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ENVIRONMENT

Mr. Robert Weimer
State of Alaska
Department of Environmental Conservation
555 Cordova Street
Anchorage, AK 99501

Subject:
2019 Groundwater Monitoring Report, First Semi-Annual

Date:
December 31, 2019

Contact:
Nicole Monroe

Phone:
503.785.9414

Email:
Nicole.Monroe@arcadis.com

Our ref:
30015224

Dear Mr. Weimer,

On behalf of Chevron Environmental Management Company (Chevron), Arcadis US, Inc. (Arcadis) has prepared the attached *2019 First Semi-Annual Groundwater Monitoring Report* for the first semi-annual groundwater sampling events for the following facility:

Chevron Branded

Station No.	**ADEC File No.**	**Hazard ID:**	**Location**
98557	2100.26.006	23831	415 Muldoon Road Anchorage, Alaska

If you have any questions, please do not hesitate to contact me.

Sincerely,

Arcadis U.S., Inc.

Nicole Monroe

Nicole Monroe, P.E.
Project Manager
P.E.: EV-149409

Copies:
Tim Bishop (electronic)
Mark Engelke

Chevron Environmental Management Company

2019 FIRST SEMI-ANNUAL GROUNDWATER MONITORING REPORT

Chevron Service Station 9-8557
415 Muldoon Road
Fairbanks, Alaska
ADEC File No. 2100.26.006

December 31, 2019

2019 FIRST SEMI-ANNUAL GROUNDWATER MONITORING REPORT

Chevron Service Station 98557

415 Muldoon Road, Fairbanks, Alaska

ADEC File No: 2100.26.006
HAZARD ID No: 23831

Evan Wujcik
Environmental Engineer

Max Elias
Environmental Scientist

Nicole Monroe, P.E.
Project Manager
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Prepared for:

Chevron Environmental Management Company

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Our Ref.:
30015224

Date:
December 31, 2019

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FIRST HALF 2019
December 31, 2019

Facility No:	Chevron Service Station 9-8557	Address:	415 Muldoon Road, Anchorage, Alaska

Arcadis Contact Person / Phone No.:	Nicole Monroe / 503-785-9414
Arcadis Project No.:	30015224
Primary Agency/Regulatory ID No.:	State of Alaska Department of Environmental Conservation / Robert Weimer / Case No. 2100.26.006

WORK CONDUCTED THIS PERIOD [First Half 2019]:

1. Conducted semi-annual groundwater monitoring activities on April 10, 2019.
2. Conducted well repair activities on May 16, 2019
3. Well survey conducted on June 6, 2019
4. Prepared the *Semi-Annual Status Report, First Half, 2019*

WORK PROPOSED NEXT PERIOD [Second Half 2019]:

1. Conduct semi-annual groundwater monitoring activities in the second half of 2019.
2. Prepare the *Semi-Annual Status Report, Second Half 2019*.

Current Phase of Project:	Monitoring	
Frequency of Monitoring / Sampling:	Semi-Annual	
Is Light Non-Aqueous Phase Liquid (LNAPL) Present On-site:	No	
Cumulative LNAPL Recovered to Date:	0.0	(gallons)
Approximate Depth to Groundwater:	17.79 to 18.76	(feet below top of casing)
Approximate Groundwater Elevation:	234.03 to 234.10	(feet relative to corresponding datum)
Groundwater Flow Direction	West	

Groundwater Gradient	0.0006	(feet per foot)
Current Remediation Techniques:	None	
Permits for Discharge:	None	
Summary of Unusual Activity:	Well repair at MW-14.	
Agency Directive Requirements:	None	

1 INTRODUCTION

On behalf of Chevron Environmental Management Company (CEMC), Arcadis US, Inc. (Arcadis), has prepared this report to document the first semi-annual groundwater sampling events of 2019 for Chevron Service Station No. 98557, located at 415 Muldoon Road in Anchorage, Alaska (the site). The site location and site plan are shown on Figure 1 and Figure 2 respectively.

This work was conducted under the direction of a “qualified person” [18 AAC 75. 990 (100), and 18 AAC 78.995 (118)]. A site background and a historical summary are attached as Appendix A. Field notes, data sheets, and general procedures are included as Appendix B.

2 WELL REPAIR ACTIVITES

On May 16, 2019 Arcadis field staff repaired the cracked concrete well monument at MW-14. The well monument was exposed and reset in concrete.

3 GROUNDWATER MONITORING

3.1 Groundwater Gauging Methods

The 2019 first semi-annual groundwater gauging events was conducted on April 10, 2019. Site monitoring wells were gauged with an oil/water interface probe to determine depth-to-water and to ascertain if LNAPL was present. A well survey was conducted on June 6, 2019.

In order to prevent the possibility of cross-contamination, wells were gauged in the order of lowest to highest historical petroleum hydrocarbon concentrations in groundwater. In addition, non-disposable groundwater gauging equipment was decontaminated prior to and after each use with a detergent solution and rinsed in potable water.

3.2 Groundwater Elevation and Flow Direction

During the 2019 first semi-annual event, monitoring wells MW-1, MW-3, MW-13, MW-14 and RW-1 were scheduled to be gauged for groundwater elevations and the presence of LNAPL. The groundwater monitoring event field notes are presented in Appendix B.

The inferred groundwater flow direction for the second semi-annual 2019 monitoring events is to the west and is consistent with historical flow direction. Current groundwater depth-to-water and elevation data are included in Table 1; historical groundwater depth-to-water and elevation data are included in Table 2. A groundwater contour map is presented as Figure 3.

3.3 Groundwater Sampling Methods

The first semi-annual groundwater monitoring event was conducted on April 10, 2019. Groundwater samples were collected from monitoring wells MW-1, MW-13, and MW-14 using a low flow sampling method.

Sampling procedures were conducted in accordance with ADEC *Field Sampling Guidance* (ADEC, 2017). Monitoring well caps were removed to allow groundwater levels to stabilize and equilibrate before using an electronic interface probe (EIP) meter capable of 0.01-foot accuracy to measure the depth to groundwater and total well depth. A bladder pump with compressor & control unit with clean/disposable Teflon lined tubing and bladders was used to purge groundwater from the wells and collect samples to minimize the risk of volatile contaminant absorption by the sampling equipment. Water table drawdown was continuously monitored during purging with a water level meter and the flow rate of the pump was adjusted to limit drawdown to 0.1 meter. The intake of the pump was set as close as possible to the soil groundwater interface. Water quality parameters were monitored during purging with a multi-parameter water quality meter equipped with a flow through cell and Turbidity meter. Parameters were recorded every 3 to 5 minutes until a minimum of three (minimum of four if using temperature as an indicator) of the parameters listed below stabilized. The flow rate was reduced to 100-150 ml/minute and samples were collected from the discharge line into laboratory sample bottles. Water quality parameters were considered stable when three successive readings were within the following ADEC limits:

- ± 3% for temperature (minimum of ± 0.2 C°),
- ± 0.1 for pH,
- ± 3% for conductivity,
- ± 10 mv for redox potential,
- ± 10% for dissolved oxygen, and
- ± 10% for turbidity.

Sample bottles were labeled, stored in a cooler packed with ice, and submitted to Eurofins Lancaster Laboratories Environmental (Eurofins) in Lancaster, Pennsylvania, under proper chain-of-custody procedures. Field notes documenting the first and second-annual event are presented in Appendix B.

Groundwater samples collected from monitoring wells MW-1, MW-13, MW-14 and RW-1 were submitted to the analytical laboratory for the following analyses:

- Total petroleum hydrocarbons, diesel range (TPH-d) by LUFT GC/MS according to AK 102-SV 4/8/02
- Lead analyzed by SW-846 6010C

A groundwater duplicate sample was collected from monitoring well MW-14. The duplicate sample was analyzed for TPH-d and Lead. The duplicate sample was submitted blind with the sample set to Eurofins.

3.4 Groundwater Analytical Results

Routine analytical results for the above-mentioned constituents obtained from the first semi-annual 2019 groundwater monitoring event are summarized in Table 1 and are shown on Figure 4. Historic groundwater monitoring data are summarized in Table 2. There was a detection of TPH-d in the equipment blank collected during the event.

4 LABORATORY DATA QUALITY ASSURANCE SUMMARY

As required by ADEC (Technical Memorandum 06-002, dated March 2009), Arcadis completed a laboratory data review checklist for each of the laboratory reports generated for the 2019 semi-annual events. The laboratory reports are included as Appendix C and data review checklists are included as Appendix D. The following quality assurance (QA) summary describes six parameters, related to the quality and usability of the data presented in this report.

4.1 Precision

The relative percent difference (RPD) for matrix spike/matrix spike duplicate (MS/MSD), laboratory control sample / laboratory control sample duplicate (LCS/LCSD) and field duplicate (FD) were within the control limits.

The precision of the data, as measured by laboratory quality control (QC) indicators, suggest that the Data Quality Objectives (DQOs) were met.

4.2 Accuracy

The percent recoveries for LCS/LCSD and MS/MSD were within the control limits.

The accuracy of the data, as measured by laboratory quality control (QC) indicators, suggest that the DQOs were met.

4.3 Representativeness

The data appear to be representative of site conditions and are generally consistent with historical groundwater monitoring results and expected impacts to groundwater.

4.4 Comparability

The laboratory results are presented in the same units as previous reports to allow comparison.

4.5 Completeness

The results appear to be valid and usable, and thus, the laboratory results have 100% completeness.

4.6 Sensitivity

The sensitivity of the analyses was adequate for the samples as the detection limits were less than the ADEC GCLs for compounds.

5 CONCLUSIONS AND RECOMMENDATIONS

The groundwater data collected during the first semi-annual 2019 event indicates groundwater flow direction (west) is generally consistent with historical data. During the first semi-annual 2019 groundwater

monitoring events, groundwater samples were collected for analysis from monitoring wells MW-1, MW-13, and MW-14. Analytical results from the monitoring wells are generally consistent with historical data.

Groundwater monitoring will continue in accordance with the current semi-annual schedule. The second semi-annual sampling event of 2019 will be conducted in the fall of 2019.

6 REFERENCES

ADEC. *Field Sampling Guidance*. Division of Spill Prevention and Response Contaminated Sites Program. August 2017.

ADEC Technical Memorandum, March 2017. *Data Quality Objectives, Checklists, Quality Assurance Requirements for Laboratory Data, and Sample Handling*. ADEC, Division of Spill Prevention and Response Contaminated Sites Program.

TABLES

Table 1. Current Groundwater Gauging and Analytical Results
Chevron Service Station 9-8557
415 Muldoon Road,
Anchorage, Alaska

Well ID	Sample Date	Screen Interval (ft bTOC)	TOC (ft)	Datum	DTW (ft bTOC)	LNAPL thickness (ft)	GW Elev (ft)	TPH-d (ug/L)	Lead (ug/L)
ADEC Groundwater Cleanup Levels								1,500	--
MW-1	4/10/2019	16-26	252.38	NAVD88	18.30	0.00	234.08	<260 B	<7.1
MW-3	6/6/2019	14-24	252.69	NAVD88	18.63	0.00	234.06	**--**	**--**
MW-13	4/10/2019	--	252.86	NAVD88	18.76	0.00	234.10	**5,100**	**90.7**
MW-14	4/10/2019	--	251.82	NAVD88	17.79	0.00	234.03	<250 B [<260 B]	**9 J [9.2 J]**
RW-1	6/6/2019	15-29.5	252.55	NAVD88	18.51	0.00	234.04	**--**	**--**
QA (EQB)	4/10/2019	--	--	--	--	--	--	**130 J**	<7.1

Notes:

MW, RW = Groundwater monitoring well
TOC = Top of casing
DTW = Depth to groundwater
ft bTOC = Feet below top of casing
ft = feet
GW Elev = Groundwater elevation
mg/L = Milligrams per liter
-- = Not analyzed/ Not available
[ ] =Duplicate Sample Result
BOLD = Indicates concentration above the method detection limit (MDL)
BOLD AND SHADED = Indicates concentration above the ADEC Table C Groundwater Cleanup Level
<0.25 = Not detected at or above the MDL
J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
B = Compound considered non-detect at the listed value due to associated blank contamination.
TPH-d = Total petroleum hydrocarbons, diesel range by LUFT GC/MS according to AK 102-SV 4/8/02
Lead analyzed by SW-846 6010C
LNAPL = Light non-aqueous phase liquid
QA (EQB) = Quality Assurance (Equipment Blank)
<0.25 B [<0.26 B] = Parent Sample [Duplicate Sample]
ADEC = Alaska Department of Environmental Conservation

Table 2. Historical Groundwater Gauging and Analytical Results
Second Quarter 2003 to Current
Chevron Service Station 9-8557
415 Muldoon Road,
Anchorage, Alaska

Well ID	Sample Date	Screen Interval (ft bTOC)	TOC (ft amsl)	DTW (ft bTOC)	LNAPL thickness (ft)	GW Elev (ft amsl)	TPH-d (ug/L)	TPH-g (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl-benzene (ug/L)	Total Xylenes (ug/L)	MTBE (ug/L)	Lead (ug/L)	HVOCs (ppb)	SVOC's (ppb)	Comments
ADEC Groundwater Cleanup Levels							**1,500**	**2,200**	**4.6**	**1,100**	**15**	**190**	**1.4**	**15**	**--**	**--**	
MW-1	5/23/2003	16-26	98.73	19.00	0.00	79.73	**550**	--	--	--	--	--	--	--	<0.5-<2	--	
MW-1	10/8/2003	16-26	98.73	19.38	0.00	79.35	**280**	--	--	--	--	--	--	--	<0.5-<2	--	Laboratory report indicates the observed sample pattern is not typical of diesel/#2 fuel oil.
MW-1	6/4/2004	16-26	98.73	19.61	0.00	79.12	**1,900**	--	--	--	--	--	--	--	<0.5-<2	--	
MW-1	9/28/2004	16-26	98.73	19.50	0.00	79.23	**740 [670]**	--	--	--	--	--	--	--	<0.5-<2 [<0.5-<2]	--	
MW-1	5/13/2005	16-26	98.73	18.54	0.00	80.19	**830**	--	--	--	--	--	--	--	<0.5-<2	--	
MW-1	9/26/2005	16-26	98.73	18.67	0.00	80.06	<24	--	--	--	--	--	--	--	<0.5-<2	--	
MW-1	5/17/2006	16-26	98.73	19.54	0.00	79.19	**140**	--	--	--	--	--	--	--	<0.8-<2	--	
MW-1	9/25/2006	16-26	98.73	18.76	0.00	79.97	**8,500**	--	--	--	--	--	--	--	<0.8-<2	--	
MW-1	5/15/2007	16-26	98.73	18.91	0.00	79.82	**500**	--	--	--	--	--	--	--	<0.8-<2.0	<1-<21	
MW-1	9/24/2007	16-26	98.73	18.40	0.00	80.33	**3,500**	--	--	--	--	--	--	--	<0.8-<2.0	<1-<19	
MW-1	5/14/2008	16-26	98.73	18.37	0.00	80.36	**350**	--	--	--	--	--	--	--	<0.8-<2.0	<1-<19	HVOCs and SVOCs: TPH-d Laboratory report indiactes that the LCS/LCSD recoveries are outside the QC limits, The LCS result fron the reextraction is also outisde the QC limits. Similar results were obtained in both sample extracts.
MW-1	9/16/2008	16-26	98.73	18.02	0.00	80.71	**1,600**	--	--	--	--	--	--	--	<0.1-<0.3	<1-<0.20	
MW-1	6/18/2009	16-26	98.73	18.53	0.00	80.20	**270**	--	--	--	--	--	--	--	- ND	ND	
MW-1	9/7/2009	16-26	98.73	18.76	0.00	79.97	**2,500**	--	--	--	--	--	--	--	- ND	0.012	
MW-1	4/21/2010	16-26	98.73	19.46	0.00	79.27	**1,500**	--	--	--	--	--	--	--	- ND	0.21	
MW-1	7/22/2010	16-26	98.73	19.08	0.00	79.65	**1,400**	--	--	--	--	--	--	--	- ND	ND	
MW-1	4/19/2011	16-26	98.73	19.35	0.00	79.38	**1,600**	--	--	--	--	--	--	--	- ND	0.040 J	
MW-1	8/22/2011	16-26	252.78	19.09	0.00	233.69	**170 J**	--	--	--	--	--	--	< 4.7 UJ	- ND	ND	
MW-1	5/22/2012	16-26	252.78	18.22	0.00	234.56	**200 J**	--	--	--	--	--	--	< 2.2	- ND	ND	
MW-1	7/30/2012	16-26	252.78	17.55	0.00	235.23	**100 J**	--	--	--	--	--	--	**7.1 J**	- ND	ND	
MW-1	5/14/2013	16-26	252.78	17.90	0.00	234.88	**620**	--	--	--	--	--	--	< 1.9	--	--	
MW-1	5/14/2013	16-26	252.78	17.90	0.00	234.88	**1,600**	--	--	--	--	--	--	< 1.9	--	--	Sample Collected via hydrasleeve
MW-1	9/17/2013	16-26	252.78	17.57	0.00	235.21	-	--	--	--	--	--	--	-	--	--	
MW-1	9/18/2013	16-26	-	-	0.00	-	**380 J**	--	--	--	--	--	--	**9.6 J**	--	--	
MW-1	5/2/2014	16-26	252.78	19.95	0.00	232.83	**130 J**	--	--	--	--	--	--	**1**	--	--	
MW-1	11/8/2014	16-26	252.78	18.48	0.00	234.10	**260 J**	--	--	--	--	--	--	**7.7 J**	--	--	
MW-1	5/6/2015	16-26	252.78	19.12	0.00	233.66	**370 J**	--	--	--	--	--	--	**4.7**	--	--	
MW-1	10/21/2015	16-26	252.78	18.68	0.00	234.10	**350**	--	--	--	--	--	--	**26**	--	--	
MW-1	6/3/2016	16-26	252.78	18.69	0.00	234.09	**3,700**	--	--	--	--	--	--	**29.3 J**	--	--	
MW-1	10/14/2016	16-26	252.78	18.57	0.00	234.21	**2,400**	--	--	--	--	--	--	**13.7**	--	--	
MW-1	5/23/2017	16-26	252.78	18.29	0.00	234.49	**3,500**	--	--	--	--	--	--	**98.3**	--	--	
MW-1	9/1/2017	16-26	252.78	18.85	0.00	233.93	**800 J / 520 J**	--	--	--	--	--	--	**10.3 J / 15.1 J**	--	--	
MW-1	5/21/2018	16-26	252.78	19.10	0.00	233.68	**1,900 J / 1,500 J**	--	--	--	--	--	--	**48.4**	--	--	
MW-1	9/25/2018	16-26	252.58*	19.02	0.00	233.76	**1,000**	--	--	--	--	--	--	**24.1**	--	--	
MW-1	4/10/2019	16-26	252.38	18.30	0.00	234.08	<260 B	--	--	--	--	--	--	<7.1	--	--	Depth to water taken from Recent Survey Notes dated 6/6/2019.
MW-3	5/23/2003	14-24	98.52	19.19	0.00	79.33	<24	--	--	--	--	--	--	--	<0.5-<2	--	
MW-3	10/8/2003	14-24	98.52	19.55	0.00	78.97	**43 [45]**	--	--	--	--	--	--	--	<0.5-<2 [<0.5-<2]	--	
MW-3	6/4/2004	14-24	98.52	19.78	0.00	78.74	**62**	--	--	--	--	--	--	--	<0.5-<2	--	
MW-3	9/28/2004	14-24	98.52	19.88	0.00	78.64	<20	--	--	--	--	--	--	--	<0.5-<2	--	
MW-3	5/13/2005	14-24	98.52	18.86	0.00	79.66	**84 [67]**	--	--	--	--	--	--	--	<0.5-<2 [<0.5-<2]	--	TPH-d: Laboratory report indicates the observed sample pattern is not typical of diesel/#2 fuel oil.
MW-3	9/26/2005	14-24	98.52	18.52	0.00	80.00	<24 [<24]	--	--	--	--	--	--	--	<0.5-<2 [<0.5-<2]	--	
MW-3	5/17/2006	14-24	98.52	19.63	0.00	78.89	<25	--	--	--	--	--	--	--	<0.8-<2	--	
MW-3	9/25/2006	14-24	98.52	18.73	0.00	79.79	**220**	--	--	--	--	--	--	--	<0.8-<2	--	
MW-3	5/15/2007	14-24	98.52	18.78	0.00	79.74	**130**	--	--	--	--	--	--	--	<0.8-<2.0	<1-<21	
MW-3	9/24/2007	14-24	98.52	18.43	0.00	80.09	**1,600**	--	--	--	--	--	--	--	<0.5-<2.0	<1-<20	
MW-3	5/14/2008	14-24	98.52	18.42	0.00	80.10	**84 [87]**	--	--	--	--	--	--	--	<0.8-<2.0 [<0.8-<2.0]	<1-<21	HVOCs and SVOCs: TPH-d Laboratory report indiactes that the LCS/LCSD recoveries are outside the QC limits, The LCS result fron the reextraction is also outisde the QC limits. Similar results were obtained in both sample extracts.
MW-3	9/16/2008	14-24	98.52	18.06	0.00	80.46	<50 **[53]**	--	--	--	--	--	--	--	<0.1-<0.3 [<0.1-<0.3]	<1-<0.20	
MW-3	6/18/2009	14-24	98.52	18.65	0.00	79.87	<50	--	--	--	--	--	ND	--	--	--	
MW-3	9/7/2009	14-24	98.52	18.88	0.00	79.64	<48	--	--	--	--	--	ND	--	--	--	
MW-3	4/21/2010	14-24	98.52	19.60	0.00	78.92	<53 UJ	--	<0.5	<0.5	<0.5	--	ND	--	--	--	
MW-3	7/22/2010	14-24	98.52	19.18	0.00	79.34	**55 J**	--	--	--	--	--	ND	--	--	--	
MW-3	4/19/2011	14-24	98.52	19.47	0.00	79.05	**84 J**	--	--	--	--	--	ND	--	--	--	
MW-3	8/22/2011	14-24	253.02	19.17	0.00	233.85	**120 J**	--	--	--	--	--	ND	<2.2	--	--	
MW-3	5/22/2012	14-24	253.02	18.34	0.00	234.68	<48	--	--	--	--	--	ND	<2.2	--	--	
MW-3	7/30/2012	14-24	253.02	17.69	0.00	235.33	**96 J**	--	--	--	--	--	ND	<5.1	--	--	
MW-3	5/14/2013	14-24	253.02	18.04	0.00	234.98	--	--	--	--	--	--	--	--	--	--	
MW-3	9/17/2013	14-24	253.02	17.69	0.00	235.33	--	--	--	--	--	--	--	--	--	--	
MW-3	5/2/2014	14-24	253.02	18.06	0.00	234.96	--	--	--	--	--	--	--	--	--	--	
MW-3	11/8/2014	14-24	253.02	18.60	0.00	234.42	--	--	--	--	--	--	--	--	--	--	
MW-3	5/6/2015	14-24	253.02	19.24	0.00	233.78	--	--	--	--	--	--	--	--	--	--	
MW-3	10/21/2015	14-24	253.02	18.79	0.00	234.23	--	--	--	--	--	--	--	--	--	--	
MW-3	6/3/2016	14-24	253.02	18.81	0.00	234.21	--	--	--	--	--	--	--	--	--	--	
MW-3	10/14/2016	14-24	253.02	18.69	0.00	234.33	--	--	--	--	--	--	--	--	--	--	
MW-3	5/23/2017	14-24	253.02	18.35	0.00	234.67	--	--	--	--	--	--	--	--	--	--	
MW-3	9/1/2017	14-24	253.02	18.84	0.00	234.18	--	--	--	--	--	--	--	--	--	--	
MW-3	5/21/2018	14-24	253.02	19.11	0.00	233.91	--	--	--	--	--	--	--	--	--	--	
MW-3	9/25/2018	14-24	252.92*	19.12	0.00	233.90	--	--	--	--	--	--	--	--	--	--	
MW-3	4/10/2019	14-24	252.69	18.63	0.00	234.06	--	--	--	--	--	--	--	--	--	--	Depth to water taken from Recent Survey Notes dated 6/6/2019.
MW-4R	5/23/2003	15-24.5	--	18.17	0.00	--	--	<80 **[220]**	<0.5	<0.5	<0.5	<1	<2	--	<1-<5.00 [<0.5-<2]	--	
MW-4R	10/8/2003	15-24.5	--	18.55	0.00	--	--	**200**	<0.5	<0.5	<0.5	<1.0	<0.5	--	<0.5-<2	--	
MW-4R	6/4/2004	15-24.5	--	18.76	0.00	--	--	**120**	<0.5	<0.5	<0.5	<1.0	<2	--	<0.5-<2	--	
MW-4R	9/28/2004	15-24.5	--	18.65	0.00	--	--	**30**	<0.5	<0.5	<0.5	<1.0	<2	--	<0.5-<2	--	
MW-4R	5/13/2005	15-24.5	--	17.69	0.00	--	--	<10	<0.5	<0.5	<0.5	<1.0	<2	--	<0.5-<2	--	
MW-4R	9/26/2005	15-24.5	--	17.50	0.00	--	--	**30**	<0.5	<0.5	<0.5	<1.0	<2	--	<0.5-<2	--	
MW-4R	5/17/2006	15-24.5	--	18.61	0.00	--	--	<10	<0.5	<0.5	<0.5	<1.0	<2	--	<0.5-<2	--	
MW-4R	9/25/2006	15-24.5	--	17.85	0.00	--	--	**340**	<0.5	<0.7	<0.8	<1.6	<2	--	<0.8-<2	--	

Table 2. Historical Groundwater Gauging and Analytical Results
Second Quarter 2003 to Current
Chevron Service Station 9-8557
415 Muldoon Road,
Anchorage, Alaska

Well ID	Sample Date	Screen Interval (ft bTOC)	TOC (ft amsl)	DTW (ft bTOC)	LNAPL thickness (ft)	GW Elev (ft amsl)	TPH-d (ug/L)	TPH-g (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl-benzene (ug/L)	Total Xylenes (ug/L)	MTBE (ug/L)	Lead (ug/L)	HVOCs (ppb)	SVOC's (ppb)	Comments
				ADEC Groundwater Cleanup Levels			1,500	2,200	4.6	1,100	15	190	1.4	15	--	--	
MW-4R	5/15/2007	15-24.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-4R	9/24/2007	15-24.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Unable to locate
MW-4R	5/14/2008	15-24.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Unable to locate
MW-4R	9/16/2008	15-24.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Unable to locate
														--			
MW-11	10/8/2003	14-24	97.76	79.23	--	--	--	--	--	--	--	--	--	--	--	--	
MW-11	6/4/2004	14-24	97.76	79.00	--	--	--	--	--	--	--	--	--	--	--	--	
MW-11	9/28/2004	14-24	97.76	--	--	--	--	--	--	--	--	--	--	--	--	--	Inaccessible due to flooding
MW-11	5/13/2005	14-24	97.76	80.11	--	--	--	--	--	--	--	--	--	--	--	--	
MW-11	9/26/2005	14-24	97.76	DRY	--	--	--	--	--	--	--	--	--	--	--	--	
MW-11	5/17/2006	14-24	97.76	DRY	--	--	--	--	--	--	--	--	--	--	--	--	Abandoned July 2006
MW-12	5/23/2003	15-24.5	98.52	18.71	0.00	79.81	--	<10	<0.5	<0.5	<0.5	<1	<0.5	--	<0.5-<2	--	
MW-12	10/8/2003	15-24.5	98.52	19.06	0.00	79.46	--	<10	<0.5	<0.5	<0.5	<1	<2	--	<0.5-<2	--	
MW-12	6/4/2004	15-24.5	98.52	19.28	0.00	79.24	--	<10 [< 10]	<0.5 [<0.5]	<0.5 [<0.5]	<0.5 [<0.5]	<1 [<1]	<2 [<2]	--	<0.5-<2 [<0.5-<2]	--	
MW-12	9/28/2004	15-24.5	98.52	19.23	0.00	79.29	--	<10	<0.5	<0.5	<0.5	<1	<2	--	<0.5-<2	--	
MW-12	5/13/2005	15-24.5	98.52	18.27	0.00	80.25	--	<10	<0.5	<0.5	<0.5	<1	<2	--	<0.5-<2	--	
MW-12	9/26/2005	15-24.5	98.52	DRY	--	--	--	--	--	--	--	--	--	--	--	--	
MW-12	5/17/2006	15-24.5	98.52	19.23	0.00	79.29	--	<10	<0.5	<0.7	<0.8	<1.6	<2	--	<0.8-<2	--	
MW-12	5/17/2006	15-24.5	98.52	--	--	--	--	<10	<0.5	<0.7	<0.8	<1.6	<2	--	<0.8-<2	--	
MW-13	7/30/2012	--	252.83	17.86	0.00	234.97	**6,600 J / 17,000 J**	**1,700 / 1,500**	**9.8 / 10**	**12.0 / 12.0**	**3.6 / 3.7**	**190 / 190**	**4.0 / 4.0**	**490 / 443**	--	**0.126 J / 0.176 J**	
MW-13	5/14/2013	--	252.83	18.15	0.00	234.68	**1,000 / 730**	**380 / 370**	**1.2 / 1.2**	**0.87 J / 0.88 J**	**9.8 / 10**	**28 / 30**	ND / ND	**740 / 570**	--	--	
MW-13	5/14/2013	--	252.83	18.15	0.00	234.68	**3,500 J / 1,600 J**	**270 / 310**	**1.2 / 1.2**	**0.93 J / 0.97 J**	**8.7 / 8.5**	**26 / 26**	--	**1400 / 970**	--	--	
MW-13	9/17/2013	--	252.83	17.82	0.00	235.01	-	-	-	-	-	-	--	--	--	--	
MW-13	9/18/2013	--	252.83	--	0.00	--	**710 / 770**	**170 / 180**	**0.98 J / 0.97 J**	**0.59 J / 0.63 J**	**5.7 / 5.7**	**15 / 15**	--	**210 J / 1,200 J**	--	--	
MW-13	5/2/2014	--	252.83	18.20	0.00	234.63	**620 / 540**	**160 / 140**	**0.90 J / 0.77 J**	**0.41 J** / <0.36	**4.9 / 4.1**	**3.4 / 2.8 J**	--	**25 / 18**	--	--	
MW-13	11/8/2014	--	252.83	18.70	0.00	234.13	**550 J / 500 J**	**89 J / 87 J**	**0.54 J / 0.46 J**	<0.19 J / <0.18 J	**1.8 / 1.8**	**1.1 J / 1.2 J**	--	**33 / 20**	--	--	
MW-13	5/6/2015	--	252.83	19.38	0.00	233.45	**390 J / 350 J**	--	--	--	--	--	--	**673 / 875**	--	--	
MW-13	10/21/2015	--	252.83	18.93	0.00	233.90	**1,100 / 4,100 J**	--	--	--	--	--	--	**74.8 / 53.9**	--	--	
MW-13	6/3/2016	--	252.83	18.94	0.00	233.89	**5,300 J / 5,200 J**	--	--	--	--	--	--	**223 / 219**	--	--	
MW-13	10/14/2016	--	252.83	18.83	0.00	234.00	**710 / 650**	--	--	--	--	--	--	**74.7 / 69.6**	--	--	
MW-13	5/23/2017	--	252.83	18.53	0.00	234.30	**360 J / 1900 J**	--	--	--	--	--	--	**298 J / 226 J**	--	--	
MW-13	9/1/2017	--	252.83	19.11	0.00	233.72	**590 J**	--	--	--	--	--	--	**137**	--	--	
MW-13	5/21/2018	--	252.83	19.23	0.00	233.60	**5,100 J**	--	--	--	--	--	--	**1,240 / 910**	--	--	
MW-13	9/25/2018	--	252.83	19.27	0.00	233.56	**9,100 / 7,400**	--	--	--	--	--	--	**193 / 265**	--	--	
MW-13	4/10/2019	--	252.86	18.76	0.00	234.10	**5,100**	--	--	--	--	--	--	**90.7**	--	--	Depth to water taken from Recent Survey Notes dated 6/6/2019.
MW-14	08/22/2011	--	251.41	17.99	0.00	233.42	<49	**43 J**	<0.5	<0.5	<0.5	<1.5	- ND	<0.0026 UJ	--	ND	
MW-14	5/22/2012	--	251.41	17.11	0.00	234.30	<49 UJ	<10	<0.5	<0.5	<0.5	<1.5	- ND	<0.0022	--	**0.0003**	
MW-14	7/30/2012	--	251.41	16.51	0.00	234.90	<48	<10	<0.5	<0.5	<0.5	<1.5	- ND	<0.0051	--	ND	
MW-14	5/14/2013	--	251.41	16.81	0.00	234.60	<63 J	<50	<0.24	<0.23	<0.24	<0.72	--	**0.020**	--	--	
MW-14	5/14/2013	--	251.41	16.81	0.00	234.60	<120 J	<50	<0.24	<0.23	<0.24	<0.72	--	**0.10**	--	--	Sample Collected via hydrasleeve
MW-14	9/17/2013	--	251.41	16.45	0.00	234.96	-	-	-	-	-	-	--	--	--	--	
MW-14	9/18/2013	--	--	--	0.00	--	<230	<50	<0.24	<0.23	<0.24	<0.72	--	**18**	--	--	
MW-14	5/2/2014	--	251.41	16.88	0.00	234.53	<68	<50	<0.15	<0.11	<0.16	<0.40	--	**0.18**	--	--	
MW-14	11/8/2014	--	251.41	17.37	0.00	234.04	**91 J**	<50 J	<0.15	<0.11	<0.16	<0.40	--	**0.18 J**	--	--	
MW-14	5/6/2015	--	251.41	18.01	0.00	233.40	<51 J	--	--	--	--	--	--	**5.3 J**	--	--	
MW-14	10/21/2015	--	251.87	18.04	0.00	233.83	<51 J	--	--	--	--	--	--	**56.1 J**	--	--	
MW-14	6/3/2016	--	251.41	18.07	0.00	233.34	<51	--	--	--	--	--	--	<5.1	--	--	
MW-14	10/14/2016	--	251.41	17.98	0.00	233.43	**1,200**	--	--	--	--	--	--	<6.2	--	--	
MW-14	5/23/2017	--	251.41	17.65	0.00	233.76	<53	--	--	--	--	--	--	<6.2	--	--	
MW-14	9/1/2017	--	251.41	18.23	0.00	233.18	<50 J	--	--	--	--	--	--	**12.5 J**	--	--	
MW-14	5/21/2018	--	251.41	19.36	0.00	232.05	<50 J	--	--	--	--	--	--	**30**	--	--	
MW-14	9/25/2018	--	251.41	18.41	0.00	233.00	<51	--	--	--	--	--	--	<7.1	--	--	
MW-14	4/10/2019	--	251.82	17.79	0.00	234.03	<250 B [<260 B]	--	--	--	--	--	--	**9 J [9.2 J]**	--	--	Depth to water taken from Recent Survey Notes dated 6/6/2019,
RW-1	5/23/2003	15-29.5	--	18.71	0.00	--	--	**56**	<0.5	<0.5	<0.5	<1	<0.5	--	<0.5-<2	--	
RW-1	10/8/2003	m	--	19.09	0.00	--	--	**19**	<0.5	<0.5	<0.5	<1	<2	--	<0.5-<2	--	
RW-1	6/4/2004	15-29.5	--	19.30	0.00	--	--	**34**	<0.5	<0.5	<0.5	<1	<2	--	<0.5-<2	--	
RW-1	9/28/2004	15-29.5	--	19.27	0.00	--	--	<10	<0.5	<0.5	<0.5	<1	<2	--	<0.5-<2	--	
RW-1	5/13/2005	15-29.5	--	18.20	0.00	--	--	**23**	<0.5	<0.5	<0.5	<1	<2	--	<0.5-<2	--	
RW-1	9/26/2005	15-29.5	--	18.04	0.00	--	--	**14 [57]**	<0.5 [<0.5]	<0.5 [<0.5]	<0.5 [<0.5]	<1 [<1]	<2 [<2]	--	<0.5-<2 [<0.5-<2]	--	
RW-1	5/15/2007	15-29.5	--	18.56	0.00	--	<120 [<120]	<10 [<10]	<0.5 [<0.5]	<0.7 [<0.7]	<0.8 [<0.8]	<1.6 [<1.6]	<2 [<2]	--	<0.8-<2 [<0.8-<2]	<1-<21 [<1-<21]	
RW-1	9/24/2007	15-29.5	--	18.57	0.00	--	**83 [98]**	**20 [20]**	<0.5 [<0.5]	<0.5 [<0.5]	<0.5 [<0.5]	<1 [<1]	<2 [<2]	--	<0.5-<2 [<0.5-<2]	<1-<19 [<1-<20]	
RW-1	5/14/2008	15-29.5	--	18.52	--	--	**83**	**20**	<0.5	<0.7	<0.8	<1.6	<2	--	<0.8-<2	<1-<21	HVOCs and SVOCs: TPH-d Laboratory report indiactes that the LCS/LCSD recoveries are outside the QC limits, The LCS result fron the reextraction is also outisde the QC limits. Similar results were obtained in both sample extracts.
RW-1	9/16/2008	15-29.5	--	18.19	0.00	--	**61**	**60**	<0.5	<0.5	<0.5	<0.5	<2	--	<0.1-<0.3	<1-<0.20	
RW-1	6/18/2009	15-29.5	--	18.54	0.00	--	**200 J / 130 J**	**39 J / 34 J**	<0.5 / <0.5	<0.5 / <0.5	<0.5 / <0.5	<1.5 / <1.5	--	--	ND / ND	ND / ND	
RW-1	9/7/2009	15-29.5	--	18.77	0.00	--	**180 J / 140 J**	**53 J / 54 J**	<0.5 / <0.5	<0.5 / <0.5	<0.5 / <0.5	<1.5 / <1.5	--	--	ND / ND	ND / ND	
RW-1	4/21/2010	15-29.5	--	19.49	0.00	--	**520 J / <510**	--	<0.5 / <0.5	<0.5 / <0.5	<0.5 / <0.5	<0.5	--	--	ND	ND	
RW-1	7/22/2010	15-29.5	--	19.11	0.00	--	**<510 / <510**	**10 J** / <10	<0.5 / <0.5	<0.5 / <0.5	<0.5 / <0.5	<1.5 / <1.5	--	--	ND	ND	
RW-1	4/19/2011	15-29.5	--	19.41	0.00	--	**99 J / 89 J**	**19 J** / <10	<0.5 / <0.5	<0.5 / <0.5	<0.5 / <0.5	<1.5 / <1.5	--	--	ND / ND	ND / ND	
RW-1	8/22/2011	15-29.5	252.85	19.09	0.00	233.76	<48 / <49	**19 J / 11 J**	<0.5 / <0.5	<0.5 / <0.5	<0.5 / <0.5	<1.5 / <1.5	--	<2.6 UJ/<2.2	ND / ND	ND / ND	
RW-1	5/22/2012	15-29.5	252.85	18.23	0.00	234.62	**51 J / 56 J**	<10 / <10	<0.5 / <0.5	<0.5 / <0.5	<0.5 / <0.5	<1.5 / <1.5	--	<2.2/<2.2	ND / ND	ND / ND	
RW-1	7/30/2012	15-29.5	252.85	17.63	0.00	235.22	<51	<10	<0.5	<0.5	<0.5	<1.5	--	<5.1	ND	ND	
RW-1	5/14/2013	15-29.5	252.85	17.95	0.00	234.90	--	--	--	--	--	--	--	--	--	--	
RW-1	9/17/2013	15-29.5	252.85	17.58	0.00	235.27	--	--	--	--	--	--	--	--	--	--	
RW-1	5/2/2014	15-29.5	252.85	18.00	0.00	234.85	--	--	--	--	--	--	--	--	--	--	
RW-1	11/8/2014	15-29.5	252.85	18.47	0.00	234.38	--	--	--	--	--	--	--	--	--	--	
RW-1	5/6/2015	15-29.5	252.85	20.13	0.00	232.72	--	--	--	--	--	--	--	--	--	--	
RW-1	10/21/2015	15-29.5	252.85	18.87	0.00	233.98	--	--	--	--	--	--	--	--	--	--	

