chemical:	Si 1000 ug/mL
Date Received:	06/22/2018	Lot #:	142610-115
Expiration Date (if any):	12/2019	Catalog #:	S4400-1000504F

Standard ID#:	M13529	Vendor:	CPI
Analyst:	NAH	Chemical:	Fe 10,000 ug/mL
Date Received:	06/22/2018	Lot #:	156651-42
Expiration Date (if any):	12/2019	Catalog #:	4400-10M261

Standard ID#:	M13530	Vendor:	CPI
Analyst:	NAH	Chemical:	SULFUR 10,000ug/mL
Date Received:	06/22/2018	Lot #:	129880-46
Expiration Date (if any):	12/2019	Catalog #:	4400-10M544

Standard ID#:	M13531	Vendor:	CPI
Analyst:	NAH	Chemical:	BORON 1000 ug/mL
Date Received:	06/22/2018	Lot #:	158372-91
Expiration Date (if any):	12/2019	Catalog #:	S4400-100074

Standard ID#:	M13532	Vendor:	CPI
Analyst:	NAH	Chemical:	CUSTOM ASSURANCE STANDARD
Date Received:	06/22/2018	Lot #:	48-146CR
Expiration Date (if any):	06/30/2019	Catalog #:	XCTWI-1-500

		Instrument:	CETAC
Standard Log #:	M13525	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	06/20/2018	Expiration Date:	06/20/2018
Prep:	Carefully mixed **3** parts HCl AB.656 with **1** part HNO_3 AB.660 in a hood.		

		Instrument:	CETAC
Standard Log #:	M13524	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	06/15/2018	Expiration Date:	06/15/2018
Prep:	Carefully mixed **3** parts HCl AB.656 with **1** part HNO_3 AB.660 in a hood.		

Standard Log #:	M13522	Reagent:	Potassium Permanganate Solution
Analyst:	LJF		
Prep Date:	06/14/2018	Expiration Date:	12/14/2018
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard Log #:	M13523	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	LJF		
Prep Date:	06/14/2018	Expiration Date:	12/14/2018
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M13511 and **60 g** hydroxylamine sulfate M13186 and brought up to volume.		

Standard ID#:	M13520	Vendor:	FRISCOLYT
Analyst:	NAH	Chemical:	Electrolyte Solution
Date Received:	06/13/2018	Lot #:	1DO71H
Expiration Date (if any):	12/03/2021	Catalog #:	51 340 053

		Instrument:	ICP
Standard Log #:	M13521	Standard:	As Pb ICV1
Analyst:	MDS	Concentrations:	5000 ug/L (As,Pb)
Prep Date:	06/13/2018	Expiration Date:	10/20/2018
Prep:	Into a 1 L volumetric flask, pipetted **0.5 mL** of As (10,000 mg/L) M13392 and **0.5 mL** Pb (10,000 mg/L) M13169 and brought to volume with Milli-Q H_2O. (2% HNO_3, 2% HCl)		

Standard ID#:	M13518	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	06/11/2018	Lot #:	48-060CR
Expiration Date (if any):	06/30/2019	Catalog #:	XCTWI-5-500

		Instrument:	ICP 6500
Standard Log #:	M13519	Standard:	ICAL
Analyst:	NAH	Concentrations:	0.25, 0.5, 1, 5, 10, 20, 50, 100, 1000, 10,000, 100k, 100,000, 500,000 and 1000k (ug/L)
Prep Date:	06/11/2018	Expiration Date:	06/30/2019

Prep:

Using 1 L volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O.
(5% HNO_3, 5% HCl)
1000 ug/L Std. - **10 mL** of Custom Assurance Std. #23 (100 mg/L Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M13518, **10 mL** of Custom Assurance Std. #3 (100 mg/L Ag, Be, Cd) M13506 and **1 mL** of Si (1000 mg/L) M13394 and 1 mL M13203 Ce
0.25 ug/L Std. - **0.25 mL** of the 1000 ug/L Std.
0.5 ug/L Std. - **0.5 mL** of the 1000 ug/L Std.
1 ug/L Std. - **1 mL** of the 1000 ug/L Std.
5 ug/L Std. - **5 mL** of the 1000 ug/L Std.
10 ug/L Std. - **10 mL** of the 1000 ug/L Std.
20 ug/L Std. - **20 mL** of the 1000 ug/L Std.
50 ug/L Std. - **50 mL** of the 1000 ug/L Std.
100 ug/L Std. - **1 mL** of Custom Assurance Std. (CAS) #23 and **1 mL** of CAS #3
10,000 ug/L Std. - **100 mL** CAS #23, **100 mL** CAS #3 and **1 mL** of K (10,000 mg/L) M13465.
100k ug/L Std. - **10 mL** of Cu (10,000 mg/L) M13166, **10 mL** of Mn (10,000 mg/L) M13167, **10 mL** of Cr (10,000 mg/L) M13165, **10 mL** Pb (10,000 mg/L) M13169, **10 mL** of Zn (10,000 mg/L) M13168 and **10 mL** of Na (10,000 mg/L) M13461.
100,000 ug/L Std. - **10 mL** of Mg (10,000 mg/L) M13319, **10 mL** of Fe (10,000 mg/L) M13463, **10 mL** of Ca (10,000 mg/L) M13467 and **10 mL** Al (10,000 mg/L) M13462.
500,000 ug/L Std. - **50 mL** of Mg (10,000 mg/L), **50 mL** of Fe (10,000 mg/L), **50 mL** of Ca (10,000 mg/L) and **50 mL** of Al (10,000 mg/L)
1000k ug/L Std. - **100 mL** of Mg (10,000 mg/L), **100 mL** of Fe (10,000 mg/L), **100 mL** of Ca (10,000 mg/L) and **100 mL** of Al (10,000 mg/L)

Standard Log #:	M13513	Reagent:	Potassium Persulfate Solution
Analyst:	LJF		
Prep Date:	06/06/2018	Expiration Date:	12/06/2018
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M12652 and brought up to volume.		

Standard Log #:	M13514	Reagent:	10N NaOH
Analyst:	BMM		
Prep Date:	06/06/2018	Expiration Date:	06/06/2019
Prep:	Into a 1 L volumetric flask, added **400 g** NaOH W43585 and brought up to volume.		

Standard Log #:	M13515	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	06/06/2018	Expiration Date:	06/06/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.659 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard Log #:	M13516	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	06/06/2018	Expiration Date:	06/06/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.659 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

		Instrument:	CETAC
Standard Log #:	M13510	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	06/01/2018	Expiration Date:	06/01/2018
Prep:	Carefully mixed **3** parts HCl AB.656 with **1** part HNO_3 AB.655 in a hood.		

Standard ID#:	M13511	Vendor:	FISHER
Analyst:	LJF	Chemical:	SODIUM CHLORIDE
Date Received:	06/04/2018	Lot #:	176877
Expiration Date (if any):		Catalog #:	S271-500

Standard Log #:	M13509	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	LJF		
Prep Date:	05/30/2018	Expiration Date:	11/30/2018
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M13226 and **60 g** hydroxylamine sulfate M13186 and brought up to volume.		

Standard ID#:	M13506	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	05/22/2018	Lot #:	48-042CR
Expiration Date (if any):	05/30/2019	Catalog #:	XCTWI-4-500

Standard ID#:	M13507	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	05/22/2018	Lot #:	48-041CR
Expiration Date (if any):	05/30/2019	Catalog #:	XSPIKE-1-250

Standard ID#:	M13508	Vendor:	RESTEK
Analyst:	NAH	Chemical:	Diatomaceous earth (Celite 566)
Date Received:	05/22/2018	Lot #:	811030-BG
Expiration Date (if any):	N/A	Catalog #:	26033

Standard Log #:	M13503	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	05/22/2018	Expiration Date:	05/22/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.653 and **128.6 mL** 10N NaOH M13417. Dilute to 20 L and mix.		

Standard Log #:	M13504	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	05/22/2018	Expiration Date:	05/22/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.653 and **128.6 mL** 10N NaOH M13417. Dilute to 20 L and mix.		

Standard Log #:	M13505	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	05/22/2018	Expiration Date:	05/22/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.653 and **128.6 mL** 10N NaOH M13417. Dilute to 20 L and mix.		

		Instrument:	ICP 6000
Standard Log #:	M13502	Standard:	B & Si ICSAB
Analyst:	MDS	Concentrations:	500,000 µg/L (Al, Ca, Fe, Mg) 500 µg/L (B,Si)
Prep Date:	05/21/2018	Expiration Date:	10/30/2018
Prep:	Into a 100 mL volumetric flask, pipetted **10 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13305 , **0.05 mL** of B (1000 µg/mL) M13390 , **0.05 mL** of Si (1000 µg/mL) M13394 and **3 mL** of Fe (10,000 mg/L) M13321 and brought up to volume using Milli-Q H_2O.		

		Instrument:	GFAA
Standard Log #:	M13499	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	05/17/2018	Expiration Date:	05/17/2019
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13497 and brought to volume with Milli-Q H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13500	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	05/17/2018	Expiration Date:	05/17/2019
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13497 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13501	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	05/17/2018	Expiration Date:	05/17/2019
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13498 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	CETAC
Standard Log #:	M13496	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	05/16/2018	Expiration Date:	05/16/2018
Prep:	Carefully mixed **3** parts HCl AB.656 with **1** part HNO_3 AB.655 in a hood.		

Standard ID#:	M13497	Vendor:	Inorganic Ventures
Analyst:	MDS	Chemical:	GFAA ICAL/CCV
Date Received:	05/16/2018	Lot #:	M2-MEB658424
Expiration Date (if any):	05/17/2019	Catalog #:	CTI-SPK-1

Standard ID#:	M13498	Vendor:	Inorganic Ventures
Analyst:	MDS	Chemical:	GFAA ICV/SPIKE
Date Received:	05/16/2018	Lot #:	M2-MEB658423
Expiration Date (if any):	05/17/2019	Catalog #:	CTI-GFCAL-1

Standard ID#:	M13495	Vendor:	LabChem
Analyst:	LJF	Chemical:	STANNOUS CHLORIDE
Date Received:	05/15/2018	Lot #:	H052-17
Expiration Date (if any):		Catalog #:	LC251701

Standard ID#:	M13494	Vendor:	Alfa Aesar Specpure
Analyst:	MDS	Chemical:	GFAA 1% Nickel Nitrate Modifier
Date Received:	05/11/2018	Lot #:	8130826
Expiration Date (if any):	10/31/2019	Catalog #:	39043

Standard Log #:	M13491	Reagent/Standard:	Mehlich 3 Extractant
Analyst:	AMA	Concentration:	NA
Prep Date:	05/08/2018	Expiration Date:	05/18/2018

PREP

Into a 1000 mL V.F., filled with approximately 800 mL D.I. H2O, added 20g NH4NO3 (W43076), 4 mL Mehlich 3 Stock Solution (M13489), 11.5 mL Glacial Acetic Acid (AB 653), 820 µl HNO3 (AB 655). Brought to volume with D.I. H2O. Dissolved/stirred for 15 minutes. Stored in refrigerator.

		Instrument:	GFAA
Standard Log #:	M13492	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	05/08/2018	Expiration Date:	05/25/2018
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13194 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

Standard Log #:	M13489	Reagent/Standard:	Mehlich 3 Stock Solution
Analyst:	AMA	Concentration:	NA
Prep Date:	05/07/2018	Expiration Date:	05/17/2018

PREP

Into a 100 mL V.F., added 13.89g NH4F (W43077) and 7.305g EDTA (W43689). Brought to volume with D.I. H2O. Stirred and dissolved for 15 minutes. Stored in refrigerator.

Standard Log #:	M13490	Reagent/Standard:	Mehlich 3 Extractant
Analyst:	AMA	Concentration:	NA
Prep Date:	05/07/2018	Expiration Date:	05/17/2018

PREP

Into a 2000 mL V.F., filled with approximately 1500 mL D.I. H2O, added 40g NH4NO3 (W43076), 8 mL Mehlich 3 Stock Solution (M13489), 23 mL Glacial Acetic Acid (AB 653), 1.64 mL HNO3 (AB 655). Brought to volume with D.I. H2O. Dissolved/stirred for 15 minutes. Stored in refrigerator.

		Instrument:	ICP 6000
Standard Log #:	M13485	Standard:	Na & K ICAL
Analyst:	MDS	Concentrations:	0.5, 1, 5, 10, 50, 100, and 200 mg/L (Na,K)
Prep Date:	05/07/2018	Expiration Date:	05/2019
Prep:	Into seven, 200 mL volumetric flasks, pipetted the following from Na (1000 µg/mL) M13339 and K (1000 µg/mL) M13340 and brought up to volume using milli-Q H_2O. (2% HNO_3) *0.5 mg/L std.* - **0.1 mL** of each *1.0 mg/L std.* - **0.2 mL** of each *5.0 mg/L std.* - **1.0 mL** of each *10 mg/L std.* - **2.0 mL** of each *50 mg/L std.* - **10 mL** of each *100 mg/L std.* -**20 mL** of each, also used for Continuing Calibration Verification *200 mg/L std.* - **40 mL** of each		

		Instrument:	ICP 6000
Standard Log #:	M13486	Standard:	NaK ICV
Analyst:	MDS	Concentrations:	100 mg/L (Na, K)
Prep Date:	05/07/2018	Expiration Date:	08/2019
Prep:	Into a 250 mL volumetric flask, pipetted **2.5 mL** of K (10,000 mg/L) M13400 and Na (10,000 mg/L) M13402 and brought up to volume using Milli-Q H_2O. (2% HNO_3)		

		Instrument:	ICP 6000
Standard Log #:	M13487	Standard:	Na,K ICVLL
Analyst:	MDS	Concentrations:	3 mg/L (Na,K)
Prep Date:	05/07/2018	Expiration Date:	08/2019
Prep:	Into a 500 mL volumetric flask, pipetted **0.15 mL** of Na (10,000 µg/mL) M13402 and **0.15 mL** K (10,000 µg/mL) M13400 and brought to volume with Milli-Q H_2O. (2% HNO_3)		

		Instrument:	ICP 6000
Standard Log #:	M13488	Standard:	Na,K MRL
Analyst:	MDS	Concentrations:	1 mg/L (Na,K)
Prep Date:	05/07/2018	Expiration Date:	05/2019
Prep:	Into a 500 mL volumetric flask, pipetted **0.5 mL** of Na (1000 µg/mL) M13339 and **0.5 mL** K (1000 µg/mL) M13340 and brought to volume with Milli-Q H_2O. (2% HNO_3)		

Standard ID#:	M13484	Vendor:	Environmental Express
Analyst:	NAH	Chemical:	Y 10,000 mg/L
Date Received:	05/03/2018	Lot #:	1805105
Expiration Date (if any):	10/31/2019	Catalog #:	HP10M67-1

		Instrument:	ICP 6500
Standard Log #:	M13482	Standard:	CCV2
Analyst:	NAH	Concentrations:	**500 µg/L** Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn **50 µg/L** Ag, Be, Cd
Prep Date:	05/02/2018	Expiration Date:	06/2018
Prep:	Into a 1 L volumetric flask, pipetted **5 mL** Custom Assurance Standard #23 XCTWI-5-500 (100 mg/L Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M13364 and **0.5 mL** of Custom Assurance Std. #3 XCTWI-4-500 (100 mg/L Ag, Be, Cd) M13217 and brought up to volume with milli-Q H_2O.		

		Instrument:	ICP 6500
Standard Log #:	M13483	Standard:	ICSAB
Analyst:	NAH	Concentrations:	**500,000 ug/L** Al, Ca, Fe, Mg **500 ug/L** Ag, As, Ba, Be, Cd, Co, Cr, Cu, Mn, Mo, Ni, Pb, Sb, Se, Tl, V, Zn
Prep Date:	05/02/2018	Expiration Date:	06/2018
Prep:	Into a 500 mL volumetric flask, pipetted **50 mL** Interferents A Standard ((5000 mg/L Al, Ca, Mg) (2000 mg/L Fe)) M13305, **15 mL** Fe (10,000 mg/L) M13321, **2.5 mL** of Custom Assurance Std. #3 (100 mg/L Ag, Be, Cd) 13217 and **2.5 mL** Custom Assurance Std. #23 (100 mg/L Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M13364 and brought up to volume with milli-Q H_2O.		

		Instrument:	ICP 6500
Standard Log #:	M13480	Standard:	ICVLL
Analyst:	NAH	Concentrations:	12 ug/L: Be. 15 ug/L: Cd. 30 ug/L: Ag, Ba, Co, Cr, Cu, Mn, Mo. Ni, Pb, V, Zn, Sr, and Ti. 60 ug/L: Sb, As, Se, Tl, Li, Sn and B. 150 ug/L: W. 300 ug/L: Si. 900 ug/L: Fe. 1200 ug/L Al. 1500 ug/L: S, Ca and Mg. 3000 ug/L: K and Na.
Prep Date:	05/02/2018	Expiration Date:	09/2018
Prep:	Into a 500 mL volumetric flask, pipetted 30 **mL** of MRL Base STD M13479 and brought to volume with Milli-Q H_2O. (5% HNO_3 & 5% HCL)		

		Instrument:	ICP 6500
Standard Log #:	M13481	Standard:	CCV1
Analyst:	NAH	Concentrations:	**5000 µg/L** Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn **500 µg/L** Ag, Be, Cd
Prep Date:	05/02/2018	Expiration Date:	06/2018
Prep:	Into a 1 L volumetric flask, pipetted **50 mL** Custom Assurance Standard #23 XCTWI-5-500 (100 mg/L Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M13364 and **5.0 mL** of Custom Assurance Std. #3 XCTWI-4-500 (100 mg/L Ag, Be, Cd) M13217 and brought up to volume with milli-Q H_2O.		

MRL BASE STD M13479

Analyst NAH

Prep Date 05/02/2018

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	(ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L	Expiration Date
Ag	20	M13458	1000	1	10/2019
Al	400	M13462	10000	2	10/2019
Ba	10	M13457	1000	0.5	10/2019
Be	4	M13126	1000	0.2	09/2018
Cd	5	M13327	1000	0.25	09/2018
Co	10	M13132	1000	0.5	09/2018
Cr	10	M13165	10000	0.05	10/2018
Cu	10	M13166	10000	0.05	10/2018
Mg	500	M13319	10000	2.5	04/2019
Mn	10	M13167	10000	0.05	10/2018
Mo	10	M13393	1000	0.5	07/2019
Ni	10	M13133	1000	0.5	09/2018
Pb	10	M13169	10000	0.05	10/2018
Sb	20	M13459	1000	1	10/2019
V	10	M13125	1000	0.5	09/2018
Zn	10	M13168	10000	0.05	10/2018
K	1000	M13341	10000	5	05/2019
Na	1000	M13402	10000	5	08/2019
As	20	M13392	1000	1	07/2019
Ca	500	M13324	10000	2.5	04/2019
Fe	300	M13463	10000	1.5	10/2019
Se	20	M13460	1000	1	10/2019
Tl	20	M13124	1000	1	09/2018
Si	100	M13394	1000	5	07/2019
B	20	M13390	1000	1	07/2019
Li	20	M13130	1000	1	09/2018
W	50	xxxxxxxxxx	1000	2.5	xxxxxxxxx
Ti	10	M13128	1000	0.5	09/2018
Sr	10	M13129	1000	0.5	09/2018
Sn	50	M13134	1000	2.5	09/2018
S	300	M13391	10000	1.5	07/2019

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

Expiration Date: 10/2018

		Instrument:	ICP 6500
Standard Log #:	M13476	Standard:	ICSA
Analyst:	NAH	Concentrations:	**500,000 ug/L** Al, Ca, Fe, Mg
Prep Date:	05/02/2018	Expiration Date:	10/2018
Prep:	Into a 500 mL volumetric flask, pipetted **50 mL** Interferents A Standard ((5000 mg/L Al, Ca, Mg) (2000 mg/L Fe)) M13305 and **15 mL** Fe (10000 mg/L) M13321 and brought up to volume with milli-Q H_2O.		

Standard Log #:	M13477	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	05/02/2018	Expiration Date:	05/02/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.653 and **128.6 mL** 10N NaOH M13417. Dilute to 20 L and mix.		

Standard Log #:	M13478	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	05/02/2018	Expiration Date:	05/02/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.653 and **128.6 mL** 10N NaOH M13417. Dilute to 20 L and mix.		

Standard Log #:	M13475	Reagent:	Potassium Permanganate Solution
Analyst:	LJF		
Prep Date:	04/30/2018	Expiration Date:	10/30/2018
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13474	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	04/27/2018	Expiration Date:	04/27/2018
Prep:	Carefully mixed **3** parts HCl AB.656 with **1** part HNO_3 AB.655 in a hood.		

		Instrument:	ICP 6000
Standard Log #:	M13471	Standard:	B&Si ICAL
Analyst:	MDS	Concentrations:	50, 200, 1000, 2000 and 10,000 ug/L (B, Si)
Prep Date:	04/26/2018	Expiration Date:	07/2019
Prep:	Into five, 1 L volumetric flasks, pipetted the following from stock standards B (1000 mg/L) M13390 and Si (1000 mg/L) M13394 and brought up to volume using milli-Q H_2O. *50 ug/L std.* - **0.05 mL** of each *200 ug/L std.* - **0.2 mL** of each *1000 ug/L std.* **-1.0 mL** of each, also used for Continuing Calibration Verification *2000 ug/L std.* - **2.0 mL** of each *10,000 ug/L std.* **-10 mL** of each		

		Instrument:	ICP 6000
Standard Log #:	M13472	Standard:	B&Si ICV
Analyst:	MDS	Concentrations:	1000 ug/L (B, Si)
Prep Date:	04/26/2018	Expiration Date:	07/02/2018
Prep:	Into a 1 L volumetric flask, pipetted **10 mL** of Custom Assurance Std. #23 (100 mg/L Al, As, **B**, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M13364 and **1.0 mL** Si (1000 mg/L) M13085 and brought up to volume using milli-Q H_2O.		

		Instrument:	ICP 6000
Standard Log #:	M13473	Standard:	B & Si ICSAB
Analyst:	MDS	Concentrations:	500,000 µg/L (Al, Ca, Fe, Mg) 500 µg/L (B,Si)
Prep Date:	04/26/2018	Expiration Date:	10/30/2018
Prep:	Into a 100 mL volumetric flask, pipetted **10 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13305, **0.05 mL** of B (1000 µg/mL) M13390, **0.05 mL** of Si (1000 µg/mL) M13394 and **3 mL** of Fe (10,000 mg/L) M13321 and brought up to volume using Milli-Q H_2O.		

Standard Log #:	M13470	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	LJF		
Prep Date:	04/25/2018	Expiration Date:	10/25/2018
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M13043 and **60 g** hydroxylamine sulfate M13186 and brought up to volume.		

Standard ID#:	M13467	Vendor:	CPI
Analyst:	NAH	Chemical:	Ca 10000 mg/L
Date Received:	04/20/2018	Lot #:	147497-47
Expiration Date (if any):	10/2019	Catalog #:	4400-10M91

Standard ID#:	M13468	Vendor:	FISHER
Analyst:	LJF	Chemical:	HYDROXYLAMINE SULFATE
Date Received:	04/24/2018	Lot #:	174236
Expiration Date (if any):		Catalog #:	H331-500

		Instrument:	CETAC
Standard Log #:	M13469	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	04/24/2018	Expiration Date:	04/24/2018
Prep:	Carefully mixed **3** parts HCl AB.656 with **1** part HNO_3 AB.655 in a hood.		

Standard ID#:	M13462	Vendor:	CPI
Analyst:	NAH	Chemical:	Al 10000 mg/L
Date Received:	04/20/2018	Lot #:	158058-23
Expiration Date (if any):	10/2019	Catalog #:	4400-10M11

Standard ID#:	M13463	Vendor:	CPI
Analyst:	NAH	Chemical:	Fe 10000 mg/L
Date Received:	04/20/2018	Lot #:	156651-18
Expiration Date (if any):	10/2019	Catalog #:	4400-10M261

Standard ID#:	M13464	Vendor:	CPI
Analyst:	NAH	Chemical:	Mg 10000 mg/L
Date Received:	04/20/2018	Lot #:	148250-67
Expiration Date (if any):	10/2019	Catalog #:	4400-10M311

Standard ID#:	M13465	Vendor:	CPI
Analyst:	NAH	Chemical:	K 10000 mg/L
Date Received:	04/20/2018	Lot #:	172053-2
Expiration Date (if any):	10/2019	Catalog #:	4400-10M411

Standard ID#:	M13466	Vendor:	CPI
Analyst:	NAH	Chemical:	S 10000 mg/L
Date Received:	04/20/2018	Lot #:	129880-37
Expiration Date (if any):	10/2019	Catalog #:	4400-10M544

Standard ID#:	M13457	Vendor:	CPI
Analyst:	NAH	Chemical:	Barium 1000 mg/L
Date Received:	04/20/2018	Lot #:	158364-3
Expiration Date (if any):	10/2019	Catalog #:	S4400-100041

Standard ID#:	M13458	Vendor:	CPI
Analyst:	NAH	Chemical:	Ag 1000 mg/L
Date Received:	04/20/2018	Lot #:	162712-9
Expiration Date (if any):	10/2019	Catalog #:	S4400-1000511

Standard ID#:	M13459	Vendor:	CPI
Analyst:	NAH	Chemical:	Sb 1000 mg/L
Date Received:	04/20/2018	Lot #:	153992-1
Expiration Date (if any):	10/2019	Catalog #:	S4400-100023

Standard ID#:	M13460	Vendor:	CPI
Analyst:	NAH	Chemical:	Se 1000 mg/L
Date Received:	04/20/2018	Lot #:	154366-16
Expiration Date (if any):	10/2019	Catalog #:	S4400-1000491

Standard ID#:	M13461	Vendor:	CPI
Analyst:	NAH	Chemical:	Na 10000 mg/L
Date Received:	04/20/2018	Lot #:	107139-108
Expiration Date (if any):	10/2019	Catalog #:	4400-10M521

		Instrument:	CETAC
Standard Log #:	M13455	Standard:	Hg CCV
Analyst:	LJF	Concentration:	3.0 ug/L Hg
Prep Date:	04/20/2018	Expiration Date:	07/22/2018
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13104 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	CETAC
Standard Log #:	M13456	Reagent:	Stannous Chloride Solution
Analyst:	LJF		
Prep Date:	04/20/2018	Expiration Date:	10/20/2018
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.656 and dissolved **100 g** Stannous chloride M13246 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13452	Standard:	Hg ICAL
Analyst:	LJF	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	04/20/2018	Expiration Date:	07/22/2018
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13104 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	CETAC
Standard Log #:	M13453	Standard:	Alt. Source Working Std.
Analyst:	LJF	Concentrations:	10,000 and 100 ug/L
Prep Date:	04/20/2018	Expiration Date:	04/30/2019
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* **- 1 mL** of Hg (1000 mg/L) M13444 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	CETAC
Standard Log #:	M13454	Standard:	Hg ICV/LCS
Analyst:	LJF	Concentration:	3 ug/L
Prep Date:	04/20/2018	Expiration Date:	04/30/2019
Prep:	Into a 100 mL volumetric flask, pipetted **3 mL** of Hg (*100 ug/L working Std.*) M13444 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

		Instrument:	ICP
Standard Log #:	M13450	Standard:	L2 ICAL
Analyst:	MDS	Concentrations:	1 (µg/L) 10 (µg/L) 100 (µg/L) 1000 (µg/L) 10,000 (µg/L)
Prep Date:	04/20/2018	Expiration Date:	01/30/2019
Prep:	Standard Conc. (ug/L) — Pipette the following: 1: **0.01 mL** of Custom Assurance Standard XCTWI-5-500 M13364 and **0.001 mL** W (1000 µg/mL) M into 1L = *1 µg/L* 10: **0.10 mL** of Custom Assurance Standard XCTWI-5-500 M13364 and **0.01 mL** W (1000 µg/mL) M into 1L = *10 µg/L* 100: **1 mL** of Custom Assurance Standard XCTWI-5-500 M13364 and **0.1 mL** W (1000 µg/mL) M into 1L = *100 µg/L* 1000 (CCV): **2 mL** of Custom Assurance Standard XCTWI-5-500 M13364 and **0.2 mL** W (1000 µg/mL) M into 200mL = *1000 µg/L* 10000: **20 mL** of Custom Assurance Standard XCTWI-5-500 M13364 and **2 mL** W (1000 µg/mL) M into 200mL = *10000 µg/L*		

		Instrument:	ICP 6000
Standard Log #:	M13451	Standard:	L2 ICV
Analyst:	MDS	Concentrations:	1000 µg/L (Li, Sn, Sr, Ti, W)
Prep Date:	04/20/201	Expiration Date:	09/18/2018
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of the following and brought up to volume using milli-Q H_2O. (0.5% HNO_3, 0.5% HCl) Li (1000 µg/mL) M13130 Sn (1000 µg/mL) M13134 Sr (1000 µg/mL) M13129 Ti (1000 µg/mL) M13128 W (1000 µg/mL) M		

		Instrument:	GFAA
Standard Log #:	M13447	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	04/20/2018	Expiration Date:	05/25/2018
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13193 and brought to volume with Milli-Q H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13448	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	04/20/2018	Expiration Date:	05/25/2018
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13193 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13449	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	04/20/2018	Expiration Date:	05/25/2018
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13194 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

Standard Log #:	M13445	Reagent:	Potassium Persulfate Solution
Analyst:	LJF		
Prep Date:	04/19/2018	Expiration Date:	10/19/2018
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M12652 and brought up to volume.		

		Instrument:	Hach 2100 turbidity meter
Standard Log #:	M13446	Standard:	Turbity ICAL
Analyst:	NAH	Concentrations:	20, 100, 200 ntu
Prep Date:	04/19/2018	Expiration Date:	12/2019
Prep:	Using the hach vials , pipet the following: *20 ntu Std.* = **1 ml** M13436 and 9 mls DI H20. *100 ntu Std.* = **5 mls** M13436 and 5 mls DI H20. *200 ntu Std.* = ***10 mls*** M13436 *and* 0 mls DI H20.		

Standard ID#:	M13444	Vendor:	SPEX CertiPrep
Analyst:	LJF	Chemical:	Hg Standard
Date Received:	04/18/2018	Lot #:	CL10-31HGY
Expiration Date (if any):	04/30/2019	Catalog #:	CLHG4-2Y

		Instrument:	ICP 6000
Standard Log #:	M13443	Standard:	Na,K ICVLL
Analyst:	MDS	Concentrations:	3 mg/L (Na,K)
Prep Date:	04/16/2018	Expiration Date:	05/2019
Prep:	Into a 500 mL volumetric flask, pipetted **0.15 mL** of Na (10,000 µg/mL) M13402 and **0.15 mL** K (10,000 µg/mL) M13341 and brought to volume with Milli-Q H_2O. (2% HNO_3)		

		Instrument:	CETAC
Standard Log #:	M13440	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	04/12/2018	Expiration Date:	04/12/2018
Prep:	Carefully mixed **3** parts HCl AB.656 with **1** part HNO_3 AB.655 in a hood.		

Standard Log #:	M13441	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	04/13/2018	Expiration Date:	04/13/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.653 and **128.6 mL** 10N NaOH M13267. Dilute to 20 L and mix.		

Standard Log #:	M13442	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	04/13/2018	Expiration Date:	04/13/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.653 and **128.6 mL** 10N NaOH M13267. Dilute to 20 L and mix.		

LPMT1-04
Metals Reagents and Standards
Prep Logbook
Created: 12/19/17

NOTEBOOK VIEW: LTN_LPMT1_04_Default, NOTEBOOK: LPMT1_04, PAGE: 35
Page is Locked
Author: nhenn on: 4/19/2018 11:15:48 AM
Page is not Witnessed
Project: Unassigned
Page Title: 041118

		Instrument:	ICP 6000
Standard Log #:	M13438	Standard:	Sulfur ICAL
Analyst:	MDS	Concentrations:	1000 10,000 100,000 1000K µg/L (S)
Prep Date:	04/11/2018	Expiration Date:	07/2019
Prep:	Into four, 100 mL volumetric flasks, pipetted the following from stock standard S (10,000 µg/mL) M13391 and brought up to volume using milli-Q H_2O. *1000 ug/L std.* - **0.01 mL** *10,000 ug/L std.* - **0.1 mL** *100,000 ug/L std.* **-1.0 mL**, also used as the CCV *1000K ug/L std.* - **10 mL**		

		Instrument:	ICP 6000
Standard Log #:	M13439	Standard:	Sulfur ICV
Analyst:	MDS	Concentrations:	100,000 µg/L (S)
Prep Date:	04/11/2018	Expiration Date:	01/19/2019
Prep:	Into a 100 mL volumetric flask, pipetted **1.0 mL** of S (10,000 µg/mL) M13280 and brought up to volume using Milli-Q H_2O.		