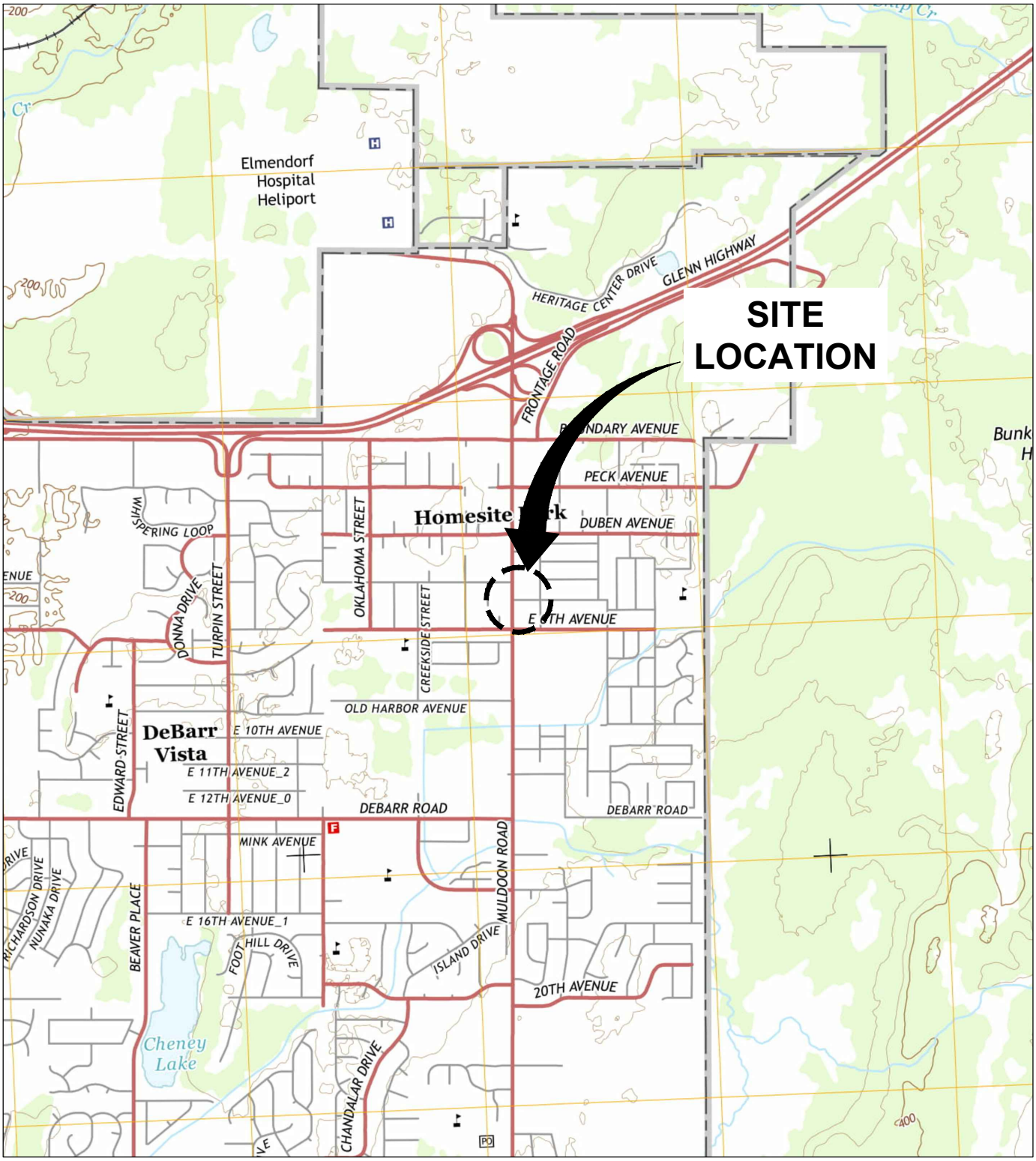
Table 2. Historical Groundwater Gauging and Analytical Results
Second Quarter 2003 to Current
Chevron Service Station 9-8557
415 Muldoon Road,
Anchorage, Alaska

Well ID	Sample Date	Screen Interval (ft bTOC)	TOC (ft amsl)	DTW (ft bTOC)	LNAPL thickness (ft)	GW Elev (ft amsl)	TPH-d (ug/L)	TPH-g (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl-benzene (ug/L)	Total Xylenes (ug/L)	MTBE (ug/L)	Lead (ug/L)	HVOCs (ppb)	SVOC's (ppb)	Comments
ADEC Groundwater Cleanup Levels							**1,500**	**2,200**	**4.6**	**1,100**	**15**	**190**	**1.4**	**15**	**--**	**--**	
RW-1	6/3/2016	15-29.5	252.85	18.71	0.00	234.14	--	--	--	--	--	--	--	--	--	--	
RW-1	10/14/2016	15-29.5	252.85	18.61	0.00	234.24	--	--	--	--	--	--	--	--	--	--	
RW-1	5/23/2017	15-29.5	252.85	18.28	0.00	234.57	--	--	--	--	--	--	--	--	--	--	
RW-1	9/1/2017	15-29.5	252.85	18.87	0.00	233.98	--	--	--	--	--	--	--	--	--	--	
RW-1	5/21/2018	15-29.5	252.85	18.48	0.00	234.37	--	--	--	--	--	--	--	--	--	--	
RW-1	9/25/2018	15-29.5	252.85	19.03	0.00	233.82	--	--	--	--	--	--	--	--	--	--	
RW-1	4/10/2019	15-29.5	252.55	18.51	0.00	234.04	--	--	--	--	--	--	--	--	--	--	Depth to water taken from Recent Survey Notes dated 6/6/2019,
QA	10/8/2003	--	--	--	--	--	--	<10	<0.5	<0.5	<0.5	<0.5	<2	--	--	--	
QA	6/4/2004	--	--	--	--	--	--	--	<0.5	<0.5	<0.5	<0.5	<2	--	--	--	
QA	9/28/2004	--	--	--	--	--	--	<10	<0.5	<0.5	<0.5	<0.5	<2	--	--	--	
QA	5/13/2005	--	--	--	--	--	--	<10	<0.5	<0.5	<0.5	<0.5	<2	--	--	--	
QA	9/26/2005	--	--	--	--	--	--	<10	<0.5	<0.5	<0.5	<0.5	<2	--	--	--	
QA	5/15/2007	--	--	--	--	--	--	<10	<0.5	<0.7	<0.8	<1.6	<2	--	<0.8-<2.0	--	
QA	9/24/2007	--	--	--	--	--	--	<10	<0.5	<0.5	<0.5	<0.5	<2	--	--	--	
QA	5/14/2008	--	--	--	--	--	--	<10	<0.5	<0.5	<0.5	<0.5	<2	--	--	--	
QA	5/14/2008	--	--	--	--	--	--	<10	<0.5	<0.5	<0.5	<0.5	<2	--	--	--	
QA	9/16/2008	--	--	--	--	--	--	<10	--	--	--	--	--	--	--	--	

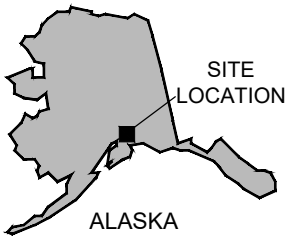
Notes:
MW, RW = Groundwater monitoring well
TOC = Top of casing
DTW = Depth to groundwater
ft bTOC = Feet below top of casing
ft = feet
GW Elev = Groundwater elevation
ug/L = Micrograms per liter
-- = Not analyzed/ Not available
LNAPL = Light non-aqueous phase liquid
QA (EQB) = Quality Assurance (Equipment Blank)
[ ] - Blind Duplicate sample
<0.25 = Not detected at or above the MDL
J = Estimated value between MDL and Limit of Quantitation (LOQ)
B = Compound considered non-detect at the listed value due to associated blank contamination.
ND = Not detected
BOLD = Indicates concentration above the method detection limit (MDL)
BOLD AND SHADED = Indicates concentration above the ADEC Table C Groundwater Cleanup Level
TPH-g= Total petroleum hydrocarbons, gasoline range by LUFT GC/MS according to AK 102-SV 4/8/02
TPH-d = Total petroleum hydrocarbons, diesel range by LUFT GC/MS according to AK 102-SV 4/8/02
Samples analyzed by United States Environmental Protection Agency (USEPA) Method 8260C
Benzene, toluene, ethylbenzene and total xylenes (collectively BTEX)
MTBE = Methyl tert-butyl ether
Lead analyzed by SW-846 6010C
HVOCs = Halogenated Volatiles
SVOCs = Semi Volatile Organic Compound
ADEC = Alaska Department of Environmental Conservation

Data prior to 2003 are avaliable as Appendix E

FIGURES



MAP SOURCE: BASE MAP USGS 7.5. MIN. TOPO. QUAD., ANCHORAGE A-8, ALASKA, 2016



N

0 2000' 4000'

Approximate Scale: 1 in. = 2000 ft.

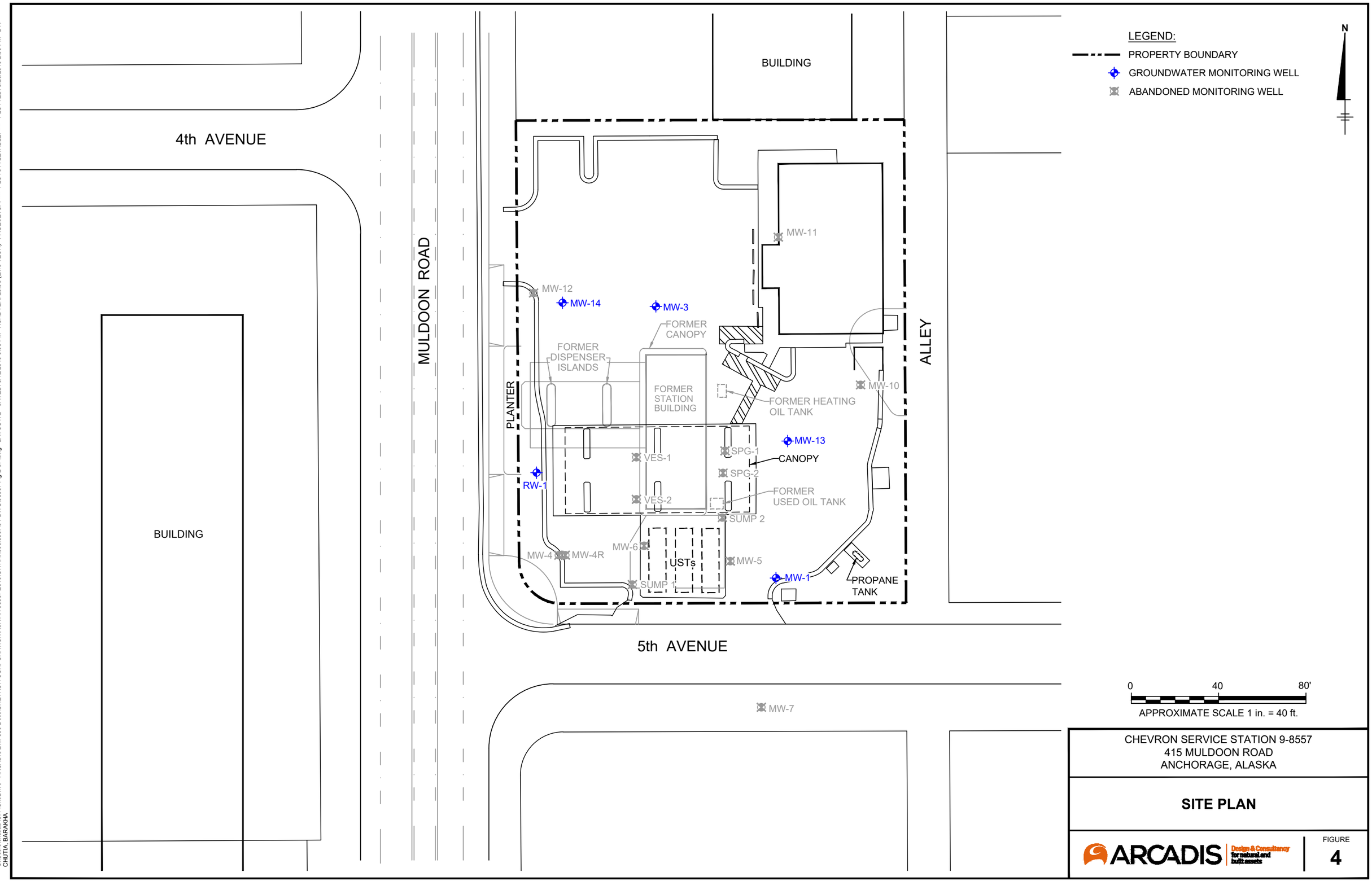
CHEVRON SERVICE STATION 98557
415 MULDOON ROAD
ANCHORAGE, ALASKA

SITE LOCATION MAP

ARCADIS Design & Consultancy for natural and built assets

FIGURE
1

CITY: SAN RAFAEL, CA (PETALUMA) DIV/GROUP: ENVCAD DB: J. HARRIS
C:\Users\chutiab4677\OneDrive - ARCADIS\BIM 360 Docs\CHEVRON CORPORATION\ASR AK-98557\2019\GWRAK000.8557\01-DWG\98557 Fig 1 SLM.dwg LAYOUT: 1 SAVED: 8/12/2019 2:56 PM ACADVER: 23.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 9/20/2019
2:39 PM BY: CHUTIA, BARAKHA

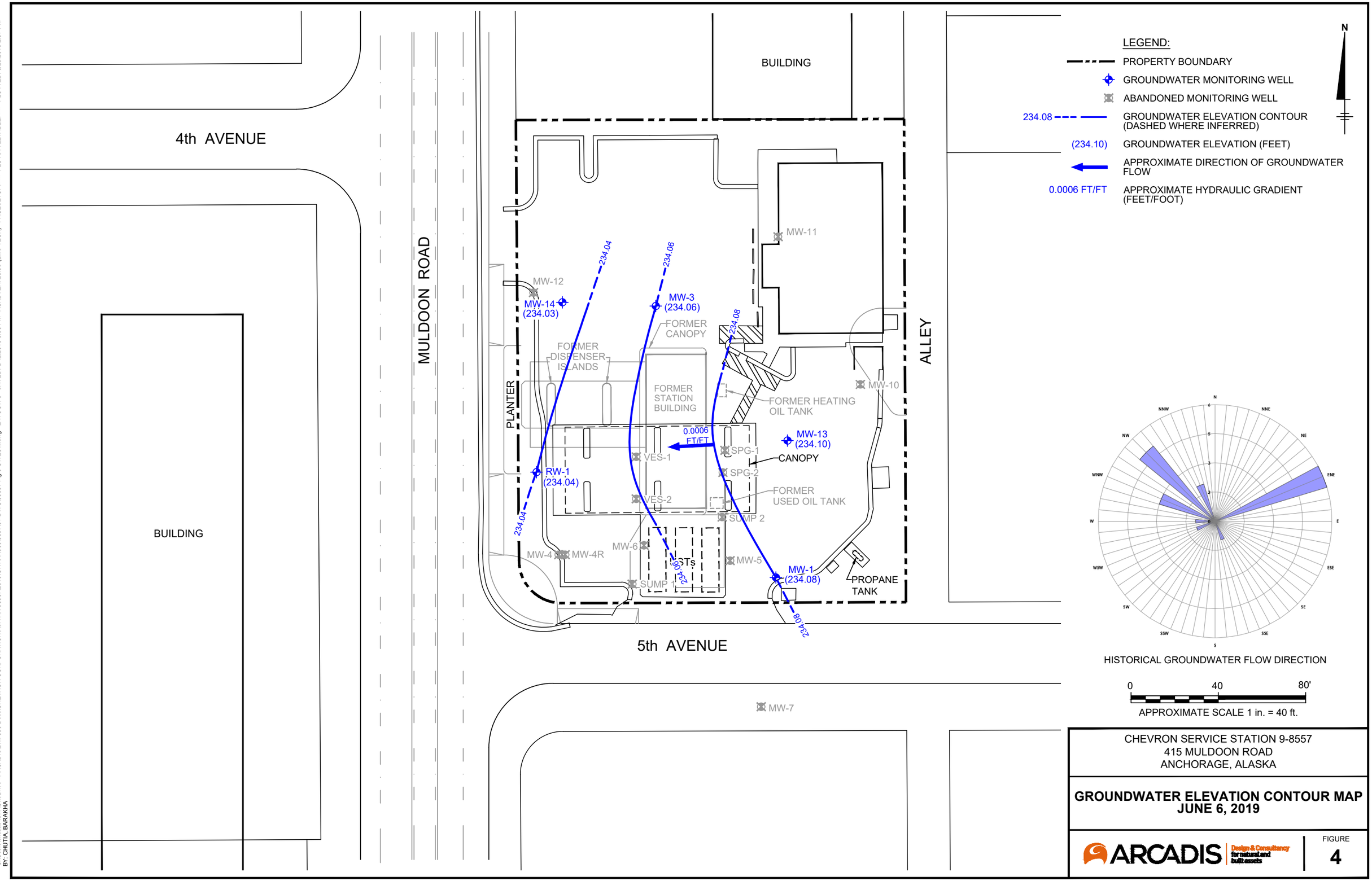


CHEVRON SERVICE STATION 9-8557
415 MULDOON ROAD
ANCHORAGE, ALASKA

SITE PLAN

ARCADIS Design & Consultancy for natural and built assets

FIGURE
4

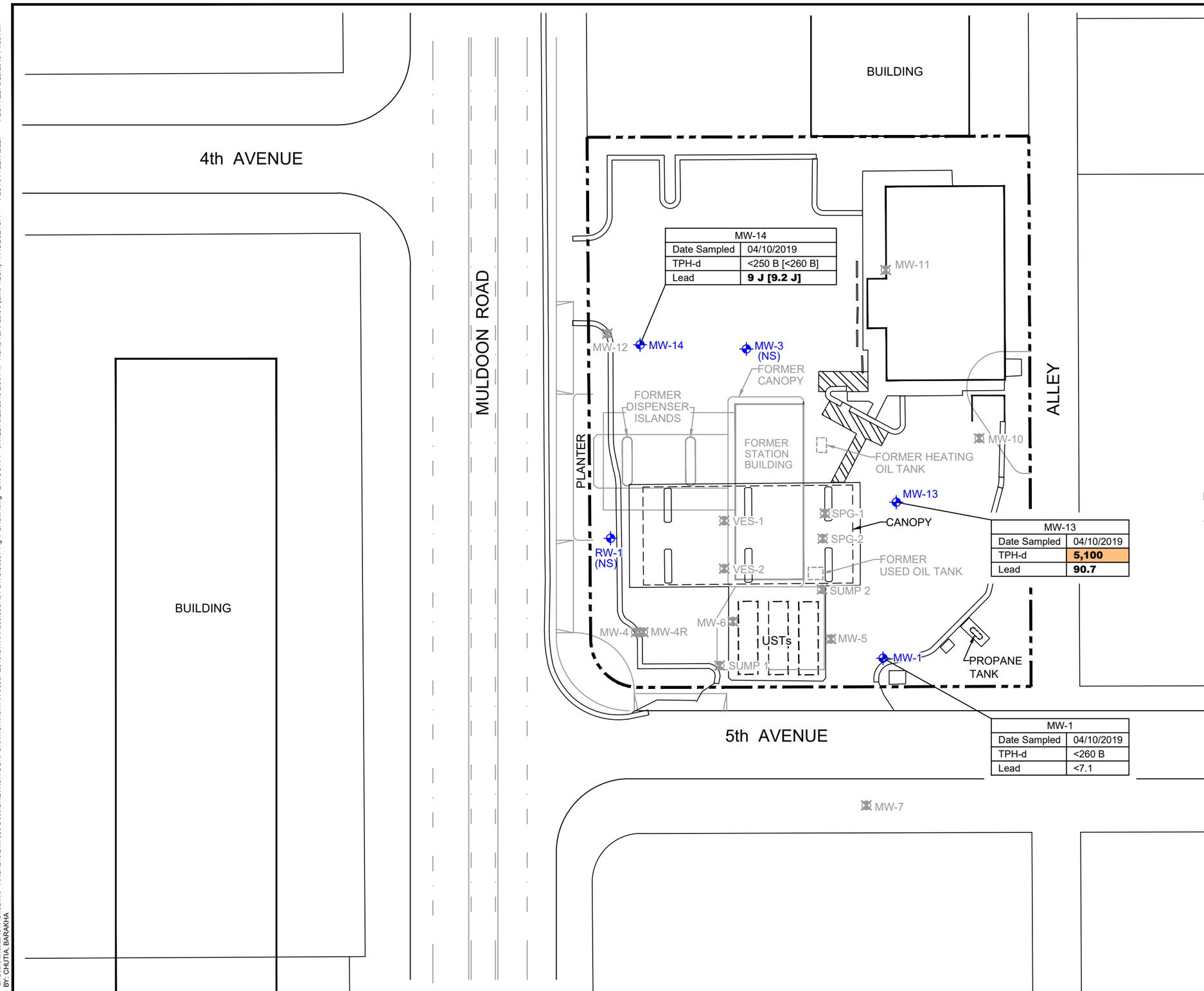


CHEVRON SERVICE STATION 9-8557
415 MULDOON ROAD
ANCHORAGE, ALASKA

GROUNDWATER ELEVATION CONTOUR MAP
JUNE 6, 2019

ARCADIS Design & Consultancy for natural and built assets

FIGURE
4



LEGEND:

- PROPERTY BOUNDARY
- GROUNDWATER MONITORING WELL
- ABANDONED MONITORING WELL
- TPH-d — TOTAL PETROLEUM HYDROCARBONS, DIESEL RANGE
- B — COMPOUND IS CONSIDERED NON-DETECT AT THE LISTED VALUE DUE TO ASSOCIATED BLANK CONTAMINATION.
- <0.25 — NOT DETECTED AT OR ABOVE THE METHOD DETECTION LIMIT (MDL)
- J — ESTIMATED VALUE BETWEEN MDL AND LIMIT OF QUANTITATION (LOQ)
- (NS) — NOT SAMPLED
- [ ] — DUPLICATE SAMPLE
- **BOLD** — INDICATES CONCENTRATION ABOVE THE MDL
- **BOLD AND SHADED** — INDICATES CONCENTRATION ABOVE THE ADEC (ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION) GROUNDWATER CLEANUP LEVEL

N

NOTE:

1. ALL CONCENTRATIONS ARE IN MICROGRAMS PER LITER.

0 40 80'

APPROXIMATE SCALE 1 in. = 40 ft.

CHEVRON SERVICE STATION 9-8557
415 MULDOON ROAD
ANCHORAGE, ALASKA

GROUNDWATER ANALYTICAL CONCENTRATION MAP
APRIL 10, 2019

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FIGURE
4

APPENDIX A

Site Background and History

Chevron Environmental Management Company

Appendix A:

Site History and Background

Chevron-Branded Service Station 98557
415 Muldoon Road
Anchorage, Alaska
ADEC File No: 2100.26.006
HAZARD ID No: 23831

December 31, 2019

Appendix A: 98557 Site Description and Background

1 98557 SITE BACKGROUND AND HISTORY

1.1 Site Description and Vicinity

The Chevron-Branded Service Station 98557 (the site) is located at 415 Muldoon Road in Anchorage, Alaska. The Site is an active service station with four underground storage tanks (USTs) and six dispenser islands with product piping, and a station building. The surrounding land use is commercial and residential; the site is bordered by business to the north, south, and west and by residences to the east.

1.2 Site History

The Site was formerly operated as a small bulk fuel storage facility until 1965, when it was converted to a service station. In 1991, four USTs were excavated and replaced at the southern edge of the property. During the excavation, approximately 2,100 cubic yards (cy) of impacted soil was removed and thermally treated. In 2006, the existing USTs and station building were removed and replaced with the current facilities. Approximately 3,390 cy of impacted soil was removed and thermally treated or transported off site for disposal.

2 SITE CHARACTERIZATION

There are currently five groundwater monitoring wells located onsite (MW-1, MW-3, MW-13, MW-14, and RW-1).

3 CURRENT SITE MONITORING ACTIVITIES

Three monitoring wells (MW-1, MW-13, and MW-14) are monitored and sampled semiannually. Monitoring wells MW-3 and RW-1 are monitored for depth-to-water only during these sampling events.

In recent historic sampling, concentrations of diesel-range organics (DRO) have exceeded ADEC Groundwater Cleanup Levels in wells MW-1 and MW-13. Concentrations of lead have exceeded ADEC Cleanup Levels in MW-1, MW-13, and MW-14.

4 GEOLOGY AND HYDROGEOLOGY

4.1 Site Hydrogeology

The Site is in south central Alaska, between the Knik Arm of Cook Inlet to the north and the Turnagain Arm to the south. Static groundwater depths have historically ranged between 9.26 and 21.46 feet below top of casing (ft btoc). Historic groundwater flow is to the northwest.

5 REFERENCES

Alaska Department of Environmental Conservation. 2019. Site Report: Chevron #8557. Available online at: https://dec.alaska.gov/Applications/SPAR/PublicMVC/CSP/SiteReport/23831. Retrieved December 27, 2019.

GHD Inc. 2018. Second Semiannual 2018 Groundwater Monitoring Report: Chevron-Branded Service Station 98557, 415 Muldoon Rd, Anchorage, AK. November 12

APPENDIX B

Field Data Sheets

Chevron Generic Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental use only
Acct. # _____ Group # _____ Sample # _____

SCR #: _____

Client Information

Facility #: 98557
WBS: 7.09 - Groundwater Sampling - Monitoring
Site Address: 415 Muldoon Rd. Anchorage, Alaska
Chevron PM: Eric Hedrick
Lead Consultant: Arcadis
Consultant/Office:
Consultant Project Mgr.: Nicole Monroes
Sampler: D. Beaudoin / E. Kajcik
State where samples were collected: Alaska
For Compliance: Yes ☒ No ☐

Matrix

Sediment ☐ Soil ☐ | Ground ☒ Potable ☐ Water | Surface ☐ NPDES ☐ | Air ☐ Oil ☐

Analyses Requested / Preservation and Filtration Codes

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total Number of Containers	BTEX + MTBE 8021 ☐ 8260 ☐ Naphth ☐	8260 full scan	Oxygenates ____	TPH-GRO 8015 ☐ 8260 ☐	TPH-DRO without Silica Gel Cleanup ☐ AK102	TPH-DRO with Silica Gel Cleanup ☐	VPH ☐ EPH ☐ Method ____	Lead Total ☐ Diss. ☒ Method 6010
EQB-1-W-190410	04.10.19	1135	✓		3					✓			✓
MW-1-W-190410	04.10.19	1220	✓		3					✓			✓
MW-1-MS/MSD-W-190410	04.10.19	1220	✓		3					✓			✓
MW-14-W-190410	04.10.19	1235	✓		3					✓			✓
MW-13-W-190410	04.10.19	1330	✓		3					✓			✓
BD-1-W-190410	04.10.19	—	✓		3					✓			✓
Trip Blank													

Preservation Codes

H = HCl | T = Thiosulfate
N = HNO_3 | B = NaOH
S = H_2SO_4 | P = H_3PO_4
F = Field Filtered | O = Other

☐ Results in Dry Weight
☐ J value reporting needed
☐ Must meet lowest detection limits possible for 8260 compounds

Remarks

Turnaround Time Requested (TAT) (please circle)
Standard | 5 day | 4 day
72 hour | 48 hour | 24 hour

Data Package (circle if required)
Type I - Full | Type III | Type VI (Raw Data)

EDD (circle if required)
CVX-RTBU-FI_05 (default) | Other: _____

Relinquished by	Date	Time	Received by	Date	Time
Relinquished by Commercial Carrier: UPS ____ FedEx ✓ Other ____					

Temperature Upon Receipt _____ °C

Custody Seals Intact? Yes No

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Daily Log

Project Name: Chevron 98557 Project Number: 98557 Page 1 of ____

Site Location: 415 Mulloon Rd. Anchorage, AK Date: 4/10/19

Field Personnel: David Beaudoin Evan Wujcik

Time	Description of Activities
700	Arrive at office to pack cooler for 97324
720	Load vehicle, prep supplies
900	Depart office for Fedex
910	Depart fedex for site
930	Arrive on site call Nicole Monroe for work start, complete and
	review tailgate meeting, JSA's, etc
1000	Walk site to find monitoring wells
~~1030~~ 1015	Begin gauging wells
	Well gauging notes

	Well ID	PID	DTW	TD	notes
10:43	MW-1	0.0	19.65	24.2	No lock
10:35	RW-1	0.0	18.88	~~23.5~~ 25.5	well vault sound
1015	MW-3	0.0	19.04	23.8	well vault sound, inside well casing dirty, needs new lock
1030	MW-13	0.4	19.07	27.5	No Comments
1025	MW-14	0.0	18.11	27.1	broken off bolt, may need new vault

Time	Description of Activities
1100	Prepare sampling forms, labels, arrange equipment for sampling
1135	Complete equipment blank sample
1220	Evan sampled MW-1 for DRO and total lead, also sampled
	MW-1-MS/MSD-W-190410 at MW-1
1235	Dave sampled MW-14 for DRO and total lead, blind duplicate sampled at MW-14
1330	Both staff sampled MW-13 for DRO and total lead
1400	Clean up and decon equipment, load vehicle, complete paperwork
1430	Call with Nicole Monroe for close work

1440	Depart site to ~~office~~ TTT Environmental for equipment
~~1500~~	~~Arrive at office to unload vehicle and store samples and finish all paperwork~~
1500	Depart TTT to Storage unit
1540	Depart storage unit to Cabelas for supplies
1605	Depart Cabelas to office to unload vehicle and complete paperwork
1620	Arrive at office

GROUNDWATER SAMPLING FORM

ARCADIS

Page 1 of 1

Project No. 98557 | Well ID MW-1 | Date 4.10.19

Project Name/Location 415 Muldoon Rd, Anchorage, AK | Weather 40s Sunny

Measuring Pt. Description Top of Casing | Screen Setting (ft-bmp) well logs unavailable | Casing Diameter (in.) 4 | Well Material ✓ PVC ___ SS

Static Water Level (ft-bmp) 19.65 | Total Depth (ft-bmp) 24.2 | Water Column (ft) 4.55 | Gallons in Well 2.96

MP Elevation ___ | Pump Intake (ft-bmp) 21ft | Purge Method: Low Flow; Centrifugal ___; Submersible ___; Other Bladder | Sample Method Low Flow

Pump On/Off 1157 / 1230 | Volumes Purged 0.534

Sample Time: Label 1220 | Gallons Purged 1.58

Purge Start ___ | Purge End ___ | Replicate/ Code No. ___ | Sampled by DGB

Time	Minutes Elapsed	Rate (gpm)/(mL/min) 200mL/min +	Depth to Water (ft) -0.3		Gallons Purged (mL)	pH ± 0.1	Cond. (µMhos)/(mS/cm) ± 3%	Turbidity (NTU) ± 10%	DO (mg/L) ± 10%	Temp. (°C)/(°F) ± 3%	Redox (mV) ± 10mV	Appearance Color	Appearance Odor
1205		300	18.80	2.40	~~14,400~~	7.63	1676	56.0	8.49	4.2	36.9	clear	
1208	3	300	18.81	3.30	~~15,900~~	7.41	1673	55.5	8.63	4.2	38.1	clear	
1211	6	300	18.79	4.20	~~16,200~~	7.25	1663	48.9	8.48	4.2	40.4	clear	
1214	9	300	18.80	5.10	~~17,100~~	7.16	1643	40.3	8.35	4.2	42.9	clear	
1217	12	300	18.82	6.00	~~18,000~~	7.11	1628	36.4	8.26	4.2	46.5	clear	
							✓	✓	✓	✓	✓		
Stabilization Calculations (±)							<30 → <3%	25	<.8 → <10%	<3%	<10		
							<30 → <3%		<.8 → <10%	<3%	<10		
							<30 → <3%		<.8 → <10%	<3%	<10		
Stabilization Criteria						**± 0.1 s.u.**	**±3%**	**± 10% or within 1 NTU (1)**	**± 10%**	**±3%**	**±10 mV**		

(1) **Turbidity** < 50 NTU and ±10% or within 1 NTU of a previous reading when <10 NTU

Constituents Sampled	Container	Number	Preservative
DRO AK102	250mL Amber	2	HCl
Total Lead 6010	100mL HDPE	1	HNO3

Comments MW-1-MS (MSD)-W-190410 sampled at MW-1

Well Casing Volumes

Gallons/Foot				
	1" = 0.04	*1.5" = 0.09*	*2.5" = 0.26*	*3.5" = 0.50*	*6" = 1.47*
	1.25" = 0.06	*2" = 0.16*	*3" = 0.37*	*4" = 0.65*	

Well Information

Well Location:	South end of parking lot, adjacent to UST pipes	Well Locked at Arrival:	Yes / No
Condition of Well:	Sound, no lock	Well Locked at Departure:	Yes / No
Well Completion:	Flush Mount / Stick Up	Key Number To Well:	___

GW Samp Form
10/15/2018

GROUNDWATER SAMPLING FORM

ARCADIS

Page 1 of 1

Project No. Chevron 98557 Well ID MW-14 Date 04.10.2019

Project Name/Location 415 Muldoon Rd., Anchorage, Alaska Weather 40s Sunny

Measuring Pt. Description Top of Casing Screen Setting (ft-bmp) no well logs available Casing Diameter (in.) 2 Well Material ✓ PVC ___ SS

Static Water Level (ft-bmp) 18.11 Total Depth (ft-bmp) 27.1 Water Column (ft) ~9 Gallons in Well 1.44

MP Elevation — Pump Intake (ft-bmp) ~20' btoc Purge Method: Low Flow Sample Method Low Flow

Pump On/Off 1200/1240 Volumes Purged <1 vol. Centrifugal ___ Submersible ___ Other Bladder

Sample Time: Label 1235 Gallons Purged 1.34

Purge Start 1205 Replicate/ Code No. BD-1-W-190410 Sampled by DGB

Purge End 1230

Time	Minutes Elapsed	Rate (gpm)/(mL/min) 200mL/min +	Depth to Water (ft) -0.3	Gallons Purged	pH ± 0.1	Cond. (µMhos)/(mS/cm) ± 3%	Turbidity (NTU) ± 10%	DO (mg/L) ± 10%	Temp. (°C)/(°F) ± 3%	Redox (mV) ± 10mV	Appearance Color	Appearance Odor
1205	5	300	18.19	7.99	1500	0.248	—	10.85	5.95	—	—	—
1208	8	300	18.17	7.13	2400	0.245	—	10.12	5.74	73.1	—	—
1211	11	300	18.16	6.72	3300	0.241	—	9.83	5.28	63.1	—	—
1214	14	300	18.17	6.61	4200	0.237	—	9.68	5.19	64.2	—	—
1217	20	300	18.17	6.58	5000	0.234	—	9.68	5.19	69.3	—	—
Stabilization Calculations (±)											—	—
											—	—
											—	—
Stabilization Criteria					± 0.1 s.u.	±3%	± 10% or within 1 NTU (1)	± 10%	±3%	±10 mV	—	—

(1) **Turbidity** < 50 NTU and ±10% or within 1 NTU of a previous reading when <10 NTU

Constituents Sampled	Container	Number	Preservative
DRO Ak 102	250 ml Amber Glass	2	HCl
Total Pb	100 ml HDPE	1	HNO_3
BD-1-W-190410	Same Analysis }	Bottles as above	

Comments

Well Casing Volumes

Gallons/Foot 1" = 0.04 1.25" = 0.06 1.5" = 0.09 2" = 0.16 2.5" = 0.26 3" = 0.37 3.5" = 0.50 4" = 0.65 6" = 1.47

Well Information

Well Location: Needs New Vault - No bolts - bolt broken

Condition of Well:

Well Completion: Flush Mount / Stick Up

Well Locked at Arrival: Yes / No

Well Locked at Departure: Yes / No

Key Number To Well: 3910

GW Samp Form 10/15/2018

GROUNDWATER SAMPLING FORM

ARCADIS

Page 1 of 1

Project No. Chevron 98557 | Well ID MW-13 | Date 4/10/19

Project Name/Location 415 Muldoon Rd Anchorage, AK | Weather 70s Sunny

Measuring Pt. Description Top of Casing | Screen Setting (ft-bmp) well logs unavailable | Casing Diameter (in.) 2" | Well Material ✓ PVC ___ SS

Static Water Level (ft-bmp) 19.07 | Total Depth (ft-bmp) 27.5 | Water Column (ft) 8.43 | Gallons in Well 1.35

MP Elevation — | Pump Intake (ft-bmp) 2 ft | Purge Method: low flow Centrifugal ___ Submersible ___ Other Bailer | Sample Method low flow

Pump On/Off 1310 / 1335 | Volumes Purged ~~0.567~~ 1.17

Sample Time: Label 1330 | Gallons Purged ~~0.793~~ 1.58

Purge Start ___ | Purge End ___ | Replicate/ Code No. ___ | Sampled by DGB

Time	Minutes Elapsed	Rate (gpm)/(mL/min) 200mL/min +	Depth to Water (ft) -0.3	~~Gallons~~ mL Purged	pH ± 0.1	Cond. (µMhos)/(mS/cm) ± 3%	Turbidity (NTU) ± 10%	DO (mg/L) ± 10%	Temp. (°C)/(°F) ± 3%	Redox (mV) ± 10mV	Appearance Color	Appearance Odor
1315	~~5~~	300	19.15	500 ~~1500~~	6.90	999	967.4	1.85	4.4	-36.0	cloudy	
1318	3	300	19.10	900 ~~1800~~	6.71	930	381.6	1.57	4.3	-28.2	cloudy	
1321	6	300	19.15	1300 ~~2100~~	6.62	911	199.8	1.13	4.3	-24.6	cloudy	
1324	9	300	19.15	1700 ~~2400~~	6.57	880	130.5	0.97	4.3	-23.8	clear	
1327	12	300	19.15	2100 ~~2700~~	6.54	853	121.9	0.80	4.3	-23.8	clear	
1330	15	300	19.15	2500 ~~3000~~	6.52	845	114.7	0.77	4.3	-23.7	clear	
					✓		✓		✓	✓		
Stabilization Calculations (±)					<.1		<10%		<3%	<10		
					<.1		<10%		<3%	<10		
					<.1		<10%		<3%	<10		
Stabilization Criteria					± 0.1 s.u.	±3%	± 10% or within 1 NTU (1)	± 10%	±3%	±10 mV		

(1) Turbidity < 50 NTU and ±10% or within 1 NTU of a previous reading when <10 NTU

Constituents Sampled	Container	Number	Preservative
DRO AK 107	250 mL Amber	2	HCl
Total Lead 6010	100 mL HDPE	1	HNO3

Comments

Well Casing Volumes

Gallons/Foot				
1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47
1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	

Well Information

Well Location: East of pump island, South end of parking lot | Well Locked at Arrival: Yes / No

Condition of Well: Sound | Well Locked at Departure: Yes / No

Well Completion: Flush Mount / Stick Up | Key Number To Well: —

GW Samp Form 10/15/2018

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Daily Log

Project Name 98557 **Project Number** 98557 **Page** 1 **of** 1

Site Location 415 Muldoon Rd Anchorage AK **Date** 6/6/19

Field Personnel D. Beaudoin, E. Wujik, McLane Surveyors

Time	Description of Activities		
1030	Arrive on site		
	Well ID	DTW	notes
	MW-1	18.30	
	MW-3	18.63	
	MW-13	18.76	
	MW-14	17.79	
	RW-1	18.51	
1200	Depart site		

APPENDIX C

Laboratory Analytical Results

eurofins | Lancaster Laboratories Environmental

2425 New Holland Pike, Lancaster, PA 17601 | 717-656-2300 | Fax: 717-656-2681 | www.LancasterLabs.com

Type III Data Package

Prepared for:

Chevron
L4310
6001 Bollinger Canyon Road
San Ramon CA 94583

Project: 98557
Groundwater and Water Samples
Collected on 04/10/19

SDG# LSV40

GROUP	SAMPLE NUMBERS
2038996	1034406-1034413

PA Cert. # 36-00037
NY Cert. # 10670
NJ Cert. # PA011
NC Cert. # 521
TX Cert. # T104704194-18-27
AZ Cert. # AZ0780

Through our technical processes and second person review of data, we have established that our data/deliverables are in compliance with the methods and project requirements unless otherwise noted or previously resolved with the client.

Authorized by: Dana M Kauffman **Date: 05/10/2019**

Dana M. Kauffman
Manager

Any questions or concerns you might have regarding this data package should be directed to your client representative, Loran Carter at (717) 556-7252.

2425 New Holland Pike, Lancaster, PA 17601 | 717-656-2300 | Fax: 717-656-2681 | www.LancasterLabs.com

Table of Contents for SDG# LSV40

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2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Sample Reference List for SDG Number LSV40 with a Data Package Type of III

11964 - Chevron

Project: 98557

Lab Sample Number	Client Sample ID	Collection Date	Date Received
1034406	QA-O-190410	04/10/2019 11:35	04/12/2019 10:20
1034407	MW-1-W-190410	04/10/2019 12:20	04/12/2019 10:20
1034408	MW-1-W-190410MS	04/10/2019 12:20	04/12/2019 10:20
1034409	MW-1-W-190410MSD	04/10/2019 12:20	04/12/2019 10:20
1034410	MW-1-W-190410DUP	04/10/2019 12:20	04/12/2019 10:20
1034411	MW-14-W-190410	04/10/2019 12:35	04/12/2019 10:20
1034412	MW-13-W-190410	04/10/2019 13:30	04/12/2019 10:20
1034413	BD-1-WD-190410	04/10/2019 00:00	04/12/2019 10:20

eurofins | Lancaster Laboratories

Sample pH Log

SDG: LSV40

LLI Sample Number	Bottle Code	Actual pH	Exp. pH	*pH Check Code	Adj. pH	Adjusted Date	Adjusted Time	Preservative Added	Preservative Lot #	LLI Supplied Bottle?	Sulfide Present?	Corrective Substance	CS Lot #	**Chlorine Present?	Corrective Substance	CS Lot #	Record Date	Employee
1034406	008A	<2	<2	PK	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	4/16/2019 6:25:26PM	12665
1034406	030A	<2	<2	PK	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	4/16/2019 9:05:12AM	1382
1034406	030B	<2	<2	PK	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	4/16/2019 9:05:02AM	1382
1034407	008A	<2	<2	PK	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	4/16/2019 6:24:11PM	12665
1034407	030A	<2	<2	PK	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	4/16/2019 9:05:05AM	1382
1034407	030B	<2	<2	PK	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	4/16/2019 9:05:08AM	1382
1034408	008A	<2	<2	PK	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	4/16/2019 6:26:06PM	12665
1034408	030A	<2	<2	PK	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	4/16/2019 9:04:18AM	1382
1034409	030A	<2	<2	PK	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	4/16/2019 9:04:26AM	1382
1034411	008A	<2	<2	PK	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	4/16/2019 6:31:31PM	12665
1034411	030A	<2	<2	PK	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	4/16/2019 9:04:09AM	1382
1034411	030B	<2	<2	PK	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	4/16/2019 9:04:13AM	1382
1034412	008A	<2	<2	PK	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	4/19/2019 9:57:38AM	835
1034412	030A	<2	<2	PK	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	4/16/2019 9:04:05AM	1382
1034412	030B	<2	<2	PK	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	4/16/2019 9:05:36AM	1382
1034413	008A	<2	<2	PK	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	4/16/2019 6:35:56PM	12665
1034413	030A	<2	<2	PK	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	4/16/2019 9:03:01AM	1382
1034413	030B	<2	<2	PK	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	4/16/2019 9:04:22AM	1382

*pH Check Code Key	**Chlorine Present Code Key
PK = Original container checked - pH is within the correct range. (No preservative was added)	**NA** = Chlorine Not Checked
PA = Original container checked - pH adjusted to correct range. (Preservative was added)	**Y** = Chlorine Present
PV = Volatile container checked	**N** = Chlorine Not Present
PC = pH checked (unpreserved container)	
SPK = Subsampled from an original container. Original container checked - pH is within correct range	
SPA = Subsampled from an original container. Subsample container checked - pH adjusted to correct range.	
SPC = Subsampled from an original container. pH checked (unpreserved container).	
SUP = Subsampled from original container. Unable to be preserved due to the matrix of the sample.	
UP = Unable to preserve due to matrix of the sample.	
NA = Not applicable	

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14044 ICP-WW, 3005A (tot rec) - U345

The sample is digested with nitric acid and hydrochloric acid.

Reference: Test Methods for Evaluating Solid Wastes, SW-846 Method 3005A, July 1992

07055 Lead

The solution resulting from the metals digestion is analyzed by Trace ICP.

Reference: Test Methods for Evaluating Solid Wastes, SW-846 Method 6010C, February 2007.

13025 AK 102-SV DRO

Sample extracts in methylene chloride are analyzed by capillary chromatography using flame ionization detection. Quantitation is performed using the total peak area detected within the hydrocarbon ranges defined in the method.

Reference: AK 102-SV, Alaska ADEC Diesel Range Organics, Small Volume, Version 4/8/02.

13027 Mini-Ext. AK 102-SV DRO

A measured volume of water is serially liquid/liquid extracted with methylene chloride in a separatory funnel. The serial extracts are combined, dried and concentrated.

Reference: Alaska Method 102/103 for Determination of Diesel Range Organics, April 8, 2002.

Analysis Reports / Field Chain of Custody

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

Chevron
L4310
6001 Bollinger Canyon Road
San Ramon CA 94583

Report Date: May 07, 2019 09:05

Project: 98557

Account #: 11964
Group Number: 2038996
SDG: LSV40
PO Number: 0015308765
Release Number: HETRICK
State of Sample Origin: AK

Electronic Copy To	Arcadis	Attn: Melissa Blanchette
Electronic Copy To	Arcadis	Attn: Arti Patel
Electronic Copy To	Arcadis	Attn: Nicole Monroe

Respectfully Submitted,

Amek Carter
Specialist

(717) 556-7252

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
QA-O-190410 Grab Water	04/10/2019 11:35	1034406
MW-1-W-190410 Grab Groundwater	04/10/2019 12:20	1034407
MW-1-W-190410MS Grab Groundwater	04/10/2019 12:20	1034408
MW-1-W-190410MSD Grab Groundwater	04/10/2019 12:20	1034409
MW-1-W-190410DUP Grab Groundwater	04/10/2019 12:20	1034410
MW-14-W-190410 Grab Groundwater	04/10/2019 12:35	1034411
MW-13-W-190410 Grab Groundwater	04/10/2019 13:30	1034412
BD-1-WD-190410 Grab Groundwater	04/10/2019	1034413

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Analysis Report

Sample Description: **QA-O-190410 Grab Water**
Facility# 98557
415 Muldoon Rd - Anchorage, AK

Chevron
ELLE Sample #: GW 1034406
ELLE Group #: 2038996
Matrix: Water

Project Name: **98557**

Submittal Date/Time: 04/12/2019 10:20
Collection Date/Time: 04/10/2019 11:35
SDG#: LSV40-01EB

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC Petroleum Hydrocarbons	**AK 102-SV 4/8/02**		**mg/l**	**mg/l**	**mg/l**	
13025	DRO C10-C25	n.a.	0.13 J	0.055	0.27	1
	Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The client was contacted and the data reported.					
Metals	**SW-846 6010C**		**mg/l**	**mg/l**	**mg/l**	
07055	Lead	7439-92-1	N.D.	0.0071	0.0150	1

Sample Comments

State of Alaska Lab Certification No. UST-061

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13025	AK 102-SV DRO	AK 102-SV 4/8/02	1	191080037A	04/23/2019 23:55	Heather E Williams	1
13027	Mini-Ext. AK 102-SV DRO	AK 102/AK 103 04/08/02	1	191080037A	04/19/2019 02:00	Mathias Okpo	1
07055	Lead	SW-846 6010C	1	191061404404	04/23/2019 12:20	Lisa J Cooke	1
14044	ICP-WW, 3005A (tot rec) - U345	SW-846 3005A	1	191061404404	04/17/2019 06:00	Annamaria Kuhns	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: **MW-1-W-190410 Grab Groundwater**
Facility# 98557
415 Muldoon Rd - Anchorage, AK

Chevron
ELLE Sample #: GW 1034407
ELLE Group #: 2038996
Matrix: Groundwater

Project Name: **98557**

Submittal Date/Time: 04/12/2019 10:20
Collection Date/Time: 04/10/2019 12:20
SDG#: LSV40-02BKG

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC Petroleum Hydrocarbons	**AK 102-SV 4/8/02**		**mg/l**	**mg/l**	**mg/l**	
13025	DRO C10-C25	n.a.	0.25 J	0.053	0.26	1
	Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The client was contacted and the data reported.					
Metals	**SW-846 6010C**		**mg/l**	**mg/l**	**mg/l**	
07055	Lead	7439-92-1	N.D.	0.0071	0.0150	1

Sample Comments

State of Alaska Lab Certification No. UST-061

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13025	AK 102-SV DRO	AK 102-SV 4/8/02	1	191080037A	04/24/2019 00:23	Heather E Williams	1
13027	Mini-Ext. AK 102-SV DRO	AK 102/AK 103 04/08/02	1	191080037A	04/19/2019 02:00	Mathias Okpo	1
07055	Lead	SW-846 6010C	1	191061404404	04/23/2019 11:45	Lisa J Cooke	1
14044	ICP-WW, 3005A (tot rec) - U345	SW-846 3005A	1	191061404404	04/17/2019 06:00	Annamaria Kuhns	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: **MW-1-W-190410MS Grab Groundwater**
Facility# 98557
415 Muldoon Rd - Anchorage, AK

Chevron
ELLE Sample #: GW 1034408
ELLE Group #: 2038996
Matrix: Groundwater

Project Name: **98557**

Submittal Date/Time: 04/12/2019 10:20
Collection Date/Time: 04/10/2019 12:20
SDG#: LSV40-02MS

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC Petroleum Hydrocarbons	**AK 102-SV 4/8/02**		**mg/l**	**mg/l**	**mg/l**	
13025	DRO C10-C25	n.a.	3.5	0.053	0.26	1
Metals	**SW-846 6010C**		**mg/l**	**mg/l**	**mg/l**	
07055	Lead	7439-92-1	0.152	0.0071	0.0150	1

Sample Comments

State of Alaska Lab Certification No. UST-061

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13025	AK 102-SV DRO	AK 102-SV 4/8/02	1	191080037A	04/24/2019 00:51	Heather E Williams	1
13027	Mini-Ext. AK 102-SV DRO	AK 102/AK 103 04/08/02	1	191080037A	04/19/2019 02:00	Mathias Okpo	1
07055	Lead	SW-846 6010C	1	191061404404	04/23/2019 11:55	Lisa J Cooke	1
14044	ICP-WW, 3005A (tot rec) - U345	SW-846 3005A	1	191061404404	04/17/2019 06:00	Annamaria Kuhns	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: **MW-1-W-190410MSD Grab Groundwater**
Facility# 98557
415 Muldoon Rd - Anchorage, AK

Chevron
ELLE Sample #: GW 1034409
ELLE Group #: 2038996
Matrix: Groundwater

Project Name: **98557**

Submittal Date/Time: 04/12/2019 10:20
Collection Date/Time: 04/10/2019 12:20
SDG#: LSV40-02MSD

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC Petroleum Hydrocarbons	**AK 102-SV 4/8/02**		**mg/l**	**mg/l**	**mg/l**	
13025	DRO C10-C25	n.a.	3.3	0.050	0.25	1
Metals	**SW-846 6010C**		**mg/l**	**mg/l**	**mg/l**	
07055	Lead	7439-92-1	0.150	0.0071	0.0150	1

Sample Comments

State of Alaska Lab Certification No. UST-061

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13025	AK 102-SV DRO	AK 102-SV 4/8/02	1	191080037A	04/24/2019 01:19	Heather E Williams	1
13027	Mini-Ext. AK 102-SV DRO	AK 102/AK 103 04/08/02	1	191080037A	04/19/2019 02:00	Mathias Okpo	1
07055	Lead	SW-846 6010C	1	191061404404	04/23/2019 11:58	Lisa J Cooke	1
14044	ICP-WW, 3005A (tot rec) - U345	SW-846 3005A	1	191061404404	04/17/2019 06:00	Annamaria Kuhns	1

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Analysis Report

Sample Description: **MW-1-W-190410DUP Grab Groundwater**
Facility# 98557
415 Muldoon Rd - Anchorage, AK

Chevron
ELLE Sample #: GW 1034410
ELLE Group #: 2038996
Matrix: Groundwater

Project Name: **98557**

Submittal Date/Time: 04/12/2019 10:20
Collection Date/Time: 04/10/2019 12:20
SDG#: LSV40-02DUP

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Metals	**SW-846 6010C**		**mg/l**	**mg/l**	**mg/l**	
07055	Lead	7439-92-1	N.D.	0.0071	0.0150	1

Sample Comments

State of Alaska Lab Certification No. UST-061

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07055	Lead	SW-846 6010C	1	191061404404	04/23/2019 11:52	Lisa J Cooke	1
14044	ICP-WW, 3005A (tot rec) - U345	SW-846 3005A	1	191061404404	04/17/2019 06:00	Annamaria Kuhns	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: **MW-14-W-190410 Grab Groundwater**
Facility# 98557
415 Muldoon Rd - Anchorage, AK

Chevron
ELLE Sample #: GW 1034411
ELLE Group #: 2038996
Matrix: Groundwater

Project Name: **98557**

Submittal Date/Time: 04/12/2019 10:20
Collection Date/Time: 04/10/2019 12:35
SDG#: LSV40-03

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC Petroleum Hydrocarbons	**AK 102-SV 4/8/02**		**mg/l**	**mg/l**	**mg/l**	
13025	DRO C10-C25	n.a.	0.11 J	0.051	0.25	1
	Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The client was contacted and the data reported.					
Metals	**SW-846 6010C**		**mg/l**	**mg/l**	**mg/l**	
07055	Lead	7439-92-1	0.0090 J	0.0071	0.0150	1

Sample Comments

State of Alaska Lab Certification No. UST-061

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13025	AK 102-SV DRO	AK 102-SV 4/8/02	1	191080037A	04/24/2019 01:47	Heather E Williams	1
13027	Mini-Ext. AK 102-SV DRO	AK 102/AK 103 04/08/02	1	191080037A	04/19/2019 02:00	Mathias Okpo	1
07055	Lead	SW-846 6010C	1	191061404404	04/23/2019 12:23	Lisa J Cooke	1
14044	ICP-WW, 3005A (tot rec) - U345	SW-846 3005A	1	191061404404	04/17/2019 06:00	Annamaria Kuhns	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: **MW-13-W-190410 Grab Groundwater**
Facility# 98557
415 Muldoon Rd - Anchorage, AK

Chevron
ELLE Sample #: GW 1034412
ELLE Group #: 2038996
Matrix: Groundwater

Project Name: **98557**

Submittal Date/Time: 04/12/2019 10:20
Collection Date/Time: 04/10/2019 13:30
SDG#: LSV40-04

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC Petroleum Hydrocarbons	**AK 102-SV 4/8/02**		**mg/l**	**mg/l**	**mg/l**	
13025	DRO C10-C25	n.a.	5.1	0.055	0.27	1
	Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The client was contacted and the data reported.					
Metals	**SW-846 6010C**		**mg/l**	**mg/l**	**mg/l**	
07055	Lead	7439-92-1	0.0907	0.0071	0.0150	1

Sample Comments

State of Alaska Lab Certification No. UST-061

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13025	AK 102-SV DRO	AK 102-SV 4/8/02	1	191080037A	04/24/2019 02:15	Heather E Williams	1
13027	Mini-Ext. AK 102-SV DRO	AK 102/AK 103 04/08/02	1	191080037A	04/19/2019 02:00	Mathias Okpo	1
07055	Lead	SW-846 6010C	1	191091404403	04/23/2019 06:10	Kevin Litwa	1
14044	ICP-WW, 3005A (tot rec) - U345	SW-846 3005A	1	191091404403	04/19/2019 16:00	JoElla L Rice	1

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Analysis Report

Sample Description: **BD-1-WD-190410 Grab Groundwater**
Facility# 98557
415 Muldoon Rd - Anchorage, AK

Chevron
ELLE Sample #: GW 1034413
ELLE Group #: 2038996
Matrix: Groundwater

Project Name: **98557**

Submittal Date/Time: 04/12/2019 10:20
Collection Date/Time: 04/10/2019
SDG#: LSV40-05FD

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC Petroleum Hydrocarbons	**AK 102-SV 4/8/02**		**mg/l**	**mg/l**	**mg/l**	
13025	DRO C10-C25	n.a.	0.10 J	0.052	0.26	1
	Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The client was contacted and the data reported.					
Metals	**SW-846 6010C**		**mg/l**	**mg/l**	**mg/l**	
07055	Lead	7439-92-1	0.0092 J	0.0071	0.0150	1

Sample Comments

State of Alaska Lab Certification No. UST-061

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13025	AK 102-SV DRO	AK 102-SV 4/8/02	1	191080037A	04/24/2019 02:42	Heather E Williams	1
13027	Mini-Ext. AK 102-SV DRO	AK 102/AK 103 04/08/02	1	191080037A	04/19/2019 02:00	Mathias Okpo	1
07055	Lead	SW-846 6010C	1	191061404404	04/23/2019 12:26	Lisa J Cooke	1
14044	ICP-WW, 3005A (tot rec) - U345	SW-846 3005A	1	191061404404	04/17/2019 06:00	Annamaria Kuhns	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: Chevron
Reported: 05/07/2019 09:05

Group Number: 2038996

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	mg/l	mg/l	mg/l
Batch number: 191080037A	Sample number(s): 1034406-1034409,1034411-1034413		
DRO C10-C25	0.085 J	0.050	0.25
Batch number: 191061404404	Sample number(s): 1034406-1034411,1034413		
Lead	N.D.	0.0071	0.0150
Batch number: 191091404403	Sample number(s): 1034412		
Lead	N.D.	0.0071	0.0150

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	mg/l	mg/l	mg/l	mg/l					
Batch number: 191080037A	Sample number(s): 1034406-1034409,1034411-1034413								
DRO C10-C25	4.01	3.30			82		75-125		
	mg/l	mg/l	mg/l	mg/l					
Batch number: 191061404404	Sample number(s): 1034406-1034411,1034413								
Lead	0.150	0.151			101		87-113		
Batch number: 191091404403	Sample number(s): 1034412								
Lead	0.150	0.152	0.150	0.154	102	103	87-113	1	20

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc	MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	mg/l	mg/l	mg/l	mg/l	mg/l					
Batch number: 191080037A	Sample number(s): 1034406-1034409,1034411-1034413 UNSPK: 1034407									
DRO C10-C25	0.248	4.23	3.48	4.04	3.31	76	76	75-125	5	30
	mg/l	mg/l	mg/l	mg/l	mg/l					

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron
Reported: 05/07/2019 09:05

Group Number: 2038996

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l	MS Spike Added mg/l	MS Conc mg/l	MSD Spike Added mg/l	MSD Conc mg/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 191061404404	Sample number(s): 1034406-1034411,1034413 UNSPK: 1034407									
Lead	N.D.	0.150	0.152	0.150	0.150	101	100	75-125	1	20

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/l	DUP Conc mg/l	DUP RPD	DUP RPD Max
Batch number: 191061404404	Sample number(s): 1034406-1034411,1034413 BKG: 1034407			
Lead	N.D.	N.D.	0 (1)	20

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: AK 102-SV DRO
Batch number: 191080037A

	Orthoterphenyl
1034406	99
1034407	106
1034408	85
1034409	85
1034411	96
1034412	69
1034413	92
MS	85
MSD	85
Limits:	50-150

	Orthoterphenyl
Blank	115
LCS	102
Limits:	60-120

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

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Quality Control Summary

Client Name: Chevron
Reported: 05/07/2019 09:05

Group Number: 2038996

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Chevron Generic Analysis Request/Chain of Custody

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Acct. # 11964 For Eurofins Lancaster Laboratories Environmental use only Group # 20389916 Sample # 1034406-13

SCR #: _____

Client Information

Facility # 98557 WBS 7.09 - Groundwater Sampling - Monitoring

Site Address 415 Muldoon Rd. Anchorage Alaska

Chevron PM Eric Hedrick Lead Consultant Arcadis

Consultant/Office

Consultant Project Mgr. Nicole Monroes

Sampler D. Beaudoin / E. Klajcik

State where samples were collected: Alaska For Compliance: Yes ☒ No ☐

Matrix

Sediment ☐ Ground ☒ Surface ☐ Potable ☐ NPDES ☐ Air ☐ Soil ☐ Water ✓ Oil ☐

Analyses Requested

Preservation and Filtration Codes

Sample Identification	Collected Date	Collected Time	Grab	Composite	Soil	Water	Oil	Total Number of Containers	BTEX + MTBE 8021 ☐ 8260 ☐ Naphth ☐	8260 full scan	Oxygenates ____	TPH-GRO 8015 ☐ 8260 ☐	TPH-DRO without Silica Gel Cleanup ☐	TPH-DRO with Silica Gel Cleanup ☐	VPH ☐ EPH ☐ Method ____	Lead Total ☒ Diss. ☐ Method 6010				
ERB-1-W-190410	04.10.19	1135	✓			✓		3					✓			✓				
MW-1-W-190410	04.10.19	1220	✓			✓		3					✓			✓				
MW-1-MS/MSD-W-190410	04.10.19	1220	✓			✓		3					✓			✓				
MW-14-W-190410	04.10.19	1235	✓			✓		3					✓			✓				
MW-13-W-190410	04.10.19	1330	✓			✓		3					✓			✓				
BD-1-W-190410	04.10.19	—	✓			✓		3					✓			✓				
~~Trip Blank~~ DGB																				

Preservation Codes

H = HCl T = Thiosulfate
N = HNO_3 B = NaOH
S = H_2SO_4 P = H_3PO_4
F = Field Filtered O = Other

☐ Results in Dry Weight

☐ J value reporting needed

☐ Must meet lowest detection limits possible for 8260 compounds

Remarks

Turnaround Time Requested (TAT) (please circle)

Standard 5 day 4 day

72 hour 48 hour 24 hour

Data Package (circle if required)

Type I - Full Type III Type VI (Raw Data)

EDD (circle if required)

CVX-RTBU-FI_05 (default) Other: _____

Relinquished by	Date	Time	Received by	Date	Time
[signature]	04.10.19	1700	Arcadis Cold Storage		
[signature]	04.11.19	0745			
Relinquished by Commercial Carrier: UPS ____ FedEx ✓ Other ____			[signature]	4-12-19	1020

Temperature Upon Receipt 1.7 °C

Custody Seals Intact? Yes No

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Sample Administration Receipt Documentation Log

Doc Log ID: 246314

Group Number(s): 2038996

Client: Chevron

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	04/12/2019 10:20
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	AK		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	No
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	0
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Cory Jeremiah (10469) at 19:09 on 04/12/2019

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	1.7	DT	Wet	Y	Bagged	N

Sample Date/Time Discrepancy Details

Sample ID on COC	Date/Time on Label	Comments
EQB-1-W-190410	4/10/2019 11:30	
MW-1-W-190410	4/10/2019 12:28	

2425 New Holland Pike
Lancaster, PA 17601-2994
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mL**	milliliter(s)
C	degrees Celsius	**MPN**	Most Probable Number
cfu	colony forming units	**N.D.**	non-detect
CP Units	cobalt-chloroplatinate units	**ng**	nanogram(s)
F	degrees Fahrenheit	**NTU**	nephelometric turbidity units
g	gram(s)	**pg/L**	picogram/liter
IU	International Units	**RL**	Reporting Limit
kg	kilogram(s)	**TNTC**	Too Numerous To Count
L	liter(s)	**µg**	microgram(s)
lb.	pound(s)	**µL**	microliter(s)
m3	cubic meter(s)	**umhos/cm**	micromhos/cm
meq	milliequivalents	**MCL**	Maximum Contamination Limit
mg	milligram(s)		

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
K1	Initial Calibration Blank is above the QC limit and the sample result is ND
K2	Continuing Calibration Blank is above the QC limit and the sample result is ND
K3	Initial Calibration Verification is above the QC limit and the sample result is ND
K4	Continuing Calibration Verification is above the QC limit and the sample result is ND
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
P^	Concentration difference between the primary and confirmation column > 40%. The higher result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

TPH-DRO by GC Data

Case Narrative/Conformance Summary

TPH-DRO by GC

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Case Narrative/Conformance Summary

CLIENT: Chevron
SDG: LSV40

EPH/Miscellaneous GC

Fraction: TPH-DRO by GC

Sample #	Client ID	Matrix Liquid	Matrix Solid	DF	Comments
1034406	QA-O-190410	X		1	Equipment Blank
1034407	MW-1-W-190410	X		1	Unspiked
1034408	MW-1-W-190410MS	X		1	Matrix Spike
1034409	MW-1-W-190410MSD	X		1	Matrix Spike Duplicate
1034411	MW-14-W-190410	X		1	
1034412	MW-13-W-190410	X		1	
1034413	BD-1-WD-190410	X		1	Field Duplicate Sample

See QC Reference List for Associated Batch QC Samples

SAMPLE RECEIPT:

Samples were received in good condition and within temperature requirements.