Standard Log #:	M13437	Instrument:	ICP
Analyst:	NAH	Standard:	LOQ 3050 B&Si Spiking Solution
Prep Date:	04/10/2018	Expiration Date:	07/19

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
B	52	M13390	1000	2.6
Si	192	M13394	1000	9.6

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

Content below was appended to locked page by mszymanski on 4/19/2018 12:20:57 PM

Standard ID#:	M13436a	Vendor:	HACH
Analyst:	NAH	Chemical:	StablCal 200 NTU
Date Received:	04/10/2018	Lot #:	A7354
Expiration Date (if any):	12/2019	Catalog #:	2660449

Standard Log #:	M13436	Instrument:	ICP 6500
Analyst:	NAH	Standard:	LOQ 3050 DOD Metals Spiking S
Prep Date:	04/10/2018	Expiration Date:	05/18

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3, 5% HCl)

Analyte	MDL Conc. (ug/L)	Std. ID #	Std Conc	Volume (mL) pipetted into 1 L
Ag	4	M13083	1000	0.2
Al	9.6	M13322	**10000**	0.048
As	32	M13392	1000	1.6
Ba	2	M13029	1000	0.1
Be	1.6	M13126	1000	0.08
Ca	56	M13324	**10000**	0.28
Cd	1.6	M13127	1000	0.08
Co	9.6	M13132	1000	0.48
Cr	5.6	M13165	**10000**	0.028
Cu	16	M13166	**10000**	0.08
Fe	72	M13321	**10000**	0.36
Mg	32	M13319	**10000**	0.16
Mn	6	M13167	**10000**	0.03
Mo	9.6	M13397	1000	0.48
Ni	4.8	M13133	1000	0.24
Pb	10	M13169	**10000**	0.05
Sb	32	M13084	1000	1.6
Se	16	M13082	1000	0.8
Tl	19	M13124	1000	0.95
V	3.2	M13125	1000	0.16
Zn	12	M13168	**10000**	0.06

Of this Base standard, pipet **10 mL** into a 500 mL volumetric flask to create a working std or **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard ID#:	M13435	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custum Assurance Std Spike
Date Received:	04/10/2018	Lot #:	1-81YJ
Expiration Date (if any):	04/30/2019	Catalog #:	XSPIKE-1-250

Standard Log #:	M13434	Instrument:	ICP 6500
Analyst:	NAH	Standard:	LOQ 3010 DOD Metals Spiking S
Prep Date:	04/10/2018	Expiration Date:	05/18

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3, 5% HCl)

Analyte	MDL Conc. (ug/L)	Std. ID #	Std Conc	Volume (mL) pipetted into 1 L
Ag	4	M13083	1000	0.2
Al	36	M13322	**10000**	0.18
As	24	M13392	1000	1.2
Ba	1.8	M13029	1000	0.09
Be	0.6	M13126	1000	0.03
Ca	100	M13324	**10000**	0.5
Cd	2.0	M13127	1000	0.1
Co	4	M13132	1000	0.2
Cr	4	M13165	**10000**	0.02
Cu	7	M13166	**10000**	0.035
Fe	100	M13321	**10000**	0.5
Mg	40	M13319	**10000**	0.2
Mn	4	M13167	**10000**	0.02
Mo	7	M13393	1000	0.35
Ni	6	M13133	1000	0.2
Pb	4	M13169	**10000**	0.02
Sb	12	M13084	1000	0.6
Se	13	M13082	1000	0.65
Tl	20	M13124	1000	0.75
V	5	M13125	1000	0.25
Zn	10	M13168	**10000**	0.05

Of this Base standard, pipet **10 mL** into a 500 mL volumetric flask to create a working std or **1 mL** into a 50 mL digestion tube for a digested working standard.

		Instrument:	GFAA
Standard Log #:	M13433	Standard:	LODW/LOQW Ag Spiking Sol'n
Analyst:	MDS	Concentrations:	10 ug/L (Ag)
Prep Date:	04/09/2018	Expiration Date:	07/02/2018
Prep:	Into a 100 mL volumetric flask, pipetted **0.1 mL** of Ag (1000mg/L) M13083 and brought to volume with Milli-Q H_2O to make a 1000 ug/L Ag std. Into a 1 L volumetric flask, pipetted **10 mL** of Ag (*1000 ug/L*) std. and brought to volume with Milli-Q H_2O. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (*0.2 ug/L*) and **2 mL** spiking solution for LOQ (*0.4 ug/L*)		

		Instrument:	GFAA
Standard Log #:	M13431	Standard:	LODS/LOQS Spiking Sol'n
Analyst:	MDS	Concentrations:	60 ug/L (Sb) 160 ug/L (As,Se) 40 ug/L (Pb) 50 ug/L (Tl)
Prep Date:	04/09/2018	Expiration Date:	07/02/2018
Prep:	Into a 200 mL volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. **1.2 mL** of Sb (1000 mg/L) M13084 **3.2 mL** of As (1000 mg/L) M13392 **3.2 mL** of Se (1000 mg/L) M13082 **0.08 mL** of Pb (10,000 mg/L) M13169 **1.0 mL** of Tl (1000 mg/L) M13124 From this diluted standard solution, pipetted **10 mL** into a 1 L volumetric flask and brought up to volume with Milli-Q H_2O to make the spiking solution. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (1.2 *ug/L* Sb, *3.2 ug/L* As, *3.2 ug/L* Se, *0.8 ug/L* Pb, *1 ug/L* Tl) and **2 mL** spiking solution for LOQ (2.4 *ug/L* Sb, *6.4 ug/L* As, *6.4 ug/L* Se, *1.6 ug/L* Pb, *2 ug/L* Tl)		

		Instrument:	GFAA
Standard Log #:	M13432	Standard:	LODW/LOQW Spiking Sol'n
Analyst:	MDS	Concentrations:	150 ug/L (Sb) 100 ug/L (As) 200 ug/L (Se) 45 ug/L (Pb) 40 ug/L (Tl)
Prep Date:	04/09/2018	Expiration Date:	07/02/2018
Prep:	Into a 100 mL volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. **1.5 mL** of Sb (1000 mg/L) M13084 **1.0 mL** of As (1000 mg/L) M13392 **2.0 mL** of Se (1000 mg/L) M13082 **0.045 mL** of Pb (10,000 mg/L) M13169 **0.4 mL** of Tl (1000 mg/L) M13124 From this diluted standard solution, pipetted **10 mL** into a 1 L volumetric flask and brought up to volume with Milli-Q H_2O to make the spiking solution. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (*3 ug/L* Sb, *2 ug/L* As, *4 ug/L* Se, *0.9 ug/L* Pb, *0.8 ug/L* Tl) and **2 mL** spiking solution for LOQ (*6 ug/L* Sb, *4 ug/L* As, *8 ug/L* Se, *1.8 ug/L* Pb, *1.6 ug/L* Tl)		

		Instrument:	CETAC
Standard Log #:	M13430	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	04/03/2018	Expiration Date:	04/03/2018
Prep:	Carefully mixed **3** parts HCl AB.656 with **1** part HNO_3 AB.655 in a hood.		

		Instrument:	ICP 6500
Standard Log #:	M13429	Standard:	ICV Std.
Analyst:	NAH	Concentrations:	**12,000 mg/L** Al **10,000 mg/L** Ca, Mg **5000 mg/L** Fe **2000 mg/L** As, Ba, Se, Tl **500 mg/L** B, Co, Li, Mn, Mo, Ni, Pb, Sb, Sn, Sr, Ti, V, Zn **250 mg/L** Cu **200 mg/L** Cr **50 mg/L** Ag, Be, Cd
Prep Date:	04/02/2018	Expiration Date:	09/2018
Prep:	Into a 1 L volumetric flask, pipetted the following and brought up to volume with milli-Q H_2O. **10 mL** Custom Assurance Standard #18 ((200 mg/L Al, As, Ba, Se, Tl) (100 mg/L Fe) (50 mg/L Co, Mn, Ni, Pb, Sb, V, Zn) (25 mg/L Cu) (20 mg/L Cr) (5 mg/L Ag, Be, Cd)) M13362, **2 mL** Interferents A Standard ((5000 mg/L Al, Ca, Mg) (2000 mg/L Fe)) M13410, **0.5 mL** Mo (1000 mg/L) M13393, **0.5 mL** B (1000 mg/L) M13390, **0.5 mL** Sr (1000 mg/L) M13129, **0.5 mL** Li (1000 mg/L) M13130, **0.5 mL** Sn (1000 mg/L) M13134, **0.5 mL** Ti (1000 mg/L) M13128, **0.5 mL** W (1000 mg/L) MXXXXX, **0.5 mL** Si (1000 mg/L) M13394, **0.5 mL** S (10000 mg/L) M13391, **0.5 mL** K (10000 mg/L) M13391, and **0.5 mL** Na (10000 mg/L) M13342		

		Instrument:	ICP 6000
Standard Log #:	M13428	Standard:	Na & K ICAL
Analyst:	MDS	Concentrations:	0.5, 1, 5, 10, 50, 100, and 200 mg/L (Na,K)
Prep Date:	03/29/2018	Expiration Date:	06/08/2018
Prep:	Into seven, 200 mL volumetric flasks, pipetted the following from Na (1000 µg/mL) M13050 and K (1000 µg/mL) M13340 and brought up to volume using milli-Q H_2O. (2% HNO_3) *0.5 mg/L std.* - **0.1 mL** of each *1.0 mg/L std.* - **0.2 mL** of each *5.0 mg/L std.* - **1.0 mL** of each *10 mg/L std.* - **2.0 mL** of each *50 mg/L std.* - **10 mL** of each *100 mg/L std.* -**20 mL** of each, also used for Continuing Calibration Verification *200 mg/L std.* - **40 mL** of each		

		Instrument:	CETAC
Standard Log #:	M13427	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	03/27/2018	Expiration Date:	03/27/2018
Prep:	Carefully mixed **3** parts HCl AB.656 with **1** part HNO_3 AB.655 in a hood.		

		Instrument:	CETAC
Standard Log #:	M13426	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	03/23/2018	Expiration Date:	03/23/2018
Prep:	Carefully mixed **3** parts HCl AB.656 with **1** part HNO_3 AB.655 in a hood.		

Standard Log #:	M13423	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	03/19/2018	Expiration Date:	03/19/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.653 and **128.6 mL** 10N NaOH M13267. Dilute to 20 L and mix.		

Standard Log #:	M13424	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	03/19/2018	Expiration Date:	03/19/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.653 and **128.6 mL** 10N NaOH M13267. Dilute to 20 L and mix.		

Standard Log #:	M13425	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	03/19/2018	Expiration Date:	03/19/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.653 and **128.6 mL** 10N NaOH M13267. Dilute to 20 L and mix.		

		Instrument:	CETAC
Standard Log #:	M13422	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	03/20/2018	Expiration Date:	03/20/2018
Prep:	Carefully mixed **3** parts HCl AB.656 with **1** part HNO_3 AB.655 in a hood.		

		Instrument:	CETAC
Standard Log #:	M13418	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	03/15/2018	Expiration Date:	03/15/2018
Prep:	Carefully mixed **3** parts HCl AB.651 with **1** part HNO_3 AB.655 in a hood.		

Standard Log #:	M13419	Reagent:	Potassium Permanganate Solution
Analyst:	LJF		
Prep Date:	03/15/2018	Expiration Date:	09/15/2018
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard Log #:	M13420	Instrument:	GFAA
Analyst:	MDS	Standard:	MDL Spiking Solution
Prep Date:	03/15/2018	Expiration Date:	07/02/2018

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (2% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
Ag	0.2	M13083	1000	0.01
As	2	M13392	1000	0.1
Pb	2	M13169	10000	0.01
Sb	2	M13084	1000	0.1
Se	2	M13082	1000	0.1
Tl	2	M13124	1000	0.1

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M13421	Reagent:	1:3 HNO3
Analyst:	NAH		
Prep Date:	03/15/2018	Expiration Date:	03/15/2019
Prep:	Carefully mixed **3** parts DI with **1** part HNO_3 AB.655 in a hood.		

Standard Log #:	M13416	Standard:	GFAA Instrument Check
Analyst:	MDS	Final Concentration:	10 µg/L As 6 µg/L Pb 12 µg/L Sb 20 µg/L Se 14 µg/L Tl 0.6 µg/L Ag
Prep Date:	03/09/2018	Expiration Date:	07/02/2018

Into six, 100 mL volumetric flasks, add the following and bring up to volume with milli-Q H_2O.

Element	Volume Pipetted (mL)	Standard Conc. (µg/mL)	Standard ID	New Conc. (µg/L)
As	1	1000	M13392	10,000
Pb	0.1	10,000	M13169	10,000
Tl	1	1000	M13124	10,000
Se	1	1000	M13082	10,000
Sb	1	1000	M13084	10,000
Ag	0.1	1000	M13083	1000

Into a 1 L volumetric flask, add the following and bring up to volume with Milli-Q H_20. (1% HNO_3)

Element	Volume Pipetted (mL)	Standard Conc. (µg/L)	New Conc. (µg/L)
As	1.0	10,000	10
Pb	0.6	10,000	6
Tl	1.4	10,000	14
Se	2.0	10,000	20
Sb	1.2	10,000	12
Ag	0.6	1000	0.6

Standard Log #:	M13417	Reagent:	10N NaOH
Analyst:	NAH		
Prep Date:	03/09/2018	Expiration Date:	03/09/2019
Prep:	Into a 1 L volumetric flask, added **400 g** NaOH W43585 and brought up to volume.		

		Instrument:	GFAA
Standard Log #:	M13413	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	03/09/2018	Expiration Date:	05/25/2018
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13193 and brought to volume with Milli-Q H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13414	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	03/09/2018	Expiration Date:	05/25/2018
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13193 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13415	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	03/09/2018	Expiration Date:	05/25/2018
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13194 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	ICP 6000
Standard Log #:	M13412	Standard:	NaK ICSAB
Analyst:	MDS	Concentrations:	500 mg/L (Al, Ca, Fe, Mg) 100 mg/L (Na, K)
Prep Date:	03/06/2018	Expiration Date:	10/30/2018
Prep:	Into a 250 mL volumetric flask, pipetted **25 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13305 , **2.5 mL** of K (10,000 mg/L) M13323 , **2.5 mL** of Na (10,000 mg/L) M13342 and **7.5 mL** of Fe (10,000 mg/L) M13321 and brought up to volume using Milli-Q H_2O. (2% HNO_3)		

		Instrument:	CETAC
Standard Log #:	M13411	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	03/02/2018	Expiration Date:	03/02/2018
Prep:	Carefully mixed **3** parts HCl AB.651 with **1** part HNO_3 AB.655 in a hood.		

Standard ID#:	M13410	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Inerference_A
Date Received:	02/28/2018	Lot #:	3-84MKBX
Expiration Date (if any):	02/28/2019	Catalog #:	INT-A1

		Instrument:	CETAC
Standard Log #:	M13408	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	02/27/2018	Expiration Date:	02/27/2018
Prep:	Carefully mixed **3** parts HCl AB.651 with **1** part HNO_3 AB.655 in a hood.		

		Instrument:	ICP 6000
Standard Log #:	M13409	Standard:	B & Si ICSAB
Analyst:	MDS	Concentrations:	500,000 µg/L (Al, Ca, Fe, Mg) 500 µg/L (B,Si)
Prep Date:	02/27/2018	Expiration Date:	06/08/2018
Prep:	Into a 100 mL volumetric flask, pipetted **10 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13305, **0.05 mL** of B (1000 µg/mL) M13048, **0.05 mL** of Si (1000 µg/mL) M13394 and **3 mL** of Fe (10,000 mg/L) M13347 and brought up to volume using Milli-Q H_2O.		

Standard Log #:	M13406	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	MDS	pH:	4.93 ± 0.05
Prep Date:	02/26/2018	Expiration Date:	02/26/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.653 and **128.6 mL** 10N NaOH M13267. Dilute to 20 L and mix.		

		Instrument:	CETAC
Standard Log #:	M13407	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	02/26/2018	Expiration Date:	02/26/2018
Prep:	Carefully mixed **3** parts HCl AB.651 with **1** part HNO_3 AB.655 in a hood.		

MRL BASE STD M13405

Analyst NAH

Prep Date 02/21/2018

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	(ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L	Expiration Date
Ag	20	M13083	1000	1	07/02/2018
Al	400	M13322	10000	2	04/2019
Ba	10	M13029	1000	0.5	05/03/2018
Be	4	M13126	1000	0.2	09/18/2018
Cd	5	M13127	1000	0.25	09/18/2018
Co	10	M13132	1000	0.5	09/18/2018
Cr	10	M13165	10000	0.05	10/19/2018
Cu	10	M13166	10000	0.05	10/19/2018
Mg	500	M13236	10000	2.5	01/2019
Mn	10	M13167	10000	0.05	10/19/2018
Mo	10	M13393	1000	0.5	07/2019
Ni	10	M13133	1000	0.5	09/17/2018
Pb	10	M13169	10000	0.05	10/20/2018
Sb	20	M13084	1000	1	07/02/2018
V	10	M13125	1000	0.5	09/18/2018
Zn	10	M13168	10000	0.05	10/2018
K	1000	M13163	10000	5	10/19/2018
Na	1000	M13135	10000	5	09/18/2018
As	20	M13392	1000	1	07/2019
Ca	500	M13237	10000	2.5	01/2019
Fe	300	M13321	10000	1.5	01/30/2019
Se	20	M13082	1000	1	07/02/2018
Tl	20	M13124	1000	1	09/16/2018
Si	100	M13394	1000	5	07/2019
B	20	M13390	1000	1	07/2019
Li	20	M13130	1000	1	09/18/2018
W	50	Mxxxxx	1000	2.5	xxxxxxxx
Ti	10	M13128	1000	0.5	09/18/2018
Sr	10	M13129	1000	0.5	09/18/2018
Sn	50	M13134	1000	2.5	09/18/2018
S	300	M13391	10000	1.5	07/2019

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

Expiration Date: 05/03/2018

		Instrument:	CETAC
Standard Log #:	M13404	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	02/21/2018	Expiration Date:	02/21/2018
Prep:	Carefully mixed **3** parts HCl AB.651 with **1** part HNO_3 AB.655 in a hood.		

Standard Log #:	M13403	Reagent:	Potassium Permanganate Solution
Analyst:	LJF		
Prep Date:	02/19/2018	Expiration Date:	08/19/2018
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard ID#:	M13400	Vendor:	CPI
Analyst:	NAH	Chemical:	K 10,000 ug/mL
Date Received:	02/15/2018	Lot #:	106958-116
Expiration Date (if any):	08/2019	Catalog #:	4400-10M411

Standard ID#:	M13401	Vendor:	CPI
Analyst:	NAH	Chemical:	Y 10,000 ug/mL
Date Received:	02/15/2018	Lot #:	139448-54
Expiration Date (if any):	08/2019	Catalog #:	4400-10M671

Standard ID#:	M13402	Vendor:	CPI
Analyst:	NAH	Chemical:	Na 10,000 ug/mL
Date Received:	02/15/2018	Lot #:	107139-126
Expiration Date (if any):	08/2019	Catalog #:	4400-10M521

		Instrument:	ICP 6000
Standard Log #:	M13398	Standard:	B&Si ICV
Analyst:	MDS	Concentrations:	1000 ug/L (B, Si)
Prep Date:	02/09/2018	Expiration Date:	07/02/2018
Prep:	Into a 1 L volumetric flask, pipetted **10 mL** of Custom Assurance Std. #23 (100 mg/L Al, As, **B**, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M13333 and **1.0 mL** Si (1000 mg/L) M13085 and brought up to volume using milli-Q H_2O.		

		Instrument:	ICP 6000
Standard Log #:	M13399	Standard:	B & Si ICSAB
Analyst:	MDS	Concentrations:	500,000 µg/L (Al, Ca, Fe, Mg) 500 µg/L (B,Si)
Prep Date:	02/09/2018	Expiration Date:	07/02/2018
Prep:	Into a 100 mL volumetric flask, pipetted **10 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13305, **0.05 mL** of B (1000 µg/mL) M13390, **0.05 mL** of Si (1000 µg/mL) M13085 and **3 mL** of Fe (10,000 mg/L) M13347 and brought up to volume using Milli-Q H_2O.		

Standard Log #:	M13396	Instrument:	GFAA
Analyst:	MDS	Reagent:	Pd/Mg Matrix Modifier
Prep Date:	01/31/2018	Expiration Date:	09/2018
Prep:	Into a 50 mL volumetric flask, partially filled with milli-Q H_2O, pipetted **15 mL** Pd Modifier M13297 and **10 mL** Mg (10,000 mg/L) M13236 and brought up to volume.		

Standard Log #:	M13388	Reagent:	SPLP EXTRACTION FLUID EAST #
Analyst:	BMM	pH:	4.20 ± 0.05
Prep Date:	01/23/2018	Expiration Date:	01/23/2019
Prep:	Into a 20 L carboy filled with DI H_2O, adjust pH to 4.20 ± 0.05 using 60/40 SPLP extraction fluid acid mixture M12457.		

Standard Log #:	M13389	Reagent:	SPLP EXTRACTION FLUID WEST #
Analyst:	BMM	pH:	5.00 ± 0.05
Prep Date:	01/23/2018	Expiration Date:	01/23/2019
Prep:	Into a 20 L carboy filled with DI H_2O, adjust pH to 5.00 ± 0.05 using 60/40 SPLP extraction fluid acid mixture M12457.		

Standard ID#:	M13390	Vendor:	CPI
Analyst:	NAH	Chemical:	Boron 1000 ug/mL
Date Received:	01/23/2018	Lot #:	158372-29
Expiration Date (if any):	07/2019	Catalog #:	S4400-100074

Standard ID#:	M13391	Vendor:	CPI
Analyst:	NAH	Chemical:	Sulfur 10000 ug/mL
Date Received:	01/23/2018	Lot #:	129880-28
Expiration Date (if any):	07/2019	Catalog #:	4400-10M544

Standard ID#:	M13392	Vendor:	CPI
Analyst:	NAH	Chemical:	Arsenic 1000 ug/mL
Date Received:	01/23/2018	Lot #:	143356-61
Expiration Date (if any):	07/2019	Catalog #:	S4400-100031

Standard ID#:	M13393	Vendor:	CPI
Analyst:	NAH	Chemical:	Molybdenum 1000 ug/mL
Date Received:	01/23/2018	Lot #:	134169R-102
Expiration Date (if any):	07/2019	Catalog #:	S4400-1000343

Standard ID#:	M13394	Vendor:	CPI
Analyst:	NAH	Chemical:	Silicon 1000 ug/mL
Date Received:	01/23/2018	Lot #:	142610-58
Expiration Date (if any):	07/2019	Catalog #:	S4400-1000504F

Standard Log #:	M13386	Reagent:	Potassium Permanganate Solution
Analyst:	LJF		
Prep Date:	01/18/2018	Expiration Date:	07/18/2018
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard Log #:	M13387	Reagent:	Potassium Persulfate Solution
Analyst:	LJF		
Prep Date:	01/18/2018	Expiration Date:	07/18/2018
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M12652 and brought up to volume.		

		Instrument:	GFAA
Standard Log #:	M13383	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	01/17/2018	Expiration Date:	05/25/2018
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13193 and brought to volume with Milli-Q H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13384	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	01/17/2018	Expiration Date:	05/25/2018
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13193 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13385	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	01/17/2018	Expiration Date:	05/25/2018
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13194 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

Standard Log #:	M13381	Instrument:	ICP
Analyst:	LJF	Standard:	LOQ 3010 B&Si Spiking Solution
Prep Date:	01/10/2018	Expiration Date:	06/08/2018

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
B	16	M13048	1000	0.8
Si	200	M13338	1000	10

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M13381	Instrument:	ICP
Analyst:	LJF	Standard:	LOQ 3010 S Spiking Solution
Prep Date:	01/10/2018	Expiration Date:	06/08/2018

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
S	200	M13280	10000	1.0

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M13380	Instrument:	ICP 6500
Analyst:	LJF	Standard:	LOQ 3050 DOD Metals Spiking S
Prep Date:	01/10/2018	Expiration Date:	02/23/2018

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3, 5% HCl)

Analyte	MDL Conc. (ug/L)	Std. ID #	Std Conc	Volume (mL) pipetted into 1 L
Ag	4	M13083	1000	0.2
Al	9.6	M13322	**10000**	0.048
As	32	M12958	1000	1.6
Ba	2	M13029	1000	0.1
Be	1.6	M13126	1000	0.08
Ca	56	M13324	**10000**	0.28
Cd	1.6	M13127	1000	0.08
Co	9.6	M13132	1000	0.48
Cr	5.6	M13165	**10000**	0.028
Cu	16	M13166	**10000**	0.08
Fe	72	M13347	**10000**	0.36
Mg	32	M13319	**10000**	0.16
Mn	6	M13167	**10000**	0.03
Mo	9.6	M13049	1000	0.48
Ni	4.8	M13133	1000	0.24
Pb	10	M13169	**10000**	0.05
Sb	32	M13084	1000	1.6
Se	16	M13082	1000	0.8
Tl	19	M13124	1000	0.95
V	3.2	M13125	1000	0.16
Zn	12	M13168	**10000**	0.06

Of this Base standard, pipet **10 mL** into a 500 mL volumetric flask to create a working std or **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M13379	Instrument:	ICP
Analyst:	LJF	Standard:	LOQ 3050 k&na Spiking Solution
Prep Date:	01/10/2018	Expiration Date:	05/20/2019

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
K	2640	M13341	10000	13.2
Na	960	M13342	10000	4.8

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M13377	Instrument:	ICP
Analyst:	LJF	Standard:	LOQ 3010 k&na Spiking Solution
Prep Date:	01/10/2018	Expiration Date:	05/2019

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
K	500	M13341	10000	2.5
Na	600	M13342	10000	3

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M13378	Instrument:	ICP
Analyst:	LJF	Standard:	LOQ 3010 L2 Spiking Solution
Prep Date:	01/10/2018	Expiration Date:	10/18/2018

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
Li	10	M13130	1000	0.5
Sn	10	M13134	1000	0.5
Sr	2	M13129	1000	0.1
Ti	8	M13128	1000	0.8
W	36	M	1000	1.8

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M13376	Instrument:	ICP 6500
Analyst:	LJF	Standard:	LOQ 3010 DOD Metals Spiking S
Prep Date:	01/10/2018	Expiration Date:	02/23/2018

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3, 5% HCl)

Analyte	MDL Conc. (ug/L)	Std. ID #	Std Conc	Volume (mL) pipetted into 1 L
Ag	4	M13083	1000	0.2
Al	36	M13322	**10000**	0.18
As	24	M12958	1000	1.2
Ba	1.8	M13029	1000	0.09
Be	0.6	M13126	1000	0.03
Ca	100	M13324	**10000**	0.5
Cd	2.0	M13127	1000	0.1
Co	4	M13132	1000	0.2
Cr	4	M13165	**10000**	0.02
Cu	7	M13166	**10000**	0.035
Fe	100	M13347	**10000**	0.5
Mg	40	M13236	**10000**	0.2
Mn	4	M13167	**10000**	0.02
Mo	7	M13049	1000	0.35
Ni	6	M13133	1000	0.2
Pb	4	M13169	**10000**	0.02
Sb	12	M13084	1000	0.6
Se	13	M13082	1000	0.65
Tl	20	M13124	1000	0.75
V	5	M13125	1000	0.25
Zn	10	M13168	**10000**	0.05

Of this Base standard, pipet **10 mL** into a 500 mL volumetric flask to create a working std or **1 mL** into a 50 mL digestion tube for a digested working standard.

		Instrument:	GFAA
Standard Log #:	M13374	Standard:	LODW/LOQW Ag Spiking Sol'n
Analyst:	MDS	Concentrations:	10 ug/L (Ag)
Prep Date:	01/08/2018	Expiration Date:	07/02/2018
Prep:	Into a 100 mL volumetric flask, pipetted **0.1 mL** of Ag (1000mg/L) M13083 and brought to volume with Milli-Q H_2O to make a 1000 ug/L Ag std. Into a 1 L volumetric flask, pipetted **10 mL** of Ag (*1000 ug/L*) std. and brought to volume with Milli-Q H_2O. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (*0.2 ug/L*) and **2 mL** spiking solution for LOQ (*0.4 ug/L*)		

Standard Log #:	M13375	Instrument:	GFAA
Analyst:	MDS	Standard:	MDL Spiking Solution
Prep Date:	01/08/2018	Expiration Date:	02/23/2018

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (2% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
Ag	0.2	M13083	1000	0.01
As	2	M12958	1000	0.1
Pb	2	M13169	10000	0.01
Sb	2	M13084	1000	0.1
Se	2	M13082	1000	0.1
Tl	2	M13124	1000	0.1

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

		Instrument:	GFAA
Standard Log #:	M13372	Standard:	LODS/LOQS Spiking Sol'n
Analyst:	MDS	Concentrations:	60 ug/L (Sb) 160 ug/L (As,Se) 40 ug/L (Pb) 50 ug/L (Tl)
Prep Date:	01/08/2018	Expiration Date:	02/23/2018
Prep:	Into a 200 mL volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. **1.2 mL** of Sb (1000 mg/L) M13084 **3.2 mL** of As (1000 mg/L) M12958 **3.2 mL** of Se (1000 mg/L) M13082 **0.08 mL** of Pb (10,000 mg/L) M13169 **1.0 mL** of Tl (1000 mg/L) M13124 From this diluted standard solution, pipetted **10 mL** into a 1 L volumetric flask and brought up to volume with Milli-Q H_2O to make the spiking solution. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (1.2 *ug/L* Sb, *3.2 ug/L* As, *3.2 ug/L* Se, *0.8 ug/L* Pb, *1 ug/L* Tl) and **2 mL** spiking solution for LOQ (2.4 *ug/L* Sb, *6.4 ug/L* As, *6.4 ug/L* Se, *1.6 ug/L* Pb, *2 ug/L* Tl)		

		Instrument:	GFAA
Standard Log #:	M13373	Standard:	LODW/LOQW Spiking Sol'n
Analyst:	MDS	Concentrations:	150 ug/L (Sb) 100 ug/L (As) 200 ug/L (Se) 45 ug/L (Pb) 40 ug/L (Tl)
Prep Date:	01/08/2018	Expiration Date:	02/23/2018
Prep:	Into a 100 mL volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. **1.5 mL** of Sb (1000 mg/L) M13084 **1.0 mL** of As (1000 mg/L) M12958 **2.0 mL** of Se (1000 mg/L) M13082 **0.045 mL** of Pb (10,000 mg/L) M13169 **0.4 mL** of Tl (1000 mg/L) M13124 From this diluted standard solution, pipetted **10 mL** into a 1 L volumetric flask and brought up to volume with Milli-Q H_2O to make the spiking solution. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (*3 ug/L* Sb, *2 ug/L* As, *4 ug/L* Se, *0.9 ug/L* Pb, *0.8 ug/L* Tl) and **2 mL** spiking solution for LOQ (*6 ug/L* Sb, *4 ug/L* As, *8 ug/L* Se, *1.8 ug/L* Pb, *1.6 ug/L* Tl)		

Standard Log #:	M13369	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	12/22/2017	Expiration Date:	12/22/2018
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.653 and **128.6 mL** 10N NaOH M13267. Dilute to 20 L and mix.		

Standard Log #:	M13370	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	12/22/2017	Expiration Date:	12/22/2018
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.653 and **128.6 mL** 10N NaOH M13267. Dilute to 20 L and mix.		

Standard Log #:	M13371	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	12/22/2017	Expiration Date:	12/22/2018
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.653 and **128.6 mL** 10N NaOH M13267. Dilute to 20 L and mix.		

Standard Log #:	M13368	Instrument:	ICP 6500
Analyst:	NAH	Standard:	MDL DOD Metals Spiking soln
Prep Date:	01/05/2018	Expiration Date:	02/2018

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3, 5% HCl)

Analyte	MDL Conc. (ug/L)	Std. ID #	Std Conc	Volume (mL) pipetted into 1 L
Ag	5	M13083	1000	0.25
Al	10	M13322	**10000**	0.05
As	20	M12958	1000	1
Ba	2	M13029	1000	0.1
Be	0.5	M13126	1000	0.025
Ca	50	M13324	**10000**	0.25
Cd	0.5	M13127	1000	0.025
Co	2.5	M13132	1000	0.125
Cr	5.0	M13165	**10000**	0.025
Cu	10	M13166	**10000**	0.05
Fe	40	M13397	**10000**	0.2
Mg	25	M13319	**10000**	0.125
Mn	5	M13167	**10000**	0.025
Mo	2.5	M13049	1000	0.125
Ni	5	M13133	1000	0.25
Pb	10	M13169	**10000**	0.05
Sb	20	M13084	1000	1
Se	20	M13082	1000	1
Tl	20	M13124	1000	1
V	5	M13125	1000	0.25
Zn	5	M13168	**10000**	0.025

Of this Base standard, pipet **10 mL** into a 500 mL volumetric flask to create a working std or **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M13366	Instrument:	ICP
Analyst:	NAH	Standard:	MDL_Li_Sn_Sr_Ti Spiking _Solu
Prep Date:	01/05/2018	Expiration Date:	09/2018

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
Li	20	M13130	1000	1
Sn	20	M13134	1000	1
Sr	20	M13129	1000	1
Ti	20	M13128	1000	1

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard ID#:	M13364	Vendor:	Sprx CertiPrep
Analyst:	NAH	Chemical:	Custum Assurance Standard
Date Received:	01/05/2018	Lot #:	46-183CR
Expiration Date (if any):	01/30/2019	Catalog #:	XCTW-5-500

Standard Log #:	M13365	Instrument:	ICP
Analyst:	NAH	Standard:	MDL_B&Si&S_Spiking_Solution
Prep Date:	01/05/2018	Expiration Date:	06/2018

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
B	20	M13048	1000	1
Si	100	M13338	1000	5
S	200	M13280	1000	1

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard ID#:	M13362	Vendor:	Spex Certiprep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	12/26/2017	Lot #:	46-162CR
Expiration Date (if any):	12/30/2018	Catalog #:	XSPIKE-1-250

Standard Log #:	M13361	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	LJF		
Prep Date:	12/22/2017	Expiration Date:	06/22/2018
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M13226 and **60 g** hydroxylamine sulfate M13186 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13356	Standard:	Hg CCV
Analyst:	LJF	Concentration:	3.0 ug/L Hg
Prep Date:	12/018/2017	Expiration Date:	07/22/2018
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13104 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	CETAC
Standard Log #:	M13357	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	12/18/2017	Expiration Date:	12/18/2017
Prep:	Carefully mixed **3** parts HCl AB.651 with **1** part HNO_3 AB.655 in a hood.		

		Instrument:	CETAC
Standard Log #:	M13358	Reagent:	Stannous Chloride Solution
Analyst:	LJF		
Prep Date:	12/18/2017	Expiration Date:	06/18/2018
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.651 and dissolved **100 g** Stannous chloride M13246 and brought up to volume.		

Standard ID#:	M13359	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	12/18/2017	Lot #:	46-114CR
Expiration Date (if any):	12/30/2018	Catalog #:	XCTWI-1-500

		Instrument:	CETAC
Standard Log #:	M13353	Standard:	Hg ICAL
Analyst:	LJF	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	12/18/2017	Expiration Date:	07/22/2018
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13104 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	CETAC
Standard Log #:	M13354	Standard:	Alt. Source Working Std.
Analyst:	LJF	Concentrations:	10,000 and 100 ug/L
Prep Date:	12/18/2017	Expiration Date:	02/28/2018
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* **- 1 mL** of Hg (1000 mg/L) M13103 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	CETAC
Standard Log #:	M13355	Standard:	Hg ICV/LCS
Analyst:	LJF	Concentration:	3 ug/L
Prep Date:	12/18/2017	Expiration Date:	02/28/2018
Prep:	Into a 100 mL volumetric flask, pipetted **3 mL** of Hg (*100 ug/L working Std.*) M13103 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

Standard Log #:	M13351	Reagent:	Potassium Permanganate Solution
Analyst:	LJF		
Prep Date:	12/15/2017	Expiration Date:	06/15/2017
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard ID#:	M13350	Vendor:	Environmental Express
Analyst:	NAH	Chemical:	Yttrium 10000 mg/L
Date Received:	12/12/2017	Lot #:	1729606
Expiration Date (if any):	06//2019	Catalog #:	10M67-1

		Instrument:	ICP 6000
Standard Log #:	M13348	Standard:	B & Si ICSAB
Analyst:	MDS	Concentrations:	500,000 µg/L (Al, Ca, Fe, Mg) 500 µg/L (B,Si)
Prep Date:	12/11/2017	Expiration Date:	01/29/2018
Prep:	Into a 100 mL volumetric flask, pipetted **10 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13190 , **0.05 mL** of B (1000 µg/mL) M12957 , **0.05 mL** of Si (1000 µg/mL) M12943 and **3 mL** of Fe (10,000 mg/L) M13235 and brought up to volume using Milli-Q H_2O.		

		Instrument:	ICP 6000
Standard Log #:	M13349	Standard:	B&Si ICV
Analyst:	MDS	Concentrations:	1000 ug/L (B, Si)
Prep Date:	12/11/2017	Expiration Date:	01/29/2018
Prep:	Into a 1 L volumetric flask, pipetted **10 mL** of Custom Assurance Std. #23 (100 mg/L Al, As, **B**, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M13333 and **1.0 mL** Si (1000 mg/L) M12943 and brought up to volume using milli-Q H_2O.		

		Instrument:	CETAC
Standard Log #:	M13346	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	12/07/2017	Expiration Date:	12/07/2017
Prep:	Carefully mixed **3** parts HCl AB.651 with **1** part HNO_3 AB.655 in a hood.		

Standard ID#:	M13347	Vendor:	CPI
Analyst:	NAH	Chemical:	Fe 10,000 mg/L
Date Received:	12/06/2017	Lot #:	156651-6
Expiration Date (if any):	06/2019	Catalog #:	4400-10M261

		Instrument:	ICP 6000
Standard Log #:	M13344	Standard:	Na,K MRL
Analyst:	MDS	Concentrations:	1 mg/L (Na,K)
Prep Date:	12/01/2017	Expiration Date:	06/08/2018
Prep:	Into a 500 mL volumetric flask, pipetted **0.5 mL** of Na (1000 µg/mL) M13050 and **0.5 mL** K (1000 µg/mL) M13340 and brought to volume with Milli-Q H_2O. (2% HNO_3)		

Standard ID#:	M13338	Vendor:	CPI International
Analyst:	MDS	Chemical:	Silicon 1000 µg/mL
Date Received:	12/01/2017	Lot #:	142610-58
Expiration Date (if any):	05/30/2019	Catalog #:	S4400-1000504F

Standard ID#:	M13339	Vendor:	CPI International
Analyst:	MDS	Chemical:	Sodium 1000 µg/mL
Date Received:	12/01/2017	Lot #:	93655-174
Expiration Date (if any):	05/30/2019	Catalog #:	4400-1000521

Standard ID#:	M13340	Vendor:	CPI International
Analyst:	MDS	Chemical:	Potassium 1000 µg/mL
Date Received:	12/01/2017	Lot #:	144467-94
Expiration Date (if any):	05/30/2019	Catalog #:	060020-04-03

Standard ID#:	M13341	Vendor:	CPI International
Analyst:	MDS	Chemical:	Potassium 10,000 µg/mL
Date Received:	12/01/2017	Lot #:	106958-97
Expiration Date (if any):	05/30/2019	Catalog #:	4400-10M411

Standard ID#:	M13342	Vendor:	CPI International
Analyst:	MDS	Chemical:	Sodium 10,000 µg/mL
Date Received:	12/01/2017	Lot #:	107139-106
Expiration Date (if any):	05/30/2019	Catalog #:	4400-10M521

		Instrument:	ICP 6000
Standard Log #:	M13343	Standard:	Na & K ICAL
Analyst:	MDS	Concentrations:	0.5, 1, 5, 10, 50, 100, and 200 mg/L (Na,K)
Prep Date:	12/01/2018	Expiration Date:	06/08/2018
Prep:	Into seven, 200 mL volumetric flasks, pipetted the following from Na (1000 µg/mL) M13050 and K (1000 µg/mL) M13340 and brought up to volume using milli-Q H_2O. (2% HNO_3) *0.5 mg/L std.* - **0.1 mL** of each *1.0 mg/L std.* - **0.2 mL** of each *5.0 mg/L std.* - **1.0 mL** of each *10 mg/L std.* - **2.0 mL** of each *50 mg/L std.* - **10 mL** of each *100 mg/L std.* -**20 mL** of each, also used for Continuing Calibration Verification *200 mg/L std.* - **40 mL** of each		

Standard Log #:	M13335	Reagent:	TCLP 1 N HCL
Analyst:	BMM		
Prep Date:	11/29/2017	Expiration Date:	11/29/2018
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, added 83 mL HCL AB.649 and brought up to volume.		

Standard Log #:	M13336	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	11/22/2017	Expiration Date:	11/22/2018
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.653 and **128.6 mL** 10N NaOH M13267. Dilute to 20 L and mix.		

Standard Log #:	M13337	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	11/22/2017	Expiration Date:	11/22/2018
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.653 and **128.6 mL** 10N NaOH M13267. Dilute to 20 L and mix.		

Standard ID#:	M13333	Vendor:	Spex Certiprep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	11/17/2017	Lot #:	46-040CR
Expiration Date (if any):	11/20/2018	Catalog #:	XCTWI-5-500

		Instrument:	CETAC
Standard Log #:	M13334	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	11/28/2017	Expiration Date:	11/28/2017
Prep:	Carefully mixed **3** parts HCl AB.651 with **1** part HNO_3 AB.650 in a hood.		

		Instrument:	HYDRA
Standard Log #:	M13331	Reagent:	Stannous Chloride Solution
Analyst:	LJF		
Prep Date:	11/15/2017	Expiration Date:	05/15/2018
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **10 mL** hydrochloric acid AB.651 and dissolved **20 g** Stannous chloride M13246 and brought up to volume.		

Standard Log #:	M13329	Reagent:	Potassium Permanganate Solution
Analyst:	LJF		
Prep Date:	11/14/2017	Expiration Date:	05/14/2017
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

		Instrument:	ICP
Standard Log #:	M13330	Standard:	As Pb ICV1
Analyst:	MDS	Concentrations:	5000 ug/L (As,Pb)
Prep Date:	11/14/2017	Expiration Date:	02/23/2018
Prep:	Into a 1 L volumetric flask, pipetted **0.5 mL** of As (10,000 mg/L) M12958 and **0.5 mL** Pb (10,000 mg/L) M13169 and brought to volume with Milli-Q H_2O. (2% HNO_3, 2% HCl)		

Standard Log #:	M13328	Standard:	GFAA Instrument Check
Analyst:	MDS	Final Concentration:	10 µg/L As, Tl 8 µg/L Pb 14 µg/L Sb 20 µg/L Se 0.6 µg/L Ag
Prep Date:	11/13/2017	Expiration Date:	02/23/2018

Into six, 100 mL volumetric flasks, add the following and bring up to volume with milli-Q H_2O.

Element	Volume Pipetted (mL)	Standard Conc. (µg/mL)	Standard ID	New Conc. (µg/L)
As	1	1000	M12958	10,000
Pb	0.1	10,000	M13169	10,000
Tl	1	1000	M13124	10,000
Se	1	1000	M13082	10,000
Sb	1	1000	M13084	10,000
Ag	0.1	1000	M13083	1000

Into a 1 L volumetric flask, add the following and bring up to volume with Milli-Q H_20. (1% HNO_3)

Element	Volume Pipetted (mL)	Standard Conc. (µg/L)	New Conc. (µg/L)
As	1.0	10,000	10
Pb	0.8	10,000	8
Tl	1.0	10,000	10
Se	2.0	10,000	20
Sb	1.4	10,000	14
Ag	0.6	1000	0.6

		Instrument:	CETAC
Standard Log #:	M13325	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	11/09/2017	Expiration Date:	11/09/2017
Prep:	Carefully mixed **3** parts HCl AB.651 with **1** part HNO_3 AB.652 in a hood.		

		Instrument:	ICP
Standard Log #:	M13326	Standard:	L2 ICAL
Analyst:	MDS	Concentrations:	1 (µg/L) 10 (µg/L) 100 (µg/L) 1000 (µg/L) 10,000 (µg/L)
Prep Date:	11/09/2017	Expiration Date:	08/30/2018
Prep:	Standard Conc. (ug/L) — Pipette the following: 1: **0.01 mL** of Custom Assurance Standard XCTWI-5-500 M13252 and **0.001 mL** W (1000 µg/mL) M into 1L = *1 µg/L* 10: **0.10 mL** of Custom Assurance Standard XCTWI-5-500 M13252 and **0.01 mL** W (1000 µg/mL) M into 1L = *10 µg/L* 100: **1 mL** of Custom Assurance Standard XCTWI-5-500 M13252 and **0.1 mL** W (1000 µg/mL) M into 1L = *100 µg/L* 1000 (CCV): **2 mL** of Custom Assurance Standard XCTWI-5-500 M13252 and **0.2 mL** W (1000 µg/mL) M into 200mL = *1000 µg/L* 10000: **20 mL** of Custom Assurance Standard XCTWI-5-500 M13252 and **2 mL** W (1000 µg/mL) M into 200mL = *10000 µg/L*		

		Instrument:	ICP 6000
Standard Log #:	M13327	Standard:	List 2 ICSAB
Analyst:	MDS	Concentrations:	500,000 µg/L (Al, Ca, Fe, Mg) 500 µg/L (Li, Sn, Sr, Ti, W)
Prep Date:	11/09/2017	Expiration Date:	05/30/2018
Prep:	Into a 200 mL volumetric flask, pipetted **20 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13190, **6 mL** of Fe (10,000 mg/L) M13235, **0.1 mL** of Li (1000 µg/mL) M13130, **0.1 mL** of Sn (1000 µg/mL) M13134, **0.1 mL** of Sr (1000 µg/mL) M13129, **0.1 mL** of Ti (1000 µg/mL) M13128, and **0.1 mL** of W (1000 µg/mL) M and brought up to volume using Milli-Q H_2O. (0.5% HNO_3, 0.5% HCl)		

Standard ID#:	M13318	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custum Assurance Std
Date Received:	11/07/2017	Lot #:	49-012CR
Expiration Date (if any):	11/30/2018	Catalog #:	XSPIKE-1-250

Standard ID#:	M13319	Vendor:	CPI
Analyst:	NAH	Chemical:	Mg 10,000 ug/mL
Date Received:	11/07/2017	Lot #:	148250-15
Expiration Date (if any):	04/2019	Catalog #:	4400-10M311

Standard ID#:	M13320	Vendor:	CPI
Analyst:	NAH	Chemical:	Y 10,000 ug/mL
Date Received:	11/07/2017	Lot #:	139448-37
Expiration Date (if any):	04/2019	Catalog #:	4400-10M671

Standard ID#:	M13321	Vendor:	CPI
Analyst:	NAH	Chemical:	Fe 10,000 ug/mL
Date Received:	11/07/2017	Lot #:	101593-91
Expiration Date (if any):	04/2019	Catalog #:	4400-101M261

Standard ID#:	M13322	Vendor:	CPI
Analyst:	NAH	Chemical:	Al 10,000 ug/mL
Date Received:	11/07/2017	Lot #:	103665-69
Expiration Date (if any):	04/2019	Catalog #:	4400-10M11

Standard ID#:	M13323	Vendor:	CPI
Analyst:	NAH	Chemical:	K 10,000 ug/mL
Date Received:	11/07/2017	Lot #:	106958-82
Expiration Date (if any):	04/2019	Catalog #:	4400-10M411

Standard ID#:	M13324	Vendor:	CPI
Analyst:	NAH	Chemical:	Ca 10,000 ug/mL
Date Received:	11/07/2017	Lot #:	147497-26
Expiration Date (if any):	04/2019	Catalog #:	4400-10M91

Standard Log #:	M13314	Instrument:	GFAA
Analyst:	MDS	Reagent:	Pd/Mg Matrix Modifier
Prep Date:	11/07/2017	Expiration Date:	01/29/2018
Prep:	Into a 50 mL volumetric flask, partially filled with milli-Q H_2O, pipetted **15 mL** Pd Modifier M13297 and **10 mL** Mg (10,000 mg/L) M12947 and brought up to volume.		

		Instrument:	GFAA
Standard Log #:	M13315	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	11/07/2017	Expiration Date:	05/25/2018
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13193 and brought to volume with Milli-Q H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13316	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	11/07/2017	Expiration Date:	05/25/2018
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13193 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13317	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	11/07/2017	Expiration Date:	05/25/2018
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13194 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13308	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	10/25/2017	Expiration Date:	05/25/2018
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13193 and brought to volume with Milli-Q H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13309	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	10/25/2017	Expiration Date:	05/25/2018
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13193 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13310	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	10/25/2017	Expiration Date:	05/25/2018
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13194 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	ICP 6000
Standard Log #:	M13304	Standard:	Sulfur ICAL
Analyst:	MDS	Concentrations:	1000 10,000 100,000 1000K µg/L (S)
Prep Date:	10/19/2017	Expiration Date:	01/19/2019
Prep:	Into four, 100 mL volumetric flasks, pipetted the following from stock standard S (10,000 µg/mL) M13280 and brought up to volume using milli-Q H_2O. *1000 ug/L std.* - **0.01 mL** *10,000 ug/L std.* - **0.1 mL** *100,000 ug/L std.* -**1.0 mL**, also used as the CCV *1000K ug/L std.* - **10 mL**		

Standard ID#:	M13305	Vendor:	Spex Certiprep
Analyst:	NAH	Chemical:	Interference A
Date Received:	10/19/2017	Lot #:	3-84MKBX
Expiration Date (if any):	10/30/2018	Catalog #:	INT-A1

Standard Log #:	M13306	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	10/19/2017	Expiration Date:	10/19/2018
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.653 and **128.6 mL** 10N NaOH M13267. Dilute to 20 L and mix.		

Standard Log #:	M13307	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	10/19/2017	Expiration Date:	10/19/2018
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.653 and **128.6 mL** 10N NaOH M13267. Dilute to 20 L and mix.		

		Instrument:	ICP 6000
Standard Log #:	M13303	Standard:	NaK ICV
Analyst:	MDS	Concentrations:	100 mg/L (Na, K)
Prep Date:	10/17/2017	Expiration Date:	09/18/2018
Prep:	Into a 250 mL volumetric flask, pipetted **2.5 mL** of K (10,000 mg/L) M13163 and Na (10,000 mg/L) M13135 and brought up to volume using Milli-Q H_2O. (2% HNO_3)		

Standard Log #:	M13301	Reagent:	Potassium Permanganate Solution
Analyst:	LJF		
Prep Date:	10/10/17	Expiration Date:	04/10/2018
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard Log #:	M13299	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	10/06/2017	Expiration Date:	10/06/2018
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.641 and **128.6 mL** 10N NaOH M13267. Dilute to 20 L and mix.		

Standard Log #:	M13300	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	10/06/2017	Expiration Date:	10/06/2018
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.641 and **128.6 mL** 10N NaOH M13267. Dilute to 20 L and mix.		

Standard ID#:	M13297	Vendor:	Environmental Express
Analyst:	MDS	Chemical:	Palladium Matrix Modifier
Date Received:	10/04/2017	Lot #:	1713238
Expiration Date (if any):	09/2018	Catalog #:	HP1900-100

		Instrument:	CETAC
Standard Log #:	M13298	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	10/05/2017	Expiration Date:	10/05/2017
Prep:	Carefully mixed **3** parts HCl AB.651 with **1** part HNO_3 AB.650 in a hood.		

		Instrument:	CETAC
Standard Log #:	M13295	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	10/02/2017	Expiration Date:	10/02/2017
Prep:	Carefully mixed **3** parts HCl AB.651 with **1** part HNO_3 AB.650 in a hood.		

Standard ID#:	M13296	Vendor:	Alfa Aesar
Analyst:	MDS	Chemical:	Nickel Nitrate Matrix Modifier
Date Received:	10/03/2017	Lot #:	7106463
Expiration Date (if any):	03/31/2019	Catalog #:	39043

		Instrument:	ICP 6500
Standard Log #:	M13293	Standard:	ICV Std.
Analyst:	NAH	Concentrations:	**12,000 mg/L** Al **10,000 mg/L** Ca, Mg **5000 mg/L** Fe **2000 mg/L** As, Ba, Se, Tl **500 mg/L** B, Co, Li, Mn, Mo, Ni, Pb, Sb, Sn, Sr, Ti, V, Zn **250 mg/L** Cu **200 mg/L** Cr **50 mg/L** Ag, Be, Cd
Prep Date:	10/02/2017	Expiration Date:	05/30/2018
Prep:	Into a 1 L volumetric flask, pipetted the following and brought up to volume with milli-Q H_2O. **10 mL** Custom Assurance Standard #18 ((200 mg/L Al, As, Ba, Se, Tl) (100 mg/L Fe) (50 mg/L Co, Mn, Ni, Pb, Sb, V, Zn) (25 mg/L Cu) (20 mg/L Cr) (5 mg/L Ag, Be, Cd)) M13270, **2 mL** Interferents A Standard ((5000 mg/L Al, Ca, Mg) (2000 mg/L Fe)) M13190, **0.5 mL** Mo (1000 mg/L) M13049, **0.5 mL** B (1000 mg/L) M13048, **0.5 mL** Sr (1000 mg/L) M13129, **0.5 mL** Li (1000 mg/L) M13130, **0.5 mL** Sn (1000 mg/L) M13134 and **0.5 mL** Ti (1000 mg/L) M13128.		

		Instrument:	ICP 6500
Standard Log #:	M13294	Standard:	ICVLL
Analyst:	NAH	Concentrations:	12 ug/L: Be. 15 ug/L: Cd. 30 ug/L: Ag, Ba, Co, Cr, Cu, Mn, Mo. Ni, Pb, V, Zn, Sr, and Ti. 60 ug/L: Sb, As, Se, Tl, Li, Sn and B. 150 ug/L: W. 300 ug/L: Si. 900 ug/L: Fe. 1200 ug/L Al. 1500 ug/L: S, Ca and Mg. 3000 ug/L: K and Na.
Prep Date:	10/02/2017	Expiration Date:	02/2018
Prep:	Into a 500 mL volumetric flask, pipetted 30 **mL** of MRL Base STD M13284 and brought to volume with Milli-Q H_2O. (5% HNO_3 & 5% HCL)		

		Instrument:	ICP 6500
Standard Log #:	M13291	Standard:	ICSA
Analyst:	NAH	Concentrations:	**500,000 ug/L** Al, Ca, Fe, Mg
Prep Date:	10/02/2017	Expiration Date:	05/2018
Prep:	Into a 500 mL volumetric flask, pipetted **50 mL** Interferents A Standard ((5000 mg/L Al, Ca, Mg) (2000 mg/L Fe)) M13190 and **15 mL** Fe (10000 mg/L) M13235 and brought up to volume with milli-Q H_2O.		

		Instrument:	ICP 6500
Standard Log #:	M13292	Standard:	ICSAB
Analyst:	NAH	Concentrations:	**500,000 ug/L** Al, Ca, Fe, Mg **500 ug/L** Ag, As, Ba, Be, Cd, Co, Cr, Cu, Mn, Mo, Ni, Pb, Sb, Se, Tl, V, Zn
Prep Date:	10/02/2017	Expiration Date:	05/2018
Prep:	Into a 500 mL volumetric flask, pipetted **50 mL** Interferents A Standard ((5000 mg/L Al, Ca, Mg) (2000 mg/L Fe)) M13190, **15 mL** Fe (10,000 mg/L) M13235, **2.5 mL** of Custom Assurance Std. #3 (100 mg/L Ag, Be, Cd) M13252 and **2.5 mL** Custom Assurance Std. #23 (100 mg/L Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M13217 and brought up to volume with milli-Q H_2O.		

Standard ID#:	M13289	Vendor:	AMCO Clear
Analyst:	NAH	Chemical:	Turbidity 2.0 NTU standard
Date Received:	09/29/2017	Lot #:	C797951
Expiration Date (if any):	09/2018	Catalog #:	8008

		Instrument:	ICP 6500
Standard Log #:	M13290	Standard:	ICAL
Analyst:	NAH	Concentrations:	0.25, 0.5, 1, 5, 10, 20, 50, 100, 1000, 10,000, 100k, 100,000, 500,000 and 1000k (ug/L)
Prep Date:	10/02/2017	Expiration Date:	06/30/2018

Prep:

Using 1 L volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O.
(5% HNO_3, 5% HCl)
1000 ug/L Std. - **10 mL** of Custom Assurance Std. #23 (100 mg/L Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M13252, **10 mL** of Custom Assurance Std. #3 (100 mg/L Ag, Be, Cd) M13217 and **1 mL** of Si (1000 mg/L) M13085 and 1 mL M13203 Ce
0.25 ug/L Std. - **0.25 mL** of the 1000 ug/L Std.
0.5 ug/L Std. - **0.5 mL** of the 1000 ug/L Std.
1 ug/L Std. - **1 mL** of the 1000 ug/L Std.
5 ug/L Std. - **5 mL** of the 1000 ug/L Std.
10 ug/L Std. - **10 mL** of the 1000 ug/L Std.
20 ug/L Std. - **20 mL** of the 1000 ug/L Std.
50 ug/L Std. - **50 mL** of the 1000 ug/L Std.
100 ug/L Std. - **1 mL** of Custom Assurance Std. (CAS) #23 and **1 mL** of CAS #3
10,000 ug/L Std. - **100 mL** CAS #23, **100 mL** CAS #3 and **1 mL** of K (10,000 mg/L) M13233.
100k ug/L Std. - **10 mL** of Cu (10,000 mg/L) M13166, **10 mL** of Mn (10,000 mg/L) M13167, **10 mL** of Cr (10,000 mg/L) M13165, **10 mL** Pb (10,000 mg/L) M13169, **10 mL** of Zn (10,000 mg/L) M13168 and **10 mL** of Na (10,000 mg/L) M13135.
100,000 ug/L Std. - **10 mL** of Mg (10,000 mg/L) M13236, **10 mL** of Fe (10,000 mg/L) M13235, **10 mL** of Ca (10,000 mg/L) M13237 and **10 mL** Al (10,000 mg/L) M13232.
500,000 ug/L Std. - **50 mL** of Mg (10,000 mg/L), **50 mL** of Fe (10,000 mg/L), **50 mL** of Ca (10,000 mg/L) and **50 mL** of Al (10,000 mg/L)
1000k ug/L Std. - **100 mL** of Mg (10,000 mg/L), **100 mL** of Fe (10,000 mg/L), **100 mL** of Ca (10,000 mg/L) and **100 mL** of Al (10,000 mg/L)

		Instrument:	ICP 6000
Standard Log #:	M13286	Standard:	Na & K ICAL
Analyst:	MDS	Concentrations:	0.5, 1, 5, 10, 50, 100, and 200 mg/L (Na,K)
Prep Date:	09/27/2017	Expiration Date:	11/27/2017
Prep:	Into seven, 200 mL volumetric flasks, pipetted the following from Na (1000 µg/mL) M12873 and K (1000 µg/mL) M12874 and brought up to volume using milli-Q H_2O. (2% HNO_3) *0.5 mg/L std.* - **0.1 mL** of each *1.0 mg/L std.* - **0.2 mL** of each *5.0 mg/L std.* - **1.0 mL** of each *10 mg/L std.* - **2.0 mL** of each *50 mg/L std.* - **10 mL** of each *100 mg/L std.* -**20 mL** of each, also used for Continuing Calibration Verification *200 mg/L std.* - **40 mL** of each		

		Instrument:	ICP 6000
Standard Log #:	M13287	Standard:	Na,K MRL
Analyst:	MDS	Concentrations:	1 mg/L (Na,K)
Prep Date:	09/27/2017	Expiration Date:	11/27/2017
Prep:	Into a 500 mL volumetric flask, pipetted **0.5 mL** of Na (1000 µg/mL) M12873 and **0.5 mL** K (1000 µg/mL) M12874 and brought to volume with Milli-Q H_2O. (2% HNO_3)		

		Instrument:	ICP 6000
Standard Log #:	M13288	Standard:	NaK ICSAB
Analyst:	MDS	Concentrations:	500 mg/L (Al, Ca, Fe, Mg) 100 mg/L (Na, K)
Prep Date:	09/27/2017	Expiration Date:	05/30/2018
Prep:	Into a 250 mL volumetric flask, pipetted **25 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13190, **2.5 mL** of K (10,000 mg/L) M13163, **2.5 mL** of Na (10,000 mg/L) M13135 and **7.5 mL** of Fe (10,000 mg/L) M13164 and brought up to volume using Milli-Q H_2O. (2% HNO_3)		

		Instrument:	ICP 6500
Standard Log #:	M13285	Standard:	DOD MRL
Analyst:	NAH	Concentrations:	4 ug/L: Be. 5 ug/L: Cd. 10 ug/L: Ag, Ba, Co, Cr, Cu, Mn, Mo. Ni, Pb, V, Zn, Sr, and Ti. 20 ug/L: Sb, As, Se, Tl, Li, Sn and B. 50 ug/L: W. 100 ug/L: Si. 300 ug/L: Fe. 400 ug/L Al. 500 ug/L: S, Ca and Mg. 1000 ug/L: K and Na.
Prep Date:	09/29/17	Expiration Date:	02/23/18
Prep:	Into a 500 mL volumetric flask, pipetted **10 mL** of MRL Base STD M13284 and brought to volume with Milli-Q H_2O. (5% HNO_3 & 5% HCL)		

MRL BASE STD M13284

Analyst NAH

Prep Date 09-26-2017

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	(ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L	Expiration Date
Ag	20	M13083	1000	1	07/02/2017
Al	400	M13232	10000	2	01/30/2019
Ba	10	M13029	1000	0.5	05//03/18
Be	4	M13126	1000	0.2	09/18/18
Cd	5	M13127	1000	0.25	09/18/18
Co	10	M13132	1000	0.5	09/18/18
Cr	10	M13165	10000	0.05	10/19/18
Cu	10	M13166	10000	0.05	10/19/18
Mg	500	M12947	10000	2.5	01/29/18
Mn	10	M13167	10000	0.05	10/19/18
Mo	10	M13049	1000	0.5	06/08/18
Ni	10	M13133	1000	0.5	09/17/18
Pb	10	M13169	10000	0.05	10/20/18
Sb	20	M13084	1000	1	07/02/18
V	10	M13125	1000	0.5	09/18/18
Zn	10	M12989	10000	0.05	04/07/18
K	1000	M13163	10000	5	10/19/18
Na	1000	M13135	10000	5	09/18/18
As	20	M12958	1000	1	02/23/18
Ca	500	M13032	10000	2.5	05/03/18
Fe	300	M13235	10000	1.5	01/30/19
Se	20	M13082	1000	1	07/02/18
Tl	20	M13124	1000	1	09/16/18
Si	100	M13085	1000	5	07/02/18
B	20	M12957	1000	1	02/23/2018
Li	20	M13130	1000	1	09/18/18
W	50	Mxxxxxx	1000	2.5	xxxxxxxx
Ti	10	M13128	1000	0.5	09/18/18
Sr	10	M13129	1000	0.5	09/18/18
Sn	50	M13134	1000	2.5	09/18/18
S	300	M13280	10000	1.5	03/30/19

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

Expiration Date: 02/23/18

Standard ID#:	M13280	Vendor:	SPC Science
Analyst:	NAH	Chemical:	Sulfur 10000 mg/L
Date Received:	09/25/2017	Lot #:	S170526006
Expiration Date (if any):	03/2019	Catalog #:	140-060-16x

		Instrument:	ICP 6500
Standard Log #:	M13281	Standard:	CCV1
Analyst:	NAH	Concentrations:	**5000 µg/L** Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn **500 µg/L** Ag, Be, Cd
Prep Date:	09/26/2017	Expiration Date:	05/2018
Prep:	Into a 1 L volumetric flask, pipetted **50 mL** Custom Assurance Standard #23 XCTWI-5-500 (100 mg/L Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M13191 and **5.0 mL** of Custom Assurance Std. #3 XCTWI-4-500 (100 mg/L Ag, Be, Cd) M13217 and brought up to volume with milli-Q H_2O.		

		Instrument:	ICP 6500
Standard Log #:	M13282	Standard:	CCV2
Analyst:	NAH	Concentrations:	**500 µg/L** Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn **50 µg/L** Ag, Be, Cd
Prep Date:	09/26/2017	Expiration Date:	05/2018
Prep:	Into a 1 L volumetric flask, pipetted **5 mL** Custom Assurance Standard #23 XCTWI-5-500 (100 mg/L Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M13191 and **0.5 mL** of Custom Assurance Std. #3 XCTWI-4-500 (100 mg/L Ag, Be, Cd) M13217 and brought up to volume with milli-Q H_2O.		

		Instrument:	ICP 6500
Standard Log #:	M13283	Standard:	ICSA2
Analyst:	NAH	Concentrations:	**10,000 ug/L** Cu, Ni
Prep Date:	09/26/2017	Expiration Date:	09/2018
Prep:	Into a 500 mL volumetric flask, pipetted 5 **mL** 1000 mg/L Ni M13133 and 0.5 **mL** 10000 mg/L Cu M13166 and brought up to volume with milli-Q H_2O.		

		Instrument:	GFAA
Standard Log #:	M13276	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	09/22/2017	Expiration Date:	05/25/2017
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13193 and brought to volume with Milli-Q H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13277	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	09/22/2017	Expiration Date:	05/25/2018
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13193 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13278	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	09/22/2017	Expiration Date:	05/25/2018
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13194 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

Standard ID#:	M13279	Vendor:	Environmental Express
Analyst:	NAH	Chemical:	Yttrium 10,000 mg/L
Date Received:	09/22/2017	Lot #:	1712902
Expiration Date (if any):	03/2019	Catalog #:	HP10M67-1

Standard Log #:	M13274	Instrument:	ICP
Analyst:	MDS	Standard:	LOQ 3050 B&Si Spiking Solution
Prep Date:	09/18/2017	Expiration Date:	02/23/2018

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
B	52	M12957	1000	2.6
Si	192	M13047	1000	9.6

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M13275	Instrument:	ICP
Analyst:	MDS	Standard:	LOQ 3050 L2 Spiking Solution
Prep Date:	09/18/2017	Expiration Date:	09/18/2018

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
Li	14.4	M13130	1000	0.72
Sn	20	M13134	1000	1
Sr	3.2	M13129	1000	0.16
Ti	9.6	M13128	1000	0.48
W	24	M13131	1000	1.2

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

		Instrument:	GFAA
Standard Log #:	M13271	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	09/18/2017	Expiration Date:	05/25/2018
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13193 and brought to volume with Milli-Q H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13272	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	09/18/2017	Expiration Date:	05/25/2018
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13193 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13273	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	09/18/2017	Expiration Date:	05/25/2018
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13194 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

Standard ID#:	M13270	Vendor:	Spex Certiprep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	09/15/2017	Lot #:	4-91MKB
Expiration Date (if any):	08/30/2018	Catalog #:	XSPIKE-1-500

		Instrument:	CETAC
Standard Log #:	M13265	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	09/14/2017	Expiration Date:	06/22/2018
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13104 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	CETAC
Standard Log #:	M13266	Reagent:	Hg Aqua Regia
Analyst:	MDS		
Prep Date:	09/14/2017	Expiration Date:	09/14/2018
Prep:	Carefully mixed **3** parts HCl AB.646 with **1** part HNO_3 AB.647 in a hood.		

Standard Log #:	M13267	Reagent:	10N NaOH
Analyst:	BMM		
Prep Date:	09/14/2017	Expiration Date:	09/14/2018
Prep:	Into a 1 L volumetric flask, added **400 g** NaOH W42226 and brought up to volume.		

Standard Log #:	M13268	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	09/14/2017	Expiration Date:	09/14/2018
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.641 and **128.6 mL** 10N NaOH M13267. Dilute to 20 L and mix.		

Standard Log #:	M13269	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	09/14/2017	Expiration Date:	09/14/2018
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.641 and **128.6 mL** 10N NaOH M13267. Dilute to 20 L and mix.		

		Instrument:	CETAC
Standard Log #:	M13262	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	09/14/2017	Expiration Date:	06/22/2018
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13104 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	CETAC
Standard Log #:	M13263	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	09/14/2017	Expiration Date:	02/28/2018
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* **- 1 mL** of Hg (1000 mg/L) M13103 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	CETAC
Standard Log #:	M13264	Standard:	Hg ICV/LCS
Analyst:	MDS	Concentration:	3 ug/L
Prep Date:	09/14/2017	Expiration Date:	02/28/2018
Prep:	Into a 100 mL volumetric flask, pipetted **3 mL** of Hg (*100 ug/L working Std.*) M13263 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

		Instrument:	CETAC
Standard Log #:	M13261	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	09/12/2017	Expiration Date:	03/12/2018
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.646 and dissolved **100 g** Stannous chloride M13246 and brought up to volume.		

Standard Log #:	M13258	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	08/31/2017	Expiration Date:	08/31/2018
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.641 and **128.6 mL** 10N NaOH M13210. Dilute to 20 L and mix.		

Standard Log #:	M13259	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	08/31/2017	Expiration Date:	08/31/2018
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.641 and **128.6 mL** 10N NaOH M13210. Dilute to 20 L and mix.		

Standard Log #:	M13260	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	08/31/2017	Expiration Date:	08/31/2018
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.641 and **128.6 mL** 10N NaOH M13210. Dilute to 20 L and mix.		