HOLDING TIME:

All holding times were met.

PREPARATION/EXTRACTION/DIGESTION:

No problems were encountered.

CALIBRATION/STANDARDIZATION:

All criteria were met.

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

Method Blank

For noncompliant preparation/method blanks, corrective action is not required if the sample is ND or > 10 times the blank concentration, unless otherwise specified in the method or by the client.

(Sample number(s): 1034406, 1034407, 1034411-1034413: Analysis: 13025)
Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The client was contacted and the data reported.

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Case Narrative/Conformance Summary

CLIENT: Chevron
SDG: LSV40

EPH/Miscellaneous GC

Fraction: TPH-DRO by GC

SAMPLE ANALYSIS:

No problems were encountered with the analysis of the samples.

Abbreviation Key

UNSPK = Unspiked (for MS/MSD)	LOQ = Limit of Quantitation
+MS = Matrix Spike	MDL = Method Detection Limit
MSD = Matrix Spike Duplicate	ND = Not Detected
BKG = Background (for Duplicate)	J = Estimated Value
D = Duplicate (DUP)	E= out of calibration range
LCS = Lab Control Sample	RE = Repreparation/Reanalysis
LCSD = Lab Control Sample Duplicate	* = Out of Specification

Quality Control and Calibration Summary Forms

TPH-DRO by GC

Lancaster Laboratories Environmental

Quality Control Reference List
EPH/Miscellaneous GC

CLIENT: Chevron
SDG: LSV40

Fraction: TPH-DRO by GC

Analysis	Batch Number	Sample Number	Analysis Date
AK 102-SV DRO	191080037A	PBLK37108	04/23/2019 22:59
		LCS37108	04/23/2019 23:27
		1034406	04/23/2019 23:55
		1034407 UNSPK	04/24/2019 00:23
		1034408 MS	04/24/2019 00:51
		1034409 MSD	04/24/2019 01:19
		1034411	04/24/2019 01:47
		1034412	04/24/2019 02:15
		1034413	04/24/2019 02:42

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Quality Control Summary
Method Blank
EPH/Miscellaneous GC
SDG: LSV40
Matrix: LIQUID

Fraction: TPH-DRO by GC

191080037A / PBLK37108 **Analyte**	**Analysis Date**	**Blank Results**	**Units**	**MDL**	**LOQ**
DRO C10-C25	04/23/19	0.085 J	mg/l	0.050	0.25

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Quality Control Summary
Surrogates
EPH/Miscellaneous GC
SDG: LSV40
Matrix: LIQUID

Fraction: TPH-DRO by GC

191080037A	**Orthoterphenyl**	
	Spike Added	0.01994 mg/l
Sample	**% Recovery**	**Limits**
PBLK37108	115	60 - 120
LCS37108	102	60 - 120
1034406	99	50 - 150
1034407 UNSPK	106	50 - 150
1034408 MS	85	50 - 150
1034409 MSD	85	50 - 150
1034411	96	50 - 150
1034412	69	50 - 150
1034413	92	50 - 150

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Quality Control Summary
Matrix Spike/Matrix Spike Duplicate

SDG: LSV40
Matrix: LIQUID

EPH/Miscellaneous GC
Fraction: TPH-DRO by GC

UNSPK: 1034407 MS: 1034408 MSD: 1034409 **Analyte**	Batch: **191080037A** (Sample number(s): 1034406-1034409, 1034411-1034413)								
	Spike Added mg/l MS/MSD	**Unspiked Conc mg/l**	**MS Conc mg/l**	**MSD Conc mg/l**	**MS %Rec**	**MSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
DRO C10-C25	4.23 / 4.04	0.248 J	3.48	3.31	76	76	75-125	5	30

Comments:
(2) The unspiked sample result is greater than four times the spike added.
* = Out of Specification

Results are being reported on an as received basis.

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: LSV40
Matrix: LIQUID

EPH/Miscellaneous GC
Fraction: TPH-DRO by GC

LCS: LCS37108	Batch: **191080037A** (Sample number(s): 1034406-1034409, 1034411-1034413)							
Analyte	**Spike Added mg/l**	**LCS Conc mg/l**	**LCSD Conc mg/l**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
DRO C10-C25	4.01	3.30	NA	82	NA	75-125	NA	NA

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LOQ/MDL Summary
EPH/Miscellaneous GC

SDG: LSV40

Fraction: TPH-DRO by GC

13025: AK 102-SV DRO Analyte Name	Default MDL	Default LOQ	Units
DRO C10-C25	0.050	0.25	mg/l

6D

INITIAL CALIBRATION - RETENTION TIME SUMMARY

Lab Name: Lancaster Laboratories Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Instrument: 19871A Calibration File: 24ADL41823501

GC Column (1) : DB5 ID: 30 (mm)

ICAL Date(s) Analyzed: 8/24/2018 8/27/2018

COMPOUND	RT OF STANDARDS					MIDPOINT RT	RT WINDOW	
	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5		FROM	TO
Capric Acid	7.26	7.27	7.30	7.32	7.35	7.30	7.20	7.40
o-Terphenyl	11.11	11.11	11.11	11.11	11.11	11.11	11.06	11.16

6E

INITIAL CALIBRATION - CALIBRATION FACTOR SUMMARY

Lab Name: Lancaster Laboratories Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Instrument: 19871A Calibration File: 24ADL41823501

GC Column (1) : DB5 ID: 30 (mm)

ICAL Date(s) Analyzed: 8/24/2018 8/27/2018

COMPOUND	CALIBRATION FACTORS						%RSD
	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	MEAN	
Capric Acid	3.80E+04	3.99E+04	5.09E+04	5.02E+04	5.31E+04	4.64E+04	15
o-Terphenyl	9.27E+04	9.36E+04	9.41E+04	9.43E+04	9.49E+04	9.39E+04	1

6F

INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Lab Name: Lancaster Laboratories Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Instrument: 19871A Calibration File: 24ADL41823501

GC Column (1) : DB5 ID: 30 (mm)

ICAL Date(s) Analyzed: 8/24/2018 8/27/2018

COMPOUND	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR	LEVEL	AMOUNT (ng)	PEAK AREA	%RSD
C10-C25	1		3.46	13.22	✓ 74160	1	20	1300155	8.91
	1					2	100	6931120	
	1					3	500	39745830	
	1					4	800	63434040	
	1					5	1001	77776460	

File Name: Y:\CP24\24adl41823501.CAL
Version: 10

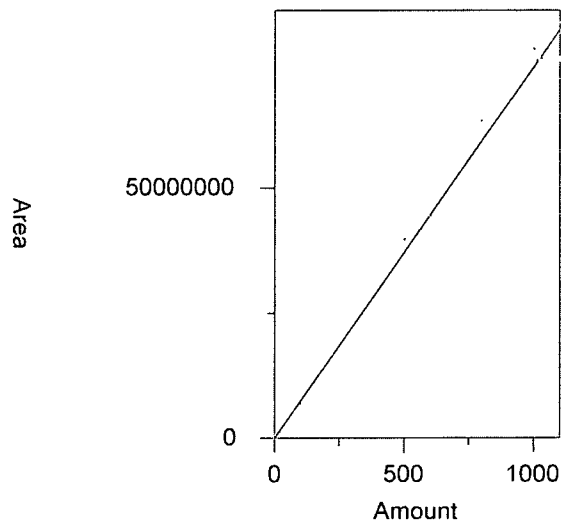
Creator: TOG02268
Description: mini ALASKA 102
Reason for change:

External standard calibration
No injection volume correction
No sample weight correction
Area reject threshold: 0
Reference peak area reject threshold: 0
Amount units: PPM
No default component

Method of calculating data point averages: Current update equal to cal data
Print calibration update report

All levels are normal data points.

1 DRO RF C10-<C25



Expected retention time: 0.001 minutes
Search window: 0 minutes
No retention time reference component
No response proxy component
Group number: 0

High alarm limit: 0
Low alarm limit: 0
Component constant: 74160.38

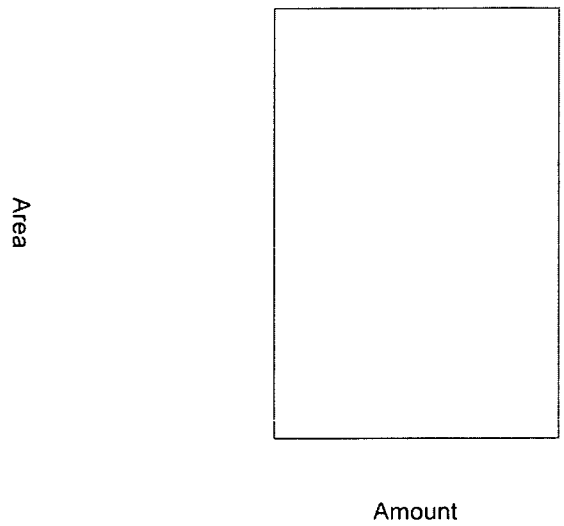
Single peak quantification by area

Y = 74160.38 X + 0

Average CF fit with equal weighting, forced to origin
Coefficient of determination: 0.9919068
Average error: 7.552%
Average CF: 74160.38
RSD: 8.908%

Level	Amount	Response	Cal Factor	Error, %	Source	Date and time
1	20	1300155	65007.75	-12.342	Manual	8/27/2018 2:55:48 PM
2	100	6931120	69311.2	-6.539	Manual	8/27/2018 2:55:56 PM
3	500	3.974583E+07	79491.66	7.189	Manual	8/27/2018 2:56:10 PM
4	800	6.343404E+07	79292.55	6.920	Manual	8/27/2018 2:56:23 PM
5	1001	7.777646E+07	77698.77	4.771	Manual	8/28/2018 10:18:09 AM

2 C10



Expected retention time (frozen): 3.56 minutes
Search window: 0.05 minutes
No retention time reference component
No response proxy component
Group number: 0

High alarm limit: 0
Low alarm limit: 0
Component constant: 0

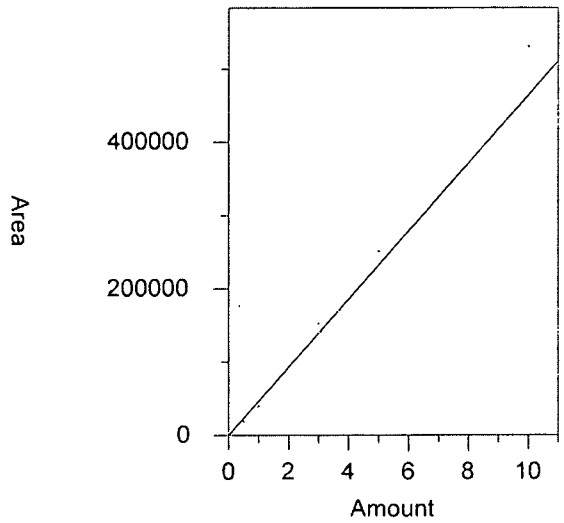
Single peak quantification by area

Y = 0.0

Average CF fit with equal weighting, forced to origin
Coefficient of determination: 1
Average error: 0.000%
Average CF: 0
RSD: 0.000%

Level	Amount	Response	Cal Factor	Error, %	Source	Date and time
1	1	0	0	0.000	Manual	7/12/2012 3:57:42 PM
2	(-1)	0	--	--	Manual	7/12/2012 3:57:46 PM
3	(-1)	0	--	--	\\USLAN-CHROMPERF\ACTIVE-DATA\CP24\\L122B.0012.BND	5/3/2012 8:57:46 PM
4	(-1)	0	--	--	Manual	7/12/2012 3:57:48 PM
5	(-1)	0	--	--	\\USLAN-CHROMPERF\ACTIVE-DATA\CP24\\L122B.0014.BND	5/3/2012 8:57:50 PM

3 Capric Acid



Expected retention time (frozen): 7.3 minutes
Search window: 0.1 minutes
No retention time reference component
No response proxy component
Group number: 0

High alarm limit: 0
Low alarm limit: 0
Component constant: 46445.11

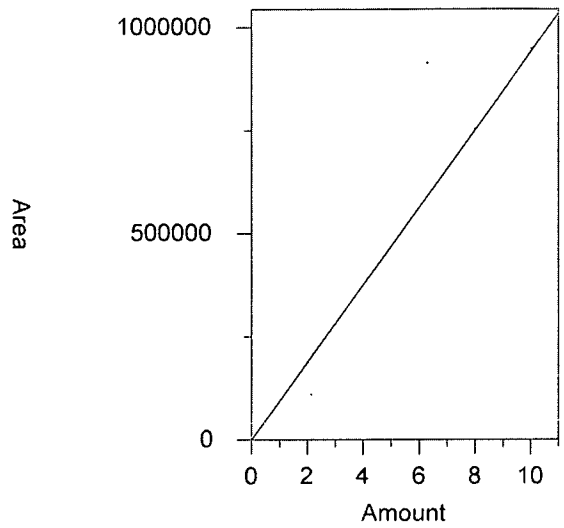
Single peak quantification by area

Y = 46445.11 X + 0

Average CF fit with equal weighting, forced to origin
Coefficient of determination: 0.9706736
Average error: 12.901%
Average CF: 46445.11
RSD: 14.974%

Level	Amount	Response	Cal Factor	Error, %	Source	Date and time
1	0.5	18984.1	37968.2	-18.251	Manual	8/28/2018 10:06:22 AM
2	1	39942.8	39942.8	-14.000	Manual	8/28/2018 10:06:35 AM
3	3	152817.3	50939.1	9.676	Manual	8/28/2018 10:06:46 AM
4	5	251220.6	50244.12	8.180	Manual	8/28/2018 10:06:57 AM
5	10	531313.3	53131.33	14.396	Manual	8/28/2018 10:07:12 AM

4 o-Terphenyl SURR



Expected retention time (frozen): 11.11 minutes
Search window: 0.05 minutes
No retention time reference component
No response proxy component
Group number: 0

High alarm limit: 0
Low alarm limit: 0
Component constant: 93912.2

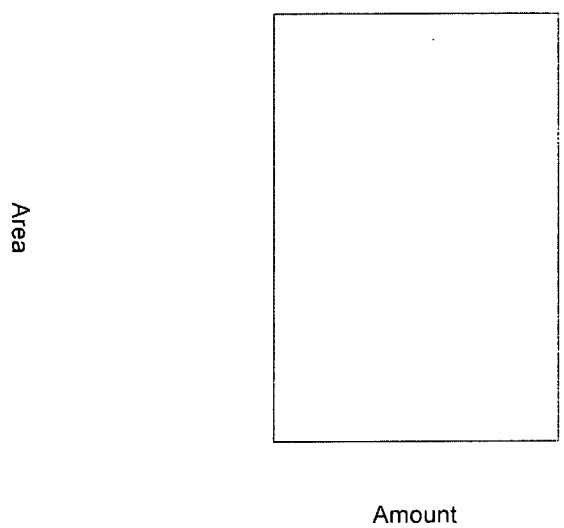
Single peak quantification by area

Y = 93912.2 X + 0

Average CF fit with equal weighting, forced to origin
Coefficient of determination: 0.9998285
Average error: 0.649%
Average CF: 93912.2
RSD: 0.856%

Level	Amount	Response	Cal Factor	Error, %	Source	Date and time
1	0.5	46364.41	92728.82	-1.260	Manual	8/27/2018 2:53:28 PM
2	2	187143.8	93571.9	-0.362	Manual	8/27/2018 2:53:45 PM
3	4	376480.1	94120.02	0.221	Manual	8/27/2018 2:54:10 PM
4	8	754293.6	94286.7	0.399	Manual	8/27/2018 2:55:00 PM
5	10	948535.2	94853.52	1.002	Manual	8/27/2018 2:55:12 PM

5 C25



Expected retention time (frozen): 13.32 minutes
Search window: 0.05 minutes
No retention time reference component
No response proxy component
Group number: 0

High alarm limit: 0
Low alarm limit: 0
Component constant: 0

Single peak quantification by area

Y = 0.0

Average CF fit with equal weighting, forced to origin
Coefficient of determination: 1
Average error: 0.000%
Average CF: 0
RSD: 0.000%

Level	Amount	Response	Cal Factor	Error, %	Source	Date and time
1	1	0	0	0.000	Manual	7/12/2012 3:57:48 PM
2	(-1)	0	--	--	Manual	7/12/2012 3:57:49 PM
3	(-1)	0	--	--	Manual	7/12/2012 3:57:50 PM
4	(-1)	0	--	--	Manual	8/18/2016 9:00:22 PM
5	(-1)	0	--	--	Manual	7/12/2012 3:57:52 PM

6D

INITIAL CALIBRATION - RETENTION TIME SUMMARY

Lab Name: Lancaster Laboratories Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Instrument: 19871A Calibration File: 24ADL41823507

GC Column (1) : DB5 ID: 30 (mm) ICAL 24ADL41823501

ICAL Date(s) Analyzed: 8/24/2018 8/27/2018

COMPOUND	RT OF STANDARDS LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	MIDPOINT RT	RT WINDOW FROM	TO
Capric Acid						7.23	7.13	7.33
o-Terphenyl						10.77	10.72	10.82

not updated
NM 626
4/26/19

Retention time update only using file(s) 24STAT19113001.005.RAW analyzed on 4/23/2019 17:23:13

6E

INITIAL CALIBRATION - CALIBRATION FACTOR SUMMARY

Lab Name: Lancaster Laboratories Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Instrument: 19871A Calibration File: 24ADL41823507

GC Column (1) : DB5 ID: 30 (mm) ICAL 24ADL41823501

ICAL Date(s) Analyzed: 8/24/2018 8/27/2018

COMPOUND	CALIBRATION FACTORS						
	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	MEAN	%RSD
Capric Acid	3.80E+04	3.99E+04	5.09E+04	5.02E+04	5.31E+04	4.64E+04	15
o-Terphenyl	9.27E+04	9.36E+04	9.41E+04	9.43E+04	9.49E+04	9.39E+04	1

Retention time update only using file(s) 24STAT19113001.005.RAW analyzed on 4/23/2019 17:23:13

6F

INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Lab Name: Lancaster Laboratories Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Instrument: 19871A Calibration File: 24ADL41823507

GC Column (1) : DB5 ID: 30 (mm) ICAL 24ADL41823501

ICAL Date(s) Analyzed: 8/24/2018 8/27/2018

COMPOUND	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR	LEVEL	AMOUNT (ng)	PEAK AREA	%RSD
C10-C25	1		3.15	13	✓ 74160	1	20	1300155	8.91
	1				74160	2	100	6931120	8.91
	1					3	500	39745830	
	1					4	800	63434040	
	1					5	1001	77776460	

Retention time update only using file(s) 24STAT19113001.005.RAW analyzed on 4/23/2019 17:23:1

File Name: Y:\CP24\24ArL41823507.CAL
Version: 2

Creator: TOG02268
Description: mini ALASKA 102/103
Reason for change:

PSR 1626 4/26/19

External standard calibration
No injection volume correction
No sample weight correction
Area reject threshold: 0
Reference peak area reject threshold: 0
Amount units: PPM
No default component

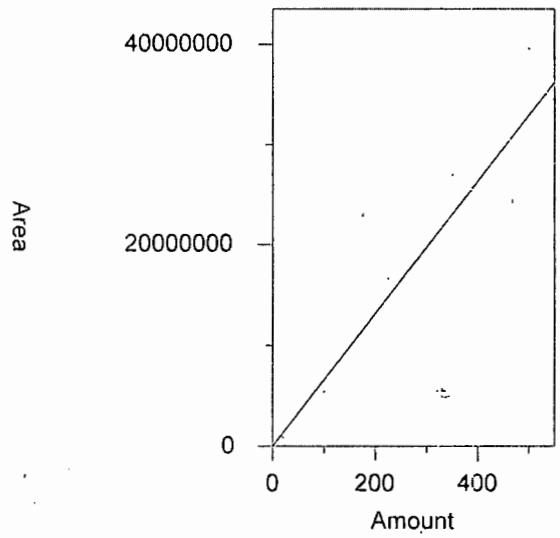
Jamie L. Brillhart
Chemist

APR 29 2019

Method of calculating data point averages: Current update equal to cal data
Print calibration update report

All levels are normal data points.

1 DRO RF C10-<C25



Expected retention time: 0.001 minutes
Search window: 0 minutes
No retention time reference component
No response proxy component
Group number: 0

High alarm limit: 0
Low alarm limit: 0
Component constant: 65898.59

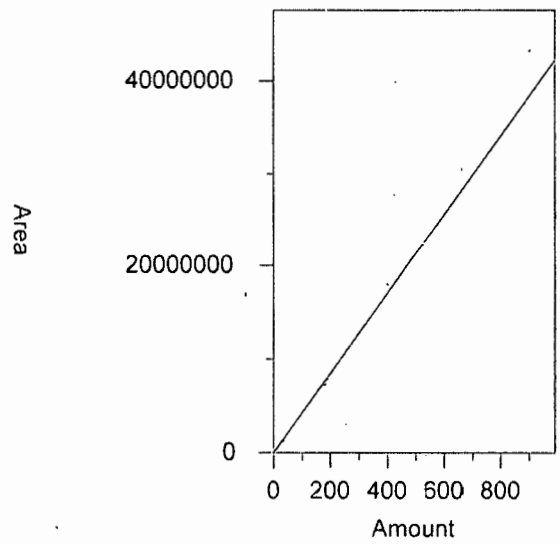
Single peak quantification by area

Y = 65898.59 X + 0

Average CF fit with equal weighting, forced to origin
Coefficient of determination: 0.9362621
Average error: 19.681%
Average CF: 65898.59
RSD: 23.104%

Level	Amount	Response	Cal Factor	Error, %	Source	Date and time
1	20	906418.6	45320.93	-31.226	Manual	8/28/2018 1:53:55 PM
2	100	5405239	54052.39	-17.976	Manual	8/28/2018 3:16:01 PM
3	225	1.665284E+07	74012.63	12.313	Manual	8/28/2018 3:16:25 PM
4	350	2.695685E+07	77019.57	16.876	Manual	8/28/2018 3:16:43 PM
5	500	3.954371E+07	79087.42	20.014	Manual	8/28/2018 3:17:07 PM

2 RRO RF C25-C36



Expected retention time:	0.016 minutes
Search window:	0 minutes
No retention time reference component	
No response proxy component	
Group number:	0
High alarm limit:	0
Low alarm limit:	0
Component constant:	42639.97

Single peak quantification by area

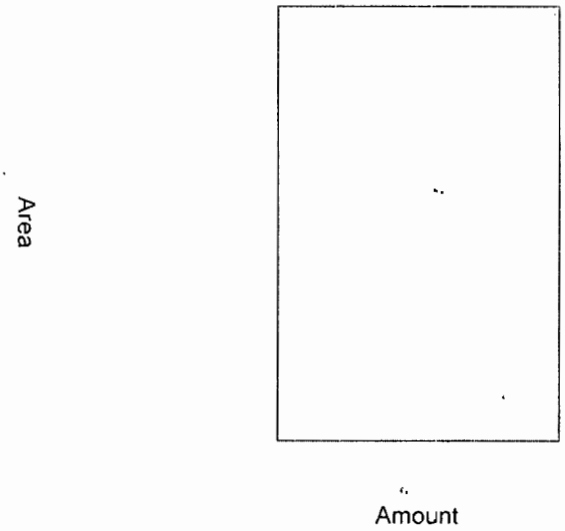
Y = 42639.97 X + 0

Average CF fit with equal weighting, forced to origin

Coefficient of determination:	0.9741735
Average error:	10.560%
Average CF:	42639.97
RSD:	13.645%

Level	Amount	Response	Cal Factor	Error, %	Source	Date and time
1	36	1205075	33474.3	-21.495	Manual	8/28/2018 1:54:05 PM
2	180	7298829	40549.05	-4.904	Manual	8/28/2018 3:16:08 PM
3	400	1.799515E+07	44987.88	5.506	Manual	8/28/2018 3:16:32 PM
4	660	3.045189E+07	46139.23	8.207	Manual	8/28/2018 3:16:51 PM
5	900	4.324447E+07	48049.41	12.686	Manual	8/28/2018 3:17:12 PM

3 C10



Expected retention time (frozen):	3.25 minutes
Search window:	0.05 minutes
No retention time reference component	
No response proxy component	
Group number:	0
High alarm limit:	0
Low alarm limit:	0
Component constant:	0

Single peak quantification by area

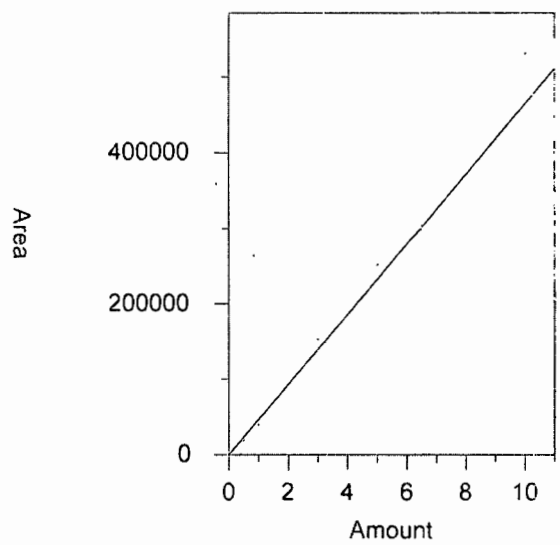
Y = 0.0

Average CF fit with equal weighting, forced to origin

Coefficient of determination:	1
Average error:	0.000%
Average CF:	0
RSD:	0.000%

Level	Amount	Response	Cal Factor	Error, %	Source	Date and time
1	1	0	0	0.000	\\USLAN-CHROMPERF\ACTIVE-DATA\CP24\L096.0012.BND	4/6/2016 1:14:40 PM
2	(-1)	0	--	--	\\USLAN-CHROMPERF\ACTIVE-DATA\CP24\L096.0013.BND	4/6/2016 1:14:44 PM
3	(-1)	0	--	--	\\USLAN-CHROMPERF\ACTIVE-DATA\CP24\L096.0014.BND	4/6/2016 1:14:48 PM
4	(-1)	0	--	--	Manual	5/3/2016 6:10:19 PM
5	(-1)	0	--	--	Manual	5/3/2016 6:10:38 PM

4 Capric Acid



Expected retention time (frozen): 7.23 minutes
Search window: 0.1 minutes
No retention time reference component
No response proxy component
Group number: 0

High alarm limit: 0
Low alarm limit: 0
Component constant: 46445.34

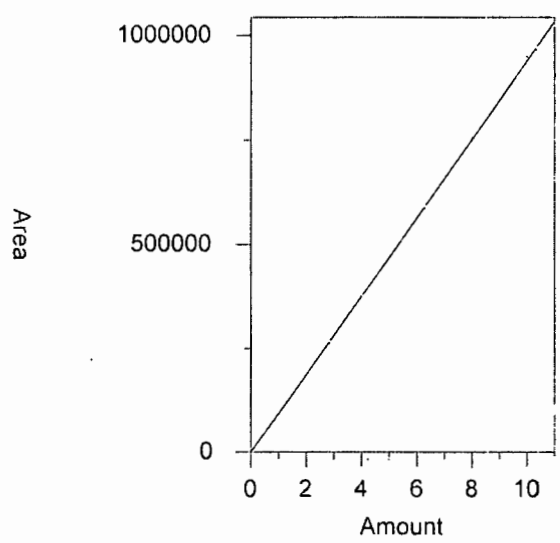
Single peak quantification by area

Y = 46445.34 X + 0

Average CF fit with equal weighting, forced to origin
Coefficient of determination: 0.9706757
Average error: 12.900%
Average CF: 46445.34
RSD: 14.973%

Level	Amount	Response	Cal Factor	Error, %	Source	Date and time
1	0.5	18984.67	37969.34	-18.249	Manual	8/30/2018 10:37:47 AM
2	1	39942.8	39942.8	-14.000	Manual	8/30/2018 10:38:03 AM
3	3	152817.3	50939.1	9.675	Manual	8/30/2018 10:38:15 AM
4	5	251220.6	50244.12	8.179	Manual	8/30/2018 10:38:27 AM
5	10	531313.3	53131.33	14.395	Manual	8/30/2018 10:38:40 AM

5 o-Terphenyl SURR



Expected retention time (frozen): 10.77 minutes
Search window: 0.05 minutes
No retention time reference component
No response proxy component
Group number: 0

High alarm limit: 0
Low alarm limit: 0
Component constant: 93912.2

Single peak quantification by area

Y = 93912.2 X + 0

Average CF fit with equal weighting, forced to origin
Coefficient of determination: 0.9998285
Average error: 0.649%
Average CF: 93912.2
RSD: 0.856%

Level	Amount	Response	Cal Factor	Error, %	Source	Date and time
1	0.5	46364.41	92728.82	-1.260	Manual	8/30/2018 10:35:28 AM
2	2	187143.8	93571.9	-0.362	Manual	8/30/2018 10:35:52 AM
3	4	376480.1	94120.02	0.221	Manual	8/30/2018 10:36:16 AM
4	8	754293.6	94286.7	0.399	Manual	8/30/2018 10:36:37 AM
5	10	948535.2	94853.52	1.002	Manual	8/30/2018 10:36:58 AM

6 C24

Area

Amount

Expected retention time (frozen): 12.82 minutes
Search window: 0.05 minutes
No retention time reference component
No response proxy component
Group number: 0

High alarm limit: 0
Low alarm limit: 0
Component constant: 0

Single peak quantification by area

Y = 0.0

Average CF fit with equal weighting, forced to origin
Coefficient of determination: 1
Average error: 0.000%
Average CF: 0
RSD: 0.000%

Level	Amount	Response	Cal Factor	Error, %	Source	Date and time
1	1	0	0	0.000	\\USLAN-CHROMPERF\ACTIVE-DATA\CP24\L096.0012.BND	4/6/2016 1:14:40 PM
2	(-1)	0	--	--	\\USLAN-CHROMPERF\ACTIVE-DATA\CP24\L096.0013.BND	4/6/2016 1:14:44 PM
3	(-1)	0	--	--	\\USLAN-CHROMPERF\ACTIVE-DATA\CP24\L096.0014.BND	4/6/2016 1:14:48 PM
4	(-1)	0	--	--	\\USLAN-CHROMPERF\ACTIVE-DATA\CP24\L096.0015.BND	4/6/2016 1:14:56 PM
5	(-1)	0	--	--	\\USLAN-CHROMPERF\ACTIVE-DATA\CP24\L096.0016.BND	4/6/2016 1:15:02 PM

7 C25

Area

Amount

Expected retention time (frozen): 13.1 minutes
Search window: 0.05 minutes
No retention time reference component
No response proxy component
Group number: 0

High alarm limit: 0
Low alarm limit: 0
Component constant: 0

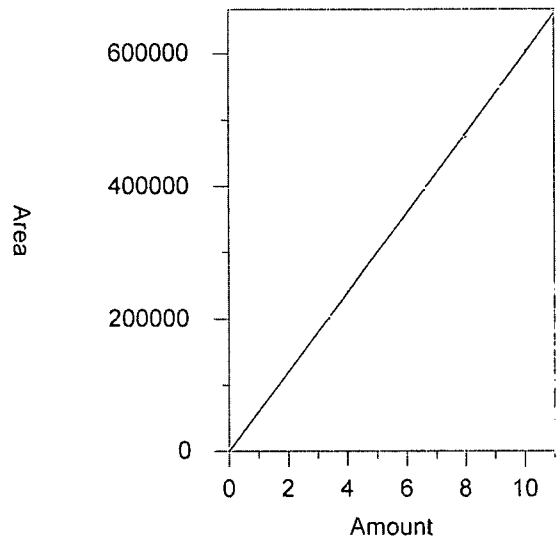
Single peak quantification by area

Y = 0.0

Average CF fit with equal weighting, forced to origin
Coefficient of determination: 1
Average error: 0.000%
Average CF: 0
RSD: 0.000%

Level	Amount	Response	Cal Factor	Error, %	Source	Date and time
1	1	0	0	0.000	\\USLAN-CHROMPERF\ACTIVE-DATA\CP24\L096.0012.BND	4/6/2016 1:14:40 PM
2	(-1)	0	--	--	\\USLAN-CHROMPERF\ACTIVE-DATA\CP24\L096.0013.BND	4/6/2016 1:14:44 PM
3	(-1)	0	--	--	\\USLAN-CHROMPERF\ACTIVE-DATA\CP24\L096.0014.BND	4/6/2016 1:14:48 PM
4	(-1)	0	--	--	\\USLAN-CHROMPERF\ACTIVE-DATA\CP24\L096.0015.BND	4/6/2016 1:14:56 PM
5	(-1)	0	--	--	\\USLAN-CHROMPERF\ACTIVE-DATA\CP24\L096.0016.BND	4/6/2016 1:15:02 PM

8 n-Triacontane-d62



Expected retention time (frozen): 14.2 minutes
Search window: 0.05 minutes
No retention time reference component
No response proxy component
Group number: 0