		Instrument:	ICP
Standard Log #:	M13257	Standard:	As Pb ICV1
Analyst:	MDS	Concentrations:	5000 ug/L (As,Pb)
Prep Date:	08/30/2017	Expiration Date:	11/11/2017
Prep:	Into a 1 L volumetric flask, pipetted **5 mL** of As (1000 mg/L) M12958 and **0.5 mL** Pb (10,000 mg/L) M12861 and brought to volume with Milli-Q H_2O. (2% HNO_3, 2% HCl)		

		Instrument:	ICP 6000
Standard Log #:	M13255	Standard:	L2 ICV
Analyst:	MDS	Concentrations:	1000 µg/L (Li, Sn, Sr, Ti, W)
Prep Date:	08/29/2017	Expiration Date:	09/18/2018
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of the following and brought up to volume using milli-Q H_2O. (0.5% HNO_3, 0.5% HCl) Li (1000 µg/mL) M13130 Sn (1000 µg/mL) M13134 Sr (1000 µg/mL) M13129 Ti (1000 µg/mL) M13128 W (1000 µg/mL) M13131		

		Instrument:	ICP 6000
Standard Log #:	M13256	Standard:	List 2 MRL/ICVLL Prep Solution
Analyst:	MDS	Concentrations:	5000 µg/L (W) 1000 µg/L (Li, Sn) 500 µg/L (Ti, Sr)
Prep Date:	08/29/2017	Expiration Date:	09/18/2018

Prep:

Analyte	MRL/ICVLL Conc. (µg/L)	Standard ID	Std. Conc. (µg/mL)	Volume (mL) Pipetted into 1 L	Expiration Date
Li	20/60	M13130	1000	1	09/18/2018
W	100/300	M13131	1000	5	09/18/2018
Ti	10/30	M13128	1000	0.5	09/18/2018
Sr	10/30	M13129	1000	0.5	09/18/2018
Sn	20/60	M13134	1000	1	09/18/2018

Pipette **10 mL** into a 500 mL volumetric flask to create a working MRL std. or **1 mL** into a 50 mL digestion tube for a digested MRL standard. Pipette **30 mL** into 500 mL for a working ICVLL std. or **3 mL** into a 50 mL digestion tube for a digested ICVLL standard.

(0.5% HNO_3, 0.5% HCl)

Standard ID#:	M13252	Vendor:	Spex Certiprep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	08/23/2017	Lot #:	44-188CR
Expiration Date (if any):	08/30/2018	Catalog #:	XCTWI-5-500

		Instrument:	ICP 6000
Standard Log #:	M13253	Standard:	Sulfur ICV
Analyst:	MDS	Concentrations:	100,000 µg/L (S)
Prep Date:	08/28/2017	Expiration Date:	04/30/2018
Prep:	Into a 100 mL volumetric flask, pipetted **1.0 mL** of S (10,000 µg/mL) M13172 and brought up to volume using Milli-Q H_2O.		

		Instrument:	ICP 6500
Standard Log #:	M13254	Standard:	ICSA
Analyst:	MDS	Concentrations:	**500,000 ug/L** Al, Ca, Fe, Mg
Prep Date:	08/28/2017	Expiration Date:	05/30/2018
Prep:	Into a 500 mL volumetric flask, pipetted **50 mL** Interferents A Standard ((5000 mg/L Al, Ca, Mg) (2000 mg/L Fe)) M13190 and **15 mL** Fe (10000 mg/L) M13164 and brought up to volume with milli-Q H_2O.		

Standard Log #:	M13251	Reagent:	TCLP EXTRACTION FLUID #2
Analyst:	MDS	pH:	2.88 ± 0.05
Prep Date:	08/23/2017	Expiration Date:	08/23/2018
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.641. Dilute to 20 L and mix.		

Standard ID#:	M13247	Vendor:	Spex Certiprep
Analyst:	NAH	Chemical:	Phosphorus 10,000 ug/mL
Date Received:	08/10/2017	Lot #:	AN16-170PY
Expiration Date (if any):	08/30/2018	Catalog #:	PLP-3Y

Standard ID#:	M13248	Vendor:	Spex Certiprep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	08/11/2017	Lot #:	44-152CR
Expiration Date (if any):	08/30/2018	Catalog #:	XCTWI-1-500

		Instrument:	CETAC
Standard Log #:	M13245	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	08/09/2017	Expiration Date:	08/09/2017
Prep:	Carefully mixed **3** parts HCl AB.648 with **1** part HNO_3 AB.647 in a hood.		

Standard ID#:	M13246	Vendor:	Lab Chem
Analyst:	LJF	Chemical:	STANNOUS CHLORIDE
Date Received:	08/09/2017	Lot #:	G137-04
Expiration Date (if any):		Catalog #:	LC251701

		Instrument:	CETAC
Standard Log #:	M13242	Standard:	Hg CCV
Analyst:	LJF	Concentration:	3.0 ug/L Hg
Prep Date:	08/02/2017	Expiration Date:	07/22/2018
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13104 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	CETAC
Standard Log #:	M13243	Reagent:	Stannous Chloride Solution
Analyst:	LJF		
Prep Date:	08/02/2017	Expiration Date:	02/02/2018
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB. and dissolved **100 g** Stannous chloride M and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13239	Standard:	Hg ICAL
Analyst:	LJF	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	08/02/2017	Expiration Date:	07/22/2018
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13104 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	CETAC
Standard Log #:	M13240	Standard:	Alt. Source Working Std.
Analyst:	LJF	Concentrations:	10,000 and 100 ug/L
Prep Date:	08/02/2017	Expiration Date:	02/28/2018
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* **- 1 mL** of Hg (1000 mg/L) M13103 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	CETAC
Standard Log #:	M13241	Standard:	Hg ICV/LCS
Analyst:	LJF	Concentration:	3 ug/L
Prep Date:	08/02/2017	Expiration Date:	02/28/2018
Prep:	Into a 100 mL volumetric flask, pipetted **3 mL** of Hg (*100 ug/L working Std.*) M13103 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

Standard ID#:	M13232	Vendor:	CPI
Analyst:	NAH	Chemical:	Al 10,000ug/mL
Date Received:	07/31/2017	Lot #:	103665-32
Expiration Date (if any):	01/2019	Catalog #:	4400-10M11

Standard ID#:	M13233	Vendor:	CPI
Analyst:	NAH	Chemical:	K 10,000ug/mL
Date Received:	07/31/2017	Lot #:	106958-39
Expiration Date (if any):	01/2019	Catalog #:	4400-10M411

Standard ID#:	M13234	Vendor:	CPI
Analyst:	NAH	Chemical:	Y 10,000 ug/mL
Date Received:	07/31/2017	Lot #:	139448-20
Expiration Date (if any):	01/2019	Catalog #:	4400-448-20

Standard ID#:	M13235	Vendor:	CPI
Analyst:	NAH	Chemical:	Fe 10,000 ug/mL
Date Received:	07/31/2017	Lot #:	101593-51
Expiration Date (if any):	01/2019	Catalog #:	4400-10M261

Standard ID#:	M13236	Vendor:	CPI
Analyst:	NAH	Chemical:	Mg 10,000 ug/mL
Date Received:	07/31/2017	Lot #:	119874R-57
Expiration Date (if any):	01/2019	Catalog #:	4400-10M311

Standard ID#:	M13237	Vendor:	CPI
Analyst:	NAH	Chemical:	Ca 10,000 ug/mL
Date Received:	07/31/2017	Lot #:	120907-55
Expiration Date (if any):	01/2019	Catalog #:	4400-10M91

Standard ID#:	M13238	Vendor:	CPI
Analyst:	NAH	Chemical:	La 1000ug/mL
Date Received:	07/31/2017	Lot #:	129369-6
Expiration Date (if any):	01/2019	Catalog #:	S4400-1000271

Standard ID#:	M13226	Vendor:	FISHER
Analyst:	LJF	Chemical:	SODIUM CHLORIDE
Date Received:	07/21/2017	Lot #:	170229
Expiration Date (if any):		Catalog #:	S271-500

		Instrument:	ICP 6500
Standard Log #:	M13219	Standard:	CCV1
Analyst:	NAH	Concentrations:	**5000 µg/L** Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn **500 µg/L** Ag, Be, Cd
Prep Date:	07/05/2017	Expiration Date:	05/30/2018
Prep:	Into a 1 L volumetric flask, pipetted **50 mL** Custom Assurance Standard #23 XCTWI-5-500 (100 mg/L Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M13191 and **5.0 mL** of Custom Assurance Std. #3 XCTWI-4-500 (100 mg/L Ag, Be, Cd) M13217 and brought up to volume with milli-Q H_2O.		

		Instrument:	ICP 6500
Standard Log #:	M13220	Standard:	CCV2
Analyst:	NAH	Concentrations:	**500 µg/L** Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn **50 µg/L** Ag, Be, Cd
Prep Date:	07/05/2017	Expiration Date:	05/30/2018
Prep:	Into a 1 L volumetric flask, pipetted **5 mL** Custom Assurance Standard #23 XCTWI-5-500 (100 mg/L Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M13191 and **0.5 mL** of Custom Assurance Std. #3 XCTWI-4-500 (100 mg/L Ag, Be, Cd) M13217 and brought up to volume with milli-Q H_2O.		

		Instrument:	ICP 6500
Standard Log #:	M13221	Standard:	ICSAB
Analyst:	NAH	Concentrations:	**500,000 ug/L** Al, Ca, Fe, Mg **500 ug/L** Ag, As, Ba, Be, Cd, Co, Cr, Cu, Mn, Mo, Ni, Pb, Sb, Se, Tl, V, Zn
Prep Date:	07/05/2017	Expiration Date:	05/30/2017
Prep:	Into a 500 mL volumetric flask, pipetted **50 mL** Interferents A Standard ((5000 mg/L Al, Ca, Mg) (2000 mg/L Fe)) M13190, **15 mL** Fe (10,000 mg/L) M13164, **2.5 mL** of Custom Assurance Std. #3 (100 mg/L Ag, Be, Cd) M13217 and **2.5 mL** Custom Assurance Std. #23 (100 mg/L Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M13191 and brought up to volume with milli-Q H_2O.		

Standard ID#:	M13214	Vendor:	SpexCertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	06/26/2017	Lot #:	43-194CR
Expiration Date (if any):	06/30/2018	Catalog #:	XSPIKE-1-250

		Instrument:	CETAC
Standard Log #:	M13215	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	06/27/2017	Expiration Date:	06/27/2017
Prep:	Carefully mixed **3** parts HCl AB.642 with **1** part HNO_3 AB.640 in a hood.		

Standard Log #:	M13207	Instrument:	ICP
Analyst:	MDS	Standard:	LOQ 3010 S Spiking Solution
Prep Date:	06/09/2017	Expiration Date:	04/30/2018

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
S	200	M13172	10000	1.0

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M13208	Instrument:	ICP
Analyst:	NAH	Standard:	LOQ 3050 S Spiking Solution
Prep Date:	06/09/2017	Expiration Date:	04/30/2018

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
S	240	M13172	10000	1.2

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard ID#:	M13202	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Cerium 1000 mg/L
Date Received:	06/02/2017	Lot #:	22-46CEY
Expiration Date (if any):	05/30/2018	Catalog #:	PLCE2-2Y

Standard ID#:	M13203	Vendor:	CPI
Analyst:	NAH	Chemical:	Cerium 1000 mg/L
Date Received:	06/02/2017	Lot #:	16K087
Expiration Date (if any):	11/30/2018	Catalog #:	S4400-1000101

Standard Log #:	M13204	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	LJF	pH:	4.93 ± 0.05
Prep Date:	06/05/2017	Expiration Date:	06/05/2018
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.641 and **128.6 mL** 10N NaOH M13160. Dilute to 20 L and mix.		

Standard ID#:	M13199	Vendor:	National Institute of Standards and Te
Analyst:	NAH	Chemical:	SRM Montana I soil
Date Received:	05/15/2017	Lot #:	2710a
Expiration Date (if any):		Catalog #:	

Standard ID#:	M13200	Vendor:	National Institute of Standards and Te
Analyst:	NAH	Chemical:	SRM Montana II soil
Date Received:	05/15/2017	Lot #:	2711a
Expiration Date (if any):		Catalog #:	

Standard Log #:	M13198	Reagent:	Potassium Permanganate Solution
Analyst:	LJF		
Prep Date:	05/26/2017	Expiration Date:	11/26/2017
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13198 and brought up to volume.		

Standard ID#:	M13193	Vendor:	Inorganic Ventures
Analyst:	MDS	Chemical:	GFAA ICAL/CCV
Date Received:	05/25/2017	Lot #:	M2-MEB658424
Expiration Date (if any):	05/25/2018	Catalog #:	CTI-SPK-1

Standard ID#:	M13194	Vendor:	Inorganic Ventures
Analyst:	MDS	Chemical:	GFAA ICV/SPIKE Alt. Source
Date Received:	05/25/2017	Lot #:	M2-MEB658423
Expiration Date (if any):	05/25/2018	Catalog #:	CTI-GFCAL-1

		Instrument:	GFAA
Standard Log #:	M13195	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	05/25/2017	Expiration Date:	05/25/2018
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13193 and brought to volume with Milli-Q H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13196	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	05/25/2017	Expiration Date:	05/25/2018
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13193 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13197	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	05/25/2017	Expiration Date:	05/25/2018
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13194 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

Standard Log #:	M13188	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	LJF	pH:	4.93 ± 0.05
Prep Date:	05/23/2017	Expiration Date:	05/23/2018
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.630 and **128.6 mL** 10N NaOH M13160. Dilute to 20 L and mix.		

Standard Log #:	M13189	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	LJF	pH:	4.93 ± 0.05
Prep Date:	05/23/2017	Expiration Date:	05/23/2018
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.630 and **128.6 mL** 10N NaOH M13160. Dilute to 20 L and mix.		

Standard ID#:	M13190	Vendor:	Spex Certiprep
Analyst:	NAH	Chemical:	Interference A
Date Received:	05/23/2017	Lot #:	3-84MKBX
Expiration Date (if any):	05/30/2018	Catalog #:	INT-A1

Standard ID#:	M13191	Vendor:	Spex Certiprep
Analyst:	NAH	Chemical:	Custom assurance Standard-100 ug/n
Date Received:	05/23/2017	Lot #:	43-009CR
Expiration Date (if any):	05/30/2018	Catalog #:	XCTWI-5-500

Standard ID#:	M13186	Vendor:	FISHER
Analyst:	LJF	Chemical:	HYDROXYLAMINE SULFATE
Date Received:	05/22/2017	Lot #:	166161
Expiration Date (if any):		Catalog #:	H331-500

Standard ID#:	M13187	Vendor:	Environmental Express
Analyst:	NAH	Chemical:	Yttrium 10,000 ug/mL
Date Received:	05/22/2017	Lot #:	1705408
Expiration Date (if any):	11/16/2018	Catalog #:	HP10M67-1

Standard Log #:	M13173	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	LJF	pH:	4.93 ± 0.05
Prep Date:	05/03/2017	Expiration Date:	05/03/2018
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.630 and **128.6 mL** 10N NaOH M13160. Dilute to 20 L and mix.		

Standard Log #:	M13174	Reagent:	TCLP 1 N HCL
Analyst:	LJF		
Prep Date:	05/03/2017	Expiration Date:	05/03/2018
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, added 83 mL HCL AB.637 and brought up to volume.		

Standard Log #:	M13175	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	LJF	pH:	4.93 ± 0.05
Prep Date:	05/03/2017	Expiration Date:	05/03/2018
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.630 and **128.6 mL** 10N NaOH M13160. Dilute to 20 L and mix.		

Standard ID#:	M13171	Vendor:	Spex Certiprep
Analyst:	NAH	Chemical:	Custom Assurance Std.
Date Received:	05/01/2017	Lot #:	42-155CR
Expiration Date (if any):	04/30/2018	Catalog #:	XSPIKE-1-250

Standard ID#:	M13172	Vendor:	NAH
Analyst:	NAH	Chemical:	Sulfur 10,000 mg/L
Date Received:	05/01/2017	Lot #:	AL16-158SY
Expiration Date (if any):	04/30/2018	Catalog #:	PLS9-3Y

Standard ID#:	M13163	Vendor:	CPI
Analyst:	NAH	Chemical:	K 10,000 mg/L
Date Received:	04/24/2017	Lot #:	1106963
Expiration Date (if any):	10/19/2018	Catalog #:	4400-10M411

Standard ID#:	M13164	Vendor:	CPI
Analyst:	NAH	Chemical:	Fe 10,000 mg/L
Date Received:	04/25/2017	Lot #:	1106960
Expiration Date (if any):	10/19/2018	Catalog #:	4400-10M261

Standard ID#:	M13165	Vendor:	CPI
Analyst:	NAH	Chemical:	Cr 10,000 mg/L
Date Received:	04/25/2017	Lot #:	1106998
Expiration Date (if any):	10/19/2018	Catalog #:	s4400-10M121

Standard ID#:	M13166	Vendor:	CPI
Analyst:	NAH	Chemical:	Cu 10,000 mg/L
Date Received:	04/25/2017	Lot #:	1107000
Expiration Date (if any):	10/19/2018	Catalog #:	s4400-10M141

Standard ID#:	M13167	Vendor:	CPI
Analyst:	NAH	Chemical:	Mn 10,000 mg/L
Date Received:	04/25/2017	Lot #:	1107001
Expiration Date (if any):	10/19/2018	Catalog #:	S4400-10M321

Standard ID#:	M13168	Vendor:	CPI
Analyst:	NAH	Chemical:	Zn 10,000 mg/L
Date Received:	04/25/2017	Lot #:	1107003
Expiration Date (if any):	10/19/2018	Catalog #:	4400-10M681

Standard ID#:	M13169	Vendor:	CPI
Analyst:	NAH	Chemical:	Pb 10,000 mg/L
Date Received:	04/25/2017	Lot #:	1107081
Expiration Date (if any):	10/19/2018	Catalog #:	4400-10M281

Standard Log #:	M13160	Reagent:	10N NaOH
Analyst:	MDS		
Prep Date:	04/21/2017	Expiration Date:	04/21/2018
Prep:	Into a 1 L volumetric flask, added **400 g** NaOH W40688 and brought up to volume.		

Standard Log #:	M13161	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	MDS	pH:	4.93 ± 0.05
Prep Date:	04/21/2017	Expiration Date:	04/21/2018
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.630 and **128.6 mL** 10N NaOH M13160. Dilute to 20 L and mix.		

Standard Log #:	M13162	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	MDS	pH:	4.93 ± 0.05
Prep Date:	04/21/2017	Expiration Date:	04/21/2018
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.630 and **128.6 mL** 10N NaOH M13160. Dilute to 20 L and mix.		

		Instrument:	ICP 6000
Standard Log #:	M13148	Standard:	NaK ICV
Analyst:	MDS	Concentrations:	100 mg/L (Na, K)
Prep Date:	04/13/2017	Expiration Date:	05/03/2018
Prep:	Into a 250 mL volumetric flask, pipetted **2.5 mL** of K (10,000 mg/L) M13035 and Na (10,000 mg/L) M13135 and brought up to volume using Milli-Q H_2O. (2% HNO_3)		

		Instrument:	ICP 6000
Standard Log #:	M13149	Standard:	NaK ICSAB
Analyst:	MDS	Concentrations:	500 mg/L (Al, Ca, Fe, Mg) 100 mg/L (Na, K)
Prep Date:	04/13/2017	Expiration Date:	11/30/2017
Prep:	Into a 250 mL volumetric flask, pipetted **25 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13040, **2.5 mL** of K (10,000 mg/L) M13035, **2.5 mL** of Na (10,000 mg/L) M13135 and **7.5 mL** of Fe (10,000 mg/L) M12992 and brought up to volume using Milli-Q H_2O. (2% HNO_3)		

		Instrument:	ICP 6000
Standard Log #:	M13150	Standard:	Na,K ICVLL
Analyst:	MDS	Concentrations:	3 mg/L (Na,K)
Prep Date:	04/13/2017	Expiration Date:	05/03/2018
Prep:	Into a 500 mL volumetric flask, pipetted **0.15 mL** of Na (10,000 µg/mL) M13135 and **0.15 mL** K (10,000 µg/mL) M13035 and brought to volume with Milli-Q H_2O. (2% HNO_3)		

		Instrument:	ICP 6000
Standard Log #:	M13142	Standard:	B&Si ICV
Analyst:	MDS	Concentrations:	1000 ug/L (B, Si)
Prep Date:	04/11/2017	Expiration Date:	11/30/2017
Prep:	Into a 1 L volumetric flask, pipetted **10 mL** of Custom Assurance Std. #23 (100 mg/L Al, As, **B**, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M13026 and **1.0 mL** Si (1000 mg/L) M12943 and brought up to volume using milli-Q H_2O.		

		Instrument:	ICP 6000
Standard Log #:	M13143	Standard:	B&Si ICAL
Analyst:	MDS	Concentrations:	50, 200, 1000, 2000 and 10,000 ug/L (B, Si)
Prep Date:	04/11/2017	Expiration Date:	06/08/2018
Prep:	Into five, 1 L volumetric flasks, pipetted the following from stock standards B (1000 mg/L) M13048 and Si (1000 mg/L) M13085 and brought up to volume using milli-Q H_2O. *50 ug/L std.* - **0.05 mL** of each *200 ug/L std.* - **0.2 mL** of each *1000 ug/L std.* -**1.0 mL** of each, also used for Continuing Calibration Verification *2000 ug/L std.* - **2.0 mL** of each *10,000 ug/L std.* -**10 mL** of each		

		Instrument:	ICP 6000
Standard Log #:	M13144	Standard:	B & Si ICSAB
Analyst:	MDS	Concentrations:	500,000 µg/L (Al, Ca, Fe, Mg) 500 µg/L (B,Si)
Prep Date:	04/11/2017	Expiration Date:	11/30/2017
Prep:	Into a 100 mL volumetric flask, pipetted **10 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13040 , **0.05 mL** of B (1000 µg/mL) M13048 , **0.05 mL** of Si (1000 µg/mL) M13085 and **3 mL** of Fe (10,000 mg/L) M12992 and brought up to volume using Milli-Q H_2O.		

		Instrument:	GFAA
Standard Log #:	M13140	Standard:	LODW/LOQW Ag Spiking Sol'n
Analyst:	MDS	Concentrations:	10 ug/L (Ag)
Prep Date:	04/04/2017	Expiration Date:	07/02/2018
Prep:	Into a 100 mL volumetric flask, pipetted **0.1 mL** of Ag (1000mg/L) M13083 and brought to volume with Milli-Q H_2O to make a 1000 ug/L Ag std. Into a 1 L volumetric flask, pipetted **10 mL** of Ag (*1000 ug/L*) std. and brought to volume with Milli-Q H_2O. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (*0.2 ug/L*) and **2 mL** spiking solution for LOQ (*0.4 ug/L*)		

Standard ID#:	M13134	Vendor:	CPI International
Analyst:	MDS	Chemical:	Tin 1000 mg/L
Date Received:	03/23/2017	Lot #:	1105287
Expiration Date (if any):	09/18/2018	Catalog #:	S4400-1000613

Standard ID#:	M13135	Vendor:	CPI International
Analyst:	MDS	Chemical:	Sodium 10,000 mg/L
Date Received:	03/23/2017	Lot #:	1105283
Expiration Date (if any):	09/18/2018	Catalog #:	4400-10M521

		Instrument:	CETAC
Standard Log #:	M13136	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	03/27/2017	Expiration Date:	03/27/2017
Prep:	Carefully mixed **3** parts HCl AB.637 with **1** part HNO_3 AB.634 in a hood.		

Standard ID#:	M13129	Vendor:	CPI International
Analyst:	MDS	Chemical:	Strontium 1000 mg/L
Date Received:	03/23/2017	Lot #:	1105291
Expiration Date (if any):	09/18/2018	Catalog #:	S4400-1000531

Standard ID#:	M13130	Vendor:	CPI International
Analyst:	MDS	Chemical:	Lithium 1000 mg/L
Date Received:	03/23/2017	Lot #:	1105286
Expiration Date (if any):	09/18/2018	Catalog #:	S4400-1000291

Standard ID#:	M13131	Vendor:	CPI International
Analyst:	MDS	Chemical:	Tungsten 1000 mg/L
Date Received:	03/23/2017	Lot #:	1105285
Expiration Date (if any):	09/18/2018	Catalog #:	S4400-1000633

Standard ID#:	M13132	Vendor:	CPI International
Analyst:	MDS	Chemical:	Cobalt 1000 mg/L
Date Received:	03/23/2017	Lot #:	1105296
Expiration Date (if any):	09/18/2018	Catalog #:	S4400-1000131

Standard ID#:	M13133	Vendor:	CPI International
Analyst:	MDS	Chemical:	Nickel 1000 mg/L
Date Received:	03/23/2017	Lot #:	1104980
Expiration Date (if any):	09/14/2018	Catalog #:	S4400-1000361

Standard ID#:	M13124	Vendor:	CPI International
Analyst:	MDS	Chemical:	Thallium 1000 mg/L
Date Received:	03/23/2017	Lot #:	1105132
Expiration Date (if any):	09/16/2017	Catalog #:	S4400-1000581

Standard ID#:	M13125	Vendor:	CPI International
Analyst:	MDS	Chemical:	Vanadium 1000 mg/L
Date Received:	03/23/2017	Lot #:	1105293
Expiration Date (if any):	09/18/2017	Catalog #:	S4400-1000651

Standard ID#:	M13126	Vendor:	CPI International
Analyst:	MDS	Chemical:	Beryllium 1000 mg/L
Date Received:	03/23/2017	Lot #:	1105295
Expiration Date (if any):	09/18/2017	Catalog #:	S4400-100051

Standard ID#:	M13127	Vendor:	CPI International
Analyst:	MDS	Chemical:	Cadmium 1000 mg/L
Date Received:	03/23/2017	Lot #:	1105288
Expiration Date (if any):	09/18/2018	Catalog #:	S4400-100081

Standard ID#:	M13128	Vendor:	CPI International
Analyst:	MDS	Chemical:	Titanium 1000 mg/L
Date Received:	03/23/2017	Lot #:	1105290
Expiration Date (if any):	09/18/2018	Catalog #:	S4400-1000623

		Instrument:	CETAC
Standard Log #:	M13109	Standard:	Hg CCV
Analyst:	LJF	Concentration:	3.0 ug/L Hg
Prep Date:	03/03/2017	Expiration Date:	07/22/2018
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13104 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	CETAC
Standard Log #:	M13110	Standard:	Hg MRL
Analyst:	LJF	Concentration:	0.2 ug/L Hg
Prep Date:	03/03/2017	Expiration Date:	02/18/2018
Prep:	Into a 100 mL volumetric flask, pipetted **0.2 mL** of Hg (*100 ug/L working std.*) M13103 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

		Instrument:	CETAC
Standard Log #:	M13111	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	03/03/2017	Expiration Date:	03/03/2017
Prep:	Carefully mixed **3** parts HCl AB.637 with **1** part HNO_3 AB.634 in a hood.		

		Instrument:	CETAC
Standard Log #:	M13112	Reagent:	Stannous Chloride Solution
Analyst:	LJF		
Prep Date:	03/03/2017	Expiration Date:	09/03/2017
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.637 and dissolved **100 g** Stannous chloride M12998 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13106	Standard:	Hg ICAL
Analyst:	LJF	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	03/03/2017	Expiration Date:	07/22/2018
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13104 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	CETAC
Standard Log #:	M13107	Standard:	Alt. Source Working Std.
Analyst:	LJF	Concentrations:	10,000 and 100 ug/L
Prep Date:	03/03/2017	Expiration Date:	02/2/2018
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13103 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	CETAC
Standard Log #:	M13108	Standard:	Hg ICV/LCS
Analyst:	LJF	Concentration:	3 ug/L
Prep Date:	03/03/2017	Expiration Date:	02/28/2018
Prep:	Into a 100 mL volumetric flask, pipetted **3 mL** of Hg (*100 ug/L working Std.*) M13103 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

Standard ID#:	M13103	Vendor:	Spex Certiprep
Analyst:	NAH	Chemical:	Hg 1000 ug/mL
Date Received:	02/28/2017	Lot #:	CL-144HGY
Expiration Date (if any):	02/28/2018	Catalog #:	CLHG4-2Y

Standard ID#:	M13104	Vendor:	CPI
Analyst:	NAH	Chemical:	Hg 1000 ug/mL
Date Received:	03/02/2017	Lot #:	17A006
Expiration Date (if any):	07/22/2018	Catalog #:	S4400-1000331

Standard ID#:	M13105	Vendor:	CPI
Analyst:	NAH	Chemical:	Yttrrium 10,000 ug/mL
Date Received:	03-02-2017	Lot #:	16I092
Expiration Date (if any):	07/24/2017	Catalog #:	4400-10M671

Standard ID#:	M13082	Vendor:	CPI International
Analyst:	MDS	Chemical:	1000 µg/mL Selenium
Date Received:	02/08/2017	Lot #:	16I070
Expiration Date (if any):	07/02/2018	Catalog #:	S4400-1000491

Standard ID#:	M13083	Vendor:	CPI International
Analyst:	MDS	Chemical:	1000 µg/mL Silver
Date Received:	02/08/2017	Lot #:	16K036
Expiration Date (if any):	07/02/2018	Catalog #:	S4400-1000511

Standard ID#:	M13084	Vendor:	CPI International
Analyst:	MDS	Chemical:	1000 µg/mL Antimony
Date Received:	02/08/2017	Lot #:	16I118
Expiration Date (if any):	07/02/2018	Catalog #:	S4400-100023

Standard ID#:	M13085	Vendor:	CPI International
Analyst:	MDS	Chemical:	1000 µg/mL Silicon
Date Received:	02/08/2017	Lot #:	16I001
Expiration Date (if any):	07/02/2018	Catalog #:	S4400-1000504F

Standard ID#:	M13080	Vendor:	FISHER
Analyst:	LJF	Chemical:	POTASSIUM PERMANGANATE
Date Received:	01/30/2017	Lot #:	164080
Expiration Date (if any):		Catalog #:	P279-212

Standard ID#:	M13059	Vendor:	ACROS ORGANICS
Analyst:	LJF	Chemical:	POTASSIUM PERSULFATE
Date Received:	12/19/2016	Lot #:	A0375670
Expiration Date (if any):		Catalog #:	424185000

Standard ID#:	M13047	Vendor:	CPI
Analyst:	NAH	Chemical:	Si 1000
Date Received:	12/15/2016	Lot #:	16I001
Expiration Date (if any):	06/08/2018	Catalog #:	S4400-1000504F

Standard ID#:	M13048	Vendor:	CPI
Analyst:	NAH	Chemical:	B 1000 mg/L
Date Received:	12/15/2016	Lot #:	16H060
Expiration Date (if any):	06/08/2018	Catalog #:	S4400-100074

Standard ID#:	M13049	Vendor:	CPI
Analyst:	NAH	Chemical:	Mo 1000 mg/L
Date Received:	12/15/2016	Lot #:	16I124
Expiration Date (if any):	06/08/2016	Catalog #:	S4400-1000343

Standard ID#:	M13050	Vendor:	CPI
Analyst:	NAH	Chemical:	Na 1000 mg/L
Date Received:	12/15/2016	Lot #:	16K094
Expiration Date (if any):	06/08/2016	Catalog #:	4400-1000521

Standard ID#:	M13036	Vendor:	Alfa Aesar Specpure
Analyst:	MDS	Chemical:	Nickel Nitrate Matrix Modifier
Date Received:	11/10/2016	Lot #:	138905AH
Expiration Date (if any):	05/31/2018	Catalog #:	39043

Standard ID#:	M13031	Vendor:	CPI
Analyst:	NAH	Chemical:	Mg 10000 mg/L
Date Received:	11/09/2016	Lot #:	16I168
Expiration Date (if any):	05/03/2018	Catalog #:	4400-10M311

Standard ID#:	M13032	Vendor:	CPI
Analyst:	NAH	Chemical:	Ca 10000 mg/L
Date Received:	11/09/2016	Lot #:	16I091
Expiration Date (if any):	05/03/2018	Catalog #:	4400-10M91

Standard ID#:	M13033	Vendor:	CPI
Analyst:	NAH	Chemical:	Fe 10000 mg/L
Date Received:	11/09/2016	Lot #:	16I080
Expiration Date (if any):	05/03/2018	Catalog #:	4400-10M261

Standard ID#:	M13034	Vendor:	CPI
Analyst:	NAH	Chemical:	Al 10000 mg/L
Date Received:	11/09/2016	Lot #:	16F134
Expiration Date (if any):	05/03/2018	Catalog #:	4400-10M11

Standard ID#:	M13035	Vendor:	CPI
Analyst:	NAH	Chemical:	K 10000 mg/L
Date Received:	11/09/2018	Lot #:	16I165
Expiration Date (if any):	05/03/2018	Catalog #:	4400-10m411

		Instrument:	CETAC
Standard Log #:	M13027	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	11/09/2016	Expiration Date:	11/09/2016
Prep:	Carefully mixed **3** parts HCl AB.631 with **1** part HNO_3 AB.628 in a hood.		