High alarm limit: 0
Low alarm limit: 0
Component constant: 59940.71

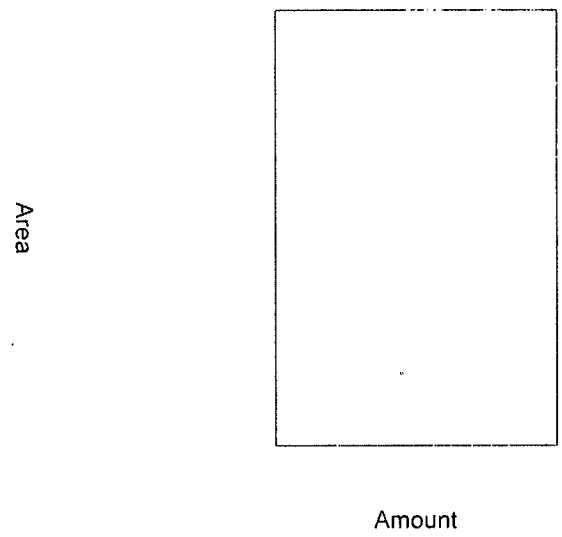
Single peak quantification by area

Y = 59940.71 X + 0

Average CF fit with equal weighting, forced to origin
Coefficient of determination: 0.9997491
Average error: 0.592%
Average CF: 59940.71
RSD: 0.776%

Level	Amount	Response	Cal Factor	Error, %	Source	Date and time
1	0.5	29856.2	59712.4	-0.381	Manual	8/30/2018 10:35:37 AM
2	2	119816	59908	-0.055	Manual	8/30/2018 10:35:59 AM
3	4	241066.1	60266.52	0.544	Manual	8/30/2018 10:36:24 AM
4	8	474518.2	59314.77	-1.044	Manual	8/30/2018 10:36:44 AM
5	10	605018.3	60501.83	0.936	Manual	8/30/2018 10:37:07 AM

9 C36



Expected retention time (frozen): 15.58 minutes
Search window: 0.05 minutes
No retention time reference component
No response proxy component
Group number: 0

High alarm limit: 0
Low alarm limit: 0
Component constant: 0

Single peak quantification by area

Y = 0.0

Average CF fit with equal weighting, forced to origin
Coefficient of determination: 1
Average error: 0.000%
Average CF: 0
RSD: 0.000%

Level	Amount	Response	Cal Factor	Error, %	Source	Date and time
1	1	0	0	0.000	Manual	5/3/2016 6:00:40 PM
2	(-1)	0	--	--	\\USLAN-CHROMPERF\ACTIVE-DATA\CP24\L096.0013.BND	4/6/2016 1:14:44 PM
3	(-1)	0	--	--	\\USLAN-CHROMPERF\ACTIVE-DATA\CP24\L096.0014.BND	4/6/2016 1:14:48 PM
4	(-1)	0	--	--	\\USLAN-CHROMPERF\ACTIVE-DATA\CP24\L096.0015.BND	4/6/2016 1:14:56 PM
5	(-1)	0	--	--	Manual	5/3/2016 6:01:36 PM

7E

CALIBRATION VERIFICATION SUMMARY

Lab Name: Lancaster Laboratories Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Instrument: 19871A Date Analyzed: 08/24/18

GC Column (1) : DB5 ID: 30 (mm) Time Analyzed: 11:09

Lab File ID: 24STAT18235001.037.RAW Initial Calibration: 24ADL41823501

Lab Standard ID: 4AKCDBI Init. Calib Date(s): 08/24/18 08/27/18

Calibration: 24ADL41823501

COMPOUND	RT	RT WINDOW FROM	TO	CALC AMOUNT (mg/l)	NOM AMOUNT (mg/l)	%D
o-Terphenyl	11.11	11.06	11.16	5.11	5.03	2
C10-C25		3.46	13.22	✓ 493.33	✓ 501.10	-2

Compounds 2

7E
CALIBRATION VERIFICATION SUMMARY

Lab Name: Lancaster Laboratories Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Instrument: 19871A Date Analyzed: 04/23/19

GC Column (1) : DB5 ID: 30 (mm) Time Analyzed: 22:31

Lab File ID: 24STAT19113001.016.RAW Initial Calibration: 24ADL41823501

Lab Standard ID: 4ADCXUC Init. Calib Date(s): 08/24/18 08/27/18

Calibration: 24ADL41823507

COMPOUND	RT	RT WINDOW FROM	TO	CALC AMOUNT (mg/l)	NOM AMOUNT (mg/l)	%D
o-Terphenyl	10.77	10.72	10.82	5.36	5.00	7
C10-C25		3.15	13.00	532.54	500.12	6

Compounds 2

Retention time update only using file(s) 24STAT19113001.005.RAW analyzed on 4/23/2019 17:23:13

7E
CALIBRATION VERIFICATION SUMMARY

Lab Name: Lancaster Laboratories Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Instrument: 19871A Date Analyzed: 04/24/19

GC Column (1) : DB5 ID: 30 (mm) Time Analyzed: 6:55

Lab File ID: 24STAT19113001.034.RAW Initial Calibration: 24ADL41823501

Lab Standard ID: 4ADCXUD Init. Calib Date(s): 08/24/18 08/27/18

Calibration: 24ADL41823507

COMPOUND	RT	RT WINDOW FROM	TO	CALC AMOUNT (mg/l)	NOM AMOUNT (mg/l)	%D
o-Terphenyl	10.76	10.72	10.82	4.98	5.00	0
C10-C25		3.15	13.00	539.35	500.12	8

Compounds 2

Retention time update only using file(s) 24STAT19113001.005.RAW analyzed on 4/23/2019 17:23:13

Eurofins Lancaster Laboratories
EPH/Miscellaneous GC
Runlog for 24STAT 18235001
Instrument CP24--19871A

Data Directory Path is - \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP24\

Operator	File	LLI#	Client ID	Analysis Date	Batch	Dilution Factor
1826	24STAT18235001.001	CONDITIONER		8/23/18 18:08	1823499999	1.00
1826	24STAT18235001.002	CONDITIONER		8/23/18 18:38	1823499999	1.00
1826	24STAT18235001.003	FLA_31832A	FLA_3KY	8/23/18 19:07	1823499999	1.00
1826	24STAT18235001.004	BLANK1 8/23/18 S	PBLK40234	8/23/18 19:35	182340040A	1.00
1826	24STAT18235001.005	MDL1 8/23/18 S		8/23/18 20:03	182340040A	1.00
1826	24STAT18235001.006	BLANK2 8/23/18 S	PBLK40234	8/23/18 20:31	182340040A	1.00
1826	24STAT18235001.007	MDL2 8/23/18 S		8/23/18 20:59	182340040A	1.00
1826	24STAT18235001.008	FLA_31832A	FLA_3KZ	8/23/18 21:27	1823499999	1.00
1826	24STAT18235001.009	AKRTX1832D	AKRTXEC	8/23/18 21:56	1823499999	1.00
1826	24STAT18235001.010	AKCK31832B	AKCK3OY	8/23/18 22:24	1823499999	1.00
1826	24STAT18235001.011	BLANKA 8/22/18	PBLK33233	8/23/18 22:53	182330033A	1.00
1826	24STAT18235001.012	LOD1 8/22/18		8/23/18 23:21	182330033A	1.00
1826	24STAT18235001.013	LOD2 8/22/18		8/23/18 23:49	182330033A	1.00
1826	24STAT18235001.014	AKCK31832B	AKCK3OZ	8/24/18 0:17	1823499999	1.00
1826	24STAT18235001.015	AKRTX1832D	AKRTXED	8/24/18 0:45	1823499999	1.00
1826	24STAT18235001.017	AKRTX1832D	AKRTXEG	8/24/18 1:42	1823499999	1.00
1826	24STAT18235001.018	IBLKX1832BZ	IBLKXPP	8/24/18 2:10	1823499999	1.00
1826	24STAT18235001.019	4AKS11832A	4AKS1AA	8/24/18 2:38	1823499999	1.00
1826	24STAT18235001.020	4AKS21832A	4AKS2AA	8/24/18 3:07	1823499999	1.00
1826	24STAT18235001.021	4AKS31832A	4AKS3AA	8/24/18 3:35	1823499999	1.00
1826	24STAT18235001.022	4AKS41832A	4AKS4AA	8/24/18 4:03	1823499999	1.00
1826	24STAT18235001.023	4AKS51832A	4AKS5AA	8/24/18 4:32	1823499999	1.00
1826	24STAT18235001.024	4AKD11832A	4AKD1AA	8/24/18 5:00	1823499999	1.00
1826	24STAT18235001.025	4AKD21832A	4AKD2AA	8/24/18 5:28	1823499999	1.00
1826	24STAT18235001.026	4AKD31832A	4AKD3AA	8/24/18 5:57	1823499999	1.00
1826	24STAT18235001.027	4AKD41832A	4AKD4AA	8/24/18 6:25	1823499999	1.00
1826	24STAT18235001.028	4AKD51832A	4AKD5AA	8/24/18 6:54	1823499999	1.00
1826	24STAT18235001.029	4AKR11832A	4AKR1AA	8/24/18 7:22	1823499999	1.00
1826	24STAT18235001.030	4AKR21832A	4AKR2AA	8/24/18 7:50	1823499999	1.00
1826	24STAT18235001.031	4AKR31832A	4AKR3AA	8/24/18 8:19	1823499999	1.00
1826	24STAT18235001.032	4AKR41832A	4AKR4AA	8/24/18 8:47	1823499999	1.00
1826	24STAT18235001.033	4AKR51832A	4AKR5AA	8/24/18 9:16	1823499999	1.00
1826	24STAT18235001.034	MECL2	MECL2AA	8/24/18 9:44	1823499999	1.00
1826	24STAT18235001.035	4MDXX1832A	4MDXXBP	8/24/18 10:12	1823499999	1.00
1826	24STAT18235001.037	4AKCDX1832A	4AKCDBI	8/24/18 11:09	1823499999	1.00
1826	24STAT18235001.040	CONDITIONER		8/27/18 16:46	1823499999	1.00
1826	24STAT18235001.041	CONDITIONER		8/27/18 17:15	1823499999	1.00
1826	24STAT18235001.042	CONDITIONER		8/27/18 17:43	1823499999	1.00
1826	24STAT18235001.043	4CAP11832B	4CAP1AA	8/27/18 18:11	1823899999	1.00
1826	24STAT18235001.044	4CAP21832A	4CAP2AA	8/27/18 18:40	1823899999	1.00
1826	24STAT18235001.045	4CAP31832C	4CAP3AA	8/27/18 19:08	1823899999	1.00
1826	24STAT18235001.046	4CAP41832A	4CAP4AA	8/27/18 19:37	1823899999	1.00
1826	24STAT18235001.047	4CAP51832A	4CAP5AA	8/27/18 20:05	1823899999	1.00
1826	24STAT18235001.048	CONDITIONER	AA	8/27/18 20:33	1823899999	1.00
1826	24STAT18235001.049	CONDITIONER		8/28/18 10:57	1823899999	1.00
1826	24STAT18235001.050	CONDITIONER		8/28/18 11:25	1823899999	1.00
1826	24STAT18235001.051	4AKR11832B	4AKR1AA	8/28/18 12:12	1823999999	1.00
1826	24STAT18235001.052	4AKR21832A	4AKR2AA	8/28/18 12:40	1823999999	1.00
1826	24STAT18235001.053	4AKR31832A	4AKR3AA	8/28/18 13:08	1823999999	1.00
1826	24STAT18235001.054	4AKR41832A	4AKR4AA	8/28/18 13:37	1823999999	1.00
1826	24STAT18235001.055	4AKR51832A	4AKR5AA	8/28/18 14:05	1823999999	1.00
1826	24STAT18235001.056	MECL2	MECL2AA	8/28/18 14:34	1823999999	1.00
1826	24STAT18235001.057	4AKMDX1832A	4AKMDBB	8/28/18 15:02	1823999999	1.00
1826	24STAT18235001.058	4AKCRX1832A	4AKCRBJ	8/28/18 15:31	1823999999	1.00
1826	24STAT18235001.059	CONDITIONER	AA	8/28/18 15:59	1823999999	1.00

Eurofins Lancaster Laboratories
EPH/Miscellaneous GC
Runlog for 24STAT 18242001
Instrument CP24--19871A

Data Directory Path is - \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP24\

Operator	File	LLI#	Client ID	Analysis Date	Batch	Dilution Factor
1826	24STAT18242001.001	CONDITIONER		8/30/18 11:31	1824199999	1.00
1826	24STAT18242001.002	CONDITIONER		8/30/18 12:03	1824199999	1.00
1826	24STAT18242001.003	CONDITIONER		8/30/18 12:31	1824199999	1.00
1826	24STAT18242001.004	AKRTX1832D	AKRTXEK	8/30/18 13:00	1824199999	1.00
1826	24STAT18242001.005	4AKMDX1832A	4AKMDBC	8/30/18 13:28	1824199999	1.00
1826	24STAT18242001.006	4AKCRX1832A	4AKCRBK	8/30/18 13:56	1824199999	1.00
1826	24STAT18242001.007	4ADCX1832B	4ADCXQW	8/30/18 14:24	1824199999	1.00
1826	24STAT18242001.008	BLANKA 8/20/18	PBLK50229	8/30/18 15:27	182290050A	2.00
1826	24STAT18242001.009	LCSA 8/20/18	LCS50229	8/30/18 15:55	182290050A	2.00
1826	24STAT18242001.010	LCSDA 8/20/18	LCSD50229	8/30/18 16:23	182290050A	2.00
1826	24STAT18242001.011	9749928	OSHA1	8/30/18 16:51	182290050A	2.00
1826	24STAT18242001.012	9749929	OSHA2	8/30/18 17:19	182290050A	2.00
1826	24STAT18242001.013	9749934	OSHA7	8/30/18 17:48	182290050A	2.00
1826	24STAT18242001.014	4ADCX1832B	4ADCXQX	8/30/18 18:16	1824199999	1.00
1826	24STAT18242001.015	AKRTX1832D	AKRTXEM	8/30/18 18:44	1824199999	1.00

Eurofins Lancaster Laboratories
EPH/Miscellaneous GC
Runlog for 24STAT 19113001
Instrument CP24--19871A

Data Directory Path is - \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP24\

Operator	File	LLI#	Client ID	Analysis Date	Batch	Dilution Factor
01826	24STAT19113001.001	CONDITIONER		4/23/19 15:31	1911299999	1.00
01826	24STAT19113001.002	CONDITIONER		4/23/19 15:59	1911299999	1.00
01826	24STAT19113001.003	CONDITIONER		4/23/19 16:27	1911299999	1.00
01826	24STAT19113001.004	AKRTX1832G	AKRTXKC	4/23/19 16:55	1911299999	1.00
01826	24STAT19113001.005	4ADCX1932A	4ADCXUB	4/23/19 17:23	1911299999	1.00
01826	24STAT19113001.006	BLANKA 4/18/19	PBLK26107	4/23/19 17:51	191070026A	2.00
01826	24STAT19113001.007	LCSA 4/18/19	LCS26107	4/23/19 18:19	191070026A	2.00
01826	24STAT19113001.008	1032091	V3901	4/23/19 18:47	191070026A	2.00
01826	24STAT19113001.009	1032092	V3902	4/23/19 19:14	191070026A	2.00
01826	24STAT19113001.010	1032093	V3903	4/23/19 19:42	191070026A	2.00
01826	24STAT19113001.011	1032094MS	V3903	4/23/19 20:10	191070026A	2.00
01826	24STAT19113001.012	1032095MSD	V3903	4/23/19 20:38	191070026A	2.00
01826	24STAT19113001.013	1032096	V3904	4/23/19 21:07	191070026A	2.00
01826	24STAT19113001.014	1032097	V3905	4/23/19 21:35	191070026A	2.00
01826	24STAT19113001.015	1032098	V3906	4/23/19 22:03	191070026A	2.00
01826	24STAT19113001.016	4ADCX1932A	4ADCXUC	4/23/19 22:31	1911299999	1.00
01826	24STAT19113001.017	BLANKA 4/19/19	PBLK37108	4/23/19 22:59	191080037A	2.00
01826	24STAT19113001.018	LCSA 4/19/19	LCS37108	4/23/19 23:27	191080037A	2.00
01826	24STAT19113001.019	1034406	V4001	4/23/19 23:55	191080037A	2.00
01826	24STAT19113001.020	1034407	V4002	4/24/19 0:23	191080037A	2.00
01826	24STAT19113001.021	1034408MS	V4002	4/24/19 0:51	191080037A	2.00
01826	24STAT19113001.022	1034409MSD	V4002	4/24/19 1:19	191080037A	2.00
01826	24STAT19113001.023	1034411	V4003	4/24/19 1:47	191080037A	2.00
01826	24STAT19113001.024	1034412	V4004	4/24/19 2:15	191080037A	2.00
01826	24STAT19113001.025	1034413	V4005	4/24/19 2:42	191080037A	2.00
01826	24STAT19113001.026	1034600	41L01	4/24/19 3:11	191080037A	2.00
01826	24STAT19113001.027	1034601	41L02	4/24/19 3:39	191080037A	2.00
01826	24STAT19113001.028	1034602	41L03	4/24/19 4:07	191080037A	2.00
01826	24STAT19113001.029	1034603	41L04	4/24/19 4:35	191080037A	2.00
01826	24STAT19113001.030	1034604	41L05	4/24/19 5:03	191080037A	2.00
01826	24STAT19113001.031	1034605	41L06	4/24/19 5:31	191080037A	2.00
01826	24STAT19113001.032	1034606	41L07	4/24/19 5:59	191080037A	2.00
01826	24STAT19113001.033	1034609	41L10	4/24/19 6:27	191080037A	2.00
01826	24STAT19113001.034	4ADCX1932A	4ADCXUD	4/24/19 6:55	1911299999	1.00
01826	24STAT19113001.035	BLANKA 4/20/19	PBLK31109	4/24/19 7:23	191090031A	2.00
01826	24STAT19113001.036	LCSA 4/20/19	LCS31109	4/24/19 7:51	191090031A	2.00
01826	24STAT19113001.037	1037453	SV421	4/24/19 8:19	191090031A	2.00
01826	24STAT19113001.038	1037454	SV422	4/24/19 8:47	191090031A	2.00
01826	24STAT19113001.039	1037455	SV423	4/24/19 9:15	191090031A	2.00
01826	24STAT19113001.040	1037456MS	SV423	4/24/19 9:43	191090031A	2.00
01826	24STAT19113001.041	1037457MSD	SV423	4/24/19 10:11	191090031A	2.00
01826	24STAT19113001.042	1037458	SV424	4/24/19 10:39	191090031A	2.00
01826	24STAT19113001.043	1037459	SV425	4/24/19 11:07	191090031A	2.00
01826	24STAT19113001.044	1037460	SV426	4/24/19 11:35	191090031A	2.00
01826	24STAT19113001.045	4ADCX1932A	4ADCXUE	4/24/19 12:03	1911299999	1.00
01826	24STAT19113001.046	AKRTX1832G	AKRTXKF	4/24/19 12:31	1911299999	1.00

Eurofins Lancaster Laboratories
EPH/Miscellaneous GC
Runlog for 24STAT 19113001
Instrument CP24--19871A

Data Directory Path is - \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP24\

Operator	File	LLI#	Client ID	Analysis Date	Batch	Dilution Factor
01826	24STAT19113001.001	CONDITIONER		4/23/19 15:31	1911299999	1.00
01826	24STAT19113001.002	CONDITIONER		4/23/19 15:59	1911299999	1.00
01826	24STAT19113001.003	CONDITIONER		4/23/19 16:27	1911299999	1.00
01826	24STAT19113001.004	AKRTX1832G	AKRTXKC	4/23/19 16:55	1911299999	1.00
01826	24STAT19113001.005	4ADCX1932A	4ADCXUB	4/23/19 17:23	1911299999	1.00
01826	24STAT19113001.006	BLANKA 4/18/19	PBLK26107	4/23/19 17:51	191070026A	2.00
01826	24STAT19113001.007	LCSA 4/18/19	LCS26107	4/23/19 18:19	191070026A	2.00
01826	24STAT19113001.008	1032091	V3901	4/23/19 18:47	191070026A	2.00
01826	24STAT19113001.009	1032092	V3902	4/23/19 19:14	191070026A	2.00
01826	24STAT19113001.010	1032093	V3903	4/23/19 19:42	191070026A	2.00
01826	24STAT19113001.011	1032094MS	V3903	4/23/19 20:10	191070026A	2.00
01826	24STAT19113001.012	1032095MSD	V3903	4/23/19 20:38	191070026A	2.00
01826	24STAT19113001.013	1032096	V3904	4/23/19 21:07	191070026A	2.00
01826	24STAT19113001.014	1032097	V3905	4/23/19 21:35	191070026A	2.00
01826	24STAT19113001.015	1032098	V3906	4/23/19 22:03	191070026A	2.00
01826	24STAT19113001.016	4ADCX1932A	4ADCXUC	4/23/19 22:31	1911299999	1.00
01826	24STAT19113001.017	BLANKA 4/19/19	PBLK37108	4/23/19 22:59	191080037A	2.00
01826	24STAT19113001.018	LCSA 4/19/19	LCS37108	4/23/19 23:27	191080037A	2.00
01826	24STAT19113001.019	1034406	V4001	4/23/19 23:55	191080037A	2.00
01826	24STAT19113001.020	1034407	V4002	4/24/19 0:23	191080037A	2.00
01826	24STAT19113001.021	1034408MS	V4002	4/24/19 0:51	191080037A	2.00
01826	24STAT19113001.022	1034409MSD	V4002	4/24/19 1:19	191080037A	2.00
01826	24STAT19113001.023	1034411	V4003	4/24/19 1:47	191080037A	2.00
01826	24STAT19113001.024	1034412	V4004	4/24/19 2:15	191080037A	2.00
01826	24STAT19113001.025	1034413	V4005	4/24/19 2:42	191080037A	2.00
01826	24STAT19113001.026	1034600	41L01	4/24/19 3:11	191080037A	2.00
01826	24STAT19113001.027	1034601	41L02	4/24/19 3:39	191080037A	2.00
01826	24STAT19113001.028	1034602	41L03	4/24/19 4:07	191080037A	2.00
01826	24STAT19113001.029	1034603	41L04	4/24/19 4:35	191080037A	2.00
01826	24STAT19113001.030	1034604	41L05	4/24/19 5:03	191080037A	2.00
01826	24STAT19113001.031	1034605	41L06	4/24/19 5:31	191080037A	2.00
01826	24STAT19113001.032	1034606	41L07	4/24/19 5:59	191080037A	2.00
01826	24STAT19113001.033	1034609	41L10	4/24/19 6:27	191080037A	2.00
01826	24STAT19113001.034	4ADCX1932A	4ADCXUD	4/24/19 6:55	1911299999	1.00
01826	24STAT19113001.035	BLANKA 4/20/19	PBLK31109	4/24/19 7:23	191090031A	2.00
01826	24STAT19113001.036	LCSA 4/20/19	LCS31109	4/24/19 7:51	191090031A	2.00
01826	24STAT19113001.037	1037453	SV421	4/24/19 8:19	191090031A	2.00
01826	24STAT19113001.038	1037454	SV422	4/24/19 8:47	191090031A	2.00
01826	24STAT19113001.039	1037455	SV423	4/24/19 9:15	191090031A	2.00
01826	24STAT19113001.040	1037456MS	SV423	4/24/19 9:43	191090031A	2.00
01826	24STAT19113001.041	1037457MSD	SV423	4/24/19 10:11	191090031A	2.00
01826	24STAT19113001.042	1037458	SV424	4/24/19 10:39	191090031A	2.00
01826	24STAT19113001.043	1037459	SV425	4/24/19 11:07	191090031A	2.00
01826	24STAT19113001.044	1037460	SV426	4/24/19 11:35	191090031A	2.00
01826	24STAT19113001.045	4ADCX1932A	4ADCXUE	4/24/19 12:03	1911299999	1.00
01826	24STAT19113001.046	AKRTX1832G	AKRTXKF	4/24/19 12:31	1911299999	1.00

Sample Data

TPH-DRO by GC

Eurofins Lancaster Laboratories-Range Data Summary

Sample Name: 1034406 V4001 Sample ID: AA **Batchnumber:** 191080037A
Sample Amount: 228. Total Volume: 2. ml Analyst: 01826 SDG: LSV40 State: AK
Analyses: 13025

Injection Summary

Injected on : 4/23/2019 23:55:14
Instrument : CP24--19871A
Result file : 24STAT19113001.019.RAW
Calibration files : 24ADL41823507.CAL
Method files : 4AKDLSUM.MET 4REAKDL.MET
Setting : 24ADL41823507(V)

Surrogate Recoveries

O-TERPHENYL SURR 99% (50-150) Conc.: 0.021694

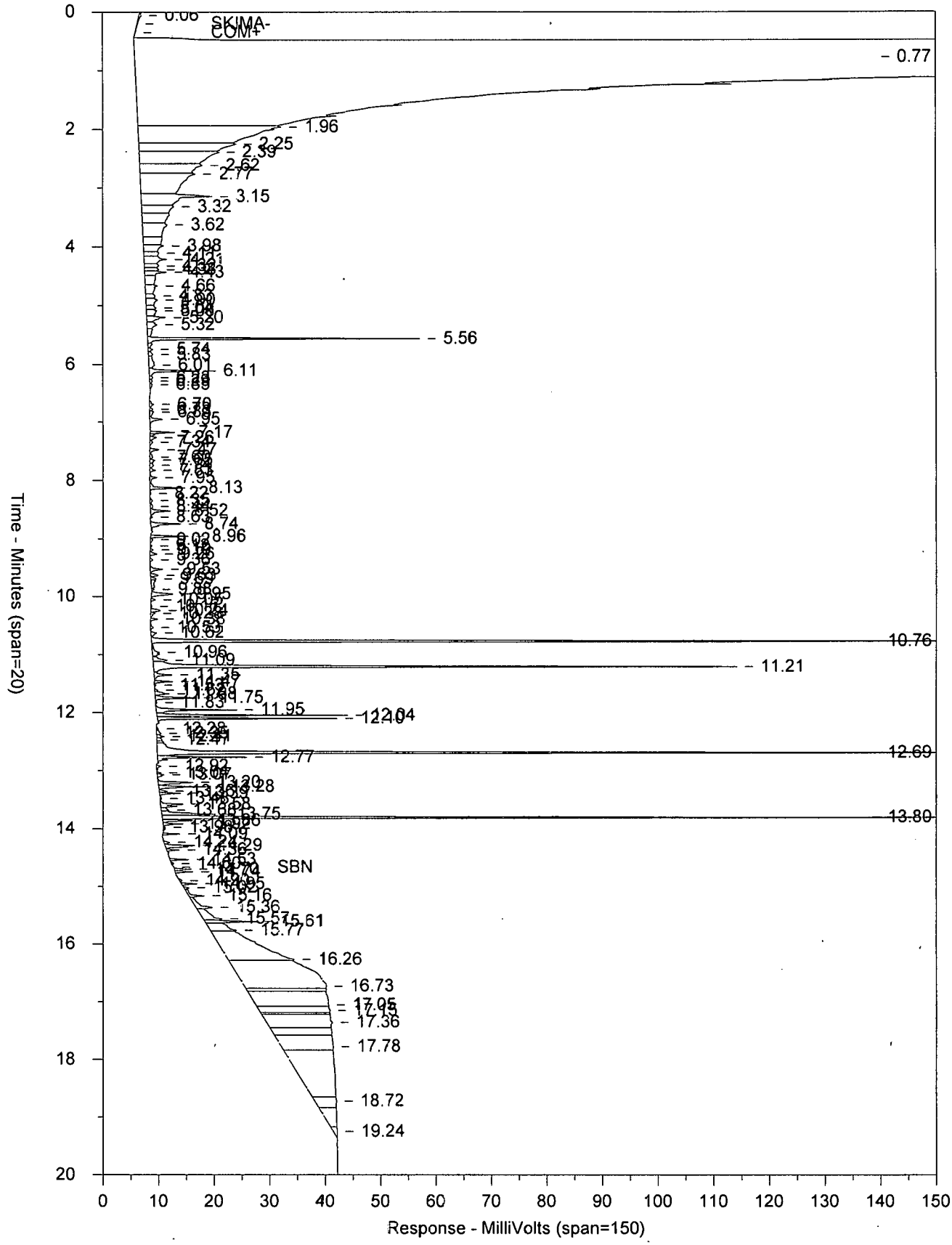
Range	Retention Times	Area	Amount	LOQ	MDL	Flags	Units
☐ C10-<C25 DRO	3.15 - 13.00	1363757	0.1338	<0.2741	0.0548	J	ppm
☐ o-Terphenyl SURR	10.76 (10.72 - 10.82)	232256	0.0217				ppm
☐ Capric Acid	7.26 (7.13 - 7.33)	1670	0.0003				ppm

Comments: _____

Reviewed by: Heather E. Williams
Heather E. Williams
Group Leader
Date: MAY 06 2019

Verified by: Jamie L. Brillhart
Jamie L. Brillhart
Senior Chemist
Date: MAY 07 2019

Sample: 1034406 AAV4001 T 191080037A 13025 AK 102-SV 4/8/02
File: 24STAT19113001.019.RAW



Sample: 1034406 AAV4001 T 191080037A 13025 AK 102-SV 4/8/02

Instrument ID:CP24-19871A
Injected on: 4/23/2019 11:55:14 PM
Volume Inj. per Column: 4uL
GC Column: ZB5 30m X 0.32mm X 0.25um
Oven Parameters: 50C for 2mins; 15C/min to 180C; 30C/min to 340C; hold 8.5mins
Sample Amount: 228
Dilution Factor: 2
Analyst: 01826

Peak	Ret Time (min)	Peak Name	Amount (ppb)	Area
37	7.26	Capric Acid	0.53	2779.868
70	10.76	o-Terphenyl SURR	21.82	233606.4
92	13.07	C25	0.00	2644.563

Slice Name	Start Time	Stop Time	Slice Amount	Slice Area
C10-<C25 DRO	3.15	13.00	5.095	1363757.0
o-Terphenyl SURR	10.72	10.82	4.975	233606.4

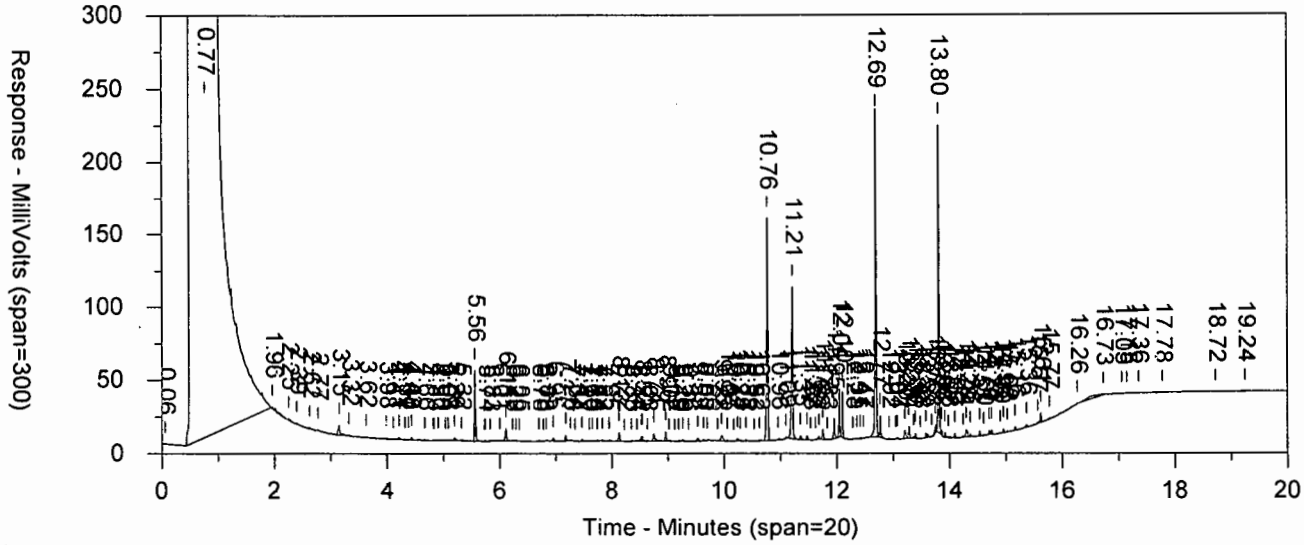
********** RESULTS TABLE **********

C10-<C25 ADJUSTED DRO AREA = 1130150
C10-<C25 PRELIMINARY AMT = 0.134

FILES:

Area File: 24STAT19113001.019.RAW
Method File: 4AKDLSUM.MET
Calibration File: 24ADL41823507.CAL
Format File: 4AKDLSUM.FMT
Area file created on: 4/24/2019 12:19:17 AM
File reported on: 4/26/2019 at 5:22:44 PM

Replot: 1034406 AAV4001 T 191080037A 13025 AK 102-SV 4/8/02
File: 24STAT19113001.019.RAW



Instrument ID:CP24-19871A
Injected on: 4/23/2019 11:55:14 PM
Volume Inj. per Column: 4uL
GC Column: ZB5 30m X 0.32mm X 0.25um
Oven Parameters: 50C for 2mins; 15C/min to 180C; 30C/min to 340C; hold 8.5mins
Sample Amount: 228
Dilution Factor: 2
Analyst: 01826

Peak	Ret Time (min)	Peak Name	Amount (PPM)	Area
37	7.26	Capric Acid	0.000	1670.432
70	10.76	o-Terphenyl SURR	0.022	232256.4
92	13.07	C25	0.000	2019.083

O-TERPHENYL % RECOVERY = 98.9249 %

FILES:

Area File: 24STAT19113001.019.RAW
Method File: 4REAKDL.MET
Calibration File: 24ADL41823507.CAL
Format File: 4REAKDL.FMT
Area file created on: 4/24/2019 12:19:17 AM
File reported on: 4/26/2019 at 5:37:45 PM

Eurofins Lancaster Laboratories-Range Data Summary

Sample Name: 1034407 V4002 Sample ID: AA **Batchnumber:** 191080037A
Sample Amount: 237. Total Volume: 2. ml Analyst: 01826 SDG: LSV40 State: AK
Analyses: 13025

Injection Summary

Injected on : 4/24/2019 00:23:13
Instrument : CP24--19871A
Result file : 24STAT19113001.020.RAW
Calibration files : 24ADL41823507.CAL
Method files : 4AKDLSUM.MET 4REAKDL.MET
Setting : 24ADL41823507(V)

Surrogate Recoveries

O-TERPHENYL SURR 106% (50-150) Conc.: 0.022217

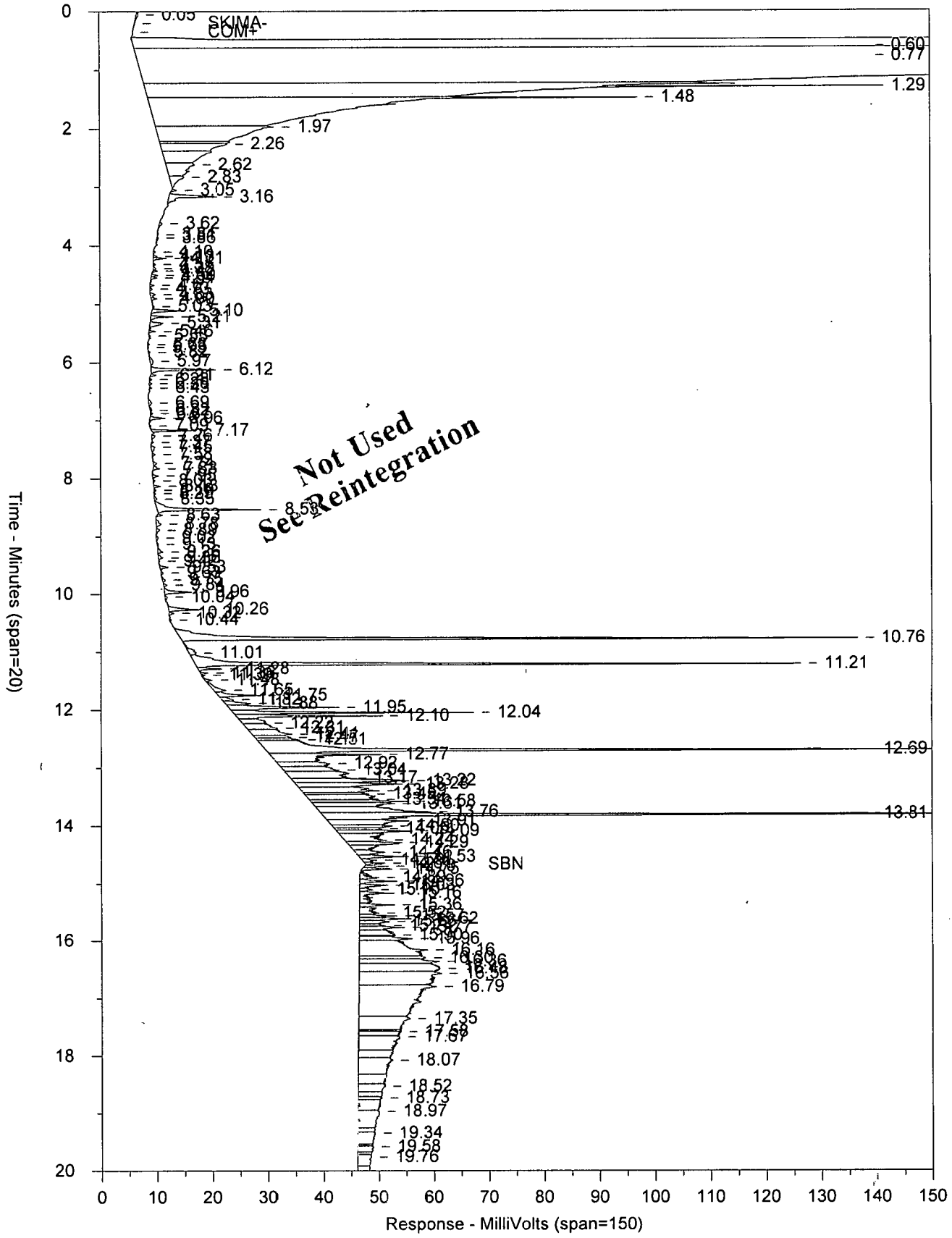
Range	Retention Times	Area	Amount	LOQ	MDL	Flags	Units
☐ C10-<C25 DRO	3.15 - 13.00	2429572	0.2483	<0.2637	0.0527	J	ppm
☐ o-Terphenyl SURR	10.76 (10.72 - 10.82)	247244	0.0222				ppm
☐ Capric Acid	7.26 (7.13 - 7.33)	1604	0.0003				ppm

Comments: _____

Reviewed by: Heather E. Williams
Heather E. Williams
Group Leader
Date: MAY 06 2019

Verified by: Jamie L. Brillhart
Jamie L. Brillhart
Senior Chemist
Date: MAY 07 2019

Sample: 1034407 AAV4002 T 191080037A 13025 AK 102-SV 4/8/02
File: 24STAT19113001.020.RAW



Sample: 1034407 AAV4002 T 191080037A 13025 AK 102-SV 4/8/02

Instrument ID:CP24-19871A
Injected on: 4/24/2019 12:23:13 AM
Volume Inj. per Column: 4uL
GC Column: ZB5 30m X 0.32mm X 0.25um
Oven Parameters: 50C for 2mins; 15C/min to 180C; 30C/min to 340C; hold 8.5mins
Sample Amount: 237
Dilution Factor: 2
Analyst: 01826

Peak	Ret Time (min)	Peak Name	Amount (ppb)	Area
48	7.26	Capric Acid	0.29	1603.565
78	10.76	o-Terphenyl SURR	22.22	247244.3

Slice Name	Start Time	Stop Time	Slice Amount	Slice Area
C10-<C25 DRO	3.15	13.00	5.334	1505137.0
o-Terphenyl SURR	10.72	10.82	5.265	247244.3

********** RESULTS TABLE **********

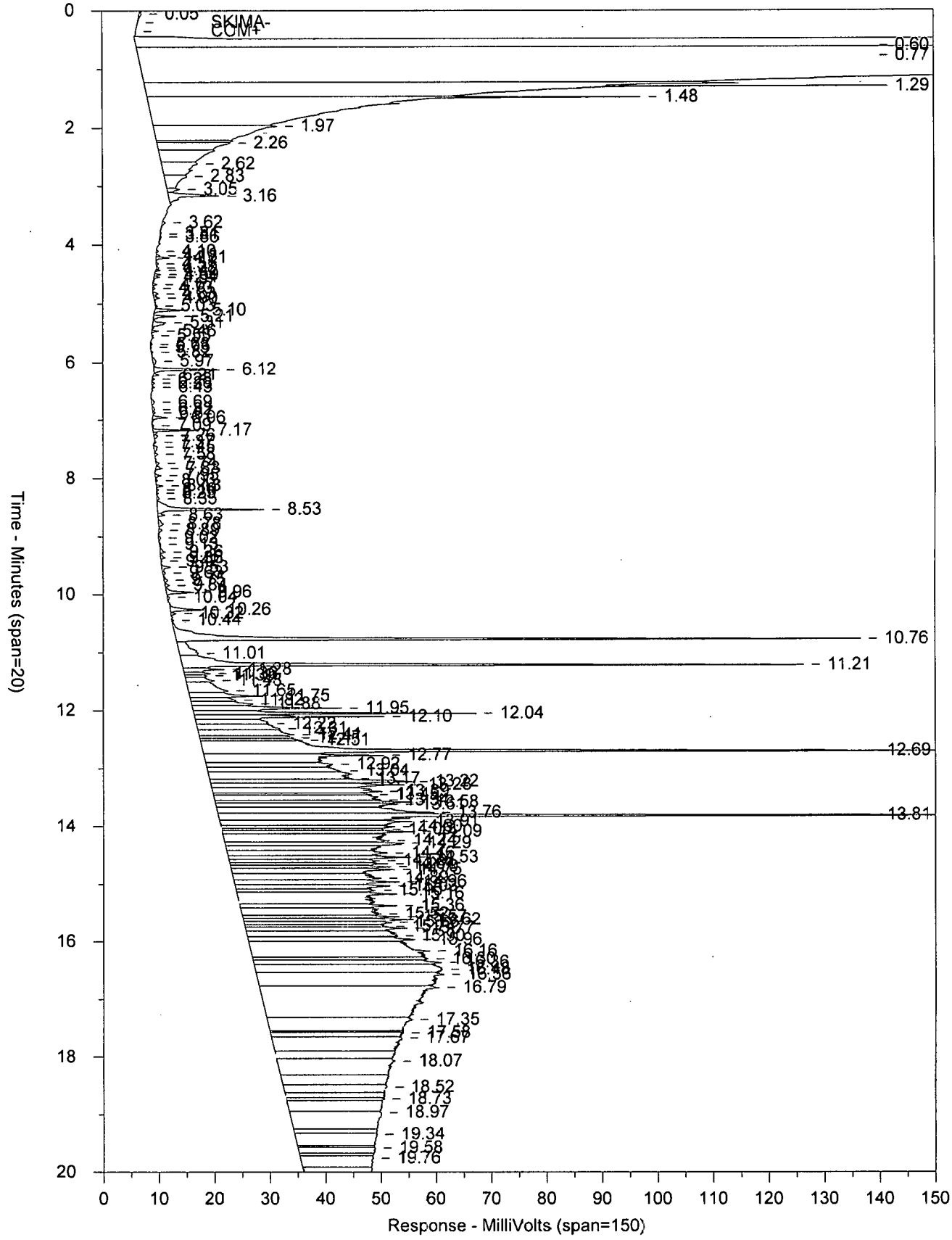
Not Used
See Reintegration

C10-<C25 ADJUSTED DRO AREA = 1257892
C10-<C25 PRELIMINARY AMT = 0.143

FILES:

Area File: 24STAT19113001.020.RAW
Method File: 4AKDLSUM.MET
Calibration File: 24ADL41823507.CAL
Format File: 4AKDLSUM.FMT
Area file created on: 4/24/2019 12:47:15 AM
File reported on: 4/26/2019 at 5:23:02 PM

Sample: 1034407 AAV4002 T 191080037A 13025 AK 102-SV 4/8/02
File: 24STAT19113001.020.RAW



Sample: 1034407 AAV4002 T 191080037A 13025 AK 102-SV 4/8/02

Instrument ID:CP24-19871A
Volume Inj. per Column: 4uL
Oven Parameters: 50C for 2mins; 15C/min to 180C; 30C/min to 340C; hold 8.5mins
Sample Amount: 237
Analyst: 01826

Injected on: 4/24/2019 12:23:13 AM
GC Column: ZB5 30m X 0.32mm X 0.25um
Dilution Factor: 2

Peak	Ret Time (min)	Peak Name	Amount (ppb)	Area
48	7.26	Capric Acid	0.35	1918.481
78	10.76	o-Terphenyl SURR	23.68	263521.8

Slice Name	Start Time	Stop Time	Slice Amount	Slice Area
C10-<C25 DRO	3.15	13.00	5.695	2429573.0
o-Terphenyl SURR	10.72	10.82	5.612	263521.8 M

********** RESULTS TABLE **********

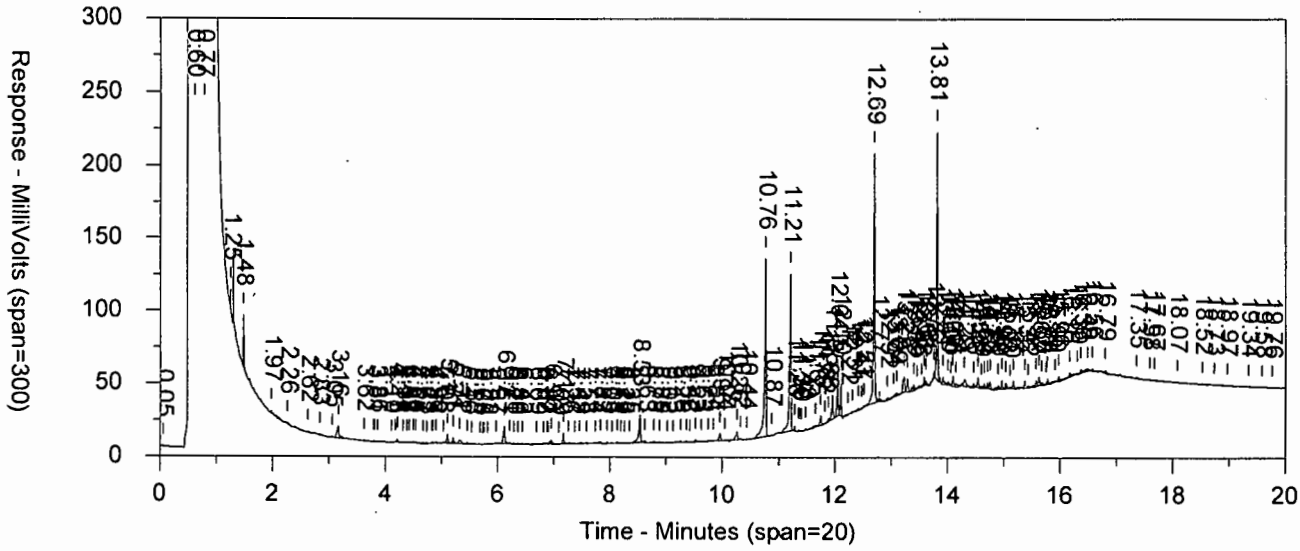
C10-<C25 ADJUSTED DRO AREA = 2166051
C10-<C25 PRELIMINARY AMT = 0.246

FILES:

Area File: 24STAT19113001.020.RAW
Method File: 4AKDLSUM.MET
Calibration File: 24ADL41823507.CAL
Format File: 4AKDLSUM.FMT
Area file created on: 4/26/2019 7:21:29 PM
File reported on: 4/26/2019 at 7:21:48 PM

M = Manually Integrated
Analyst [illegible] 4/26/19
Approved by [illegible] 5-7-19
Circle Reason 1 2 3 4
1 = Missed Peak
2 = Improper Baseline
3 = RT Update
4 = Other _____

Replot: 1034407 AAV4002 T 191080037A 13025 AK 102-SV 4/8/02
File: 24STAT19113001.020.RAW



Instrument ID:CP24-19871A
Injected on: 4/24/2019 12:23:13 AM
Volume Inj. per Column: 4uL
GC Column: ZB5 30m X 0.32mm X 0.25um
Oven Parameters: 50C for 2mins; 15C/min to 180C; 30C/min to 340C; hold 8.5mins
Sample Amount: 237
Dilution Factor: 2
Analyst: 01826

Peak	Ret Time (min)	Peak Name	Amount (PPM)	Area
48	7.26	Capric Acid	0.000	1603.565
78	10.76	o-Terphenyl SURR	0.022	247244.3
101	13.09	C25	0.000	5711.999

O-TERPHENYL % RECOVERY = 105.3087 %

FILES:

Area File: 24STAT19113001.020.RAW
Method File: 4REAKDL.MET
Calibration File: 24ADL41823507.CAL
Format File: 4REAKDL.FMT
Area file created on: 4/24/2019 12:47:15 AM
File reported on: 4/26/2019 at 5:38:04 PM

Eurofins Lancaster Laboratories-Range Data Summary

Sample Name: 1034411 V4003 Sample ID: AA **Batchnumber:** 191080037A
Sample Amount: 246. Total Volume: 2. ml Analyst: 01826 SDG: LSV40 State: AK
Analyses: 13025

Injection Summary

Injected on : 4/24/2019 01:47:19
Instrument : CP24--19871A
Result file : 24STAT19113001.023.RAW
Calibration files : 24ADL41823507.CAL
Method files : 4AKDLSUM.MET 4REAKDL.MET
Setting : 24ADL41823507(V)

Surrogate Recoveries

O-TERPHENYL SURR 96% (50-150) Conc.: 0.019498

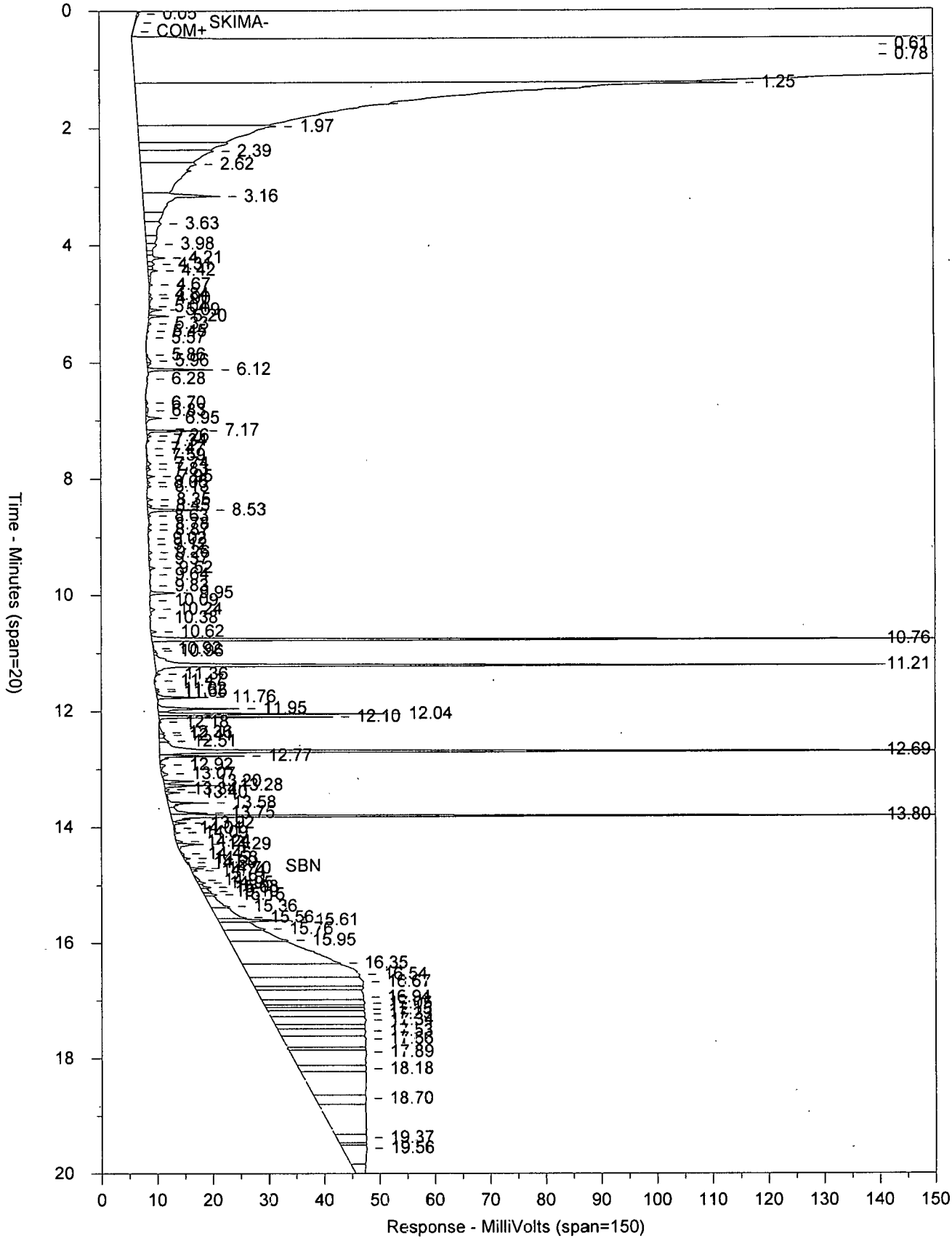
Range	Retention Times	Area	Amount	LOQ	MDL	Flags	Units
☐ C10-<C25 DRO	3.15 - 13.00	1235110	0.1107	<0.2541	0.0508	J	ppm
☐ o-Terphenyl SURR	10.76 (10.72 - 10.82)	225229	0.0195				ppm
☐ Capric Acid	7.26 (7.13 - 7.33)	1156	0.0002				ppm

Comments: _____

Reviewed by: Heather E. Williams
Heather E. Williams
Group Leader
Date: MAY 06 2019

Verified by: Jamie L. Brillhart
Jamie L. Brillhart
Senior Chemist
Date: MAY 07 2019

Sample: 1034411 AAV4003 T 191080037A 13025 AK 102-SV 4/8/02
File: 24STAT19113001.023.RAW



Sample: 1034411 AAV4003 T 191080037A 13025 AK 102-SV 4/8/02

Instrument ID:CP24-19871A
Injected on: 4/24/2019 1:47:19 AM
Volume Inj. per Column: 4uL
GC Column: ZB5 30m X 0.32mm X 0.25um
Oven Parameters: 50C for 2mins; 15C/min to 180C; 30C/min to 340C; hold 8.5mins
Sample Amount: 246
Dilution Factor: 2
Analyst: 01826

Peak	Ret Time (min)	Peak Name	Amount (ppb)	Area
31	7.26	Capric Acid	0.22	1240.265
58	10.76	o-Terphenyl SURR	19.51	225399.7
77	13.07	C25	0.00	3531.393

Slice Name	Start Time	Stop Time	Slice Amount	Slice Area
C10-<C25 DRO	3.15	13.00	4.854	1235110.0
o-Terphenyl SURR	10.72	10.82	4.800	225399.7

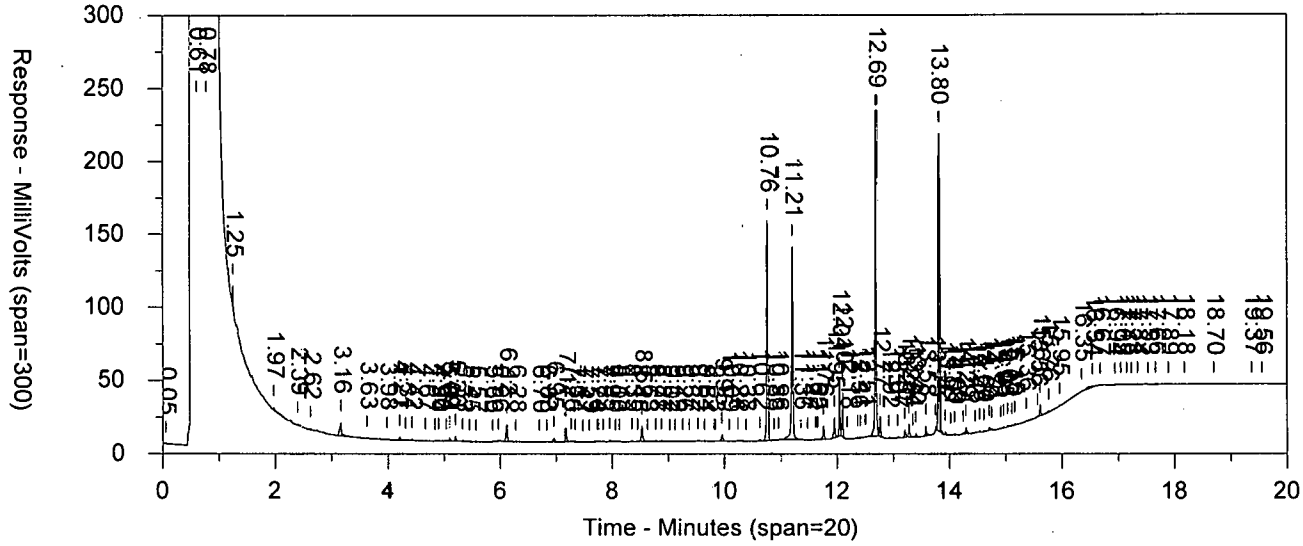
********** RESULTS TABLE **********

C10-<C25 ADJUSTED DRO AREA = 1009710
C10-<C25 PRELIMINARY AMT = 0.111

FILES:

Area File: 24STAT19113001.023.RAW
Method File: 4AKDLSUM.MET
Calibration File: 24ADL41823507.CAL
Format File: 4AKDLSUM.FMT
Area file created on: 4/24/2019 2:11:21 AM
File reported on: 4/26/2019 at 5:24:04 PM

Replot: 1034411 AAV4003 T 191080037A 13025 AK 102-SV 4/8/02
File: 24STAT19113001.023.RAW



Instrument ID:CP24-19871A
Injected on: 4/24/2019 1:47:19 AM
Volume Inj. per Column: 4uL
GC Column: ZB5 30m X 0.32mm X 0.25um
Oven Parameters: 50C for 2mins; 15C/min to 180C; 30C/min to 340C; hold 8.5mins
Sample Amount: 246
Dilution Factor: 2
Analyst: 01826

Peak	Ret Time (min)	Peak Name	Amount (PPM)	Area
31	7.26	Capric Acid	0.000	1155.815
58	10.76	o-Terphenyl SURR	0.019	225229.2
77	13.07	C25	0.000	3531.393

O-TERPHENYL % RECOVERY = 95.9318 %

FILES:

Area File: 24STAT19113001.023.RAW
Method File: 4REAKDL.MET
Calibration File: 24ADL41823507.CAL
Format File: 4REAKDL.FMT
Area file created on: 4/24/2019 2:11:21 AM
File reported on: 4/26/2019 at 5:39:02 PM

Eurofins Lancaster Laboratories-Range Data Summary

Sample Name: 1034412 V4004 Sample ID: AA **Batchnumber:** 191080037A
Sample Amount: 229. Total Volume: 2. ml Analyst: 01826 SDG: LSV40 State: AK
Analyses: 13025

Injection Summary

Injected on : 4/24/2019 02:15:17
Instrument : CP24--19871A
Result file : 24STAT19113001.024.RAW
Calibration files : 24ADL41823507.CAL
Method files : 4AKDLSUM.MET 4REAKDL.MET
Setting : 24ADL41823507(V)

Surrogate Recoveries

O-TERPHENYL SURR 69% (50-150) Conc.: 0.014963

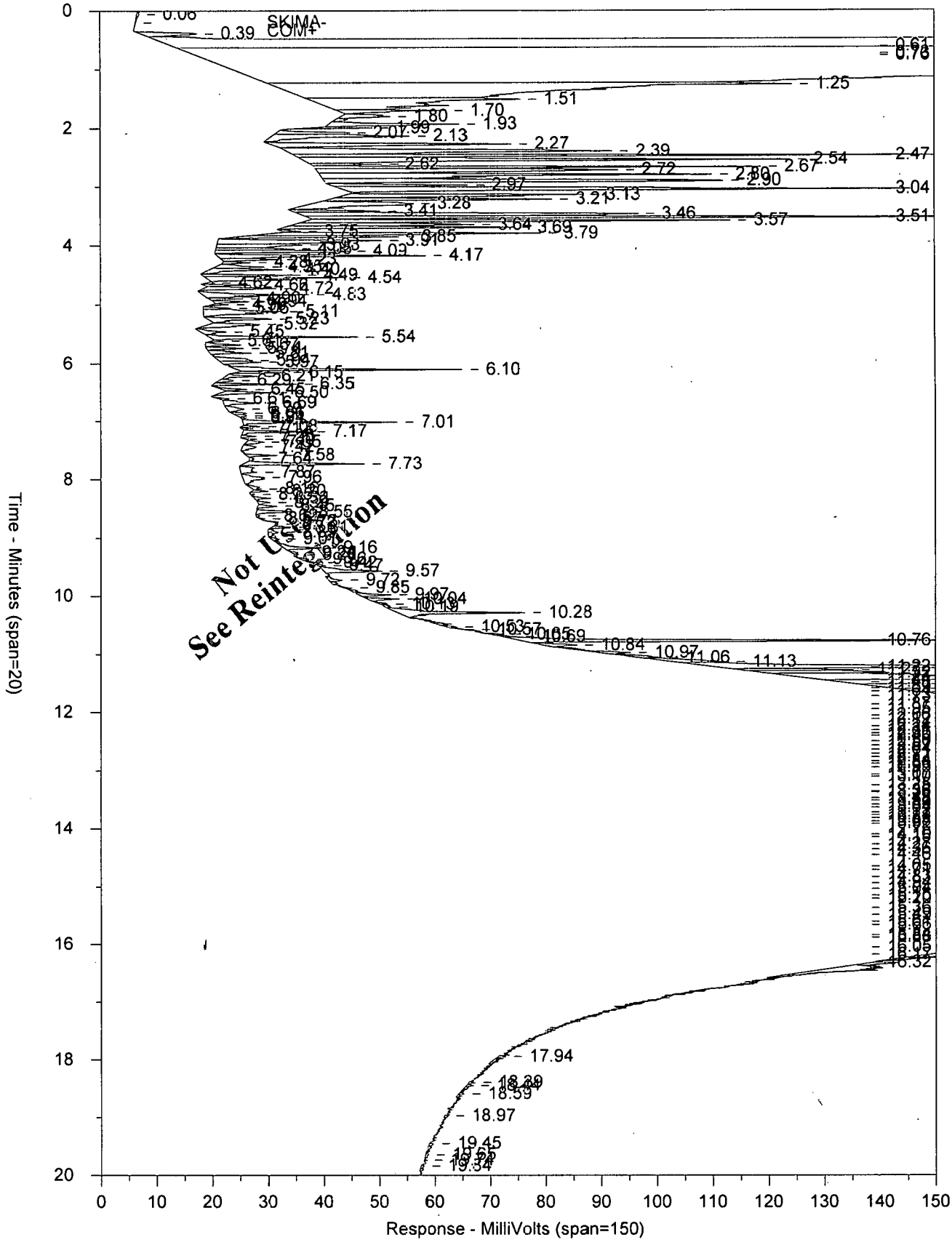
Range	Retention Times	Area	Amount	LOQ	MDL	Flags	Units
☐ C10-<C25 DRO	3.15 - 13.00	43295811	5.0799	0.2729	0.0546		ppm
☐ o-Terphenyl SURR	10.76 (10.72 - 10.82)	160891	0.0150				ppm
☐ Capric Acid	7.25 (7.13 - 7.33)	3738	0.0007				ppm

Comments: >10 x BLK detect

Reviewed by: Heather E. Williams
Heather E. Williams
Group Leader
Date: MAY 06 2019

Verified by: Jamie L. Brillhart
Jamie L. Brillhart
Chemist
Date: MAY 07 2019

Sample: 1034412 AAV4004 T 191080037A 13025 AK 102-SV 4/8/02
File: 24STAT19113001.024.RAW



Sample: 1034412 AAV4004 T 191030037A 13025 AK 102-SV 4/8/02

Instrument ID:CP24-19871A
Injected on: 4/24/2019 2:15:17 AM
Volume Inj. per Column: 4uL
GC Column: ZB5 30m X 0.32mm X 0.25um
Oven Parameters: 50C for 2mins; 15C/min to 180C; 30C/min to 340C; hold 8.5mins
Sample Amount: 229
Dilution Factor: 2
Analyst: 01826

Peak	Ret Time (min)	Peak Name	Amount (ppb)	Area
27	3.28	C10	0.00	89750.54
84	7.25	Capric Acid	0.70	3737.594
125	10.76	o-Terphenyl SURR	15.44	165997.2
155	13.10	C25	0.00	2534092

Slice Name	Start Time	Stop Time	Slice Amount	Slice Area
C10-<C25 DRO	3.15	13.00	3.696	20256140.0
o-Terphenyl SURR	10.72	10.82	3.535	165997.2

********** RESULTS TABLE **********

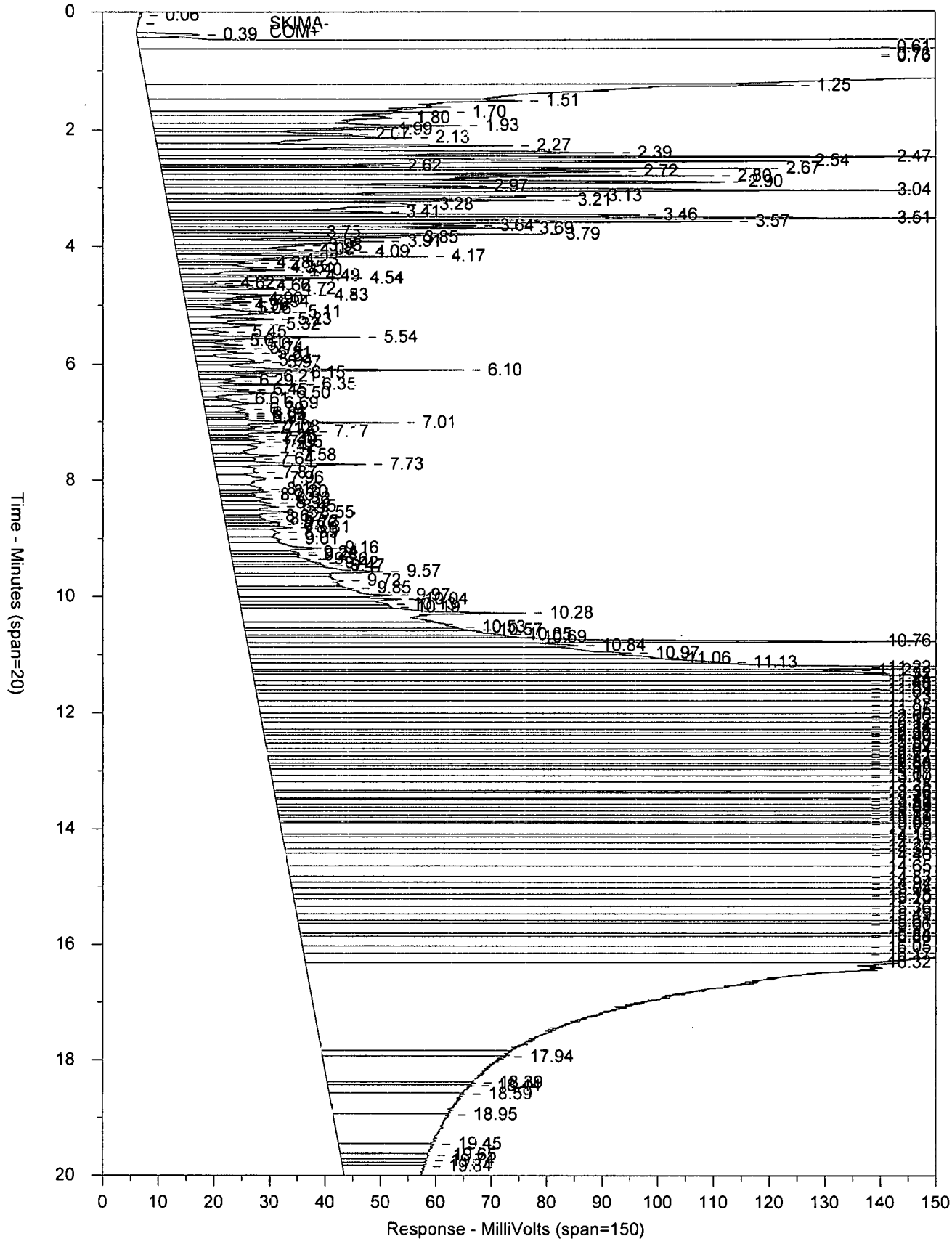
C10-<C25 ADJUSTED DRO AREA = 2.009015E+07
C10-<C25 PRELIMINARY AMT = 2.366

Not Used
See Reintegration

FILES:

Area File: 24STAT19113001.024.RAW
Method File: 4AKDLSUM.MET
Calibration File: 24ADL41823507.CAL
Format File: 4AKDLSUM.FMT
Area file created on: 4/24/2019 2:39:19 AM
File reported on: 4/26/2019 at 5:24:22 PM

Sample: 1034412 AAV4004 T 191080037A 13025 AK 102-SV 4/8/02
File: 24STAT19113001.024.RAW



Sample: 1034412 AAV4004 T 191080037A 13025 AK 102-SV 4/8/02

Instrument ID:CP24-19871A
Injected on: 4/24/2019 2:15:17 AM
Volume Inj. per Column: 4uL
GC Column: ZB5 30m X 0.32mm X 0.25um
Oven Parameters: 50C for 2mins; 15C/min to 180C; 30C/min to 340C; hold 8.5mins
Sample Amount: 229
Dilution Factor: 2
Analyst: 01826