Standard ID#:	M13028	Vendor:	Environmental Express
Analyst:	NAH	Chemical:	Yttrium 10000 mg/L
Date Received:	11/09/2016	Lot #:	1623223
Expiration Date (if any):	05/04/2018	Catalog #:	HP10M67-1

Standard ID#:	M13029	Vendor:	CPI
Analyst:	NAH	Chemical:	Barium 1000 mg/L
Date Received:	11/09/2016	Lot #:	16H058
Expiration Date (if any):	05/03/2018	Catalog #:	S4400-100041

Standard ID#:	M13030	Vendor:	CPI
Analyst:	NAH	Chemical:	Yttrium 10000 mg/L
Date Received:	11/09/2016	Lot #:	16I092
Expiration Date (if any):	05/03/2018	Catalog #:	4400-10M671

Standard ID#:	M13024	Vendor:	METTLER TOLEDO
Analyst:	LJF	Chemical:	FRISCOLYT
Date Received:	11/01/2016	Lot #:	1B167D
Expiration Date (if any):		Catalog #:	51340053

Standard ID#:	M12992	Vendor:	CPI
Analyst:	NAH	Chemical:	Fe 10000 mg/L
Date Received:	10/13/2016	Lot #:	16I080
Expiration Date (if any):	04/07/2018	Catalog #:	P/N 4400-10M261

Standard ID#:	M12993	Vendor:	CPI
Analyst:	NAH	Chemical:	Al 10000 mg/L
Date Received:	10/13/2016	Lot #:	16B102
Expiration Date (if any):	04/07/2018	Catalog #:	P/N 4400-10M11

Standard ID#:	M12994	Vendor:	CPI
Analyst:	NAH	Chemical:	Y 10000 mg/L
Date Received:	10/13/2016	Lot #:	16I092
Expiration Date (if any):	04/07/2018	Catalog #:	P/N 4400-10M671

Standard ID#:	M12988	Vendor:	CPI
Analyst:	NAH	Chemical:	K 10000 mg/L
Date Received:	10/13/2016	Lot #:	16I165
Expiration Date (if any):	04/07/2018	Catalog #:	P/N 4400-10M411

Standard ID#:	M12989	Vendor:	CPI
Analyst:	NAH	Chemical:	Zn
Date Received:	10/13/2016	Lot #:	16H186
Expiration Date (if any):	04/07/2018	Catalog #:	P/N 4400-10M411

Standard ID#:	M12990	Vendor:	CPI
Analyst:	NAH	Chemical:	Mg 10000 mg/L
Date Received:	1013/2016	Lot #:	16I168
Expiration Date (if any):	04/07/2018	Catalog #:	P/N 4400-10311

Standard ID#:	M12991	Vendor:	CPI
Analyst:	NAH	Chemical:	Ca 10000 mg/L
Date Received:	10/13/2016	Lot #:	16I091
Expiration Date (if any):	04/07/2018	Catalog #:	P/N 4400-10M91

Standard ID#:	M12900	Vendor:	HACH
Analyst:	NAH	Chemical:	StablCal Standard, 200 NTU or FNU
Date Received:	06/17/2016	Lot #:	A6036
Expiration Date (if any):	02/2018	Catalog #:	2660449

INORGANIC
CLP FORMS
DOCUMENTS

CT LABORATORIES
delivering more than data from your environmental analyses

1

INORGANIC ANALYSIS DATA SHEET

Sample Description

PETER-WS-001

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Matrix (soil/water):	SOIL	SDG No.:	139370
% Solids:	93.6	Lab Sample ID:	175865
Analytical Method:	EPA 8000C	Date Received:	09/13/2018
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	153245	Analysis Date/Time	09/14/2018 10:39
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	%

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
SOLID	Solids, Percent	93.6		0.1	0.1	0.1	0.1

CT LABORATORIES
delivering more than data from your environmental analyses

Sample Description

1

PETER-WS-001

INORGANIC ANALYSIS DATA SHEET

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Matrix (soil/water):	SOIL	SDG No.:	139370
% Solids:	93.6	Lab Sample ID:	175865
Analytical Method:	EPA 9012A	Date Received:	09/13/2018
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	153509	Analysis Date/Time	09/24/2018 13:30
Analytical Prep Batch #:	68746	Prep. Date/Time:	09/21/2018 09:00
ICAL Calibration #:	09242018	Concentration Units:	mg/kg

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
57-12-5	Cyanide	0.15	U	0.15	0.31	0.62	0.62

CT LABORATORIES
delivering more than data from your environmental analyses

1

INORGANIC ANALYSIS DATA SHEET

Sample Description

PETER-WS-001

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Matrix (soil/water):	SOIL	SDG No.:	139370
% Solids:	93.6	Lab Sample ID:	175865
Analytical Method:	EPA 1010A	Date Received:	09/13/2018
Dilution Factor:	1	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	153357	Analysis Date/Time	09/18/2018 15:40
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	Deg. F

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
FLASHPT	Flashpoint	>140.0					

CT LABORATORIES
delivering more than data from your environmental analyses

1

INORGANIC ANALYSIS DATA SHEET

Sample Description

PETER-WS-001

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Matrix (soil/water):	SOIL	SDG No.:	139370
% Solids:	93.6	Lab Sample ID:	175865
Analytical Method:	EPA 9045D	Date Received:	09/13/2018
Dilution Factor:	1	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	153209	Analysis Date/Time	09/13/2018 16:35
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	S.U.

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
PH	pH	7.61		0.1	0.1	0.1	0.1

CT LABORATORIES
delivering more than data from your environmental analyses

1

INORGANIC ANALYSIS DATA SHEET

Sample Description

PETER-WW-001

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Matrix (soil/water):	GROUND WATER	SDG No.:	139370
% Solids:		Lab Sample ID:	175867
Analytical Method:	EPA 9012A	Date Received:	09/13/2018
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	153658	Analysis Date/Time	09/25/2018 11:26
Analytical Prep Batch #:	68845	Prep. Date/Time:	09/25/2018 09:00
ICAL Calibration #:	09252018	Concentration Units:	ug/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
57-12-5	Cyanide	19	J	5.0	12	24	24

CT LABORATORIES
delivering more than data from your environmental analyses

1

INORGANIC ANALYSIS DATA SHEET

Sample Description

PETER-WW-001

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Matrix (soil/water):	GROUND WATER	SDG No.:	139370
% Solids:		Lab Sample ID:	175867
Analytical Method:	EPA 9034	Date Received:	09/13/2018
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	153311	Analysis Date/Time	09/17/2018 15:00
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers		DL	LOD	LOQ	RL
18496-25-8	Sulfide	1.0	U	M,Y	1.0	1.0	1.0	1.0

CT LABORATORIES
delivering more than data from your environmental analyses

1

INORGANIC ANALYSIS DATA SHEET

Sample Description

PETER-WW-001

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Matrix (soil/water):	GROUND WATER	SDG No.:	139370
% Solids:		Lab Sample ID:	175867
Analytical Method:	EPA 1010	Date Received:	09/13/2018
Dilution Factor:	1	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	153357	Analysis Date/Time	09/18/2018 15:40
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	Deg. F

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
FLASHPT	Flashpoint	>140.0					

CT LABORATORIES
delivering more than data from your environmental analyses

1

INORGANIC ANALYSIS DATA SHEET

Sample Description

PETER-WW-001

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Matrix (soil/water):	GROUND WATER	SDG No.:	139370
% Solids:		Lab Sample ID:	175867
Analytical Method:	EPA 9040C	Date Received:	09/13/2018
Dilution Factor:	1	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	153208	Analysis Date/Time	09/13/2018 16:00
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	S.U.

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
PH	pH	7.58		0.1	0.1	0.1	0.1

CT LABORATORIES
delivering more than data from your environmental analyses

1

INORGANIC ANALYSIS DATA SHEET

Sample Description

PETER-WS-001

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Matrix (soil/water):	SOIL	SDG No.:	139370
% Solids:	93.6	Lab Sample ID:	175865
Analytical Method:	EPA 8000C	Date Received:	09/13/2018
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	153245	Analysis Date/Time	09/14/2018 10:39
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	%

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
SOLID	Solids, Percent	93.6		0.1	0.1	0.1	0.1

CT LABORATORIES
delivering more than data from your environmental analyses

1

INORGANIC ANALYSIS DATA SHEET

Sample Description

PETER-WS-001

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Matrix (soil/water):	SOIL	SDG No.:	139370
% Solids:	93.6	Lab Sample ID:	175865
Analytical Method:	EPA 9012A	Date Received:	09/13/2018
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	153509	Analysis Date/Time	09/24/2018 13:30
Analytical Prep Batch #:	68746	Prep. Date/Time:	09/21/2018 09:00
ICAL Calibration #:	09242018	Concentration Units:	mg/kg

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
57-12-5	Cyanide	0.31	U	0.15	0.31	0.62	0.62

CT LABORATORIES
delivering more than data from your environmental analyses

1

INORGANIC ANALYSIS DATA SHEET

Sample Description

PETER-WS-001

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Matrix (soil/water):	SOIL	SDG No.:	139370
% Solids:	93.6	Lab Sample ID:	175865
Analytical Method:	EPA 1010A	Date Received:	09/13/2018
Dilution Factor:	1	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	153357	Analysis Date/Time	09/18/2018 15:40
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	Deg. F

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
FLASHPT	Flashpoint	>140.0					

CT LABORATORIES
delivering more than data from your environmental analyses

1

INORGANIC ANALYSIS DATA SHEET

Sample Description

PETER-WS-001

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Matrix (soil/water):	SOIL	SDG No.:	139370
% Solids:	93.6	Lab Sample ID:	175865
Analytical Method:	EPA 9045D	Date Received:	09/13/2018
Dilution Factor:	1	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	153209	Analysis Date/Time	09/13/2018 16:35
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	S.U.

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
PH	pH	7.61		0.1	0.1	0.1	0.1

CT LABORATORIES
delivering more than data from your environmental analyses

Sample Description

1

PETER-WW-001

INORGANIC ANALYSIS DATA SHEET

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Matrix (soil/water):	GROUND WATER	SDG No.:	139370
% Solids:		Lab Sample ID:	175867
Analytical Method:	EPA 9012A	Date Received:	09/13/2018
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	153658	Analysis Date/Time	09/25/2018 11:26
Analytical Prep Batch #:	68845	Prep. Date/Time:	09/25/2018 09:00
ICAL Calibration #:	09252018	Concentration Units:	ug/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
57-12-5	Cyanide	19	J	5.0	12	24	24

CT LABORATORIES
delivering more than data from your environmental analyses

1

INORGANIC ANALYSIS DATA SHEET

Sample Description

PETER-WW-001

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Matrix (soil/water):	GROUND WATER	SDG No.:	139370
% Solids:		Lab Sample ID:	175867
Analytical Method:	EPA 9034	Date Received:	09/13/2018
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	153311	Analysis Date/Time	09/17/2018 15:00
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers		DL	LOD	LOQ	RL
18496-25-8	Sulfide	1.0	U	M,Y	1.0	1.0	1.0	1.0

CT LABORATORIES
delivering more than data from your environmental analyses

1

INORGANIC ANALYSIS DATA SHEET

Sample Description

PETER-WW-001

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Matrix (soil/water):	GROUND WATER	SDG No.:	139370
% Solids:		Lab Sample ID:	175867
Analytical Method:	EPA 1010	Date Received:	09/13/2018
Dilution Factor:	1	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	153357	Analysis Date/Time	09/18/2018 15:40
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	Deg. F

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
FLASHPT	Flashpoint	>140.0					

CT LABORATORIES
delivering more than data from your environmental analyses

1

INORGANIC ANALYSIS DATA SHEET

Sample Description

PETER-WW-001

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Matrix (soil/water):	GROUND WATER	SDG No.:	139370
% Solids:		Lab Sample ID:	175867
Analytical Method:	EPA 9040C	Date Received:	09/13/2018
Dilution Factor:	1	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	153208	Analysis Date/Time	09/13/2018 16:00
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	S.U.

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
PH	pH	7.58		0.1	0.1	0.1	0.1

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

ICV

2A-1

INITIAL CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

SDG No.: 139370

Analytical Run #: 153509

Lab Sample ID: 182948

ICAL Calibration #: 09242018

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Cyanide	9/24/18	13:17	50.00	49.80	100	85	115

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

ICV

2A-1

INITIAL CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

SDG No.: 139370

Analytical Run #: 153658

Lab Sample ID: 183795

ICAL Calibration #: 09252018

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Cyanide	9/25/18	11:05	40.00	42.20	106	85	115

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

SDG No.: 139370

Analytical Run #: 153509

Lab Sample ID: 182950

ICAL Calibration #: 09242018

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Cyanide	9/24/18	13:21	50.00	48.30	97	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

SDG No.: 139370

Analytical Run #: 153509

Lab Sample ID: 182952

ICAL Calibration #: 09242018

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Cyanide	9/24/18	13:36	50.00	49.30	99	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

SDG No.: 139370

Analytical Run #: 153658

Lab Sample ID: 183797

ICAL Calibration #: 09252018

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Cyanide	9/25/18	11:12	40.00	40.20	100	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

SDG No.: 139370

Analytical Run #: 153658

Lab Sample ID: 183826

ICAL Calibration #: 09252018

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Cyanide	9/25/18	12:21	40.00	43.70	109	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV DLL Std

2A-2

CONTINUING CALIBRATION VERIFICATION DISTILLED LOW-LEVEL STD

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

SDG No.: 139370

Analytical Run #: 153509

Lab Sample ID: 180998

ICAL Calibration #: 09242018

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Cyanide	9/24/18	13:27	0.500	0.460	92	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV DHL Std

2A-2

CONTINUING CALIBRATION VERIFICATION DISTILLED HIGH-LEVEL STD

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

SDG No.: 139370

Analytical Run #: 153509

Lab Sample ID: 180997

ICAL Calibration #: 09242018

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Cyanide	9/24/18	13:26	1.88	1.87	99	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

ICB

3-1

INITIAL CALIBRATION BLANKS

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

SDG No.: 139370

Analytical Run #: 153509

Lab Sample ID: 182949

Analytical Prep Batch # 0

Preparation Date/Time:

ICAL Calibration #: 09242018

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Cyanide	09/24/2018 13:18	0.2260			25

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was
less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

ICB

3-1

INITIAL CALIBRATION BLANKS

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

SDG No.: 139370

Analytical Run #: 153658

Lab Sample ID: 183796

Analytical Prep Batch # 0

Preparation Date/Time:

ICAL Calibration #: 09252018

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Cyanide	09/25/2018 11:09	0.8170			12

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was
less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

SDG No.: 139370

Analytical Run #: 153509

Lab Sample ID: 182951

Analytical Prep Batch # 0

Preparation Date/Time:

ICAL Calibration #: 09242018

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Cyanide	09/24/2018 13:22	0.6000			25

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was
less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

SDG No.: 139370

Analytical Run #: 153509

Lab Sample ID: 182953

Analytical Prep Batch # 0

Preparation Date/Time:

ICAL Calibration #: 09242018

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Cyanide	09/24/2018 13:37	1.070			25

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was
less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

SDG No.: 139370

Analytical Run #: 153658

Lab Sample ID: 183798

Analytical Prep Batch # 0

Preparation Date/Time:

ICAL Calibration #: 09252018

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Cyanide	09/25/2018 11:16	0.5160			12

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was
less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

SDG No.: 139370

Analytical Run #: 153658

Lab Sample ID: 183827

Analytical Prep Batch # 0

Preparation Date/Time:

ICAL Calibration #: 09252018

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Cyanide	09/25/2018 12:24	0.6130			12

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was
less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

MB

3-3

METHOD BLANKS

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

SDG No.: 139370

Analytical Run #: 153311

Lab Sample ID: 179391

Analytical Prep Batch #

Preparation Date/Time:

ICAL Calibration #:

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Sulfide	09/17/2018 15:00	0	U	1.0	1.5

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was
less.

CT LABORATORIES
delivering more than data from your environmental analyses

3-3

METHOD BLANKS

Sample No

MB

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

SDG No.: 139370

Analytical Run #: 153509

Lab Sample ID: 180995

Analytical Prep Batch # 68746

Preparation Date/Time: 09/21/2018 09:00

ICAL Calibration #: 09242018

Concentration Units: mg/kg

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Cyanide	09/24/2018 13:25	0.0383	U	0.14	0.30

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was
less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

MB

3-3

METHOD BLANKS

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

SDG No.: 139370

Analytical Run #: 153658

Lab Sample ID: 183143

Analytical Prep Batch # 68845

Preparation Date/Time: 09/25/2018 09:00

ICAL Calibration #: 09252018

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Cyanide	09/25/2018 11:23	0.7850	U	5	12

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was
less.

CT LABORATORIES
delivering more than data from your environmental analyses

5A

SPIKE SAMPLE RECOVERY

Sample Description

PETER-WW-001

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Matrix:	LIQUID	SDG No.:	139370
% Solids for Sample:		Concentration Units:	mg/L
Sample No	179388	Parent Sample No.:	175867
Analytical Prep Batch #		Analytical Preparation Date/Time:	
Analytical Run #:	153311	ICAL Calibration #:	

Analysis Type	*Initial Analysis*	Analysis Date: -----	09/17/2018	Analysis Time: --------	15:00

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M	
Sulfide	80-120	1.20		BDL	U	2.50	48		TIT	*FAIL*

BDL = analyte concentration was below detection limit

CT LABORATORIES
delivering more than data from your environmental analyses

5A

SPIKE SAMPLE RECOVERY

Sample Description

PETER-WS-001

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Matrix:	SOLID	SDG No.:	139370
% Solids for Sample:	93.6	Concentration Units:	mg/kg
Sample No	180992	Parent Sample No.:	175865
Analytical Prep Batch #	68746	Analytical Preparation Date/Time:	09/21/2018 09:00
Analytical Run #:	153509	ICAL Calibration #:	09242018

Analysis Type	*Initial Analysis*	Analysis Date: -----	09/24/2018	Analysis Time: --------	13:31

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M
Cyanide	76-120	1.48		BDL	U	1.29	115		AS

BDL = analyte concentration was below detection limit

CT LABORATORIES
delivering more than data from your environmental analyses

5A

SPIKE SAMPLE RECOVERY

Sample Description

PETER-WW-001

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Matrix:	LIQUID	SDG No.:	139370
% Solids for Sample:		Concentration Units:	ug/L
Sample No	183141	Parent Sample No.:	175867
Analytical Prep Batch #	68845	Analytical Preparation Date/Time:	09/25/2018 09:00
Analytical Run #:	153658	ICAL Calibration #:	09252018

Analysis Type	*Initial Analysis*	Analysis Date: -----	09/25/2018	Analysis Time: --------	11:30

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M
Cyanide	83-116	58.9		19	J	40.0	100		AS

BDL = analyte concentration was below detection limit

CT LABORATORIES
delivering more than data from your environmental analyses

5C

SPIKE DUPLICATE SAMPLE RECOVERY

Sample Description

PETER-WW-001

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Matrix:	LIQUID	SDG No.:	139370
% Solids for Sample:		Concentration Units:	mg/L
Sample No	179389	Parent Sample No.:	179388
Analytical Prep Batch #		Analytical Preparation Date/Time:	
Analytical Run #:	153311	ICAL Calibration #:	

Analysis Type	*Initial Analysis*	Analysis Date: -----	09/17/2018	Analysis Time: --------	15:00

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M	
Sulfide	80-120	0.880	U	BDL	U	2.50	35		TIT	*FAIL*

BDL = analyte concentration was below detection limit

CT LABORATORIES
delivering more than data from your environmental analyses

5C

SPIKE DUPLICATE SAMPLE RECOVERY

Sample Description

PETER-WS-001

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Matrix:	SOLID	SDG No.:	139370
% Solids for Sample:	93.6	Concentration Units:	mg/kg
Sample No	180993	Parent Sample No.:	180992
Analytical Prep Batch #	68746	Analytical Preparation Date/Time:	09/21/2018 09:00
Analytical Run #:	153509	ICAL Calibration #:	09242018

Analysis Type	*Initial Analysis*	Analysis Date: -----	09/24/2018	Analysis Time: --------	13:33

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M
Cyanide	76-120	1.46		BDL	U	1.29	113		AS

BDL = analyte concentration was below detection limit

CT LABORATORIES
delivering more than data from your environmental analyses

5C

SPIKE DUPLICATE SAMPLE RECOVERY

Sample Description

PETER-WW-001

Lab Name:	CT Laboratories	Contract:	MAXXAM ANALYTICS-SI AFFF
Matrix:	LIQUID	SDG No.:	139370
% Solids for Sample:		Concentration Units:	ug/L
Sample No	183142	Parent Sample No.:	183141
Analytical Prep Batch #	68845	Analytical Preparation Date/Time:	09/25/2018 09:00
Analytical Run #:	153658	ICAL Calibration #:	09252018

Analysis Type	*Initial Analysis*	Analysis Date: -----	09/25/2018	Analysis Time: --------	11:33

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M
Cyanide	83-116	60.9		19	J	40.0	105		AS

BDL = analyte concentration was below detection limit

CT LABORATORIES
delivering more than data from your environmental analyses

6

DUPLICATES

Sample Description

PETER-WS-001

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

Matrix: SOLID

SDG No.: 139370

% Solid for Sample: 93.6

Concentration Units: S.U.

Analytical Prep Batch # 1

Analytical Preparation Date/Time

Analytical Run #: 153209

ICAL Calibration #:

Sample #: 176855

Parent Sample #: 175865

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Original Parent Conc. (S)	C	Duplicate Conc. (D)	C	RPD	Q	M
pH	09/13/2018	16:35	1	7.61		7.62		0		ELEC

CT LABORATORIES
delivering more than data from your environmental analyses

6

DUPLICATES

Sample Description

PETER-WS-001

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

Matrix: SOLID

SDG No.: 139370

% Solid for Sample: 93.6

Concentration Units: %

Analytical Prep Batch # 1

Analytical Preparation Date/Time 0

Analytical Run #: 153245

ICAL Calibration #:

Sample #: 177074

Parent Sample #: 175865

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Original Parent Conc. (S)	C	Duplicate Conc. (D)	C	RPD	Q	M
Solids, Percent	09/14/2018	10:39	8	93.6		91.7		2		GRA

CT LABORATORIES
delivering more than data from your environmental analyses

6

DUPLICATES

Sample Description

PETER-WW-001

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

Matrix: LIQUID

SDG No.: 139370

% Solid for Sample:

Concentration Units: S.U.

Analytical Prep Batch # 1

Analytical Preparation Date/Time

Analytical Run #: 153208

ICAL Calibration #:

Sample #: 177810

Parent Sample #: 175867

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Original Parent Conc. (S)	C	Duplicate Conc. (D)	C	RPD	Q	M
pH	09/13/2018	16:00	1	7.58		7.58		0		ELEC

CT LABORATORIES
delivering more than data from your environmental analyses

6

DUPLICATES

Sample Description

PETER-WW-001

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

Matrix: LIQUID

SDG No.: 139370

% Solid for Sample:

Concentration Units: mg/L

Analytical Prep Batch # 1

Analytical Preparation Date/Time

Analytical Run #: 153311

ICAL Calibration #:

Sample #: 179387

Parent Sample #: 175867

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Original Parent Conc. (S)	C	Duplicate Conc. (D)	C	RPD	Q	M
Sulfide	09/17/2018	15:00	20	1.0	U	1.0	U	0		TIT

CT LABORATORIES
delivering more than data from your environmental analyses

6

DUPLICATES

Sample Description

PETER-WS-001

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

Matrix: SOLID

SDG No.: 139370

% Solid for Sample: 93.6

Concentration Units: Deg. F

Analytical Prep Batch # 1

Analytical Preparation Date/Time

Analytical Run #: 153357

ICAL Calibration #:

Sample #: 179412

Parent Sample #: 175865

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Original Parent Conc. (S)	C	Duplicate Conc. (D)	C	RPD	Q	M
Flashpoint	09/18/2018	15:40	5	>140.0		>140.0		0		

CT LABORATORIES
delivering more than data from your environmental analyses

6

DUPLICATES

Sample Description

PETER-WW-001

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

Matrix: LIQUID

SDG No.: 139370

% Solid for Sample:

Concentration Units: Deg. F

Analytical Prep Batch # 1

Analytical Preparation Date/Time

Analytical Run #: 153357

ICAL Calibration #:

Sample #: 179413

Parent Sample #: 175867

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Original Parent Conc. (S)	C	Duplicate Conc. (D)	C	RPD	Q	M
Flashpoint	09/18/2018	15:40	5	>140.0		>140.0		0		

CT LABORATORIES
delivering more than data from your environmental analyses

6A

MATRIX SPIKE DUPLICATES

Sample Description

PETER-WW-001

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

Matrix: LIQUID

SDG No.: 139370

% Solid for Sample:

Concentration Units: mg/L

Analytical Prep Batch #

Analytical Preparation Date/Time

Analytical Run #: 153311

ICAL Calibration #:

Sample #: 179389

Parent Sample #: 179388

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Matrix Spik Parent Conc. (S)	C	Matrix Spike Duplicate Conc. (D)	C	RPD	Q	M	
Sulfide	09/17/2018	15:00	20	1.20		1.00	U	31		TIT	*FAIL*

CT LABORATORIES
delivering more than data from your environmental analyses

6A

MATRIX SPIKE DUPLICATES

Sample Description

PETER-WS-001

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

Matrix: SOLID

SDG No.: 139370

% Solid for Sample: 93.6

Concentration Units: mg/kg

Analytical Prep Batch # 68746

Analytical Preparation Date/Time 09/21/2018 09:00

Analytical Run #: 153509

ICAL Calibration #: 09242018

Sample #: 180993

Parent Sample #: 180992

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Matrix Spik Parent Conc. (S)	C	Matrix Spike Duplicate Conc. (D)	C	RPD	Q	M
Cyanide	09/24/2018	13:33	20	1.48		1.46		2		AS

CT LABORATORIES
delivering more than data from your environmental analyses

6A

MATRIX SPIKE DUPLICATES

Sample Description

PETER-WW-001

Lab Name: CT Laboratories

Contract: MAXXAM ANALYTICS-SI AFFF

Matrix: LIQUID

SDG No.: 139370

% Solid for Sample:

Concentration Units: ug/L

Analytical Prep Batch # 68845

Analytical Preparation Date/Time 09/25/2018 09:00

Analytical Run #: 153658

ICAL Calibration #: 09252018

Sample #: 183142

Parent Sample #: 183141

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Matrix Spik Parent Conc. (S)	C	Matrix Spike Duplicate Conc. (D)	C	RPD	Q	M
Cyanide	09/25/2018	11:33	20	58.9		60.9		3		AS

CT LABORATORIES
delivering more than data from your environmental analyses

7-1

Sample No:

LCS

LABORATORY CONTROL SAMPLE - AQUEOUS

Lab Name: CT Laboratories

Contract MAXXAM ANALYTICS-SI AFFF

LCS Source: SPEX and Ultra

SDG No.: 139370

Concentration Units: Deg. F

Analytical Run #: 153357

Sample No.:#: 178130

Analytical Prep Batch #:

Preparation Date/Time:

ICAL Calibration #:

Analysis Type ---------- Initial Analysis

Analyte	Analysis Date/Time		Control Limit (%R)	Spike Result	C	Spike Amount	%R	Q	M
Flashpoint	09/18/2018	15:40	90-110	79.1		79.8	99		

CT LABORATORIES
delivering more than data from your environmental analyses

7-1

Sample No:

LCS

LABORATORY CONTROL SAMPLE - AQUEOUS

Lab Name: CT Laboratories

Contract MAXXAM ANALYTICS-SI AFFF

LCS Source: SPEX and Ultra

SDG No.: 139370

Concentration Units: mg/L

Analytical Run #: 153311

Sample No.:#: 179390

Analytical Prep Batch #:

Preparation Date/Time:

ICAL Calibration #:

Analysis Type ---------- Initial Analysis

Analyte	Analysis Date/Time	Control Limit (%R)	Spike Result	C	Spike Amount	%R	Q	M
Sulfide	09/17/2018 15:00	80-120	4.640		5.000	93		TIT

CT LABORATORIES
delivering more than data from your environmental analyses

7-1

Sample No:

LCS

LABORATORY CONTROL SAMPLE - AQUEOUS

Lab Name: CT Laboratories

Contract MAXXAM ANALYTICS-SI AFFF

LCS Source: SPEX and Ultra

SDG No.: 139370

Concentration Units: ug/L

Analytical Run #: 153658

Sample No.:#: 183144

Analytical Prep Batch #: 68845

Preparation Date/Time: 09/25/2018 09:00

ICAL Calibration #: 09252018

Analysis Type ---------- Initial Analysis

Analyte	Analysis Date/Time	Control Limit (%R)	Spike Result	C	Spike Amount	%R	Q	M
Cyanide	09/25/2018 11:19	83-116	41.80		40.00	104		AS

CT LABORATORIES
delivering more than data from your environmental analyses

7-2

Sample No:

LCS

LABORATORY CONTROL SAMPLE - SOLID

Lab Name: CT Laboratories

Contract MAXXAM ANALYTICS-SI AFFF

LCS Source: SPEX and Ultra

SDG No.: 139370

Concentration Units: Deg. F

Analytical Run #: 153357

Sample No.:#: 178129

Analytical Prep Batch #:

Preparation Date/Time:

ICAL Calibration #:

Analysis Type ---------- Initial Analysis

Analyte	Analysis Date/Time		Control Limit (%R)	Spike Result	C	Spike Amount	%R	Q	M
Flashpoint	09/18/2018	15:40	90-110	79.1		79.8	99		

CT LABORATORIES
delivering more than data from your environmental analyses

7-2

Sample No:

LCS

LABORATORY CONTROL SAMPLE - SOLID

Lab Name: CT Laboratories

Contract MAXXAM ANALYTICS-SI AFFF

LCS Source: SPEX and Ultra

SDG No.: 139370

Concentration Units: mg/kg

Analytical Run #: 153509

Sample No.:#: 180996

Analytical Prep Batch #: 68746

Preparation Date/Time: 09/21/2018 09:00

ICAL Calibration #: 09242018

Analysis Type ---------- Initial Analysis

Analyte	Analysis Date/Time	Control Limit (%R)	Spike Result	C	Spike Amount	%R	Q	M
Cyanide	09/24/2018 13:23	76-120	1.21		1.25	97		AS

INORGANICS
RAW DATA
DOCUMENTS

Creator : lachat

Creation Date : 05/15/2015 13:15:45

Last Modified : 09/24/2018 12:08:43

Description :

Cup	Sample ID	MDF	Weight	Sample Type	Comments
S1	Cal Std 100 ug/L			Calibration Standard	
S2	Cal Std 75 ug/L			Calibration Standard	
S3	Cal Std 50 ug/L			Calibration Standard	
S4	Cal Std 30 ug/L			Calibration Standard	
S5	Cal Std 20 ug/L			Calibration Standard	
S6	Cal Std 10 ug/L			Calibration Standard	
S7	Cal Std 0 ug/L			Calibration Standard	
S8	ICV OK			Check Standard	
S7	ICB OK			Check Standard	
S3	CCV OK			Check Standard	
S7	CCB OK			Check Standard	
1	180996 OK			Check Standard	
2	180995 OK			Check Standard	
3	180997 OK			Check Standard	
4	180998 OK			Check Standard	
5	180994 LOQ OK			Unknown	
6	143872 LOD OK			Unknown	
7	175865			Unknown	
8	MSS175865			Unknown	
9	MSDS175865			Unknown	
S3	CCV OK			Check Standard	
S7	CCB OK			Check Standard	

Analyte Table	CN
	(ug/L)
Cal Std 100 ug/L	100
Cal Std 75 ug/L	75.0
Cal Std 50 ug/L	50.0
Cal Std 30 ug/L	30.0
Cal Std 20 ug/L	20.0
Cal Std 10 ug/L	10.0
Cal Std 0 ug/L	0.00

Author: LACHAT8500-2 Date : 09/24/2018

Original Run Filename: OM_09-24-2018_13-16-03.OMN Created: 09/24/2018 13:16:03
Original Run Author's Signature: [LACHAT8500-2]
Current Run Filename: OM_09-24-2018_13-16-03.OMN Last Modified: 09/24/2018 13:39:04
Current Run Author's Signature: [LACHAT8500-2]
Description:

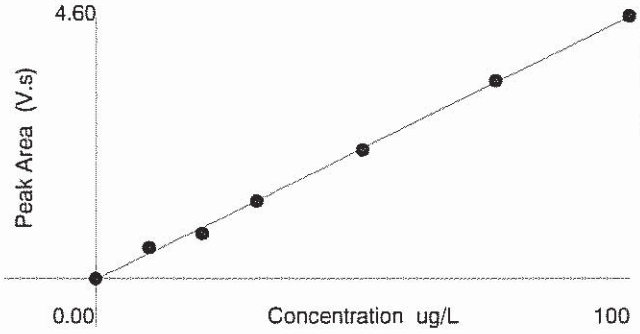
Sample	Rep.	Cup No.	Channel 1 CN Conc. (ug/L)	Channel 1 CN Area (V.s)	Detection Time	ADF	MDF
ICV	1	S8	49.8	2.28	09/24/2018@13:17:24		
	Known Conc:		50.0				
ICB	1	S7	0.226	-0.0126	09/24/2018@13:18:35		
	Known Conc:		0.00				
	Calibration:		Table/Fig. : 1				
CCV	1	S3	48.3	2.21	09/24/2018@13:21:32		
	Known Conc:		50.0				
CCB	1	S7	0.600	4.67e-3	09/24/2018@13:22:43		
	Known Conc:		0.00				
180996	1	1	48.2	2.20	09/24/2018@13:23:52		
	Known Conc:		50.0				
180995	1	2	1.53	0.0477	09/24/2018@13:25:02		
	Known Conc:		0.00				
180997	1	3	74.9	3.43	09/24/2018@13:26:11		
	Known Conc:		75.0				
180998	1	4	18.4	0.825	09/24/2018@13:27:20		
	Known Conc:		20.0				
180994 LOQ	1	5	23.2	1.05	09/24/2018@13:28:30		
143872 LOD	1	6	14.9	0.666	09/24/2018@13:29:39		
175865	1	7	1.40	0.0418	09/24/2018@13:30:48		
MSS175865	1	8	57.5	2.63	09/24/2018@13:31:56		
MSDS175865	1	9	56.4	2.58	09/24/2018@13:33:05		
CCV	1	S3	49.3	2.25	09/24/2018@13:36:03		
	Known Conc:		50.0				
CCB	1	S7	1.07	0.0265	09/24/2018@13:37:13		
	Known Conc:		0.00				

Table : 1 (CN)

	Known Conc. (ug/L)	Rep.	Peak Area (V.s)	Peak Height (V)	% RSD	% Residual	Det. Conc (ug/L)	Detection Date	Detection Time
1	100	1	4.60	0.299	0.0	-0.3	100	09/24/2018	13:00:01
2	75.0	1	3.46	0.225	0.0	-0.7	75.5	09/24/2018	13:01:09
3	50.0	1	2.25	0.146	0.0	1.5	49.2	09/24/2018	13:02:18
4	30.0	1	1.36	0.0878	0.0	0.4	29.9	09/24/2018	13:03:27
5	20.0	1	0.791	0.0516	0.0	12.2	17.6	09/24/2018	13:04:37
6	10.0	1	0.538	0.0340	0.0	-22.0	12.1	09/24/2018	13:05:47
7	0.00	1	-4.43e-3	1.28e-3			0.403	09/24/2018	13:06:57

Author: LACHAT8500-2 Date : 09/24/2018

Figure : 1 (CN)



Area = 0.0461 * Conc - 0.0204
Conc = 21.7 * Area + 0.499
Correlation Coefficient (r) = 0.99929

Weighting : None

Creator : LACHAT8500-2

Creation Date : 01/19/2017 13:55:30

Last Modified : 09/25/2018 09:45:05

Description :

Cup	Sample ID	MDF	Weight	Sample Type	Comments
S1	TRACER			Unknown	
S1	Cal Std A			Calibration Standard	
S2	Cal Std B			Calibration Standard	
S3	Cal Std C			Calibration Standard	
S4	Cal Std D			Calibration Standard	
S5	Cal Std E			Calibration Standard	
S6	Cal Std F			Calibration Standard	
S7	Cal Std G			Calibration Standard	
S8	ICV OK			Check Standard	
S7	ICB OK			Check Standard	
S3	CCV OK			Check Standard	
S7	CCB OK			Check Standard	
S8	183144 183152 OK			Check Standard	
S7	183143 183151 OK			Check Standard	
1	175867			Unknown	
2	MSW175867			Unknown	
3	MSDW175867			Unknown	
4	175621			Unknown	
5	MSW175621			Unknown	
6	MSDW175621			Unknown	
S3	CCV			Check Standard	
S7	CCB			Check Standard	

Author: LACHAT8500-2 Date : 09/25/2018

Original Run Filename: OM_09-25-2018_10-30-11.OMN Created: 09/25/2018 10:30:11
Original Run Author's Signature: [LACHAT8500-2]
Current Run Filename: OM_09-25-2018_10-30-11.OMN Last Modified: 09/25/2018 12:05:02
Current Run Author's Signature: [LACHAT8500-2]
Description:

Sample	Rep.	Cup No.	Channel 2 CN Conc. (ug/L)	Area (V.s)	Detection Time	ADF	MDF
TRACER	1	S1	29.3	2.35	09/25/2018@10:37:46		
		Calibration:	Table/Fig. : 2				
Cal Std A	1	S1	80.0	2.35	09/25/2018@10:41:13		
Cal Std B	1	S2	50.0	1.54	09/25/2018@10:44:42		
Cal Std C	1	S3	40.0	1.23	09/25/2018@10:48:10		
Cal Std D	1	S4	20.0	0.608	09/25/2018@10:51:39		
Cal Std E	1	S5	10.0	0.283	09/25/2018@10:55:08		
Cal Std F	1	S6	5.00	0.176	09/25/2018@10:58:38		
Cal Std G	1	S7	0.00	-0.0231	09/25/2018@11:02:08		
ICV	1	S8	42.2	1.27	09/25/2018@11:05:38		
		Known Conc:	40.0				
		Calibration:	Table/Fig. : 1				
ICB	1	S7	0.817	0.0312	09/25/2018@11:09:08		
		Known Conc:	0.00				
CCV	1	S3	40.2	1.21	09/25/2018@11:12:37		
		Known Conc:	40.0				
CCB	1	S7	0.516	0.0222	09/25/2018@11:16:07		
		Known Conc:	0.00				
183144 183152	1	S8	41.8	1.25	09/25/2018@11:19:37		
		Known Conc:	40.0				
183143 183151	1	S7	0.785	0.0302	09/25/2018@11:23:07		
		Known Conc:	0.00				
175867	1	1	19.1	0.578	09/25/2018@11:26:37		
MSW175867	1	2	58.9	1.76	09/25/2018@11:30:06		
MSDW175867	1	3	60.9	1.82	09/25/2018@11:33:35		
175621	1	4	1.44	0.0498	09/25/2018@11:37:04		
MSW175621	1	5	40.6	1.22	09/25/2018@11:40:33		
MSDW175621	1	6	47.0	1.41	09/25/2018@11:44:02		

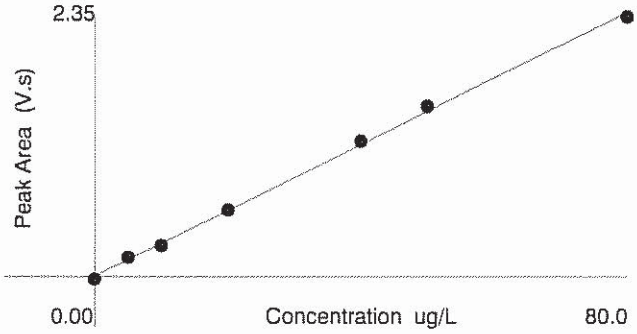
Software error - omnion froze - Restarted computer + resumed where left off.