Peak	Ret Time (min)	Peak Name	Amount (ppb)	Area
27	3.28	C10	0.00	304634.6
84	7.25	Capric Acid	3.85	20487.43
125	10.76	o-Terphenyl SURR	41.44	445559.3
155	13.10	C25	0.00	4071982

Slice Name	Start Time	Stop Time	Slice Amount	Slice Area
C10-<C25 DRO	3.15	13.00	10.371	43295810.0 m
o-Terphenyl SURR	10.72	10.82	9.489	445559.3

********** RESULTS TABLE **********

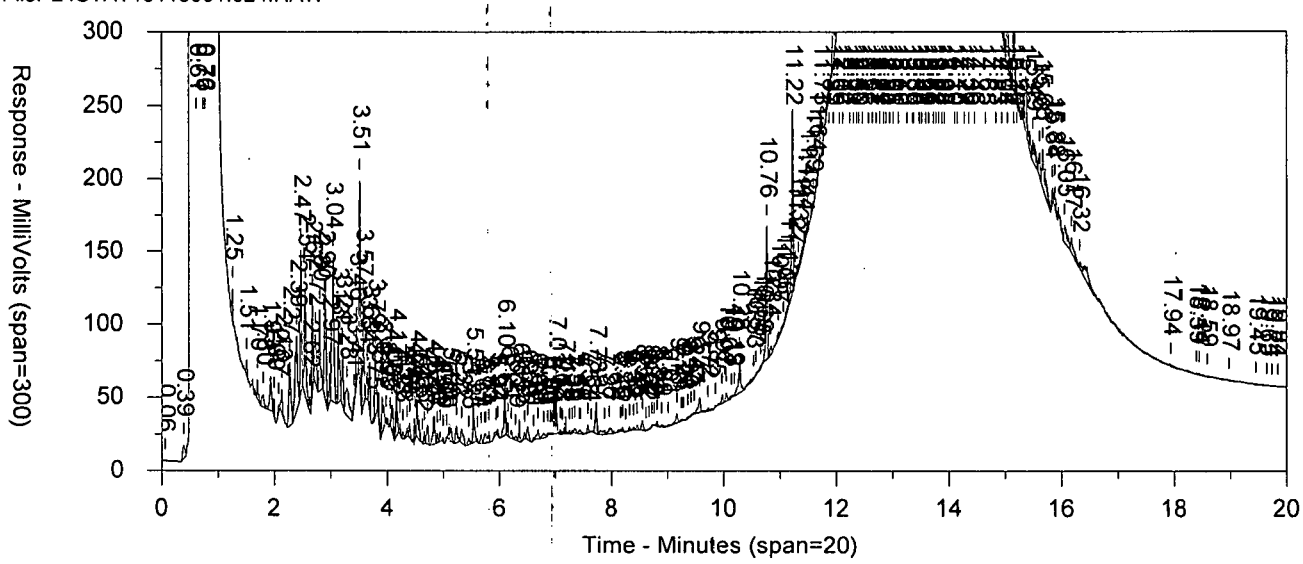
C10-<C25 ADJUSTED DRO AREA = 4.285025E+07
C10-<C25 PRELIMINARY AMT = 5.046

M = Manually Integrated
Analyst [illegible] 4/26/19
Approved by [illegible] 5/2/19
Circle Reason 1 2 3 4
1 = Missed Peak
2 = Improper Baseline
3 = RT Update
4 = Other _____

FILES:

Area File: 24STAT19113001.024.RAW
Method File: 4AKDLSUM.MET
Calibration File: 24ADL41823507.CAL
Format File: 4AKDLSUM.FMT
Area file created on: 4/26/2019 7:23:32 PM
File reported on: 4/26/2019 at 7:23:37 PM

Replot: 1034412 AAV4004 T 191080037A 13025 AK 102-SV 4/8/02
File: 24STAT19113001.024.RAW



Instrument ID:CP24-19871A
Volume Inj. per Column: 4uL
Oven Parameters: 50C for 2mins; 15C/min to 180C; 30C/min to 340C; hold 8.5mins
Sample Amount: 229
Analyst: 01826

Injected on: 4/24/2019 2:15:17 AM
GC Column: ZB5 30m X 0.32mm X 0.25um
Dilution Factor: 2

Peak	Ret Time (min)	Peak Name	Amount (PPM)	Area
27	3.28	C10	0.000	89750.54
84	7.25	Capric Acid	0.001	3737.594
125	10.76	o-Terphenyl SUFR	0.015	160891.4
155	13.10	C25	0.000	285436.5

O-TERPHENYL % RECOVERY = 68.52842 %

FILES:

Area File: 24STAT19113001.024.RAW
Method File: 4REAKDL.MET
Calibration File: 24ADL41823507.CAL
Format File: 4REAKDL.FMT
Area file created on: 4/24/2019 2:39:19 AM
File reported on: 4/26/2019 at 5:39:18 PM

Eurofins Lancaster Laboratories-Range Data Summary

Sample Name: 1034413 V4005 Sample ID: AA **Batchnumber:** 191080037A
Sample Amount: 242. Total Volume: 2. ml Analyst: 01826 SDG: LSV40 State: AK
Analyses: 13025

Injection Summary

Injected on : 4/24/2019 02:42:59
Instrument : CP24--19871A
Result file : 24STAT19113001.025.RAW
Calibration files : 24ADL41823507.CAL
Method files : 4AKDLSUM.MET 4REAKDL.MET
Setting : 24ADL41823507(V)

Surrogate Recoveries

O-TERPHENYL SURR 92% (50-150) Conc.: 0.018988

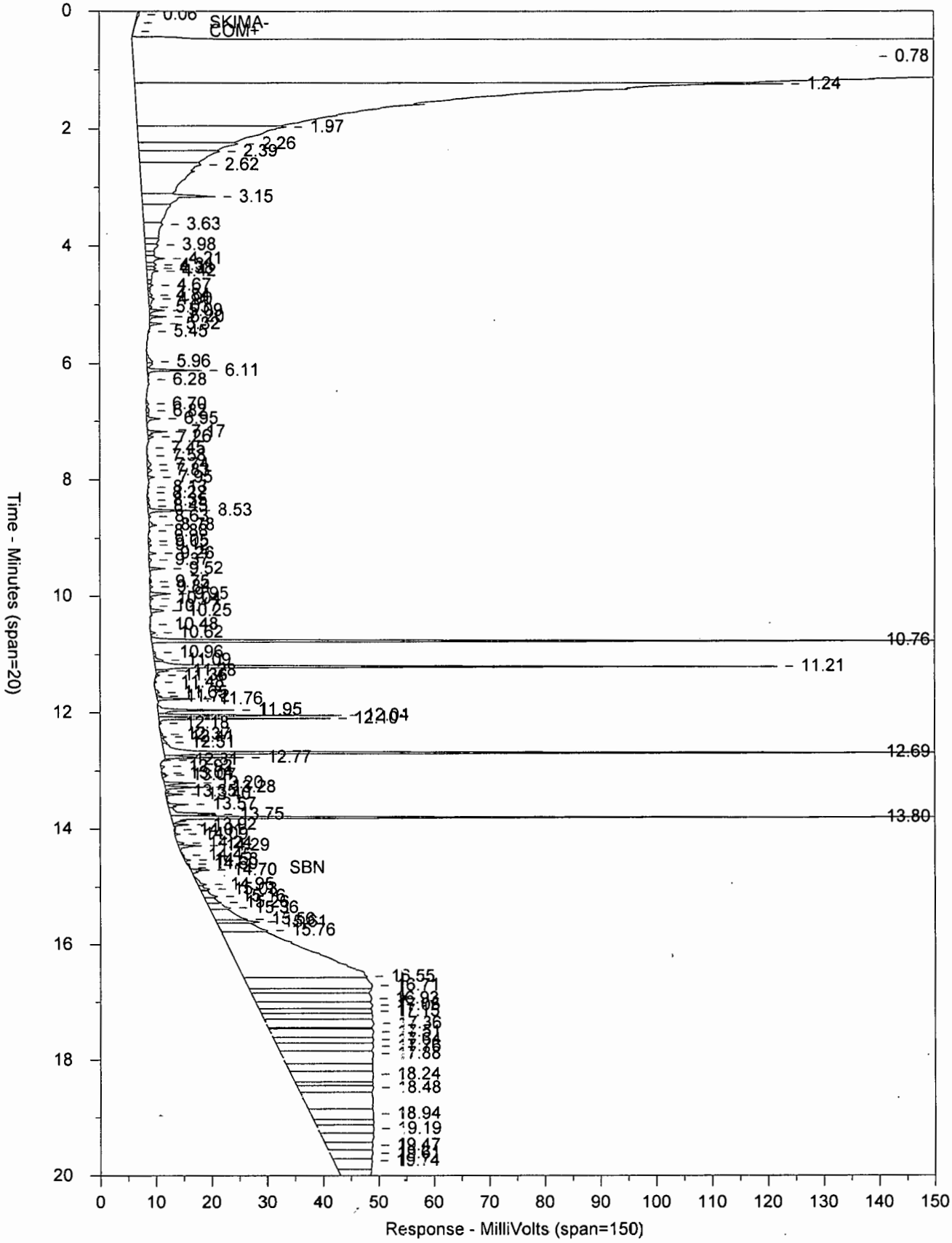
Range	Retention Times	Area	Amount	LOQ	MDL	Flags	Units
C10-<C25 DRO	3.15 - 13.00	1130165	0.1019	<0.2583	0.0517	J	ppm
o-Terphenyl SURR	10.76 (10.72 - 10.82)	215770	0.0190				ppm
Capric Acid	7.26 (7.13 - 7.33)	1756	0.0003				ppm

Comments:

Reviewed by: Heather E. Williams
Heather E. Williams
Group Leader
Date: MAY 06 2019

Verified by: Jamie L. Brilhart
Jamie L. Brilhart
Senior Chemist
Date: MAY 07 2019

Sample: 1034413 AAV4005 T 191080037A 13025 AK 102-SV 4/8/02
File: 24STAT19113001.025.RAW



Sample: 1034413 AAV4005 T 191080037A 13025 AK 102-SV 4/8/02

Instrument ID:CP24-19871A
Injected on: 4/24/2019 2:42:59 AM
Volume Inj. per Column: 4uL
GC Column: ZB5 30m X 0.32mm X 0.25um
Oven Parameters: 50C for 2mins; 15C/min to 180C; 30C/min to 340C; hold 8.5mins
Sample Amount: 242
Dilution Factor: 2
Analyst: 01826

Peak	Ret Time (min)	Peak Name	Amount (ppb)	Area
30	7.26	Capric Acid	0.33	1839.319
57	10.76	o-Terphenyl SURR	19.01	215967.8
79	13.07	C25	0.00	2156.804

Slice Name	Start Time	Stop Time	Slice Amount	Slice Area
C10-<C25 DRO	3.15	13.00	4.679	1130165.0
o-Terphenyl SURR	10.72	10.82	4.599	215967.8

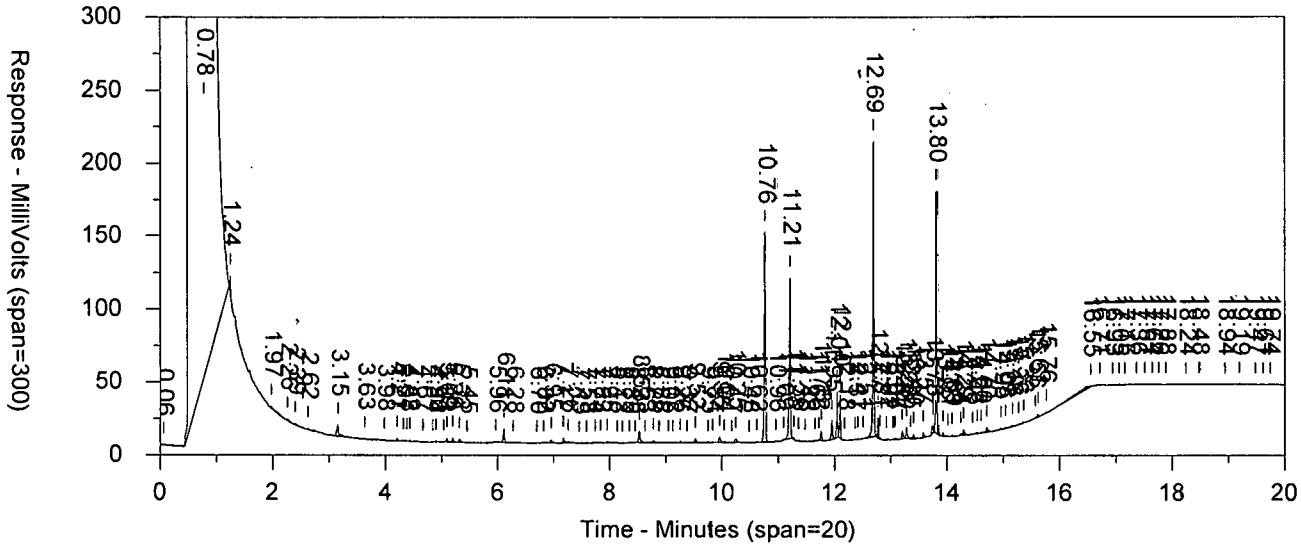
********** RESULTS TABLE **********

C10-<C25 ADJUSTED DRO AREA = 914196.7
C10-<C25 PRELIMINARY AMT = 0.102

FILES:

Area File: 24STAT19113001.025.RAW
Method File: 4AKDLSUM.MET
Calibration File: 24ADL41823507.CAL
Format File: 4AKDLSUM.FMT
Area file created on: 4/24/2019 3:07:01 AM
File reported on: 4/26/2019 at 5:24:40 PM

Replot: 1034413 AAV4005 T 191080037A 13025 AK 102-SV 4/8/02
File: 24STAT19113001.025.RAW



Instrument ID:CP24-19871A
Injected on: 4/24/2019 2:42:59 AM
Volume Inj. per Column: 4uL
GC Column: ZB5 30m X 0.32mm X 0.25um
Oven Parameters: 50C for 2mins; 15C/min to 180C; 30C/min to 340C; hold 8.5mins
Sample Amount: 242
Dilution Factor: 2
Analyst: 01826

Peak	Ret Time (min)	Peak Name	Amount (PPM)	Area
30	7.26	Capric Acic	0.000	1756.433
57	10.76	o-Terphenyl SURR	0.019	215770.4
79	13.07	C25	0.000	1643.597

O-TERPHENYL % RECOVERY = 91.90302 %

FILES:

Area File: 24STAT19113001.025.RAW
Method File: 4REAKDL.MET
Calibration File: 24ADL41823507.CAL
Format File: 4REAKDL.FMT
Area file created on: 4/24/2019 3:07:01 AM
File reported on: 4/26/2019 at 5:39:36 PM

Raw QC Data

TPH-DRO by GC

Eurofins Lancaster Laboratories-Range Data Summary

Sample Name: BLANKA 4/19/19 PBLK37108 Sample ID: AA **Batchnumber:** 191080037A
Sample Amount: 250. Total Volume: 2. ml Analyst: 01826 SDG: State:
Analyses: 13025

Injection Summary

Injected on : 4/23/2019 22:59:08
Instrument : CP24--19871A
Result file : 24STAT19113001.017.RAW
Calibration files : 24ADL41823507.CAL
Method files : 4AKDLSUM.MET 4REAKDL.MET
Setting : 24ADL41823507(V)

Surrogate Recoveries

O-TERPHENYL SURR 115% (50-150) Conc.: 0.02299

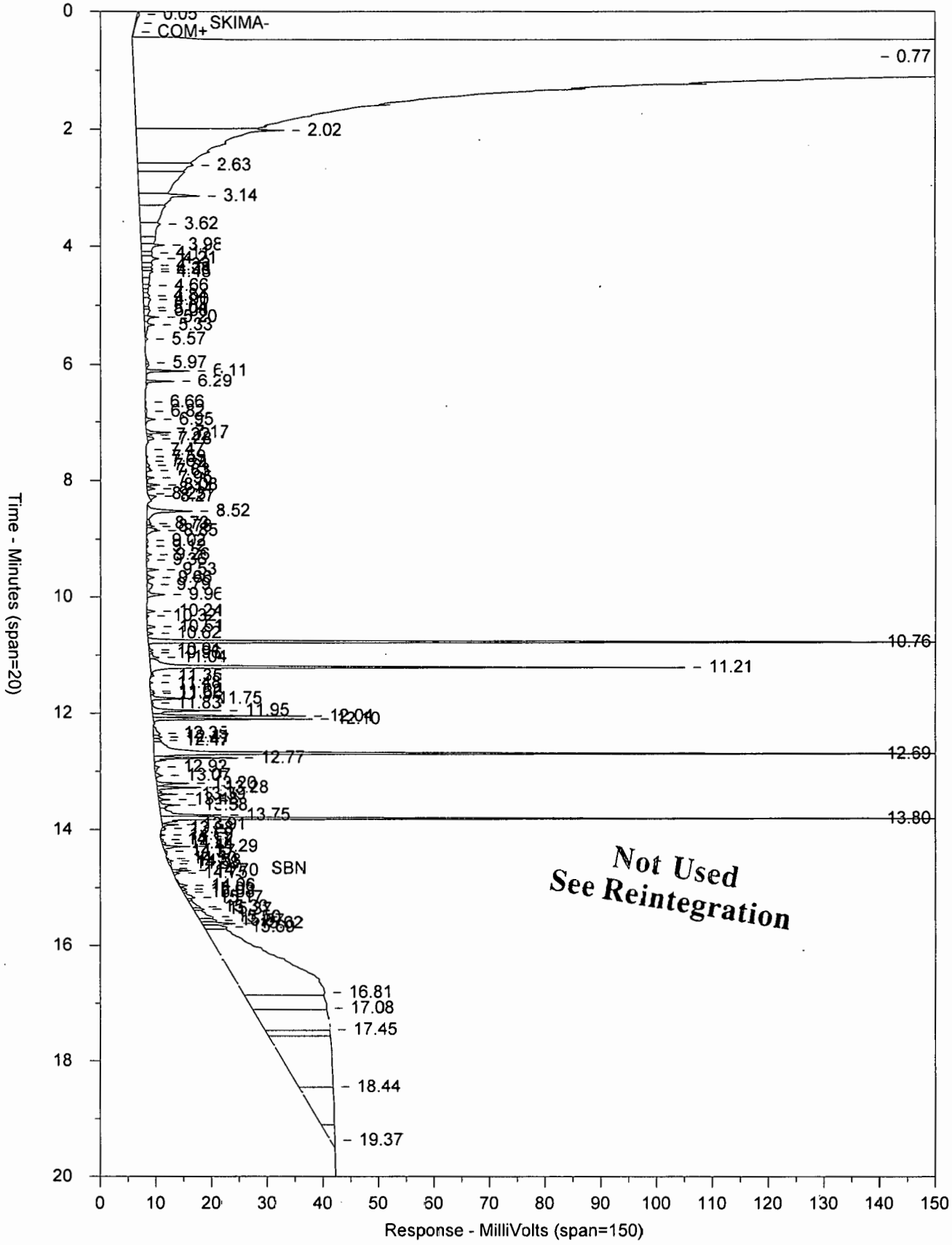
Range	Retention Times	Area	Amount	LOQ	MDL	Flags	Units
C10-<C25 DRO	3.15 - 13.00	1053463	0.0845	<0.25	0.05	J	ppm
o-Terphenyl SURR	10.76 (10.72 - 10.82)	269883	0.0230				ppm
Capric Acid	7.22 (7.13 - 7.33)	727	0.0001				ppm

Comments:

Reviewed by: Heather E. Williams
Heather E. Williams
Group Leader
Date: MAY 06 2019

Verified by: Jamie L. Brillhart
Jamie L. Brillhart
Senior Chemist
Date: MAY 07 2019

Sample: BLANKA 4/19/19 AAPBLK37108 BLK 191080037A 13025 AK 102-SV 4/8/02
File: 24STAT19113001.017.RAW



Sample: BLANKA 4/19/19 AAPBLK37108 BLK 191080037A 13025 AK 102-SV 4/8/02

Instrument ID:CP24-19871A
Injected on: 4/23/2019 10:59:08 PM
Volume Inj. per Column: 4uL
GC Column: ZB5 30m X 0.32mm X 0.25um
Oven Parameters: 50C for 2mins; 15C/min to 180C; 30C/min to 340C; hold 8.5mins
Sample Amount: 250
Dilution Factor: 2
Analyst: 01826

Peak	Ret Time (min)	Peak Name	Amount (ppb)	Area
28	7.22	Capric Acid	0.24	1414.042
56	10.76	o-Terphenyl SURR	23.02	270214.1
76	13.07	C25	0.00	3364.127

Slice Name	Start Time	Stop Time	Slice Amount	Slice Area
C10-<C25 DRO	3.15	13.00	5.816	1184795.0
o-Terphenyl SURR	10.72	10.82	5.755	270214.1

********** RESULTS TABLE **********

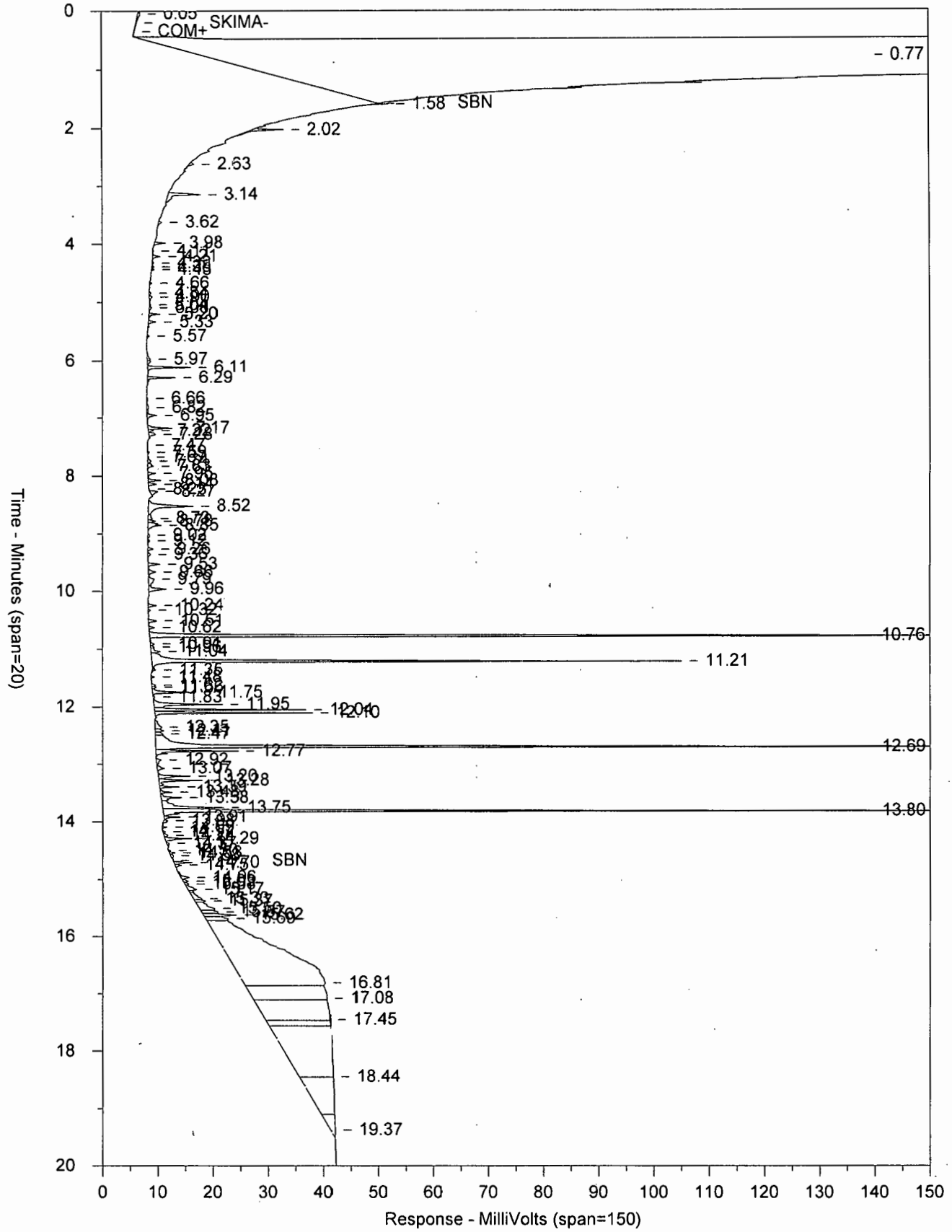
C10-<C25 ADJUSTED DRO AREA = 914581.1
C10-<C25 PRELIMINARY AMT = 0.099

FILES:

Area File: 24STAT19113001.017.RAW
Method File: 4AKDLSUM.MET
Calibration File: 24ADL41823507.CAL
Format File: 4AKDLSUM.FMT
Area file created on: 4/23/2019 11:23:10 PM
File reported on: 4/26/2019 at 5:22:02 PM

Not Used
See Reintegration

Sample: BLANKA 4/19/19 AAPBLK37108 BLK 191080037A 13025 AK 102-SV 4/8/02
File: 24stat19113001.017.RAW



Sample: BLANKA 4/19/19 AAPBLK37108 BLK 191080037A 13025 AK 102-SV 4/8/02

Instrument ID:CP24-19871A
Injected on: 4/23/2019 10:59:08 PM
Volume Inj. per Column: 4uL
GC Column: ZB5 30m X 0.32mm X 0.25um
Oven Parameters: 50C for 2mins; 15C/min to 180C; 30C/min to 340C; hold 8.5mins
Sample Amount: 250
Dilution Factor: 2
Analyst: 01826

Peak	Ret Time (min)	Peak Name	Amount (ppb)	Area
29	7.22	Capric Acid	0.24	1414.042
57	10.76	o-Terphenyl SURR	23.02	270214.1
77	13.07	C25	0.00	3364.127

Slice Name	Start Time	Stop Time	Slice Amount	Slice Area
C10-<C25 DRO	3.15	13.00	5.816	1053463.0 M
o-Terphenyl SURR	10.72	10.82	5.755	270214.1

********** RESULTS TABLE **********

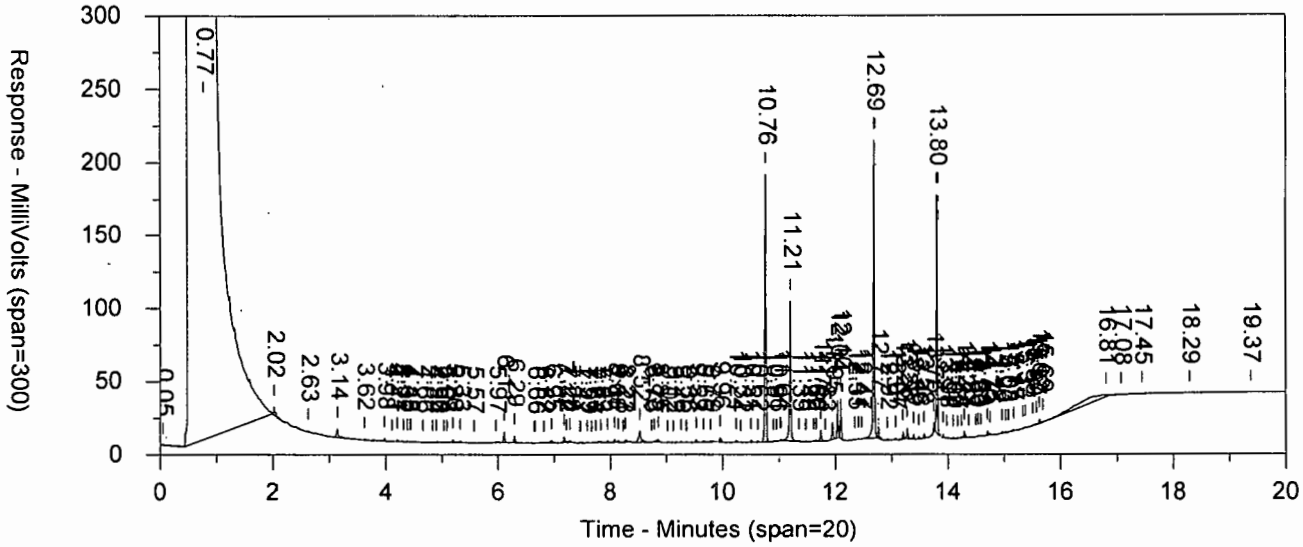
C10-<C25 ADJUSTED DRO AREA = 783249.3
C10-<C25 PRELIMINARY AMT = 0.084

FILES:

Area File: 24stat19113001.017.RAW
Method File: 4AKDLSUM.MET
Calibration File: 24ADL41323507.CAL
Format File: 4AKDLSUM.FMT
Area file created on: 4/30/2019 6:01:38 PM
File reported on: 4/30/2019 at 6:01:47 PM

M = Manually Integrated
Analyst DM 1826 4/30/19
Approved by [illegible] 5-7-19
Circle Reason 1 (2) 3 4
1 = Missed Peak
2 = Improper Baseline
3 = RT Update
4 = Other

Replot: BLANKA 4/19/19 AAPBLK37108 BLK 191080037A 13025 AK 102-SV 4/8/02
File: 24STAT19113001.017.RAW



Instrument ID:CP24-19871A
Injected on: 4/23/2019 10:59:08 PM
Volume Inj. per Column: 4uL
GC Column: ZB5 30m X 0.32mm X 0.25um
Oven Parameters: 50C for 2mins; 15C/min to 180C; 30C/min to 340C; hold 8.5mins
Sample Amount: 250
Dilution Factor: 2
Analyst: 01826

Peak	Ret Time (min)	Peak Name	Amount (PPM)	Area
28	7.22	Capric Acid	0.000	726.5196
56	10.76	o-Terphenyl SURR	0.023	269885.5
76	13.07	C25	0.000	3364.127

O-TERPHENYL % RECOVERY = 114.9523 %

FILES:

Area File: 24STAT19113001.017.RAW
Method File: 4REAKDL.MET
Calibration File: 24ADL41823507.CAL
Format File: 4REAKDL.FMT
Area file created on: 4/23/2019 11:23:10 PM
File reported on: 4/26/2019 at 5:37:10 PM

Extraction/Distillation/Digestion Logs

TPH-DRO by GC

Organic Extraction Batchlog Assigned to: 13836 Mathias Okpo Reviewed by: PRR 1826 Start Date: 4/19/19 Start time: 2:00 am

191080037A

Tech 1: M013836 Tech 2: —

Dept: 32	Prep Analysis: 13027	Mini-Ext. AK 102-SV DRO				AK 102-SV DRO					
QC	Sample Code	Amt (gm)	SS/IS Sol.	Amt (mL)	MS Sol.	Amt (mL)	FV (mL)	pH	pH<2	BC	Comments
1034408MS	V4002	237	SS1909532D	0.25	MS1909632A	0.25	2		✓	030a	clear
1034409MSD	V4002	248	SS1909532D		MS1909632A	0.25	2		✓	030a	clear
BLANKA	PBLK37108	250	SS1909532D		—		2		✓		DI H2O
LCSA	LCS37108	250	SS1909532D		MS1909632A	0.25	2		✓		DI H2O

N/A

Solvent Used	Lot No.
1:1 HCL	H317-14
Methylene Chloride	191225
Sodium Sulfate	19106A
—	—

Spike Solutions: Witness: N/A

MS1909632A MINI AK 102 SPIKE

SS1909532D MINI AK SURROGATE

	Sample #	Sample Code	Amt (gm)	SS/IS Sol.	Amt (mL)	FV (mL)	pH	pH <2	BC	Comments	Analyses	List	Due Date	Prio
1	1034406	V4001	228	SS1909532D	0.25	2		✓	030A	clear	13025		04/23/2019	N
2	1034407BKG	V4002	237	SS1909532D		2		✓	030A	clear	13025		04/23/2019	N
3	1034411	V4003	246	SS1909532D		2		✓	030A	cloudy, yellow	13025		04/23/2019	N
4	1034412	V4004	229	SS1909532D		2		✓	030A	cloudy w/seed	13025		04/23/2019	N
5	1034413	V4005	242	SS1909532D		2		✓	030A	yellow, cloudy	13025		04/23/2019	N
6	1034600	41L01	241	SS1909532D		2		✓	030A	clear	13025		04/24/2019	N
7	1034601	41L02	229	SS1909532D		2		✓	030A	cloudy	13025		04/24/2019	N
8	1034602	41L03	242	SS1909532D		2		✓	030A	clear	13025		04/24/2019	N
9	1034603	41L04	240	SS1909532D		2		✓	030a	clear	13025		04/24/2019	N
10	1034604	41L05	238	SS1909532D		2		✓	030a	clear	13025		04/24/2019	N
11	1034605	41L06	247	SS1909532D		2		✓	030A	yellow	13025		04/24/2019	N
12	1034606	41L07	247	SS1909532D		2		✓	030A	light yellow	13025		04/24/2019	N
13	1034609	41L10	240	SS1909532D		2		✓	030A	cloudy	13025		04/24/2019	N

N/A

Bench# 10	Bench# 6	Bench# —			R-VAP ID 4	80° C	R-VAP ID 5	80° C	R-VAP ID — C
Rack ID:		Work Station	tumble	Micro Temp 100?	S-bath ID —	C	S-bath ID —	C	N-Evap — C M-vap — C
Internal Standard		Balance #	25996						

191080037A

DF = Dilution Factor FV = Final Volume

Documented temps are NIST corrected.

Metals in Liquid Data

Case Narrative/Conformance Summary

Metals in Liquid

eurofins | Lancaster Laboratories Environmental

Case Narrative/Conformance Summary

CLIENT: Chevron
SDG: LSV40

ICP Metals

Fraction: Metals in Liquid

Sample #	Client ID	Matrix Liquid	Matrix Solid	DF	Comments
1034406	QA-O-190410	X		1	Equipment Blank
1034407	MW-1-W-190410	X		1	Background/Unspiked
1034408	MW-1-W-190410MS	X		1	Matrix Spike
1034409	MW-1-W-190410MSD	X		1	Matrix Spike Duplicate
1034410	MW-1-W-190410DUP	X		1	Duplicate
1034411	MW-14-W-190410	X		1	
1034412	MW-13-W-190410	X		1	
1034413	BD-1-WD-190410	X		1	Field Duplicate Sample

See QC Reference List for Associated Batch QC Samples

SAMPLE RECEIPT:

Samples were received in good condition and within temperature requirements.

HOLDING TIME:

All holding times were met.

PREPARATION/EXTRACTION/DIGESTION:

No problems were encountered.

CALIBRATION/STANDARDIZATION:

All criteria were met.

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

All QC is within specification.

SAMPLE ANALYSIS:

No problems were encountered with the analysis of the samples.