Table : 1 (CN) UJS 9/25/18

	Known Conc. (ug/L)	Rep.	Peak Area (V.s)	Peak Height (V)	% RSD	% Residual	Det. Conc (ug/L)	Detection Date	Detection Time
1	80.0	1	2.35	0.145	0.0	1.7	78.5	09/25/2018	10:41:13
2	50.0	1	1.54	0.0943	0.0	-2.9	51.4	09/25/2018	10:44:42
3	40.0	1	1.23	0.0755	0.0	-2.5	41.0	09/25/2018	10:48:10
4	20.0	1	0.608	0.0372	0.0	-0.7	20.2	09/25/2018	10:51:39
5	10.0	1	0.283	0.0167	0.0	7.7	9.24	09/25/2018	10:55:08
6	5.00	1	0.176	0.0102	0.0	-11.8	5.66	09/25/2018	10:58:38
7	0.00	1	-0.0231	-1.23e-3			-1.00	09/25/2018	11:02:08

Author: LACHAT8500-2 Date : 09/25/2018

Figure : 1 (CN)



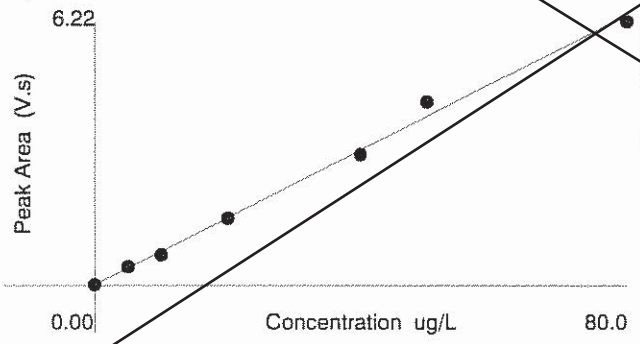
Area = 0.0298 * Conc + 8.05e-3
Conc = 33.5 * Area - 0.228
Correlation Coefficient (r) = 0.99929

Weighting : None

Table : 2 (CN)

	Known Conc. (ug/L)	Rep.	Peak Area (V.s)	Peak Height (V)	% RSD	% Residual	Det. Conc (ug/L)	Detection Date	Detection Time
1	80.0	1	6.22	0.334	0.0	2.2	78.0	01/19/2017	14:06:22
2	50.0	1	4.32	0.231	0.0	-8.4	54.1	01/19/2017	14:09:50
3	40.0	1	3.09	0.166	0.0	3.4	38.6	01/19/2017	14:13:19
4	20.0	1	1.59	0.0848	0.0	1.2	19.8	01/19/2017	14:16:47
5	10.0	1	0.732	0.0394	0.0	10.5	9.02	01/19/2017	14:20:17
6	5.00	1	0.447	0.0245	0.0	-6.1	5.44	01/19/2017	14:23:47
7	0.00	1	0.0197	1.74e-3			0.0685	01/19/2017	14:27:16

Figure : 2 (CN)



Area = 0.0792 * Conc + 0.0255
Conc = 12.6 * Area - 0.179
Correlation Coefficient (r) = 0.99759

Weighting : None

9/25/18

Author: LACHAT8500-2 Date : 09/25/2018

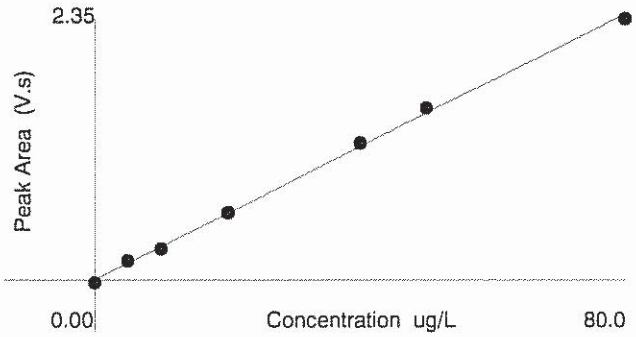
Original Run Filename: OM_09-25-2018_12-13-02.OMN Created: 09/25/2018 12:13:02
Original Run Author's Signature: [LACHAT8500-2]
Current Run Filename: OM_09-25-2018_12-13-02.OMN Last Modified: 09/25/2018 12:27:20
Current Run Author's Signature: [LACHAT8500-2]
Description:

Sample	Rep.	Cup No.	Channel 2 CN Conc. (ug/L)	Area (V.s)	Detection Time	ADF	MDF
CCV	1	S3	43.7	1.31	09/25/2018@12:21:17		
		Known Conc:	40.0				
		Calibration:	Table/Fig. : 1				
CCB	1	S7	0.613	0.0251	09/25/2018@12:24:47		
		Known Conc:	0.00				

Table : 1 (CN)

	Known Conc. (ug/L)	Rep.	Peak Area (V.s)	Peak Height (V)	% RSD	% Residual	Det. Conc (ug/L)	Detection Date	Detection Time
1	80.0	1	2.35	0.145	0.0	1.7	78.5	09/25/2018	10:41:13
2	50.0	1	1.54	0.0943	0.0	-2.9	51.4	09/25/2018	10:44:42
3	40.0	1	1.23	0.0755	0.0	-2.5	41.0	09/25/2018	10:48:10
4	20.0	1	0.608	0.0372	0.0	-0.7	20.2	09/25/2018	10:51:39
5	10.0	1	0.283	0.0167	0.0	7.7	9.24	09/25/2018	10:55:08
6	5.00	1	0.176	0.0102	0.0	-11.8	5.66	09/25/2018	10:58:38
7	0.00	1	-0.0231	-1.23e-3			-1.00	09/25/2018	11:02:08

Figure : 1 (CN)



Area = 0.0298 * Conc + 8.05e-3
Conc = 33.5 * Area - 0.228
Correlation Coefficient (r) = 0.99929

Weighting : None

Flashpoint Bench Sheet

DATE:_____ 09/18/2018 TIME:_____ 14:50 RUN:_____ 153357

METHOD: EPA 1010A ANALYST:_____ SAW

	SAMPLE#	DATE SAMPLED	MATRIX	FLASHPOINT (F°)	COMMENTS:
1	LCSS		QC	79.1	W45303
2	175865	09/11/2018	S	>140.0	
3	DUP175865	09/11/2018	S	>140.0	
4					
5	LCSW		QC	79.1	W45303
6	175867	09/11/2018	GW	>140.0	
7	DUP175867	09/11/2018	GW	>140.0	
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

pH Bench Sheet

Date: 09/13/2018 Analyst: CLB

Instrument: ***Mettler Toledo Seven Easy*** LIMS#: 153208

Time: 16:00 Slope (%): 97%

	SAMPLE#	MATRIX	pH	TEMP (ºC)	COMMENTS:
23	175867	GW	7.58	15.5	
24	DUP175867	GW	7.58	15.5	

*For samples following SM 4500-H+B, the pH measurement must be bracketed by calibration buffer 7 every 10 samples.

pH Bench Sheet

Date: 09/13/2018 Analyst: CLB

Instrument: ***Mettler Toledo Seven Easy*** LIMS#: 153209

Time: 16:35 Slope (%): 97%

	SAMPLE#	MATRIX	pH	TEMP (ºC)	COMMENTS:
1					
2					
3					
4	175865	S	7.61	18.9	
5	DUP 175865	S	7.62	18.9	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					

*For samples following SM 4500-H+B, the pH measurement must be bracketed by calibration buffer 7 every 10 samples.

Sulfide

	Date	09/17/18	Analyst:	SAW	Lims #:	153311		Method:	EPA 376.1
Grp	Time	15:00	Sample	Iodine	PAO		Result		
	Sample #	DF	ml *(A)*	ml *(B)*	ml *(C)*		mg/L		Comments
1	LCSW	1	200	4.00	1.68		4.64		LCS W45382
2	MBW	1	200	2.00	2.00		0.00		Exp 9/18/18
3	175867	1	100	2.00	2.00		0.00		SPIKE 0.25ml W45327
4	DUP175867	1	100	2.00	2.00		0.00		Exp 10/4/18
5	MSW175867	1	100	2.00	1.70		1.20		Starch W44946
6	MSDW175867	1	100	2.00	1.78		0.88		Exp 2/28/20
7		1					#DIV/0!		6N HCl W42299
8		1					#DIV/0!		Exp 9/28/18
9		1					#DIV/0!		Iodine W 43366
10		1					#DIV/0!		Exp 11/30/18
11		1					#DIV/0!		PAO W43917
12		1					#DIV/0!		Exp 2/22/19
13		1					#DIV/0!		
14		1					#DIV/0!		
15		1					#DIV/0!		
16		1					#DIV/0!		
17		1					#DIV/0!		
18		1					#DIV/0!		
19		1					#DIV/0!		
20		1					#DIV/0!		
21		1					#DIV/0!		
22		1					#DIV/0!		
23		1					#DIV/0!		
24		1					#DIV/0!		
25		1					#DIV/0!		

A = ml of Sample
B = ml of 0.025N Iodine Solution
C = ml of 0.025 Phenylarsine Oxide

Calculations

$$\text{Sulfide, mg/L} = \frac{(B)\text{ ml} - (C)\text{ ml} \times 400}{\text{Sample Vol. (A)}}$$

To capture the data, save the "CAPTURE PAGE" as a CSV file to the LACHAT8 folder. Go into results entry and re-calculate the MSW and DUP to make certain the RPD and RECOVERY have calculated properly.
QC doesn't need to be added to the run prior to capture. Enter the Sample ID of QC as: LCSW, MBW, MSWparent sample order #, DUPparent sample order #

TOTAL SOLIDS (PERCENT)

LIMS #: 153245

Start Date:	**09/14/2018**	**Start Time:**	10:39		**Analyst:**	BMM
	Sample ID#	**Dish#**	**Tared Weight g *(D)***	**Wet Weight g *(E)***	**Dry Weight g *(F)***	**RESULTS % TOTAL SOLIDS**
1)						0.0%
2)						0.0%
3)						0.0%
4)						0.0%
5)						0.0%
6)						0.0%
7)						0.0%
8)						0.0%
9)						0.0%
10)						0.0%
11)						0.0%
12)						0.0%
13)						0.0%
14)						0.0%
15)						0.0%
16)						0.0%
17)						0.0%
18)						0.0%
19)						0.0%
*20)	175865	C620	2.55	12.78	12.13	93.6%
Dup 20)	175865	C618	2.58	12.46	11.64	91.7%
Dry Weight = Sample + Dish (gms)				* 2nd Reading,	12.13	
Wet Weight = Sample + Dish (gms)					Set RPD:	2.1%
			Balance: VOB-01			
					*mg Differen	0

Stop Date:	09/17/2018
Stop Time:	09/28

*2nd reading must be within 50mg of the 1st

Calculations

% Total Solids = ((*F-D*)/(*E-D*))*100

RPD, % = Absolute value of…((Sample-Dup % TS)/(Average%TS))*100

INORGANICS
LOGBOOK
DOCUMENTS

WCYANIDE Solids QSM Analytical Run
153509 on 09/21/2018

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME	QC TYPE (Parent Sample)		CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
137419	143872		07/02/2018			CT LABORATORIES	QUARTER 3, 2018	CYANIDE QSM		S	**1**	
		LOD CHECK 8500-2							68746			
139370	175865		09/11/2018 0800			MAXXAM ANALYTICS	SI AFFF	CYANIDE QSM		S	**4**	
		PETER-WS-001							68746			
	180992		09/11/2018 0800					CYANIDE QSM				
		PETER-WS-001		MSS	175865				68746			
	180993		09/11/2018 0800					CYANIDE QSM				
		PETER-WS-001		MSDS	180992				68746			
	180994							CYANIDE QSM				
				LQCKS					68746			
	180995							CYANIDE QSM				
				MBS					68746			
	180996							CYANIDE QSM				
				LCSS					68746			
	180997							CYANIDE QSM				
				CCVDHS					68746			
	180998							CYANIDE QSM				
				CCVDLS					68746			

9 SAMPLE COUNT ON RUN, INCLUDING METHOD AND INSTRUMENT QC

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

Distribution: C:\LIMSREPS\ANALYTICALRUN.RPT

CYANIDE DISTILLATION REAGENT LOG

Prep Batch(s): 68746
Date/Time/Analyst: 9/21/18 LJS 09:00
Run(s): 153509
Date/Analyst: 9/24/18 LJS

Easy Dist Temperature (Max) (190± 10°C):	185	
Date/Analyst:	9/21/18 LJS	
Time:	13:00	

Reagents:	W #	Exp Date
0.25N NaOH Solution.....	45326	10/04/2018
ICAL Working Preparation.....	45397	09/28/2018
ICAL Preparation.....	45408	09/25/2018
ICV/LCS Preparation.....	45402	09/28/2018
~0.2 g Sulfamic Acid.....	39719	03/31/2019
5 mL 18N H2SO4.....	43182	12/27/2018
2 mL MgCl2.....	42945	11/15/2018
Buffer.....	45409	10/24/2018
Pyridine-Barbituric Acid.....	45410	10/01/2018
Chloramine-T.....	45407	09/25/2018
Ascorbic Acid.....	N/A	N/A
Calcium Hypochlorite.....	N/A	N/A

Spiked Samples:	W #	Exp Date
Spiking Solution.....	45399	09/28/2018

Concentration..... 10 mg/L
Volume of Spike Used... 0.25 mL
Final Sample Volume..... 50 mL
Final Spike Concentration... 50 µg/L

	Yes	Treated if needed
Samples Checked for Chlorine.....	X	N/A
Samples Checked for Sulfide.....	X	N/A
Samples Distilled @ 190°C for 2.5Hrs	X	
Heated at 60°C.....	X	

PREP WORKSHEET
on 09/25/2018

Prep Batch **68,746** Date Prepped: 09/21/2018 Prepped By LJS

Folder #	Order	QC Type	Link	Test	Matrix	Volume	Weight	Initial Volume	SDG Level	Notes
	180994	LQCKS		CYANIDE QSM	SOLID	50	2.0000			
	180995	MBS		CYANIDE QSM	SOLID	50	2.0000			
	180996	LCSS		CYANIDE QSM	SOLID	50	2.0000			
	180997	CCVDH		CYANIDE QSM	SOLID	50	2.0000			
	180998	CCVDL		CYANIDE QSM	SOLID	50	2.0000			
137419	143872			CYANIDE QSM	SOIL	50	2.0000		1	
139370	175865			CYANIDE QSM	SOIL	50	2.0598		4	
	180992	MSS	175865	CYANIDE QSM	SOIL	50	2.0737			
	180993	MSDS	180992	CYANIDE QSM	SOIL	50	2.0651			

Notes:

PREP WORKSHEET 2
on 09/21/2018

Page 1539

Prep Batch: 68746

Date Prepped: 9/24/18

Prepped By: JS

Date Entered:

Folder #	Order	QC Type	Link	Test	Client Company Name	Client Sample Description	Matrix	Volume	Sample Date / Time	Due Date	SDG Level
	180994 5	LQCKS	0	CYANIDE QSM			SOLID	2g	TV = 24ug/L	W45400	
	180995 2	MBS	0	CYANIDE QSM			SOLID	2g			
	180996 1	LCSS	0	CYANIDE QSM			SOLID	2g			
	180997 3	CCVDHS	0 75	CYANIDE QSM			SOLID	2g			
	180998 4	CCVDLS	0 20	CYANIDE QSM			SOLID	2g			
137419	143872 6			CYANIDE QSM	CT LABORATORIES	LOD CHECK 8500-2	SOIL	2g	TV = 12ug/L 7/2/18	W45401 7/14/18	1
139370	175865 7, 8, 9			CYANIDE QSM	MAXXAM ANALYTICS	PETER-WS-001	SOIL	2.0598g	9/11/18 0800	9/25/18	4
	180992	MSS	175865	CYANIDE QSM		PETER-WS-001	SOIL	2.0737g	9/11/18 0800	2.0651g	
	180993	MSDS	180992	CYANIDE QSM		PETER-WS-001	SOIL		9/11/18 0800		

Control Spike/Control Spike Dup Reference Number:_____ Methanol Supplier/Lot #:_____

Notes:_____

Distibution:

C:\LIMSREPS\PREPWRKSHT2.RPT

Cyanide Distillation Data Validation Checklist

		Method: Cyanide 9012A 335.4			
LIMS Run #(s)	**Analysis Date**	**Analyst / Data Interpreter**	**Independent Reviewer**	**Date of Review**	**Approved? (Yes or No)**
153509	09/24/2018	LJS	MEZ	09/25/2018	YES

Instructions: Complete one checklist per *analytical run* . Enter the appropriate response for each question.
Each "No" response requires an explanation in the Comments section, and may require the initiation of a Nonconformance Report.

Requirement:	**Acceptance Criteria**	**Analyst Review**		**Independent Review**		**Comments:**
		Yes	No	Yes	No	(indicate reference to an attachment if necessary)
1. Does a distillation sheet accompany the data package?	---	X		X		
2. Does the distillation sheet include all reagent and standard prep log numbers?	---	X		X		
3. Was max temperature for distillation block documented?	---	X		X		
4. Were samples checked for chlorine and sulfide?	---	X		X		
5. Were the samples distilled within hold time?	14 days	X		X		
6. Were reagents/standards used before expiration date?	---	X		X		
7. Was a method blank prepared at the required frequency?	1per 20 samples	X		X		
8. Was the method blank result acceptable?	< |LOD|	X		X		
9. Was an LCS prepared at the required frequency?	1per 20 samples	X		X		
10. Was the LCS used before the indicated expiration date?	---	X		X		
11. Was the LCS recovery acceptable?	Within in house, project, or QSM QC limits	X		X		
12. Was the MS and MSD prepared at the required frequency?	1per 10 samples per matrix (Same for QSM)	X		X		
13. Were the MS and MSD recoveries acceptable?	Within in house, project, or QSM QC limits	X		X		
14. Was the RPD between the MS and MSD acceptable?	Within in house project, or QSM QC limits	X		X		
15. Was calibration performed using required number of standards	6 plus a blank	X		X		
16. Is the standard prep log number noted on the analytical report?	---	X		X		
17. Was the correlation coefficient (r) acceptable?	≥ 0.995	X		X		
18. Were distilled calibration standard recoveries acceptable (for LCG / QSM)?	90 – 110 % Rec.	X		X		
19. Were the ICV and ICB (if required) run immediately after the calibration curve?	---	X		X		
20. Was the ICV recovery acceptable?	90-110 %	X		X		
21. Was the ICB result acceptable?	< |LOD|	X		X		
22. Were the CCV's analyzed at the required frequency?	1per 10 samples	X		X		
23. Were the CCV recoveries acceptable?	90-110 % rec.	X		X		
24. Are all samples on the job lists accounted for?	---	X		X		

Lachat 8500-2 Instrument Run Logbook

Date	Start Time	End Time	Analyst	Analyte	Lims Run #(s)	Lachat Data File	Calibration Standard ID #	Comments	Review
08/22/18	11:11	12:07	MEZ	HEX CR H2O	152551	152551: OM_08-22-2018_11-11-38, 11-57-00, 12-05-54	W44181		8/24/18 LJS
08/24/18	9:38	11:45	MEZ	TKN	152553, 554, 555, 584	152553: OM_08-24-2018_09-38-01	W45266		8/24/18 LJS
	9:09	09:59	MEZ	NH3 UNDIG H2O	152727, 728	152727: OM_08-28-2018_09-08-57	W45255		
08/28/18	10:10	10:32	MEZ	NHS UNDIG SOIL	152729	152729: OM_08-28-2018_ 10-09-02	W45259		
08/28/18	11:11	11:55	MEZ	HEX CR H2O	152743	152743: OM_08-28-2018_11-10-47, 11-54-00	W44181		
08/29/18	8:30	12:10	LJS	CN IL	152764	152764, OM_08-29-2018-10-32-38, -11-25-11	W45299		
08/31/18	10:02	11:29	SAW	TKN	152755, 756	152755; OM_08-31-2018_10-02-59	W45266		
09/06/18	10:43	11:50	MEZ	HEX CR H2O	152975	152975: OM_09-06-2018_10-42-07, 11-40-17	W44181		
09/07/18	9:07	11:40	LJS	TKN	152937, 41, 53, 54	152937, OM_09-07-2018-09-07-30	W45266		
09/07/18	12:00	12:47	LJS	CUP PHOS	152955, 56	152955, OM_09-07-2018-12-00-52	W45266		
09/11/18	9:21	10:47	MEZ	NH3 UNDIG H2O	153077, 153079	153077: OM_09-11-2018_09-20-01, 10-03-15	W45338		
09/11/18	11:34	12:11	MEZ	NH2 UNDIG SLG	153080	153080: OM_09-11-2018_11-33-19	W45344		
09/12/18	9:30	11:25	LJS	ALK	153096, 97, 98, 99	153096, OM_09-12-2018-09-31-15, 9.12.18	W45352		
09/14/18	11:37	14:13	SAW	TKN	153113, 116, 117, 118	153113; OM_09-14-2018_11-37-02, _14-04-56	W45266		
09/14/18	14:55	15:24	SAW	TPHOS CUPRIC & WEP	153119, 286	153119: OM_09-14-2018_14-54-16	W45266		
09/20/18	11:24	15:02	MEZ	ALKALI NITY	153446, 47, 48, 50, 51, 52, 53	153446: OM_09-20-2018_11-23-02	W45352		
09/21/18	11:11	14:33	MEZ	TKN	153388, 89, 90, 91, 92	153388: OM_09-21-2018_11-10-34, 12-13-49	W45266		
09/21/18	14:56	16:34	MEZ	TP CUPRIC & WEP	153393, 537	153393: OM_09-21-2018_14-54-11,15-19-49, 16-24-27, 16-51-36	W45266		
09/24/18	13:00	13:40	LJS	CN SOIL	153509	153509, OM_09-24-2018-12-58-53, -13-16-08	W45408		
09/25/18	10:30	12:35	LJS	CN INLINE	153658, 659	153658, OM_09-25-2018-10-31-11,-12-13-02	W45426		

W33340 CS
1/13/14

NH_3 IL CCV (4 mg/L)
Into a 100 mL volumetric flask pipette 0.4ml NH_3 1000mg/L CCV/ICal stock W 31419 and fill to volume with H_2SO_4 diluent W 33283.
Exp. (two weeks): 1/27/14

W33341
MER 1/13/14

Magnesium Chloride Hexahydrate - Fisher Cat. #M35-500
Lot # 132233 Rec. 11-15-13 MER 1/13/14 Exp Opened 1/13/14

W33342
AGK
~~01-14~~ 01-13-14
01-13-14

LL Ophos ICAL Working (50 mg/L)
Into a 100 ml volumetric flask pipette 5ml TPhos ICAL/CCV stock standard (1000mg/L) W 32479 AGK 01-13-14 and fill to volume with MilliQ H_2O.
Exp (two days): 01-15-14

W33343
AGK
01-13-14

IC LL Ophos ICal
Into 8 separate 100 ml volumetric flasks pipette 0, 0.01, 0.02, 0.04, 0.06, 0.1, 0.2, and 0.4ml LL Ophos ICal Working (50mg/L) W 33342 and fill to volume with MIlliQ H_2O. Exp (two days): 01-15-14

W33344
AGK
01-13-14

IC ICAL Mixed Standard (50 mg/L):
Into a 100 mL volumetric flask pipetted 5 mL of 1000 mg/L Nitrite W 32990, Fluoride W 32406, Bromide W 31339, Nitrate W 33225, and Phosphate W 32479 and brought to volume with Milli-Q DI H_20.
EXP (48 Hours): 01-13-14

W33345
AGK
01-13-14

IC ICAL
Prepared in 100 mL volumetric flasks and brought to volume with Milli-Q DI H_20.

	1	2	3	4	5	6	7	8
mLs Mixed Std 50mg/L W 33344	0	0.2	1.0	2.0	4.0	10.0	14.0	28.0
mLs Chloride 1000mg/L W 33226	0	0.05	0.1	0.5	1.0	2.0	3.0	4.0
mLs Sulfate 1000mg/L W 32434	0	0.05	0.1	0.5	1.0	3.0	5.0	7.0

EXP (48 Hours): 01-15-14

W33346
VJS
01/14/14

Phenolics ICAL Working (1000 µg/L)
Into a 100 mL volumetric flask pipette 0.1mL Phenol ICal/CCV Stock (1000mg/L) W 31872 and fill to volume with DI H_2O. Exp. (one week): 1/21/14

W33347
VJS
01/14/14

Phenolics LCS (250 µg/L)
Into a 200 mL volumetric flask pipette 0.05mL Phenol ICV/LCS Stock (1000mg/L) W 309820 and fill to volume with DI H_2O. Exp. (one week): 1/21/14

Continued on Page

Read and Understood By

1/16/14 [illegible]
Signed | Date | Signed | Date

Standard Log #:	W39719	Chemical:	SULFAMIC ACID
Analyst:	MER	Vendor:	RICCA
Date Received:	8/25/16	Catalog #:	RDCS1100-500B1
Expiration Date (if any):	03/2019	Lot #:	4606826
Comments:			

Standard Log #:	W39920	Chemical:	Chloramine-T
Analyst:	LJS	Vendor:	JT BAKER
Date Received:	10/10/16	Catalog #:	E494-06
Expiration Date (if any):	02/21/2023	Lot #:	151619
Comments:			

LPWC01-9
WetChem Reagent Prep Logbook
Logbook Created: 06/26/17
Balances used in reagent prep:

Standard Log #:	W42866	Chemical:	Sulfuric Acid 36N
Analyst:	BKB	Vendor:	Millipore
Date Received:	N/A	Catalog #:	SX1244-5
Expiration Date (if any):	11/6/2018	Lot #:	57101
Comments:			

1

CT Laboratories, LLC

Standard Log #:	W42944	Chemical:	Magnesium Chloride Hexahydrate
Analyst:	BKB	Vendor:	Fisher
Date Received:	5/31/17	Catalog #:	M35-500
Expiration Date (if any):	N/A	Lot #:	162615
Comments:			

Standard Log #:	W42945	Standard/Reagent:	Magnesium Chloride Solution
Analyst:	BKB	Concentration:	N/A
Prep Date:	11/15/17	Expiration Date (1 Year):	11/15/18
PREP			Standards/Reagents Used
Into a 500mL volumetric flask, dissolved 255g of Magnesium chloride hexahydrate (1) and brought to volume with DI water.			(1) W42944

Standard Log #:	W43182	Standard/Reagent:	Sulfuric Acid Solution
Analyst:	BKB	Concentration:	18N
Prep Date:	12/27/17	Expiration Date (1 Year):	12/27/18
PREP			Standards/Reagents Used
Into a large beaker, volumetrically added 500 mL of DI water then slowly added 500 mL of Sulfuric acid (1) and mixed.			(1) W42866

Standard Log #:	W43192	Chemical:	POTASSIUM PHOSPHATE MONOBA
Analyst:	MEZ	Vendor:	BDH
Date Received:	10/18/17	Catalog #:	BDH9268-500G
Expiration Date (if any):	3/31/20	Lot #:	1237C433
Comments:			

Standard Log #:	W43193	Chemical:	HCL ACID
Analyst:	MEZ	Vendor:	FISHER
Date Received:	N/A	Catalog #:	A144C-212
Expiration Date (if any):	N/A	Lot #:	164269
Comments:			

Standard Log #:	W43585	Chemical:	NAOH PELLETS
Analyst:	MEZ	Vendor:	VWR
Date Received:	2/26/18	Catalog #:	0583-5KG
Expiration Date (if any):	N/A	Lot #:	1437C075
Comments:			

Standard Log #:	W43992	Chemical:	Hydrochloric Acid
Analyst:	SAW	Vendor:	Millipore
Date Received:	1/6/17	Catalog #:	HX0607-2
Expiration Date (if any):	1/5/2022	Lot #:	56208
Comments:			

Standard Log #:	W44131	Chemical:	PYRIDINE
Analyst:	MEZ	Vendor:	VWR
Date Received:	5/8/18	Catalog #:	BDH4562-1L
Expiration Date (if any):	8/15/20	Lot #:	18A086502
Comments:			

LPWC01-11
WetChem Reagent Prep Logbook
Logbook Created: 04/12/18
Balances used in reagent preparation:

Standard Log #:	W45326	Standard/Reagent:	NaOH Solution
Analyst:	MEZ	Concentration:	0.25N
Prep Date:	9/4/18	Expiration Date (1 Month):	10/4/18
PREP			Standards/Reagents Used
Into a 2L volumetric flask, dissolved 20g of Sodium hydroxide (NaOH) (1) and brought to volume with DI water.			(1) W43585

1

CT Laboratories, LLC

Standard Log #:	W45117	Chemical:	BARBITURIC ACID, 99%
Analyst:	MEZ	Vendor:	BTC
Date Received:	6/6/18	Catalog #:	134930-500G
Expiration Date (if any):	N/A	Lot #:	50023963
Comments:	Opened 7/30/18		

Standard Log #:	W45123	Chemical:	CN ICV/LCS STANDARD
Analyst:	LJS	Vendor:	SPEX
Date Received:	07/2018	Catalog #:	RSCN9C-2X
Expiration Date (if any):	01/30/2019	Lot #:	13-68YPX
Comments:	Opened 7/30/18		

Standard Log #:	W45124	Chemical:	CN ICAL/CCV STANDARD
Analyst:	LJS	Vendor:	SPEX
Date Received:	07/2018	Catalog #:	RSCN9-2Y
Expiration Date (if any):	10/30/2018	Lot #:	13-66YPY
Comments:	Opened 7/30/18		

LPWC01-12
WetChem Reagent Prep Logbook
Balances used in reagent prep:
WCB03, WCB04, and WCB05
Logbook Created 09/12/18

Standard Log #:	W45397	Standard/Reagent:	CN - ICal/CCV Working Std
Analyst:	LJS	Concentration:	10 mg/L
Prep Date:	9/21/18	Expiration Date (1 Week):	9/28/18
PREP			Standards/Reagents U
Into a 100mL volumetric flask, pipetted 1.0 mL of 1,000 mg/L CN ICal/CCV Stock Std. (1) and filled to volume with 0.25N NaOH (2).			(1) W45124 (2) W45326

Standard Log ~~#:~~ Template added twice. Deleted W45398	W45398-DELETED	Standard/Reagent:	CN - ICal/CCV Working Std
Analyst:	LJS	Concentration:	10 mg/L
Prep Date:	9/21/18	Expiration Date (1 Week):	9/28/18
PREP			Standards/Reagents U
Into a 100mL volumetric flask, pipetted 1.0 mL of 1,000 mg/L CN ICal/CCV Stock Std. (1) and filled to volume with 0.25N NaOH (2).			(1) W45397 (2) W45326

Standard Log #:	W45399	Standard/Reagent:	CN - LCS/ICV Working Std.
Analyst:	LJS	Concentration:	10 mg/L
Prep Date:	9/21/18	Expiration Date (1 Week):	9/28/18
PREP			Standards/Reagents U
			(1) W45123

Into a 100mL volumetric flask, pipetted 1.0 mL of 1,000 mg/L CN LCS/ICV Stock Std. (1) and filled to volume with 0.25N NaOH (2).	(2) W45326

Standard Log #:	W45402	Standard/Reagent:	CN - LCS/ICV
Analyst:	LJS	Concentration:	50 ug/L
Prep Date:	9/21/18	Expiration Date (1Day):	9/22/18

PREP	Standards/Reagents U
Into a 200mL volumetric flask, pipetted 1.0 mL of 10,000 ug/L CN LCS/ICV Working Std. (1) and filled to volume with 0.25N NaOH (2).	(1) W45399 (2) W45326

CT Laboratories, LLC

LPWC01-12
WetChem Reagent Prep Logbook
Balances used in reagent prep:
WCB03, WCB04, and WCB05

Standard Log #:	W45407	Standard/Reagent:	CN-Solid - Chloramine-T
Analyst:	LJS	Concentration:	N/A
Prep Date:	9/24/18	Expiration Date (24 Hours):	9/25/18
PREP			Standards/Reagents Used
Into a 500mL volumetric flask, dissolved 2.0g of Chloramine-T (1) and filled to volume with DI water.			(1) W39920

Standard Log #:	W45408	Standard/Reagent:	CN Solid - ICAL
Analyst:	LJS	Concentration:	N/A
Prep Date:	9/24/18	Expiration Date (1 day):	9/25/18
PREP			Standards/Reagents Used
LEVEL 1 (100 ug/L) - Into a 200mL volumetric flask, added 2.0 mL of the 10,000 ug/L CN Solid ICal/CCV Working Std. (1) and brought to volume with 0.25N NaOH (2). LEVEL 2 (75 ug/L) - Into a 100 mL volumetric flask, added 0.75 mL of (1) and filled to volume with (2). LEVEL 3 (50 ug/L) - Into a 100 mL volumetric flask, added 0.50 mL of (1) and brought to volume with (2). (This calibration standard is also used for CCV's.) LEVEL 4 (30 ug/L) - Into a 50 mL volumetric flask, added 15 mL of the 100 ug/L LEVEL 1 Std. and brought to volume with (2). LEVEL 5 (20 ug/L) - Into a 100 mL volumetric flask, added 20 mL of the 100 ug/L LEVEL 1 Std. and brought to volume with (2). LEVEL 6 (10 ug/L) - Into a 50 mL volumetric flask, added 5.0 mL of the 100 ug/L LEVEL 1 Std. and brought to volume with (2).			(1) W45397 (2) W45326

Standard Log #:	W45409	Standard/Reagent:	CN Solid - Buffer

Analyst:	LJS	Concentration:	1 M
Prep Date:	9/24/18	Expiration Date (1 Month):	10/24/18
PREP			Standards/Reagents Used
Into a 500mL volumetric flask, dissolved 48.5g of potassium dihydrogen phosphate monobasic (1) and filled to volume with DI water.			(1) W43192

Standard Log #:	W45410	Standard/Reagent:	CN - Pyridine Solution
Analyst:	LJS	Concentration:	N/A
Prep Date:	9/24/18	Expiration Date (1 Week):	10/1/18
PREP			Standards/Reagents Used
Into a 500mL volumetric flask, dissolved 7.5g of Barbituric acid (1), volumetrically added 37.5 mL of Pyridine (2), and pipetted 7.5 mL of Hydrochloric acid (3) and filled to volume with DI water.			(1) W45117 (2) W44131 (3) W43992

1

CT Laboratories, LLC

WCYANIDE QSM Analytical Run
153658 on 09/25/2018

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME	QC TYPE (Parent Sample)		CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	183795							WCYANIDE QSM				
				ICV					0			
	183796							WCYANIDE QSM				
				ICB					0			
	183797							WCYANIDE QSM				
				CCV					0			
	183798							WCYANIDE QSM				
				CCB					0			
	183144							CYANIDE QSM				
				LCSW					68845			
	183143							CYANIDE QSM				
				MBW					68845			
139370	175867		09/11/2018 0800			MAXXAM ANALYTICS	SI AFFF	CYANIDE QSM		GW	**4**	
		PETER-WW-001							68845			
	183141		09/11/2018 0800					CYANIDE QSM				
		PETER-WW-001		MSW	175867				68845			
	183142		09/11/2018 0800					CYANIDE QSM				
		PETER-WW-001		MSDW	183141				68845			
	183826							WCYANIDE QSM				
				CCV					0			
	183827							WCYANIDE QSM				
				CCB					0			

11 SAMPLE COUNT ON RUN, INCLUDING METHOD AND INSTRUMENT QC

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

Distribution: C:\LIMSREPS\ANALYTICALRUN.RPT

CYANIDE IN-LINE REAGENT LOG

Run(s): 153658 153659

Date/Analyst: 9/25/18 LJS

Reagents:	W #	Exp Date
0.025N NaOH/Acceptor/Carrier...	45423	10/18/2018
ICAL/CCV Preparation.....	45426	09/26/2018
ICV/LCS Preparation.....	45428	09/26/2018
O-Phos Digestion Solution.....	45424	10/25/2018
Phosphate Buffer.....	45409	10/24/2018
Pyridine-Barbituric Acid.....	45410	10/01/2018
Chloramine-T.....	45407	09/25/2018
Ascorbic Acid.....	N/A	N/A
Calcium Hypochlorite.....	N/A	N/A

Spiked Samples:	W #	Exp Date
Spiking Solution.....	45427	10/02/2018

Concentration..... 10 mg/L

Volume of Spike Used... 0.032 mL

Final Sample Volume..... 8 mL

Final Spike Concentration... 40 µg/L

	Yes	Treated if Needed
Samples Checked for Chlorine.....	X	X
Samples Checked for Sulfide.....	X	X
Samples Digested at 135°C.....	X	
Heated at 60°C.....	X	

Cyanide Inline Data Validation Checklist

		Method: Cyanide EPA 335.4			
LIMS Run #(s)	**Analysis Date**	**Analyst / Data Interpreter**	**Independent Reviewer**	**Date of Review**	**Approved? (Yes or No)**
153658	09/25/2018	LJS	SAW	09/28/2018	YES

Instructions: Complete one checklist per *analytical run* . Enter the appropriate response for each question.
Each "No" response requires an explanation in the Comments section, and may require the initiation of a Nonconformance Report.

Requirement:	**Acceptance Criteria**	**Analyst Review**		**Independent Review**		**Comments:**
		Yes	No	Yes	No	(indicate reference to an attachment if necessary)
1. Were the samples analyzed within hold time?	14 days	X		X		
2. Were reagents/standards used before expiration date?	---	X		X		
3. Was the calibration performed using the required number of standards?	Six plus a blank	X		X		
4. Is the standard prep log number noted on the analytical report?	---	X		X		
5. Was the correlation coefficient acceptable?	≥ 0.995	X		X		
4. Were the ICV and ICB run immediately after the calibration curve?	---	X		X		
6. Was the ICV recovery acceptable?	90 – 110 %	X		X		
7. Was the ICB result acceptable?	≥ |LOD|	X		X		
8. Was the Method Blank within acceptable limits?	≥ |LOD|	X		X		
9. Were the CCV's and the CCB's analyzed at the required frequency?	1per 10 samples	X		X		
10. Were the CCV recoveries acceptable?	90 – 110 %	X		X		
11. Were the CCB results acceptable?	≥ |LOD|	X		X		
12. Was a LCS run at the required frequency?	1 per 20 samples	X		X		
13. Was the LCS recovery acceptable?	90-110% /with in house QC limits or project/program specific	X		X		
14. Were the MS and MSD prepared at the required frequency?	1 per 10 samples including all matrices	X		X		
15. Were the MS and MSD recoveries acceptable?	Within 90-110%/ inhouse QC limits or project / program specific	X		X		
16. Was the RPD between the MS and MSD acceptable?	Within in house QC limits or project program specific	X		X		
17. Was the RPD between the Sample and Dup acceptable?	Within in house QC limits or project / program specific	X		X		
18. Were all hand calculations checked by data reviewer?	---	X		X		
19. Are all samples on the job lists accounted for?	---	X		X		

Lachat 8500-2 Instrument Run Logbook

Date	Start Time	End Time	Analyst	Analyte	Lims Run #(s)	Lachat Data File	Calibration Standard ID #	Comments	Review
08/22/18	11:11	12:07	MEZ	HEX CR H2O	152551	152551: OM_08-22-2018_11-11-38, 11-57-00, 12-05-54	W44181		8/24/18 LJS
08/24/18	9:38	11:45	MEZ	TKN	152553, 554, 555, 584	152553: OM_08-24-2018_09-38-01	W45266		8/24/18 LJS
	9:09	09:59	MEZ	NH3 UNDIG H2O	152727, 728	152727: OM_08-28-2018_09-08-57	W45255		
08/28/18	10:10	10:32	MEZ	NHS UNDIG SOIL	152729	152729: OM_08-28-2018_ 10-09-02	W45259		
08/28/18	11:11	11:55	MEZ	HEX CR H2O	152743	152743: OM_08-28-2018_11-10-47, 11-54-00	W44181		
08/29/18	8:30	12:10	LJS	CN IL	152764	152764, OM_08-29-2018-10-32-38, -11-25-11	W45299		
08/31/18	10:02	11:29	SAW	TKN	152755, 756	152755; OM_08-31-2018_10-02-59	W45266		
09/06/18	10:43	11:50	MEZ	HEX CR H2O	152975	152975: OM_09-06-2018_10-42-07, 11-40-17	W44181		
09/07/18	9:07	11:40	LJS	TKN	152937, 41, 53, 54	152937, OM_09-07-2018-09-07-30	W45266		
09/07/18	12:00	12:47	LJS	CUP PHOS	152955, 56	152955, OM_09-07-2018-12-00-52	W45266		
09/11/18	9:21	10:47	MEZ	NH3 UNDIG H2O	153077, 153079	153077: OM_09-11-2018_09-20-01, 10-03-15	W45338		
09/11/18	11:34	12:11	MEZ	NH2 UNDIG SLG	153080	153080: OM_09-11-2018_11-33-19	W45344		
09/12/18	9:30	11:25	LJS	ALK	153096, 97, 98, 99	153096, OM_09-12-2018-09-31-15, 9.12.18	W45352		
09/14/18	11:37	14:13	SAW	TKN	153113, 116, 117, 118	153113; OM_09-14-2018_11-37-02, _14-04-56	W45266		
09/14/18	14:55	15:24	SAW	TPHOS CUPRIC & WEP	153119, 286	153119: OM_09-14-2018_14-54-16	W45266		
09/20/18	11:24	15:02	MEZ	ALKALI NITY	153446, 47, 48, 50, 51, 52, 53	153446: OM_09-20-2018_11-23-02	W45352		
09/21/18	11:11	14:33	MEZ	TKN	153388, 89, 90, 91, 92	153388: OM_09-21-2018_11-10-34, 12-13-49	W45266		
09/21/18	14:56	16:34	MEZ	TP CUPRIC & WEP	153393, 537	153393: OM_09-21-2018_14-54-11,15-19-49, 16-24-27, 16-51-36	W45266		
09/24/18	13:00	13:40	LJS	CN SOIL	153509	153509, OM_09-24-2018-12-58-53, -13-16-08	W45408		
09/25/18	10:30	12:35	LJS	CN INLINE	153658, 659	153658, OM_09-25-2018-10-31-11,-12-13-02	W45426		

LPWC01_05
WetChem Prep Logbook
Logbook Created: 11/25/15
NOTEBOOK VIEW: LTN_LPWC01_5_Default, NOTEBOOK: LPWC01_5, PAGE: 70
Page is Locked
Author: mradske on: 15.03.2016 11:05:27
Witness: LSILVERS on: 15.03.2016 11:15:00
Project: Unassigned
Page Title: 031416

Standard ID#:	W38600	Vendor:	FISHER
Analyst:	MER	Chemical:	O-PHOSPHORIC ACID
Date Received:	9/5/14	Lot #:	136205
Expiration Date (if any):	N/A	Catalog #:	A242-4

1

CT Laboratories, LLC

LPWC01-7
Wetchem Prep Logbook
Balances used in reagent prep:
WCB01 and WCB03
Logbook Created: 09/21/16

NOTEBOOK VIEW: LTN_LPWC01_7_Default, NOTEBOOK: LPWC01_7, PAGE: 16
Page is Locked
Author: mradske on: 13.10.2016 13:13:38
Page is not Witnessed
Project: Unassigned
Page Title: 101216

Standard Log #:	W39920	Chemical:	Chloramine-T
Analyst:	LJS	Vendor:	JT BAKER
Date Received:	10/10/16	Catalog #:	E494-06
Expiration Date (if any):	02/21/2023	Lot #:	151619
Comments:			

Standard Log #:	W39922	Chemical:	CN ICAL/CCV STD
Analyst:	LJS	Vendor:	SPEX
Date Received:	10/11/16	Catalog #:	RSCN9-2Y
Expiration Date (if any):	1/30/17	Lot #:	13-35YPY
Comments:			

1

CT Laboratories, LLC

Standard Log #:	W43192	Chemical:	POTASSIUM PHOSPHATE MONOBA
Analyst:	MEZ	Vendor:	BDH
Date Received:	10/18/17	Catalog #:	BDH9268-500G
Expiration Date (if any):	3/31/20	Lot #:	1237C433
Comments:			

Standard Log #:	W43193	Chemical:	HCL ACID
Analyst:	MEZ	Vendor:	FISHER
Date Received:	N/A	Catalog #:	A144C-212
Expiration Date (if any):	N/A	Lot #:	164269
Comments:			

Standard Log #:	W43585	Chemical:	NAOH PELLETS
Analyst:	MEZ	Vendor:	VWR
Date Received:	2/26/18	Catalog #:	0583-5KG
Expiration Date (if any):	N/A	Lot #:	1437C075
Comments:			

LPWC01-11
WetChem Reagent Prep Logbook
Logbook Created: 04/12/18
Balances used in reagent preparation:
WCB03, WCB04 and WCB05

Standard Log #:	W43992	Chemical:	Hydrochloric Acid
Analyst:	SAW	Vendor:	Millipore
Date Received:	1/6/17	Catalog #:	HX0607-2
Expiration Date (if any):	1/5/2022	Lot #:	56208
Comments:			

1

CT Laboratories, LLC

LPWC01-11
WetChem Reagent Prep Logbook
Logbook Created: 04/12/18
Balances used in reagent preparation:

Standard Log #:	W44131	Chemical:	PYRIDINE
Analyst:	MEZ	Vendor:	VWR
Date Received:	5/8/18	Catalog #:	BDH4562-1L
Expiration Date (if any):	8/15/20	Lot #:	18A086502
Comments:			

1

CT Laboratories, LLC

LPWC01-11
WetChem Reagent Prep Logbook
Logbook Created: 04/12/18
Balances used in reagent preparation:
WCB03, WCB04 and WCB05
NOTEBOOK VIEW: LTN_LPWC01_11_Default, NOTEBOOK: LPWC01_11, PAGE: 72
Page is Unlocked
Page is not Witnessed
Project: Unassigned
Page Title: 073018

Standard Log #:	W45117	Chemical:	BARBITURIC ACID, 99%
Analyst:	MEZ	Vendor:	BTC
Date Received:	6/6/18	Catalog #:	134930-500G
Expiration Date (if any):	N/A	Lot #:	50023963
Comments:	Opened 7/30/18		

Standard Log #:	W45122	Standard/Reagent:	NaOH Solution
Analyst:	LJS	Concentration:	0.025N
Prep Date:	7/30/18	Expiration Date (1 Month):	8/12/18
PREP			Standards/Reagents Used
Into a 2L volumetric flask, volumetrically added 50 mL of 1N NaOH (1) and filled to volume with DI water.			(1) W45000

Standard Log #:	W45123	Chemical:	CN ICV/LCS STANDARD
Analyst:	LJS	Vendor:	SPEX
Date Received:	07/2018	Catalog #:	RSCN9C-2X
Expiration Date (if any):	01/30/2019	Lot #:	13-68YPX
Comments:			

Standard Log #:	W45124	Chemical:	CN ICAL/CCV STANDARD
Analyst:	LJS	Vendor:	SPEX
Date Received:	07/2018	Catalog #:	RSCN9-2Y
Expiration Date (if any):	10/30/2018	Lot #:	13-66YPY
Comments:			

Standard Log #:	W45125	Standard/Reagent:	Chloramine-T Solution
Analyst:	LJS	Concentration:	N/A
Prep Date:	7/30/18	Expiration Date (One day):	7/31/18
PREP			Standards/Reagents Used
Into a 250mL volumetric flask, dissolved 1.5g of Chloramine-T (1) and filled to volume with DI water.			(1) W39920

Standard Log #:	W45126	Standard/Reagent:	CN IL - ICal/CCV Working Std.
Analyst:	LJS	Concentration:	10 mg/L
Prep Date:	7/30/18	Expiration Date (1 Week):	8/6/18
PREP			Standards/Reagents Used
Into a 100mL volumetric flask, pipetted 1.0 mL of 1,000 mg/L CN IL ICal/CCV Stock Std. (1) and filled to volume with 0.025N NaOH (2).			(1) W45124 (2) W45122

Standard Log #:	W45127	Standard/Reagent:	CN IL - ICAL

LPWC01-12
WetChem Reagent Prep Logbook
Balances used in reagent prep:
WCB03, WCB04, and WCB05
Logbook Created 09/12/18

NOTEBOOK VIEW: LTN_LPWC01_12_Default, NOTEBOOK: LPWC01_12, PAGE: 5
Page is Locked
Author: swinters on: 9/19/2018 4:07:01 PM
Witness: mzurfluh on: 9/24/2018 3:32:44 PM
Project: Unassigned
Page Title: 091818

Standard Log #:	W45383	Chemical:	NaOH Pellets
Analyst:	LJS	Vendor:	VWR
Date Received:	9/18/18	Catalog #:	0583-5KG
Expiration Date (if any):	N/A	Lot #:	18F2856862
Comments:			

Standard Log #:	W45386	Standard/Reagent:	NaOH Solution
Analyst:	LJS	Concentration:	1N
Prep Date:	9/18/18	Expiration Date (1 Month):	10/18/18
PREP			Standards/Reagents Used
Into a 500mL volumetric flask, dissolved 20g of Sodium hydroxide (NaOH) (1) and brought to volume with DI water.			(1) W43585

1

CT Laboratories, LLC

LPWC01-12
WetChem Reagent Prep Logbook
Balances used in reagent prep:
WCB03, WCB04, and WCB05
Logbook Created 09/12/18

Standard Log #:	W45407	Standard/Reagent:	CN-Chloramine-T
Analyst:	LJS	Concentration:	N/A
Prep Date:	9/24/18	Expiration Date (24 Hours):	9/25/18
PREP		Standards/Reagents U	
Into a 500mL volumetric flask, dissolved 2.0g of Chloramine-T (1) and filled to volume with DI water.		(1) W39920	

Standard Log #:	W45409	Standard/Reagent:	CN Solid - Buffer
Analyst:	LJS	Concentration:	1 M
Prep Date:	9/24/18	Expiration Date (1 Month):	10/24/18
PREP		Standards/Reagents U	
Into a 500mL volumetric flask, dissolved 48.5g of potassium dihydrogen phosphate monobasic (1) and filled to volume with DI water.		(1) W43192	

Standard Log #:	W45410	Standard/Reagent:	CN - Pyridine Solution
Analyst:	LJS	Concentration:	N/A
Prep Date:	9/24/18	Expiration Date (1 Week):	10/1/18
PREP		Standards/Reagents U	
Into a 500mL volumetric flask, dissolved 7.5g of Barbituric acid (1), volumetrically added 37.5 mL of Pyridine (2), and pipetted 7.5 mL of Hydrochloric acid (3) and filled to volume with DI water.		(1) W45117 (2) W44131 (3) W43992	

(3) W43992

1

CT Laboratories, LLC

LPWC01-12
WetChem Reagent Prep Logbook
Balances used in reagent prep:
WCB03, WCB04, and WCB05
Logbook Created 09/12/18

Standard Log #:	W45423	Standard/Reagent:	NaOH Solution
Analyst:	LJS	Concentration:	0.025N
Prep Date:	9/25/18	Expiration Date (1 Month):	10/18/18
PREP			Standards/Reagents Used
Into a 2L volumetric flask, volumetrically added 50 mL of 1N NaOH (1) and filled to volume with DI water.			(1) W45386

Standard Log #:	W45424	Standard/Reagent:	o-Phos Digestion Solution
Analyst:	LJS	Concentration:	N/A
Prep Date:	9/25/18	Expiration Date (1 Month):	10/25/18
PREP			Standards/Reagents Used
Into a 1L volumetric flask, volumetrically added 45 mL of o-Phosphoric acid (1) and filled to volume with DI water.			(1) W38600

Standard Log #:	W45425	Standard/Reagent:	CN IL - ICal/CCV Working Std.
Analyst:	LJS	Concentration:	10 mg/L
Prep Date:	9/25/18	Expiration Date (1 Week):	10/2/18
PREP			Standards/Reagents Used
Into a 100mL volumetric flask, pipetted 1.0 mL of 1,000 mg/L CN IL ICal/CCV Stock Std. (1) and filled to volume with 0.025N NaOH (2).			(1) W45124 (2) W45423

Standard Log #:	W45426	Standard/Reagent:	CN IL - ICAL

Analyst:	LJS	Concentration:	N/A
Prep Date:	9/25/18	Expiration Date (1 Day):	9/26/18
PREP			Standards/Reagents Used
Into 100mL volumetric flasks, added the following amounts of 10 mg/L CN IL ICal/CCV Working Std. (1) and brought to volume with 0.025N NaOH (2): CAL Pt. A - 0.80 mL (Final Concentration = 80 ug/L) CAL Pt. B - 0.50 mL (Final Concentration = 50 ug/L) CAL Pt. C - 0.40 mL (Final Concentration = 40 ug/L) CAL Pt. D - 0.20 mL (Final Concentration = 20 ug/L) CAL Pt. E - 0.10 mL (Final Concentration = 10 ug/L) CAL Pt. F - 0.05 mL (Final Concentration = 5 ug/L) CAL Pt. G - 0 mL (Final Concentration = 0 ug/L)			(1) W45425 (2) W45423

Standard Log #:	W45427	Standard/Reagent:	CN IL - LCS/ICV Working Std.
Analyst:	LJS	Concentration:	10 mg/L
Prep Date:	9/25/18	Expiration Date (1 Week):	10/2/18
PREP			Standards/Reagents Used
Into a 100mL volumetric flask, pipetted 1.0 mL of 1,000 mg/L CN IL LCS/ICV Stock Std. (1) and filled to volume with 0.025N NaOH (2).			(1) W45123 (2) W45423

Standard Log #:	W45428	Standard/Reagent:	CN IL - LCS/ICV
Analyst:	LJS	Concentration:	40 ug/L
Prep Date:	9/25/18	Expiration Date (1Day):	9/26/18
PREP			Standards/Reagents Used
Into a 100mL volumetric flask, pipetted 0.4 mL of 10 mg/L CN IL LCS/ICV Working Std. (1) and filled to volume with 0.025N NaOH (2).			(1) W45427 (2) W45423

1

WFLASHPOINT Analytical Run
153357 on 09/19/2018

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME	QC TYPE (Parent Sample)	CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
139370	175865		09/11/2018 0800		MAXXAM ANALYTICS	SI AFFF	FLASHPOINT		S	**4**	
		PETER-WS-001									
139370	175867		09/11/2018 0800		MAXXAM ANALYTICS	SI AFFF	FLASHPOINT		GW	**4**	
		PETER-WW-001									
	178129						WFLASHPOINT				
				LCSS							
	178130						WFLASHPOINT				
				LCSW							
	179412		09/11/2018 0800				FLASHPOINT				
		PETER-WS-001		DUP 175865							
	179413		09/11/2018 0800				FLASHPOINT				
		PETER-WW-001		DUP 175867							

6 SAMPLE COUNT ON RUN, INCLUDING METHOD AND INSTRUMENT QC

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

Distribution: C:\LIMSREPS\ANALYTICALRUN.RPT

Flashpoint Data Validation Checklist

		Method: Flashpoint EPA Method 1010			
LIMS Run #(s)	**Analysis Date**	**Analyst / Data Interpreter**	**Independent Reviewer**	**Date of Review**	**Approved? (Yes or No)**
153356, 357	09/18/2018	SAW	LJS	09/19/2018	YES

Instructions: Complete one checklist per *analytical run* . Enter the appropriate response for each question.
Each "No" response requires an explanation in the Comments section, and may require the initiation of a Nonconformance Report.

Requirement:	**Acceptance Criteria**	**Analyst Review**		**Independent Review**		**Comments:**
		Yes	No	Yes	No	(indicate reference to an attachment if necessary)
1. Was LCS within acceptable limits?	77.9-81.9 F	X		X		
2. Were duplicates analyzed at the appropriate frequency?	1 every 20 samples of the same matrix	X		X		
3. Were the duplicates within acceptable limits?	Differ by < 5 F	X		X		
4. Are all samples on the job lists accounted for?	---	X		X		

Standard Log #:	W41839	Chemical:	p-Xylene
Analyst:	SAW	Vendor:	Alfa Aesar
Date Received:	6/28/17	Catalog #:	A10534
Expiration Date (if any):		Lot #:	Z30C021
Comments:			

LPWC01-9
WetChem Reagent Prep Logbook
Logbook Created: 06/26/17
Balances used in reagent prep:
WCB01 and WCB03

Standard Log #:	W42330	Chemical:	P-Xylene 99%
Analyst:	BKB	Vendor:	Alfa Aesar
Date Received:	10/2/17	Catalog #:	A10534
Expiration Date (if any):	N/A	Lot #:	Z30C021
Comments:			

1

CT Laboratories, LLC

Standard Log #:	W43001	Chemical:	P-Xylene 99%
Analyst:	BKB	Vendor:	Alfa Aesar
Date Received:	11/14/17	Catalog #:	A10534
Expiration Date (if any):	N/A	Lot #:	Z30C021
Comments:			

Standard Log #:	W43233	Chemical:	P-XYLENE, 99%
Analyst:	MEZ	Vendor:	ALFA AESAR
Date Received:	1/4/18	Catalog #:	A10534
Expiration Date (if any):	N/A	Lot #:	Z30C021
Comments:			

LPWC01-11
WetChem Reagent Prep Logbook
Logbook Created: 04/12/18
Balances used in reagent preparation:
WCB01 and WCB03

Standard Log #:	W43945 B	Chemical:	p-Xylene
Analyst:	LJS	Vendor:	ALFA AESAR
Date Received:	3/20/18	Catalog #:	A10534
Expiration Date (if any):	N/A	Lot #:	N01E032
Comments:			

1

CT Laboratories, LLC

Standard Log #:	W45303	Chemical:	p-Xylene, 99%
Analyst:	MEZ	Vendor:	GFS
Date Received:	7/16/18	Catalog #:	5477
Expiration Date (if any):	8/30/19	Lot #:	C576613
Comments:			

WPH Analytical Run
153208 on 09/13/2018

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME	QC TYPE (Parent Sample)	CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
139370	175867	PETER-WW-001	09/11/2018 0800		MAXXAM ANALYTICS	SI AFFF	PH		GW	**4**	

20 SAMPLE COUNT ON RUN, INCLUDING METHOD AND INSTRUMENT QC

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

Distribution: WetChem C:\LIMSREPS\ANALYTICALRUN.RPT

WPH Analytical Run
153209 on 09/13/2018

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME	QC TYPE (Parent Sample)	CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
139370	175865	PETER-WS-001	09/11/2018 0800		MAXXAM ANALYTICS	SI AFFF	PH		S	**4**	

3 SAMPLE COUNT ON RUN, INCLUDING METHOD AND INSTRUMENT QC

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

Distribution: WetChem C:\LIMSREPS\ANALYTICALRUN.RPT

pH Data Validation Checklist

		Method: pH EPA 150.1, SM 4500-H+B, EPA 9040C, EPA 9045D			
LIMS Run #(s)	**Analysis Date**	**Analyst / Data Interpreter**	**Independent Reviewer**	**Date of Review**	**Approved? (Yes or No)**
153206, 207, 208, 209	09/13/2018	CLB	LJS	09/17/2018	YES

Instructions: Complete one checklist per *analytical run* . Enter the appropriate response for each question.
Each "No" response requires an explanation in the Comments section, and may require the initiation of a Nonconformance Report.

Requirement:	**Acceptance Criteria**	**Analyst Review**		**Independent Review**		**Comments:**
		Yes	No	Yes	No	(indicate reference to an attachment if necessary)
1. Was the calibration slope recorded on the bench sheet?	95-110%	X		X		
2. Were reagents/standards used before expiration date?	---	X		X		
3. Were duplicates analyzed at the appropriate frequency?	1 every 20 samples of the same matrix	X		X		
4. Were the duplicates within acceptable limits?	Differ by ≤ 0.10 pH units	X		X		
5. Are all samples on the job lists accounted for?	---	X		X		
6. Were SM 4500-H+B samples bracketed by calibration buffer 7?	Every 10 samples, Differ by ≤ 0.10 pH units	X		X		

Mettler Toledo (Easy Seven) Instrument Run Logbook

Date	Start Time	End Time	Analyst	Analyte	Lims Run #(s)	Comments
02/28/18	10:00	13:00	AMA	ACIDITY	146809	
03/02/18	10:10	10:52	BMM	PH	146872	
03/09/18	10:22	11:24	BMM	PH	147006, 007	
03/17/18	11:00	11:55	BMM	PH	147186, 187, 188, 190, 191	
03/19/18	13:32	13:44	BMM	PH	147189	
03/23/18	11:30	14:00	LJS	PH	147364,65	
03/30/18	15:10	16:00	LJS	PH	147561,2,3	
04/06/18	11:00	11:50	BMM	PH	147736, 737	
04/13/18	14:30	15:15	SAW	pH	147975, 976	
04/15/18	12:45	13:14	BMM	PH	147970, 973	
04/18/18	15:45	16:05	MEZ	PH	148119	
04/20/18	15:50	18:10	MEZ	PH	148200, 201, 235, 236, 237	
04/30/18	14:55	15:20	MEZ	PH	147973	
05/01/18	12:49	13:44	BMM	PH	148597, 598, 599	
05/07/18	12:05	16:07	MEZ/BMM	PH	148741, 742, 743, 744, 803	
05/10/18	13:07	14:44	BMM	PH	148979, 981, 983	
05/11/18	9:41	11:20	BMM	PH	148983, 984, 985, 987	
05/14/18	17:20	18:18	BMM	PH	149093, 094, 097	
05/16/18	15:11	15:58	BMM	PH	149095, 096	
05/21/18	16:50	17:11	MEZ	PH	149337	
05/22/18	12:00	17:00	LJS	HEX CR6 SOIL	149422, 23, 24	
05/23/18	11:17	14:30	MEZ/CLB	PH	149457, 458, 459, 460, 461	
05/23/18	16:20	16:25	LJS	PH	149480	
05/24/18	15:06	16:38	MEZ/CLB	PH	149481 482 483 484 485 486 487	
05/30/18	11:45	14:25	LJS/CLB	PH	149680 679 682 683	
06/05/18	15:58	17:00	LJS/CLB	PH	149880, 881, 882, 883, 884, 885	
06/06/18	9:00	10:45	LJS/CLB	PH	149880, 881, 882, 883, 884, 885	
06/13/18	15:50	17:30	LJS/CLB	PH	150239, 237, 238, 241	
06/20/18	13:00	16:00	CLB	PH	150484, 485, 486, 488, 489, 490	
06/27/18	10:00	11:00	CLB	PH	150746, 747, 748	
07/03/18	10:50	12:50	CLB	PH	150903, 904, 905	
07/05/18	11:05	11:23	CLB	PH	150964	
07/10/18	14:20	15:20	CLB	PH	151099 100 101	
07/20/18	13:30	16:00	CLB	PH	151435, 436, 437, 438, 439	
07/25/18	10:50	13:05	CLB	PH	151656, 657, 658	
07/26/18	11:00	12:00	LJS	ACIDITY	151724	
08/01/18	10:20	12:00	CLB	PH	151880, 881	
08/08/18	13:50	15:40	CLB	PH	152125, 126	
08/16/18	15:00	16:40	CLB	PH	152401, 402, 403	
08/20/18	14:30	16:30	MEZ	ACIDITY	152434	
08/22/18	12:30	13:15	CLB	PH	152558	
08/29/18	10:30	11:15	CLB	PH	152765, 766, 767	
08/30/18	16:00	17:00	LJS	ACIDITY	167664	
09/04/18	10:10	10:25	MEZ	PHENOLICS	152883, 152884	
09/05/18	13:50	14:45	CLB	PH	152938, 939	
09/13/18	15:15	16:50	CLB	PH	153206, 207, 208, 209	

Mettler Toledo (Easy Seven) pH Calibration & Maintenance Run Logbook

		pH Buffer Reference ID #			3 Point Calibration						
Date	Analyst	pH 7	pH 4	pH 10	1st Buffer	2nd Buffer	3rd Buffer	Slope (95-110%)	Temp ° C	Comments	Review
07/03/18	CLB	W43461 Ex.2/28/19	W41124 Ex. 2/28/21	W44066 Ex. 4/30/19	7.02	4	10.08	95%	19		7/24/18 MEZ
07/05/18	CLB	W43461 Ex.2/28/19	W41124 Ex. 2/28/21	W44066 Ex. 4/30/19	7.02	4	10.08	95%	18.8		7/24/18 MEZ
07/10/18	CLB	W43461 Ex.2/28/19	W41124 Ex. 2/28/21	W44066 Ex. 4/30/19	7.02	4	10.06	95%	19.6		7/24/18 MEZ
07/11/18	MEZ	W43461 EX. 2/28/19	W41124 EX. 2/28/21	W44066 EX. 4/30/19	7.02	4	10.07	95%	19.5		7/24/18 MEZ
07/20/18	CLB	W43461 EX. 2/28/19	W41124 EX. 2/28/21	W44066 EX. 4/30/19	7.02	4	10.07	100%	18.9	New ph meter installed 7/19/18.	7/24/18 MEZ
07/25/18	CLB	W43461 EX. 2/28/19	W41124 EX. 2/28/21	W44066 EX. 4/30/19	7.03	4	10.08	99%	18.3		8/24/18 LJS
07/26/18	LJS	W43461 EX. 2/28/19	W41124 EX. 2/28/21	W44066 EX. 4/30/19	7.03	4	10.08	97%	18.5		8/24/18 LJS
08/01/18	CLB	W43461 EX. 2/28/19	W41124 EX. 2/28/21	W44066 EX. 4/30/19	7.03	4	10.08	99%	18.3		8/24/18 LJS
08/08/18	CLB	W43461 EX. 2/28/19	W41124 EX. 2/28/21	W44066 EX. 4/30/19	7.02	4	10.07	99%	19.1		8/24/18 LJS
08/16/18	CLB	W43461 EX. 2/28/19	W41124 EX. 2/28/21	W44066 EX. 4/30/19	7.02	4	10.07	98%	19.4		8/24/18 LJS
08/20/18	MEZ	W43461 EX: 2/28/19	W41124 EX: 2/28/21	W44066 EX: 4/30/19	7.02	4	10.06	98%	19.3		8/24/18 LJS
08/22/18	CLB	W43461 EX: 2/28/19	W41124 EX: 2/28/21	W44066 EX: 4/30/19	7.03	4	10.08	98%	18.7		8/24/18 LJS
08/29/18	CLB	W43461 EX: 2/28/19	W41124 EX: 2/28/21	W44066 EX: 4/30/19	7.02	4	10.07	98%	19.1		
08/30/18	LJS	W43461 EX: 2/28/19	W41124 EX: 2/28/21	W44066 EX: 4/30/19	7.02	4	10.06	98%	19		
09/04/18	MEZ	W43461 EX: 2/28/19	W41124 EX: 2/28/21	W44066 EX: 4/30/19	7.03	4	10.08	96%	18.3		
	CLB	W43461 EX: 2/28/19	W41124 EX: 2/28/21	W44066 EX: 4/30/19	7.02	4	10.08	97%	19.3		
	CLB	W43461 EX: 2/28/19	W41124 EX: 2/28/21	W44066 EX: 4/30/19	7.03	4	10.08	97%	18		

LPWC01-8
WetChem Prep Logbook
Balances used in reagent prep:
WCB01 and WCB03
Logbook Created: 02/06/17

NOTEBOOK VIEW: LTN_LPWC01_8_Default, NOTEBOOK: LPWC01_8, PAGE: 35
Page is Unlocked
Page is not Witnessed
Project: Unassigned
Page Title: 033117

Standard Log #:	W41124	Chemical:	ph 4 BUFFER
Analyst:	BKB	Vendor:	HACH
Date Received:	2/23/2017	Catalog #:	2283456
Expiration Date (if any):	02/28/2021	Lot #:	A7048
Comments:			

1

CT Laboratories, LLC

Standard Log #:	W43461	Chemical:	PH 7 BUFFER
Analyst:	MEZ	Vendor:	HACH
Date Received:	2/23/17	Catalog #:	2283556
Expiration Date (if any):	2/28/19	Lot #:	A7038
Comments:			

LPWC01-11
WetChem Reagent Prep Logbook
Logbook Created: 04/12/18
Balances used in reagent preparation:
WCB01 and WCB03

Standard Log #:	W44066	Chemical:	PH 10 BUFFER
Analyst:	MEZ	Vendor:	HACH
Date Received:	5/4/18	Catalog #:	2283656
Expiration Date (if any):	04/30/19	Lot #:	A8110
Comments:			

1

CT Laboratories, LLC

WSULFIDE QSM Analytical Run
153311 on 09/19/2018

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME	QC TYPE (Parent Sample)		CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
139370	175867	PETER-WW-001	09/11/2018 0800			MAXXAM ANALYTICS	SI AFFF	SULFIDE QSM		GW	4	
	179387	PETER-WW-001	09/11/2018 0800	DUP	175867			SULFIDE QSM				
	179388	PETER-WW-001	09/11/2018 0800	MSW	175867			SULFIDE QSM				
	179389	PETER-WW-001	09/11/2018 0800	MSDW	179388			SULFIDE QSM				
	179390			LCSW				WSULFIDE QSM				
	179391			MBW				WSULFIDE QSM				

6 SAMPLE COUNT ON RUN, INCLUDING METHOD AND INSTRUMENT QC

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

Distribution: C:\LIMSREPS\ANALYTICALRUN.RPT

Sulfide Data Validation Checklist

		Method: Sulfide EPA 376.1 , EPA 9034, SM 4500-S2F			
LIMS Run #(s)	**Analysis Date**	**Analyst / Data Interpreter**	**Independent Reviewer**	**Date of Review**	**Approved? (Yes or No)**
153311	09/17/2018	SAW	LJS	09/19/2018	YES

Instructions: Complete one checklist per *analytical run* . Enter the appropriate response for each question.
Each "No" response requires an explanation in the Comments section, and may require the initiation of a Nonconformance Report.

Requirement:	**Acceptance Criteria**	**Analyst Review**		**Independent Review**		**Comments:**
		Yes	No	Yes	No	(indicate reference to an attachment if necessary)
1. Does a titration bench sheet accompany the run?	---	X		X		
2. Were the samples analyzed within hold time?	7 days	X		X		
3. Were reagents/standards used before expiration date?	---	X		X		
4. Was a blank titrated along with the samples?	---	X		X		
5. Was the blank result acceptable?	< |LOD|	X		X		
6. Were duplicates analyzed at the required frequency?	1 per 20 samples of the same matrix	X		X		
7. Was the RPD of the duplicates acceptable?	Within in house QC limits	X		X		
8. Was an LCS standard analyzed at the required frequency?	1 / batch of samples (or at contract/project specific frequencies)	X		X		
9. Were the recoveries acceptable for the LCS?	80-120%/ In-house derived limits or within contract/project specific limits	X		X		
10. Was an MS/MSD requested and analyzed within acceptable limits?	In-house derived limits or within contract/project specific limits		X		X	MS/MSD failed low, M flagged. RPD failed Y flag.
11. Are all samples on the job lists accounted for?	---	X		X		

W22510 ESC Sodium Sulfide 9-hydrate Crystal: J.T. Baker Cat# 3910-0
11/2/09 Lot # H09598

W22511 MWD TPhos Carrier: Into a 1L. vol. dissolved 31.7g Potassium Sulfate W22002
11-3-09 & volumetrically added 48mL H_2SO_4 W22145 & brought to vol. w/ DI H_2O exp. 12-3-09

W22512 MWD Ascorbic Acid Reagent - Into a 500mL vol. dissolved 30g Ascorbic
11-3-09 W22301 & 0.5g SDS W19325 & brought to vol. w/ DI H_2O. exp. 11-4-09

W22513 CES Cr^{+6} soil Std prep - Into 5 50mL vol pipetted
11/3/09 0, 1, 2.5, 5 & 10mL W21286 & filled to vol w/ dig. soln
W22456.

W22513 CES Cr^{+6} soil ICV - Into a 50mL vol pipetted ~~5mL~~ 4mL CES 11/3/09
11/3/09 W21288 & filled to vol w/ dig soln W22456

W22514 CES Cr^{+6} soil LCSS - Into a 50mL vol pipetted 4mL W21288
11/3/09 & filled to vol w/ dig soln W22456.

ESC 11/3/09
W22515 ~~W22229~~ ESC IC NO_2 CCV: Into a 500mL vol. pipetted 3.5mL
11/3/09 NO_2 stock W20512 & brought to vol. w/ Milli Q H_2O exp. 12/3/09

W22516 ESC IC NO_2 + F spike: Into a 100mL vol. pipette 12.8mL
11/3/09 NO_2 stock W20512 & 3.2mL F stock W22128 & brought to
vol. w/ Milli Q H_2O exp. 12/3/09

Continued on Page

Read and Understood By

Signed	Date	Signed	Date
MWD	12-22-09		

LPWC01-8
WetChem Prep Logbook
Balances used in reagent prep:
WCB01 and WCB03

Standard Log #:	W41311	Chemical:	Hydrochloric Acid
Analyst:	MER	Vendor:	Fisher Chemical
Date Received:	N/A	Catalog #:	A144C122
Expiration Date (if any):	N/A	Lot #:	164269
Comments:			

Standard Log #:	W41312	Standard/Reagent:	Hydrochloric Acid Solution
Analyst:	MER	Concentration:	6N
Prep Date:	4/20/17	Expiration Date (1 Year):	4/20/18
PREP			Standards/Reagents Used
Into a 500mL volumetric flask, volumetrically added 250 mL of Hydrochloric acid (HCl) (1) and filled to volume with DI water.			(1) W41311

Standard Log #:	W41313	Standard/Reagent:	Sulfide LCS
Analyst:	SAW	Concentration:	5 mg/L
Prep Date:	4/20/17	Expiration Date (1 Day):	4/21/17
PREP			Standards/Reagents Used
Into a 200mL volumetric flask, pipetted 1.0 mL of 1,000 mg/L Sulfide Stock Std. (1) and filled to volume with DI water.			(1) W41260

1

CT Laboratories, LLC

Standard Log #:	W42299	Standard/Reagent:	Hydrochloric Acid Solution
Analyst:	BKB	Concentration:	6N
Prep Date:	9/28/17	Expiration Date (1 Year):	9/28/18
PREP			Standards/Reagents Used
Into a 500mL volumetric flask, volumetrically added 250 mL of Hydrochloric acid (HCl) (1) and filled to volume with DI water.			(1) W41311

Standard Log #:	W43366	Chemical:	IODINE, 0.025 N
Analyst:	MEZ	Vendor:	RICCA
Date Received:	12/27/17	Catalog #:	3975-32
Expiration Date (if any):	11/30/18	Lot #:	4711C84
Comments:	Originally logged into Labtrack on 1/12/18 but template got overwritten. Relogging with new W #.		

Standard Log #:	W43585	Chemical:	NAOH PELLETS
Analyst:	MEZ	Vendor:	VWR
Date Received:	2/26/18	Catalog #:	0583-5KG
Expiration Date (if any):	N/A	Lot #:	1437C075
Comments:			

Standard Log #:	W43914	Standard/Reagent:	Sulfide Stock Std.
Analyst:	MEZ	Concentration:	1,000 mg/L
Prep Date:	4/12/18	Expiration Date (1 Month):	4/29/18
PREP		Standards/Reagents Used	
Into a 200mL volumetric flask, dissolved 1.5g of Sodium sulfide (Na2S) (1) and filled to volume with 0.25N Sodium hydroxide (NaOH) (2).		(1) W22510 (2) W43815	

Standard Log #:	W43915	Standard/Reagent:	Sulfide LCS
Analyst:	MEZ	Concentration:	5 mg/L
Prep Date:	4/12/18	Expiration Date (1 Day):	4/13/18
PREP		Standards/Reagents Used	
Into a 200mL volumetric flask, pipetted 1.0 mL of 1,000 mg/L Sulfide Stock Std. (1) and filled to volume with DI water.		(1) W43912	

Standard Log #:	W43917	Chemical:	PHENYLARSINE OXIDE 0.025 N
Analyst:	MEZ	Vendor:	VWR
Date Received:	1/24/18	Catalog #:	BDH7883-1
Expiration Date (if any):	2/22/19	Lot #:	17I055014
Comments:			

Standard Log #:	W44946	Chemical:	STARCH INDICATOR
Analyst:	MEZ	Vendor:	RICCA
Date Received:	5/4/18	Catalog #:	8050-32
Expiration Date (if any):	2/28/2020	Lot #:	4802M60
Comments:			

LPWC01-11
WetChem Reagent Prep Logbook
Logbook Created: 04/12/18
Balances used in reagent preparation:
WCB03, WCB04 and WCB05

Standard Log #:	W45326	Standard/Reagent:	NaOH Solution
Analyst:	MEZ	Concentration:	0.25N
Prep Date:	9/4/18	Expiration Date (1 Month):	10/4/18
PREP			Standards/Reagents Used
Into a 2L volumetric flask, dissolved 20g of Sodium hydroxide (NaOH) (1) and brought to volume with DI water.			(1) W43585

Standard Log #:	W45327	Standard/Reagent:	Sulfide Stock Std.
Analyst:	MEZ	Concentration:	1,000 mg/L
Prep Date:	9/4/18	Expiration Date (1 Month):	10/4/18
PREP			Standards/Reagents Used
Into a 200mL volumetric flask, dissolved 1.5g of Sodium sulfide (Na2S) (1) and filled to volume with 0.25N Sodium hydroxide (NaOH) (2).			(1) W22510 (2) W45326

1

CT Laboratories, LLC

LPWC01-12
WetChem Reagent Prep Logbook
Balances used in reagent prep:
WCB03, WCB04, and WCB05
Logbook Created 09/12/18

Standard Log #:	W45382	Standard/Reagent:	Sulfide LCS
Analyst:	SAW	Concentration:	5 mg/L
Prep Date:	9/17/18	Expiration Date (1 Day):	9/18/18
PREP			Standards/Reagents Used
Into a 200mL volumetric flask, pipetted 1.0 mL of 1,000 mg/L Sulfide Stock Std. (1) and filled to volume with DI water.			(1) W45327

1

CT Laboratories, LLC

WSOLIDS Analytical Run
153245 on 09/17/2018

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME	QC TYPE (Parent Sample)	CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
139370	175865		09/11/2018 0800		MAXXAM ANALYTICS	SI AFFF	SOLIDS,PERCENT		S	**4**	
		PETER-WS-001									
	177074		09/11/2018 0800				SOLIDS,PERCENT				
		PETER-WS-001		DUP 175865				0			

2 SAMPLE COUNT ON RUN, INCLUDING METHOD AND INSTRUMENT QC

Page 1602

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

FWC26-10 Data Review Checklist

		Method: Percent Solids SW846-8000C	Independent Data Review Checklist		Balance: VOB-01
LIMS Run #(s)	**Analysis Date**	**Analyst / Data Interpreter**	**Independent Reviewer**	**Date of Review**	**Approved? (Yes or No)**
153244, 153245, 153246	09/14/2018	BMM	RLD	09/17/2018	Yes

Instructions: Complete one checklist per *analytical run* . Enter the appropriate response for each question.
Each "No" response requires an explanation in the Comments section, and may require the initiation of a Nonconformance Report.

Requirement:	**Acceptance Criteria**	**Analyst Review**		**Independent Review**		**Comments:**
		Yes	No	Yes	No	(indicate reference to an attachment if necessary)
1. Were samples analyzed within hold time?	14 days or program/project specific	Yes		Yes		Qualify data prepared after hold time
2. Were samples dried overnight?	> 8hours	Yes		Yes		If No: place samples back into oven for mimium of 8 hours of total dry time.
3. Were drying start and stop times recorded?	---	Yes		Yes		If No: record times and temperatures
4. Were duplicates analyzed at the appropriate frequency?	1 per 20 of similar matrix or at program/project specific frequency	Yes		Yes		If No: reprep samples with appropreate frequency for a duplicate.
5. Were the duplicates within acceptable limits?	Within in-house or program/project specific QC limits	Yes		Yes		If No: reprep and reanalyze samples or qualify parent sample result (Y).
6. Are all samples on the job lists accounted for?	---	Yes		Yes		If No: analyze samples that were were missed.
7. Were nonconformities (if applicable) documented in the NCR spreadsheet?		Yes		Yes		If No: Enter nonformities into the NCR spreadsheet before data review/validation.

CHAIN OF CUSTODY,
PM CONFIRMATION
AND
SAMPLE CONDITION FORMS
DOCUMENTS

CT LABORATORIES
delivering more than data from your environmental analyses

Sample Condition Report

Folder #: 139370
Client: MAXXAM ANALYTICS

Print Date / Time: 09/13/2018 11:43
Received Date / Time / By: 09/13/2018 11:10 DRT

Project Name: SI AFFF
Project Phase: PETERSON AFB

Log-In Date / Time / By: 09/13/2018 11:10 DRT
Project #: M2027.0003 PM: ETK

Coolers: MAXAMM
Custody Seals Present : **Y**

Temperature: 2.7 C On Ice: **Y**
COC Present:? **Y** Complete? **Y**

Seal Intact? **Y**
Ship Method: FED EX
Adequate Packaging: **Y**

Numbers: SIGNED & DATED
Tracking Number: 782782474758
Temp Blank Enclosed? **Y**

Notes: SAMPLES RECEIVED IN GOOD CONDITION ON ICE
TWO CUSTODY SEALS PRESENT, INTACT, SIGNED AND DATED

Sample ID / Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
175864 PETER-WS-001				
	AMBER GL	1	/	8270,HERBS,PEST
	Total # of Containers of Type	(***AMBER GL***) = **1**		
175864 PETER-WS-001				
	SOLIDS	1	/	HG,ICP
	Total # of Containers of Type	(***SOLIDS***) = **1**		
175864 PETER-WS-001				
	JAR GL	1	/	VOC
	Total # of Containers of Type	(***JAR GL***) = **1**		

Sample ID / Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
175865 PETER-WS-001				
	SOLIDS	1	/	%SOL,CYN,FLASH,pH
	Total # of Containers of Type	(***SOLIDS***) = **1**		
175865 PETER-WS-001				
	UNPRES GL	1	/	DRO,GRO,PCB
	Total # of Containers of Type	(***UNPRES GL***) = **1**		

Sample ID / Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
175866 PETER-WW-001				
	AMBER GL	1	/	8270,HERBS,PEST
	AMBER GL	1	/	8270,HERBS,PEST
	AMBER GL	1	/	8270,HERBS,PEST
	AMBER GL	1	/	8270,HERBS,PEST
	AMBER GL	1	/	8270,HERBS,PEST
	Total # of Containers of Type	(***AMBER GL***) = **5**		
175866 PETER-WW-001				
	SOLIDS	1	/	HG,ICP
	Total # of Containers of Type	(***SOLIDS***) = **1**		
175866 PETER-WW-001				

		HCL KIT	1	/	VOC
		Total # of Containers of Type	(***HCL KIT***) = **1**		
175866	PETER-WW-001				
		UNPRES GL	1	/	VOC
		Total # of Containers of Type	(***UNPRES GL***) = **1**		

Sample ID /	Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
175867	PETER-WW-001				
		AMBER GL	1	/	8270,HERBS,PEST
		AMBER GL	1	/	8270,HERBS,PEST
		Total # of Containers of Type	(***AMBER GL***) = **2**		
175867	PETER-WW-001				
		NAOH PL	1	/	CYN
		Total # of Containers of Type	(***NAOH PL***) = **1**		
175867	PETER-WW-001				
		AMBER GL	1	/	DRO,PCB
		Total # of Containers of Type	(***AMBER GL***) = **1**		
175867	PETER-WW-001				
		UNPRES PL	1	/	FLASH,pH
		Total # of Containers of Type	(***UNPRES PL***) = **1**		
175867	PETER-WW-001				
		VOA HCL	1	/	GRO
		VOA HCL	1	/	GRO
		VOA HCL	1	/	GRO
		Total # of Containers of Type	(***VOA HCL***) = **3**		
175867	PETER-WW-001				
		NAOH W/ZNAC	1	/	SLFD
		Total # of Containers of Type	(***NAOH W/ZNAC***) = **1**		

Condition Code	*Condition Description*
1	Sample Received OK

139370

Rev. 02/2017

CHAIN OF CUSTODY

Company: Aerostar SES LLC
Project Contact: Brian Odom
Telephone: 478-397-4906
Project Name: SI AFFF, Multiple Sites, US AF Installations
Project #: M2027.0003
Location: PETERSON AFB
Sampled By: A. Willis, J. Klein

Folder #: 139370
Company: MAXXAM ANALYTI
Project: SI AFFF
Logged By: JLS PM: ET

1230 Lange Court, Baraboo, WI 53913
608-356-2760 Fax 608-356-2766
www.ctlaboratories.com

Program:
QSM RCRA SDWA NPDES
Solid Waste Other _____

PO # M2027.0003

Report To: Jenny Vance
EMAIL: jvance@aerostar.net
Company: Aerostar SES LLC
Address: 1006 FLOYD CULLER CT
OAK RIDGE, TN 37830

Invoice To:* BRIAN ODOM
EMAIL: bodom@specproenv.com
Company: Aerostar SES LLC
Address: SAME AS ABOVE

*Party listed is responsible for payment of invoice as per CT Laboratories' terms and conditions

Client Special Instructions

Matrix:
GW – groundwater SW - surface water WW - wastewater DW - drinking water
S - soil/sediment SL - sludge A - air M - misc/waste
WS - Waste soil

Turnaround Time
Normal RUSH*
Date Needed: _____
Rush analysis requires prior CT Laboratories' approval
Surcharges:
24 hr 200%
2-3 days 100%
4-9 days 50%

ANALYSES REQUESTED

Collection Date	Collection Time	Matrix	Grab/ Comp	Sample #	Sample ID Description	Filtered? Y/N	PH, FLASHPOINT, CYANIDE	SULFIDE	VOC 8260	METALS, SVOC, PESTICIDES, HERBICIDES	PCB/TPH-DRO/GRO	SVOC, PESTICIDES, HERBICIDES	TPH-DRO, PCB	METALS	CYANIDE	PH, FLASHPOINT	VOC	TPH-GRO	SULFIDE			Total # Containers	Designated MS/MSD	CT Lab ID # (Lab use only)
							Fill in Spaces with Bottles per Test																	
9-11-18	0800	WS	Comp	1	PETER-WS-001	N	1	1	1	1	1											5	NA	175864/175865
9-11-18	0800	WW	Comp	1	PETER-WW-001	N						3	3	1	1	1	3	2	1			15	NA	175866/175867

Relinquished By:	Date/Time	Received By:	Date/Time
9/11/18 1600	9/11/18 1600		9/13/18 1110
Received by:	Date/Time	Received for Laboratory by:	Date/Time

Lab Use Only
Ice Present Yes No
Temp 2.2 IR Gun 19
Cooler # Maxxam

FORM #: FPM3-02
Rev. #: 1.0
Effective Date: 05/27/2014
Page 1 of 1

Cooler Receipt Form

Ice Present YES NO

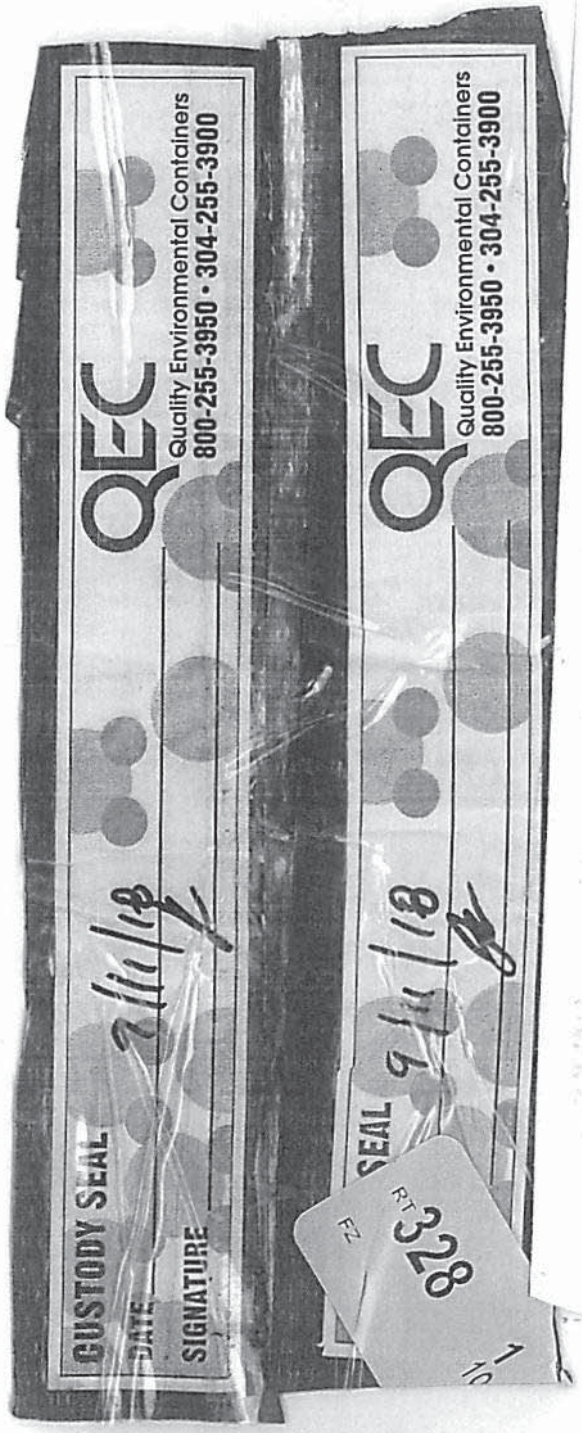
Temperature 2.7

IR Gun # 19

Initials

Date 9/13/18 Time 1110

Cooler #: Marlow



139370

Folder #: 139370

PM LOGIN CONFIRMATION

Contract #: 2929

Company: MAXXAM ANALYTICS **Project:** SI AFFF **Proj #:** M2027.0003

Project Phase: PETERSON AFB **PO Number:** **Invoice #:** 139972

Project Manager: *ETK* **Date Received:** 09/13/18 **Log Date:** 09/13/2018

Report To: JENNY VANCE CC: LNatzke@aerostar.net Invoice To :MELISSA DIGRAZIA CC:

AEROSTAR SES LLC 6740 CAMPOBELLO RD

1006 FLOYD CULLER CT

OAK RIDGE, TN 37830 MISSISSAUGA, ON L5N 2L8

Phone: 865-483-7904: Fax: Phone: Fax:

Rep. E-Mail JVance@aerostar.net EMail: AccountsPayable@maxxam.ca

Collected By: A. WILLIS/J. KLEIN Arrival Temperature: 2.7 oC

Collector's Phone: 865-483-7904

SAMPLE #: 175864 DESCR: PETER-WS-001 **PRIMARY / DETAILED MATRIX:** AQUEOUS / TCLP **SAMPLED: 09/11/2008 Time: 0800**

CLIENT SAMPLE #: **DETAILED SITE/POINT ID INFORMATION:**

TEST#	TEST	TEST METHOD	ANALYTE	TEST GROUP	SPECIAL REQUIREMENTS	HOLD DATE	ANALYSIS DUE	RUSH	STATUS
1051	PESTICIDES QSM TCLP	(EPA 8081B)					09/25/2018		NeedExt
1192	ICP QSM TCLP 5.0	(EPA 6010C)				03/10/2009	09/25/2018		NeedExt
			Arsenic						
			Barium						
			Cadmium						
			Chromium						
			Lead						
			Selenium						
			Silver						
1207	MERCURY QSM TCLP 5.0	(EPA 7470A)				10/09/2008	09/25/2018		NeedExt
1223	VOC 8260 QSM TCLP 5.0	(EPA 8260C)					09/25/2018		NeedExt
1247	SVOC 8270 QSM 5 TCLP	(EPA 8270D)					09/25/2018		NeedExt
1310	HERBICIDES TCLP QSM 5	(EPA 8151A)					09/25/2018		NeedExt

C:\LIMSREPS\CONFIRMATION.RPT

Folder #: 139370 **Company:** *MAXXAM ANALYTICS* **Project:** SI AFFF

SAMPLE #: 175865 **DESCR:** PETER-WS-001 **PRIMARY / DETAILED MATRIX:** SOLID / SOIL **SAMPLED:** 09/11/2018 **Time:** 0800

CLIENT SAMPLE #: **DETAILED SITE/POINT ID INFORMATION:**

TEST#	TEST	TEST METHOD	ANALYTE	TEST GROUP	SPECIAL REQUIREMENTS	HOLD DATE	ANALYSIS DUE	RUSH	STATUS
8	SOLIDS,PERCENT	(EPA 8000C)				09/25/2018	09/25/2018		Logged
203	PH	(EPA 9045D)					09/25/2018		Logged
605	SUB SULFIDE	(9030)				09/25/2018	09/25/2018		Logged
618	FLASHPOINT	(EPA 1010A)				10/09/2018	09/25/2018		Logged
871	CYANIDE QSM	(EPA 9012A)					09/25/2018		NeedPrep
1218	GRO 8015 QSM 5.0	(EPA 8015C)				09/25/2018	09/25/2018		NeedPrep
1236	PCB QSM 5	(EPA 8082A)					09/25/2018		NeedPrep
1243	DRO 8015 QSM 5	(EPA 8015C)					09/25/2018		NeedPrep

SAMPLE #: 175866 **DESCR:** PETER-WW-001 **PRIMARY / DETAILED MATRIX:** AQUEOUS / TCLP **SAMPLED:** 09/11/2018 **Time:** 0800

CLIENT SAMPLE #: **DETAILED SITE/POINT ID INFORMATION:**

TEST#	TEST	TEST METHOD	ANALYTE	TEST GROUP	SPECIAL REQUIREMENTS	HOLD DATE	ANALYSIS DUE	RUSH	STATUS
1051	PESTICIDES QSM TCLP	(EPA 8081B)					09/25/2018		NeedExt
1192	ICP QSM TCLP 5.0	(EPA 6010C)				03/10/2019	09/25/2018		NeedExt
			Arsenic						
			Barium						
			Cadmium						
			Chromium						
			Lead						
			Selenium						
			Silver						
1207	MERCURY QSM TCLP 5.0	(EPA 7470A)				10/09/2018	09/25/2018		NeedExt
1223	VOC 8260 QSM TCLP 5.0	(EPA 8260C)					09/25/2018		NeedExt
1247	SVOC 8270 QSM 5 TCLP	(EPA 8270D)					09/25/2018		NeedExt
1310	HERBICIDES TCLP QSM 5	(EPA 8151A)					09/25/2018		NeedExt

C:\LIMSREPS\CONFIRMATION.RPT

Folder #: 139370 **Company:** *MAXXAM ANALYTICS* **Project:** SI AFFF

SAMPLE #: 175867 **DESCR:** PETER-WW-001 **PRIMARY / DETAILED MATRIX:** AQUEOUS / GROUND WATER **SAMPLED:** 09/11/2018 **Time:** 0800

CLIENT SAMPLE #: **DETAILED SITE/POINT ID INFORMATION:**

TEST#	TEST	TEST METHOD	ANALYTE	TEST GROUP	SPECIAL REQUIREMENTS	HOLD DATE	ANALYSIS DUE	RUSH	STATUS
203	PH	(EPA 9040C)					09/25/2018		Logged
618	FLASHPOINT	(EPA 1010)				10/09/2018	09/25/2018		Logged
871	CYANIDE QSM	(EPA 9012A)					09/25/2018		NeedPrep
996	SULFIDE QSM	(EPA 9034)				09/18/2018	09/25/2018		Logged
1218	GRO 8015 QSM 5.0	(EPA 8015C)				09/25/2018	09/25/2018		Logged
1236	PCB QSM 5	(EPA 8082A)					09/25/2018		NeedPrep
1243	DRO 8015 QSM 5	(EPA 8015C)					09/25/2018		NeedPrep

C:\LIMSREPS\CONFIRMATION.RPT

Folder #: 139370 **Company:** *MAXXAM ANALYTICS* **Project:** SI AFFF

Invoice Number: 139972 **Preliminary Invoice Estimate:** $ 1,410.00

Item	Matrix	Quantity	Price	Expedited TAT Surcharge	Total
CYANIDE QSM	GROUND WATER	1	$ 25.00	0.00	$ 25.00
CYANIDE QSM	SOIL	1	$ 30.00	0.00	$ 30.00
DRO 8015 QSM 5	GROUND WATER	1	$ 45.00	0.00	$ 45.00
DRO 8015 QSM 5	SOIL	1	$ 45.00	0.00	$ 45.00
FLASHPOINT	GROUND WATER	1	$ 15.00	0.00	$ 15.00
FLASHPOINT	SOIL	1	$ 15.00	0.00	$ 15.00
GRO 8015 QSM 5.0	GROUND WATER	1	$ 30.00	0.00	$ 30.00
GRO 8015 QSM 5.0	SOIL	1	$ 30.00	0.00	$ 30.00
HERBICIDES TCLP QSM 5	TCLP	2	$ 150.00	0.00	$ 300.00
ICP QSM TCLP 5.0 Arsenic	TCLP	2	$ 8.00	0.00	$ 16.00
ICP QSM TCLP 5.0 Barium	TCLP	2	$ 8.00	0.00	$ 16.00
ICP QSM TCLP 5.0 Cadmium	TCLP	2	$ 8.00	0.00	$ 16.00
ICP QSM TCLP 5.0 Chromium	TCLP	2	$ 8.00	0.00	$ 16.00
ICP QSM TCLP 5.0 Lead	TCLP	2	$ 8.00	0.00	$ 16.00
ICP QSM TCLP 5.0 Selenium	TCLP	2	$ 8.00	0.00	$ 16.00
ICP QSM TCLP 5.0 Silver	TCLP	2	$ 8.00	0.00	$ 16.00
MERCURY QSM TCLP 5.0	TCLP	2	$ 19.00	0.00	$ 38.00
PCB QSM 5	GROUND WATER	1	$ 55.00	0.00	$ 55.00
PCB QSM 5	SOIL	1	$ 55.00	0.00	$ 55.00
PESTICIDES QSM TCLP	TCLP	2	$ 70.00	0.00	$ 140.00
PH	GROUND WATER	1	$ 10.00	0.00	$ 10.00
PH	SOIL	1	$ 10.00	0.00	$ 10.00
SOLIDS,PERCENT	SOIL	1	$ 0.00	0.00	$ 0.00
SUB SULFIDE	SOIL	1	$ 30.00	0.00	$ 30.00
SULFIDE QSM	GROUND WATER	1	$ 25.00	0.00	$ 25.00
SVOC 8270 QSM 5 TCLP	TCLP	2	$ 125.00	0.00	$ 250.00
VOC 8260 QSM TCLP 5.0	TCLP	2	$ 75.00	0.00	$ 150.00
Temporary Fuel Surcharge on lab supplies and services (if applicable):					$ 0.00

C:\LIMSREPS\CONFIRMATION.RPT

Bottle Information

Container	# Containers	Tests
AMBER GL	**9**	8270,HERBS,PEST
HCL KIT	**1**	VOC
JAR GL	**1**	VOC
NAOH PL	**1**	CYN
NAOH W/ZNAC	**1**	SLFD
SOLIDS	**3**	HG,ICP
UNPRES GL	**2**	DRO,GRO,PCB
UNPRES PL	**1**	FLASH,pH
VOA HCL	**3**	GRO