The instrument detection limits (IDLs) are used for determining the U flags on the initial and continuing calibration blanks. The highest IDL is selected when multiple instruments are used for an analysis. The method detection limits (MDLs) are used for determining all other U flags.

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Case Narrative/Conformance Summary

CLIENT: Chevron
SDG: LSV40

ICP Metals

Fraction: Metals in Liquid

Abbreviation Key

BKG – Background	AF - Cold Vapor Atomic Fluorescence
DUP – Duplicate	U - Below MDL
MS - Matrix Spike	B - Below LOQ
MSD - Matrix Spike Dup	N - Matrix Spike out of specifications
B – Blank	* - Duplicate out of specifications
Q - Laboratory Control Sample	E - Matrix Effects exist as proven by Serial Dilution or Spiked Dilution
Y - Laboratory Control Sample Duplicate	A - Post Digestion Spike
P - ICP Atomic Emission Spectrometer	L - Serial Dilution
MS - ICP Mass Spectrometry	R - Internal Standard Relative Intensity OOS
CV - Cold Vapor	NR - Not Required

Sample Data

Metals in Liquid

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: LSV40
Matrix: WATER Level (low/med): LOW

Lab Sample ID: 1034406 % Solids: 0.0
Concentration Units: UG/L Date Received: 04/12/2019

CAS No.	Analyte	Concentration	C	Q	M
7439-92-1	Lead	7.1	U		P

Comments:

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer	U = Below MDL,
MS = ICP Mass Spectrometry	B = Below LOQ
CV = Cold Vapor	
AF = Cold Vapor Atomic Fluorescence	
NR = Not Required	

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: LSV40
Matrix: WATER Level (low/med): LOW

Lab Sample ID: 1034407BKG % Solids: 0.0
Concentration Units: UG/L Date Received: 04/12/2019

CAS No.	Analyte	Concentration	C	Q	M
7439-92-1	Lead	7.1	U		P

Comments:

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer	U = Below MDL,
MS = ICP Mass Spectrometry	B = Below LOQ
CV = Cold Vapor	
AF = Cold Vapor Atomic Fluorescence	
NR = Not Required	

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: LSV40
Matrix: WATER Level (low/med): LOW

Lab Sample ID: 1034408MS % Solids: 0.0
Concentration Units: UG/L Date Received: 04/12/2019

CAS No.	Analyte	Concentration	C	Q	M
7439-92-1	Lead	152			P

Comments:

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer	U = Below MDL,
MS = ICP Mass Spectrometry	B = Below LOQ
CV = Cold Vapor	
AF = Cold Vapor Atomic Fluorescence	
NR = Not Required	

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: LSV40
Matrix: WATER Level (low/med): LOW

Lab Sample ID: 1034409MSD % Solids: 0.0
Concentration Units: UG/L Date Received: 04/12/2019

CAS No.	Analyte	Concentration	C	Q	M
7439-92-1	Lead	150			P

Comments:

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer	U = Below MDL,
MS = ICP Mass Spectrometry	B = Below LOQ
CV = Cold Vapor	
AF = Cold Vapor Atomic Fluorescence	
NR = Not Required	

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: LSV40
Matrix: WATER Level (low/med): LOW

Lab Sample ID: 1034410DUP % Solids: 0.0
Concentration Units: UG/L Date Received: 04/12/2019

CAS No.	Analyte	Concentration	C	Q	M
7439-92-1	Lead	7.1	U		P

Comments:

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer	U = Below MDL,
MS = ICP Mass Spectrometry	B = Below LOQ
CV = Cold Vapor	
AF = Cold Vapor Atomic Fluorescence	
NR = Not Required	

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: LSV40
Matrix: WATER Level (low/med): LOW

Lab Sample ID: 1034411 % Solids: 0.0
Concentration Units: UG/L Date Received: 04/12/2019

CAS No.	Analyte	Concentration	C	Q	M
7439-92-1	Lead	9.0	B		P

Comments:

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer MS = ICP Mass Spectrometry CV = Cold Vapor AF = Cold Vapor Atomic Fluorescence NR = Not Required	U = Below MDL, B = Below LOQ

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: LSV40
Matrix: WATER Level (low/med): LOW

Lab Sample ID: 1034412 % Solids: 0.0
Concentration Units: UG/L Date Received: 04/12/2019

CAS No.	Analyte	Concentration	C	Q	M
7439-92-1	Lead	90.7			P

Comments:

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer	U = Below MDL,
MS = ICP Mass Spectrometry	B = Below LOQ
CV = Cold Vapor	
AF = Cold Vapor Atomic Fluorescence	
NR = Not Required	

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: LSV40
Matrix: WATER Level (low/med): LOW

Lab Sample ID: 1034413 % Solids: 0.0
Concentration Units: UG/L Date Received: 04/12/2019

CAS No.	Analyte	Concentration	C	Q	M
7439-92-1	Lead	9.2	B		P

Comments:

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer	U = Below MDL,
MS = ICP Mass Spectrometry	B = Below LOQ
CV = Cold Vapor	
AF = Cold Vapor Atomic Fluorescence	
NR = Not Required	

Quality Control and Calibration Summary Forms

Metals in Liquid

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QUALITY CONTROL REFERENCE LIST

SDG No.: LSV40
Matrix: WATER

Analyte	Batch Number	Lab Sample ID
Lead	191061404404	1034406
		1034407BKG
		1034408MS
		1034409MSD
		1034410DUP
		1034411
		1034413
		P10604DB
		P10604DQ

LEGEND:

BKG = Background
DUP = Duplicate
MS = Matrix Spike
MSD = Matrix Spike Duplicate
B = Blank
Q = Laboratory Control Sample
Y = Laboratory Control Sample Duplicate

QUALITY CONTROL REFERENCE LIST

SDG No.: LSV40
Matrix: WATER

Analyte	Batch Number	Lab Sample ID
Lead	191091404403	1034412
		*37741BKG
		P10904CB
		P10904CQ
		P10904CY

LEGEND:

BKG = Background
DUP = Duplicate
MS = Matrix Spike
MSD = Matrix Spike Duplicate
B = Blank
Q = Laboratory Control Sample
Y = Laboratory Control Sample Duplicate

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: LSV40

Method: P
Run Name: 1910807T70
Calibration Date(s): 04/18/2019
Concentration Units: UG/L

Analyte	Mass	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(2)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(2)
Lead		600.0	581.89	97.0	500.0	495.90	99.2	500.0	506.46	101.3

(1) Control Limits: 90 - 110
(2) Control Limits: 90 - 110
* Outside Limits. If Continuing Calibration is outside limits, high, only ND samples are accepted.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: LSV40

Method: P
Run Name: 1910807T70
Calibration Date(s): 04/18/2019
Concentration Units: UG/L

Analyte	Mass	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(2)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(2)
Lead					500.0	531.41	106.3	500.0	514.63	102.9

(1) Control Limits: 90 - 110
(2) Control Limits: 90 - 110
* Outside Limits. If Continuing Calibration is outside limits, high, only ND samples are accepted.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

Lancaster Laboratories Environmental

QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: LSV40

Method: P
Run Name: 1910807T70
Calibration Date(s): 04/18/2019
Concentration Units: UG/L

Analyte	Mass	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(2)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(2)
Lead					500.0	504.25	100.9			

(1) Control Limits: 90 - 110
(2) Control Limits: 90 - 110
* Outside Limits. If Continuing Calibration is outside limits, high, only ND samples are accepted.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: LSV40

Method: P
Run Name: 1911301T72
Calibration Date(s): 04/23/2019
Concentration Units: UG/L

Analyte	Mass	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(2)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(2)
Lead		600.0	584.98	97.5	500.0	488.38	97.7	500.0	493.19	98.6

(1) Control Limits: 90 - 110
(2) Control Limits: 90 - 110
* Outside Limits. If Continuing Calibration is outside limits, high, only ND samples are accepted.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: LSV40

Method: P
Run Name: 1911301T72
Calibration Date(s): 04/23/2019
Concentration Units: UG/L

Analyte	Mass	Initial Calibration			Continuing Calibration					
		True	Found	%R(1)	True	Found	%R(2)	True	Found	%R(2)
Lead					500.0	496.23	99.2	500.0	494.93	99.0

(1) Control Limits: 90 - 110
(2) Control Limits: 90 - 110
* Outside Limits. If Continuing Calibration is outside limits, high, only ND samples are accepted.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: LSV40

Method: P
Run Name: 1911304T74
Calibration Date(s): 04/23/2019
Concentration Units: UG/L

Analyte	Mass	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(2)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(2)
Lead		600.0	579.53	96.6	500.0	486.69	97.3	500.0	491.35	98.3

(1) Control Limits: 90 - 110
(2) Control Limits: 90 - 110
* Outside Limits. If Continuing Calibration is outside limits, high, only ND samples are accepted.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: LSV40

Method: P
Run Name: 1911304T74
Calibration Date(s): 04/23/2019
Concentration Units: UG/L

Analyte	Mass	Initial Calibration			Continuing Calibration					
		True	Found	%R(1)	True	Found	%R(2)	True	Found	%R(2)
Lead					500.0	489.02	97.8	500.0	487.24	97.4

(1) Control Limits: 90 - 110
(2) Control Limits: 90 - 110
* Outside Limits. If Continuing Calibration is outside limits, high, only ND samples are accepted.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: LSV40

Method: P
Run Name: 1911304T74
Calibration Date(s): 04/23/2019
Concentration Units: UG/L

Analyte	Mass	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(2)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(2)
Lead					500.0	484.78	97.0	500.0	487.48	97.5

(1) Control Limits: 90 - 110
(2) Control Limits: 90 - 110
* Outside Limits. If Continuing Calibration is outside limits, high, only ND samples are accepted.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2B
LOW LEVEL CHECK STANDARD
SDG No.: LSV40

Method: P
Run Name: 1910807T70
Calibration Date(s): 04/18/2019
Concentration Units: UG/L

Analyte	Mass	True	Initial Found	Initial %R	Final Found	Final %R
Lead		15.0	12.05	80.3	9.75	65.0

Control limits: 70% - 130%

For 6010B - Control limits apply to values up to 10 times the true value of the low level check standard. If LLC is out of specification, high, results < RL are acceptable.
For 6010C - If Low Level Check (LLC) is out of specification, results > CCV are acceptable. If LLC is out of specification, high, results < RL are acceptable.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2B
LOW LEVEL CHECK STANDARD
SDG No.: LSV40

Method: P
Run Name: 1911301T72
Calibration Date(s): 04/23/2019
Concentration Units: UG/L

Analyte	Mass	Initial True	Initial Found	Initial %R	Final Found	Final %R
Lead		15.0	14.01	93.4		

Control limits: 70% - 130%

For 6010B - Control limits apply to values up to 10 times the true value of the low level check standard. If LLC is out of specification, high, results < RL are acceptable.
For 6010C - If Low Level Check (LLC) is out of specification, results > CCV are acceptable. If LLC is out of specification, high, results < RL are acceptable.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2B
LOW LEVEL CHECK STANDARD
SDG No.: LSV40

Method: P
Run Name: 1911304T74
Calibration Date(s): 04/23/2019
Concentration Units: UG/L

Analyte	Mass	True	Initial Found	Initial %R	Final Found	Final %R
Lead		15.0	15.88	105.9	14.20	94.7

Control limits: 70% - 130%

For 6010B - Control limits apply to values up to 10 times the true value of the low level check standard. If LLC is out of specification, high, results < RL are acceptable.
For 6010C - If Low Level Check (LLC) is out of specification, results > CCV are acceptable. If LLC is out of specification, high, results < RL are acceptable.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

Lancaster Laboratories Environmental

QUALITY ASSURANCE SUMMARY
FORM 3
BLANKS
SDG No.: LSV40

Method: P
Run Name: 1910807T70
Calibration Date(s): 04/18/2019
Preparation Blank Matrix: WATER

		Initial Calibration Blank (ug/L)		Continuing Calibration Blank (ug/L)						Preparation Blank (UG/L)			
Analyte	Mass		C	1	C	2	C	3	C	Mass		C	Batch Number
Lead		4.3	U	4.3	U	-5.6	B	4.3	U		7.100	U	191061404404

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer	U= Below IDL/MDL
MS = ICP Mass Spectrometry	B= Below LOQ
CV = Cold Vapor	
AF = Cold Vapor Atomic Fluorescence	

Lancaster Laboratories Environmental

QUALITY ASSURANCE SUMMARY
FORM 3
BLANKS
SDG No.: LSV40

Method: P
Run Name: 1910807T70
Calibration Date(s): 04/18/2019

		Initial Calibration Blank (ug/L)		Continuing Calibration Blank (ug/L)						Preparation Blank (UG/L)			
Analyte	Mass		C	1	C	2	C	3	C	Mass		C	Batch Number
Lead				4.3	U	4.3	U						

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer	U= Below IDL/MDL
MS = ICP Mass Spectrometry	B= Below LOQ
CV = Cold Vapor	
AF = Cold Vapor Atomic Fluorescence	

Lancaster Laboratories Environmental

QUALITY ASSURANCE SUMMARY
FORM 3
BLANKS
SDG No.: LSV40

Method: P
Run Name: 1911301T72
Calibration Date(s): 04/23/2019
Preparation Blank Matrix: WATER

		Initial Calibration Blank (ug/L)		Continuing Calibration Blank (ug/L)						Preparation Blank (UG/L)			
Analyte	Mass		C	1	C	2	C	3	C	Mass		C	Batch Number
Lead		4.3	U	4.3	U	4.3	U	4.3	U		7.100	U	191091404403

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer	U= Below IDL/MDL
MS = ICP Mass Spectrometry	B= Below LOQ
CV = Cold Vapor	
AF = Cold Vapor Atomic Fluorescence	

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QUALITY ASSURANCE SUMMARY
FORM 3
BLANKS
SDG No.: LSV40

Method: P
Run Name: 1911301T72
Calibration Date(s): 04/23/2019

		Initial Calibration Blank (ug/L)		Continuing Calibration Blank (ug/L)						Preparation Blank (UG/L)			
Analyte	Mass		C	1	C	2	C	3	C	Mass		C	Batch Number
Lead				-5.6	B								

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer	U= Below IDL/MDL
MS = ICP Mass Spectrometry	B= Below LOQ
CV = Cold Vapor	
AF = Cold Vapor Atomic Fluorescence	

Lancaster Laboratories Environmental

QUALITY ASSURANCE SUMMARY
FORM 3
BLANKS
SDG No.: LSV40

Method: P
Run Name: 1911304T74
Calibration Date(s): 04/23/2019

		Initial Calibration Blank (ug/L)		Continuing Calibration Blank (ug/L)						Preparation Blank (UG/L)			
Analyte	Mass		C	1	C	2	C	3	C	Mass		C	Batch Number
Lead		4.3	U	4.3	U	4.3	U	4.3	U				

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer	U= Below IDL/MDL
MS = ICP Mass Spectrometry	B= Below LOQ
CV = Cold Vapor	
AF = Cold Vapor Atomic Fluorescence	

Lancaster Laboratories Environmental

QUALITY ASSURANCE SUMMARY
FORM 3
BLANKS
SDG No.: LSV40

Method: P
Run Name: 1911304T74
Calibration Date(s): 04/23/2019

		Initial Calibration Blank (ug/L)		Continuing Calibration Blank (ug/L)						Preparation Blank (UG/L)			
Analyte	Mass		C	1	C	2	C	3	C	Mass		C	Batch Number
Lead				4.3	U	4.3	U	4.3	U				

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer	U= Below IDL/MDL
MS = ICP Mass Spectrometry	B= Below LOQ
CV = Cold Vapor	
AF = Cold Vapor Atomic Fluorescence	

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QUALITY ASSURANCE SUMMARY
FORM 4A
ICP-AES INTERFERENCE CHECK SAMPLE
SDG No.: LSV40

Instrument ID: 11016
Run Name: 1910807T70
Concentration Units: ug/L

Analyte	True		Initial Found				Final Found			
	Sol. A	Sol. AB	Sol. A	%R	Sol. AB	%R	Sol. A	%R	Sol. AB	%R
Aluminum	500000	500000	484729	96.9	490775.1	98.2	480129	96.0	490034.3	98.0
Calcium	500000	500000	491376	98.3	497128.8	99.4	488040	97.6	498793.0	99.8
Iron	200000	200000	197095	98.5	200041.4	100.0	195811	97.9	200713.5	100.4
Lead	0	550	-1		523.3	95.1	1		534.4	97.2
Magnesium	500000	500000	513662	102.7	519966.6	104.0	518325	103.7	529997.5	106.0

Control Limits: All Metals 80%-120%

Lancaster Laboratories Environmental

QUALITY ASSURANCE SUMMARY
FORM 4A
ICP-AES INTERFERENCE CHECK SAMPLE
SDG No.: LSV40

Instrument ID: 16417
Run Name: 1911301T72
Concentration Units: ug/L

Analyte	True Sol. A	True Sol. AB	Initial Found Sol. A	%R	Initial Found Sol. AB	%R	Final Found Sol. A	%R	Final Found Sol. AB	%R
Aluminum	500000	500000	482101	96.4	477969.6	95.6				
Calcium	500000	500000	499007	99.8	490533.7	98.1				
Iron	200000	200000	191507	95.8	188863.3	94.4				
Lead	0	550	-24		467.0	84.9				
Magnesium	500000	500000	485592	97.1	478465.0	95.7				

Control Limits: All Metals 80%-120%

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QUALITY ASSURANCE SUMMARY
FORM 4A
ICP-AES INTERFERENCE CHECK SAMPLE
SDG No.: LSV40

Instrument ID: 23745
Run Name: 1911304T74
Concentration Units: ug/L

Analyte	True		Initial Found				Final Found			
	Sol. A	Sol. AB	Sol. A	%R	Sol. AB	%R	Sol. A	%R	Sol. AB	%R
Aluminum	500000	500000	509505	101.9	499555.4	99.9	509951	102.0	498541.0	99.7
Calcium	500000	500000	502552	100.5	492070.2	98.4	503861	100.8	496271.6	99.3
Iron	200000	200000	203224	101.6	199129.2	99.6	203988	102.0	199450.8	99.7
Lead	0	550	0		507.2	92.2	-3		500.3	91.0
Magnesium	500000	500000	576388	115.3	571999.5	114.4	561235	112.2	556997.1	111.4

Control Limits: All Metals 80%-120%

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QUALITY ASSURANCE SUMMARY
FORM 5A(MS/MSD)
MATRIX SPIKE/MATRIX SPIKE DUPLICATE
SDG No.: LSV40
Matrix: WATER Level (low/med): LOW

Background Lab Sample ID: 1034407BKG Matrix Spike Lab Sample ID: 1034408MS Matrix Spike Duplicate Lab Sample ID: 1034409MSD
Batch Number(s): 191061404404

		BKG Sample		MS Sample		MSD Sample		MS Spike	MSD Spike		MS		MSD				Control Limit		
Analyte	Mass	Result	C	Result	C	Result	C	Added	Added	Units	%R	Q	%R	Q	RPD	Q	%R	RPD	M
Lead		7.1000	U	151.5300		149.6000		150.0000	150.0000	UG/L	101		100		1		75 - 125	20	P

Note: Results shown are reported on an as-received basis.
If Matrix Spike/ Matrix Spike Duplicate were out of specification, see Post Digestion Spike form.

METHODS:
P = ICP Atomic Emission Spectrometer CV = Cold Vapor
MS = ICP Mass Spectrometry AF = Cold Vapor Atomic Fluorescence

CONCENTRATION QUALIFIERS:
U= Below MDL, B= Below LOQ
FLAGS:
N = Matrix Spike OOS, * = Duplicate OOS

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QUALITY ASSURANCE SUMMARY
FORM 6
DUPLICATES
SDG No.: LSV40
Matrix: WATER Level (low/med): LOW

Background Lab Sample ID: 1034407BKG 1034410DUP
Batch Number(s): 1910614044
04
Concentration Units: UG/L

Analyte	Mass	Control Limit	Samples (S)	C	Duplicate (D)	C	RPD	Max RPD	Q	M
Lead			7.1000	U	7.1000	U		20		P

NOTE: An asterisk (*) in column "Q" indicates poor duplicate precision (RPD > Max OR |(S) - (D)| > LOQ for values < 5x LOQ).
The data are considered to be valid because the laboratory control sample is within the control limits. See the Laboratory Control Sample.

Note: Results shown are reported on an as-received basis.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

CONCENTRATION QUALIFIERS:
U= Below MDL
B= Below LOQ
FLAGS:
* = Duplicate Out of Spec

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QUALITY ASSURANCE SUMMARY
FORM 7
LABORATORY CONTROL SAMPLE
SDG No.: LSV40
Matrix: WATER

Analyte	Mass	Batch Number	Units	True	Found	C	Control Limits (%)	%R	M	In Spec
Lead		191061404404	UG/L	150.000	151.480		87 - 113	101	P	Yes

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer	U= Below MDL
MS = ICP Mass Spectrometry	B= Below LOQ
CV = Cold Vapor	
AF = Cold Vapor Atomic Fluorescence	

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QUALITY ASSURANCE SUMMARY
FORM 7
LABORATORY CONTROL SAMPLE
SDG No.: LSV40
Matrix: WATER

Analyte	Mass	Batch Number	Units	True	Found	C	Control Limits (%)	%R	M	In Spec
Lead		191091404403	UG/L	150.000	152.480		87 - 113	102	P	Yes

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

CONCENTRATION QUALIFIERS:
U= Below MDL
B= Below LOQ

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QUALITY ASSURANCE SUMMARY
FORM 7(LCS/LCSD)
LABORATORY CONTROL SAMPLE/SAMPLE DUPLICATE
SDG No.: LSV40
Matrix: WATER

Analyte	Mass	Lab Sample ID LCS	LCSD	Batch Number	Units	True	LCS Found	C	%R	LCSD Found	C	%R	Control Limits (%)	RPD	M	In Spec
Lead		P10904CQ	P10904CY	191091404403	UG/L	150.000	152.480		102	153.780		103	87 - 113	1	P	Yes

RPD Control Limit: 20

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

CONCENTRATION QUALIFIERS:
U= Below MDL
B= Below LOQ

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QUALITY ASSURANCE SUMMARY
FORM 9
SERIAL DILUTIONS
SDG No.: LSV40
Matrix: WATER Level (low/med): LOW

Background Lab Sample ID: *37741BKG Serial Dilution Lab Sample ID: *37741L
Batch Number(s): 191091404403
Concentration Units: UG/L

Analyte	Mass	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Diff.	Q	M
Lead		7.1000	U	35.5000	U			P

NOTE: An E in column Q indicates the presence of a chemical or physical interference in the matrix when the % difference is greater than 10%. This applies only when (I) is greater than or equal to 50x MDL for ICP, 100x MDL for ICP-MS (6020), 50x MDL for ICP-MS (200.8), or 25x MDL for GFAA.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry

CONCENTRATION QUALIFIERS:
U= Below MDL
B= Below LOQ
FLAGS:
E = Matrix Effects exist as proven by Serial Dilution or Spiked Dilution

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QUALITY ASSURANCE SUMMARY
FORM 9
SERIAL DILUTIONS
SDG No.: LSV40
Matrix: WATER Level (low/med): LOW

Background Lab Sample ID: 1034407BKG Serial Dilution Lab Sample ID: 1034407L
Batch Number(s): 191061404404
Concentration Units: UG/L

Analyte	Mass	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Diff.	Q	M
Lead		7.1000	U	35.5000	U			P

NOTE: An E in column Q indicates the presence of a chemical or physical interference in the matrix when the % difference is greater than 10%. This applies only when (I) is greater than or equal to 50x MDL for ICP, 100x MDL for ICP-MS (6020), 50x MDL for ICP-MS (200.8), or 25x MDL for GFAA.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry

CONCENTRATION QUALIFIERS:
U= Below MDL
B= Below LOQ
FLAGS:
E = Matrix Effects exist as proven by Serial Dilution or Spiked Dilution

QUALITY ASSURANCE SUMMARY
FORM 10
INSTRUMENT DETECTION LIMITS
SDG No.: LSV40

Method: P
Instrument ID: 11016
Date: 07/2018

Analyte	Wavelength (nm)	Background	IDL (UG/L)
Lead	220.35		4.3

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

QUALITY ASSURANCE SUMMARY
FORM 10
INSTRUMENT DETECTION LIMITS
SDG No.: LSV40

Method: P
Instrument ID: 16417
Date: 07/2018

Analyte	Wavelength (nm)	Background	IDL (UG/L)
Lead	220.35		4.2

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

QUALITY ASSURANCE SUMMARY
FORM 10
INSTRUMENT DETECTION LIMITS
SDG No.: LSV40

Method: P
Instrument ID: 23745
Date: 07/2018

Analyte	Wavelength (nm)	Background	IDL (UG/L)
Lead	220.35		3.3

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 10 MDL
METHOD DETECTION LIMITS (ANNUALLY)
SDG No.: LSV40
Matrix: WATER

Method: P
Date: 09/2018

Analyte	Wavelength (nm)	Background	LOQ (UG/L)	MDL (UG/L)
Lead	220.35		15.0	7.1

The LOQ/MDL must be adjusted for % Solids and Sample Weight for samples reporting in mg/kg and ug/L.

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

Preparation and Run Logs

Metals in Liquid

Method: P
Batch Number: 191061404404

Lab Sample ID	Date	Initial Volume(ml)	Final Volume(ml)
1034406	04/17/2019	50.00	50
1034411	04/17/2019	50.00	50
1034413	04/17/2019	50.00	50
1034407BKG	04/17/2019	50.00	50
1034410DUP	04/17/2019	50.00	50
1034409MSD	04/17/2019	50.00	50
1034408MS	04/17/2019	50.00	50
P10604DB	04/17/2019	50.00	50
P10604DQ	04/17/2019	1.00	1

METHODS:	LEGEND:
P = ICP Atomic Emission Spectrometer	BKG = Background
MS = ICP Mass Spectrometry	DUP = Duplicate
CV = Cold Vapor	MS = Matrix Spike
AF = Cold Vapor Atomic Fluorescence	MSD = Matrix Spike Duplicate
	B = Blank
	Q = Laboratory Control Sample
	Y = Laboratory Control Sample Duplicate

Method: P
Batch Number: 191091404403

Lab Sample ID	Date	Initial Volume(ml)	Final Volume(ml)
1034412	04/19/2019	50.00	50
*37741BKG	04/19/2019	25.00	25
P10904CB	04/19/2019	50.00	50
P10904CQ	04/19/2019	1.00	1
P10904CY	04/19/2019	1.00	1

METHODS:	LEGEND:
P = ICP Atomic Emission Spectrometer	BKG = Background
MS = ICP Mass Spectrometry	DUP = Duplicate
CV = Cold Vapor	MS = Matrix Spike
AF = Cold Vapor Atomic Fluorescence	MSD = Matrix Spike Duplicate
	B = Blank
	Q = Laboratory Control Sample
	Y = Laboratory Control Sample Duplicate

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QUALITY ASSURANCE SUMMARY
FORM 14
ANALYSIS RUN LOG
SDG No.: LSV40

Method: P
Instrument ID: 11016
Run Name: 1910807T70

Run Start Date: 04/18/2019
Run End Date: 04/18/2019

Lab Sample ID	D/F	Time	Analytes																														
			P B																														
S0	1.00	16:04	X																														
S	1.00	16:06																															
S	1.00	16:09	X																														
S	1.00	16:12																															
ICV	1.00	16:15	X																														
ICB	1.00	16:18	X																														
LLC	1.00	16:21	X																														
ICSA	1.00	16:23	X																														
ICSAB	1.00	16:26	X																														
CCV	1.00	16:29	X																														
CCB	1.00	16:32	X																														
LRS2	1.00	16:35	X																														
LRS4	1.00	16:38	X																														
LRS3	1.00	16:41	X																														
LRS5	1.00	16:44	X																														
CCV	1.00	16:47	X																														
CCB	1.00	16:50	X																														
P10604DB	1.00	16:53	X																														
P10604DQ	1.00	16:56	X																														
ZZZZZZ	1.00	16:59																															
ZZZZZZ	1.00	17:02																															
ZZZZZZ	1.00	17:04																															
ZZZZZZ	1.00	17:07																															
ZZZZZZ	1.00	17:10																															
ZZZZZZ	5.00	17:13																															
ZZZZZZ	1.00	17:16																															
ZZZZZZ	1.00	17:18																															
CCV	1.00	17:21	X																														
CCB	1.00	17:24	X																														
ZZZZZZ	1.00	17:27																															
ZZZZZZ	1.00	17:30																															
ZZZZZZ	1.00	17:32																															
ZZZZZZ	1.00	17:35																															
ZZZZZZ	1.00	17:38																															
ZZZZZZ	1.00	17:41																															
ZZZZZZ	1.00	17:43																															
ZZZZZZ	1.00	17:46																															
ZZZZZZ	1.00	17:49																															

METHODS:
- P = ICP Atomic Emission Spectrometer
- MS = ICP Mass Spectrometry
- CV = Cold Vapor
- AF = Cold Vapor Atomic Fluorescence

LEGEND:
- BKG = Background
- DUP = Duplicate
- MS = Matrix Spike
- MSD = Matrix Spike Duplicate
- A = Post Digest Spike
- L = Serial Dilution
- B = Blank
- Q = Laboratory Control Sample
- Y = Laboratory Control Sample Duplicate

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QUALITY ASSURANCE SUMMARY
FORM 14
ANALYSIS RUN LOG
SDG No.: LSV40

Method: P
Instrument ID: 11016
Run Name: 1910807T70

Run Start Date: 04/18/2019
Run End Date: 04/18/2019

Lab Sample ID	D/F	Time	Analytes																															
			P B																															
ZZZZZZ	1.00	17:52																																
CCV	1.00	17:55	X																															
CCB	1.00	17:57	X																															
ZZZZZZ	1.00	18:00																																
ZZZZZZ	1.00	18:03																																
ZZZZZZ	1.00	18:06																																
ZZZZZZ	1.00	18:09																																
ZZZZZZ	1.00	18:12																																
ZZZZZZ	1.00	18:14																																
ZZZZZZ	1.00	18:17																																
LLC	1.00	18:20	X																															
ICSA	1.00	18:23	X																															
ICSAB	1.00	18:26	X																															
CCV	1.00	18:29	X																															
CCB	1.00	18:32	X																															

METHODS:
- P = ICP Atomic Emission Spectrometer
- MS = ICP Mass Spectrometry
- CV = Cold Vapor
- AF = Cold Vapor Atomic Fluorescence

LEGEND:
- BKG = Background
- DUP = Duplicate
- MS = Matrix Spike
- MSD = Matrix Spike Duplicate
- A = Post Digest Spike
- L = Serial Dilution
- B = Blank
- Q = Laboratory Control Sample
- Y = Laboratory Control Sample Duplicate

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QUALITY ASSURANCE SUMMARY
FORM 14
ANALYSIS RUN LOG
SDG No.: LSV40

Method: P
Instrument ID: 16417
Run Name: 1911301T72

Run Start Date: 04/23/2019
Run End Date: 04/23/2019

Lab Sample ID	D/F	Time	Analytes																														
			P B																														
S0	1.00	04:32	X																														
S	1.00	04:35																															
S	1.00	04:39	X																														
S	1.00	04:42																															
ICV	1.00	04:45	X																														
ICB	1.00	04:49	X																														
LLC	1.00	04:52	X																														
ICSA	1.00	04:55	X																														
ICSAB	1.00	04:59	X																														
CCV	1.00	05:02	X																														
CCB	1.00	05:05	X																														
LRS2	1.00	05:08	X																														
LRS4	1.00	05:12	X																														
LRS3	1.00	05:16	X																														
LRS5	1.00	05:19	X																														
CCV	1.00	05:23	X																														
CCB	1.00	05:26	X																														
P10904CB	1.00	05:29	X																														
P10904CQ	1.00	05:33	X																														
P10904CY	1.00	05:36	X																														
*37741BKG	1.00	05:39	X																														
ZZZZZZ	1.00	05:43																															
ZZZZZZ	1.00	05:46																															
ZZZZZZ	1.00	05:49																															
ZZZZZZ	1.00	05:53																															
*37741L	5.00	05:56	X																														
ZZZZZZ	1.00	05:59																															
CCV	1.00	06:03	X																														
CCB	1.00	06:06	X																														
1034412	1.00	06:10	X																														
ZZZZZZ	1.00	06:13																															
ZZZZZZ	1.00	06:17																															
ZZZZZZ	1.00	06:20																															
ZZZZZZ	1.00	06:23																															
ZZZZZZ	1.00	06:26																															
ZZZZZZ	1.00	06:29																															
ZZZZZZ	1.00	06:33																															
ZZZZZZ	1.00	06:36																															

METHODS:
- P = ICP Atomic Emission Spectrometer
- MS = ICP Mass Spectrometry
- CV = Cold Vapor
- AF = Cold Vapor Atomic Fluorescence

LEGEND:
- BKG = Background
- DUP = Duplicate
- MS = Matrix Spike
- MSD = Matrix Spike Duplicate
- A = Post Digest Spike
- L = Serial Dilution
- B = Blank
- Q = Laboratory Control Sample
- Y = Laboratory Control Sample Duplicate

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QUALITY ASSURANCE SUMMARY
FORM 14
ANALYSIS RUN LOG
SDG No.: LSV40

Method: P
Instrument ID: 16417
Run Name: 1911301T72

Run Start Date: 04/23/2019
Run End Date: 04/23/2019

Lab Sample ID	D/F	Time	Analytes																															
			P B																															
ZZZZZZ	1.00	06:40																																
CCV	1.00	06:43	X																															
CCB	1.00	06:46	X																															

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

LEGEND:
BKG = Background
DUP = Duplicate
MS = Matrix Spike
MSD = Matrix Spike Duplicate
A = Post Digest Spike
L = Serial Dilution
B = Blank
Q = Laboratory Control Sample
Y = Laboratory Control Sample Duplicate

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QUALITY ASSURANCE SUMMARY
FORM 14
ANALYSIS RUN LOG
SDG No.: LSV40

Method: P
Instrument ID: 23745
Run Name: 1911304T74

Run Start Date: 04/23/2019
Run End Date: 04/23/2019

Lab Sample ID	D/F	Time	Analytes																														
			P B																														
S0	1.00	10:38	X																														
S	1.00	10:41																															
S	1.00	10:44	X																														
S	1.00	10:48																															
ICV	1.00	10:51	X																														
ICB	1.00	10:54	X																														
LLC	1.00	10:57	X																														
ICSA	1.00	11:00	X																														
ICSAB	1.00	11:04	X																														
CCV	1.00	11:07	X																														
CCB	1.00	11:10	X																														
LRS2	1.00	11:13	X																														
LRS4	1.00	11:16	X																														
LRS3	1.00	11:20	X																														
LRS5	1.00	11:23	X																														
CCV	1.00	11:27	X																														
CCB	1.00	11:30	X																														
P10604DB	1.00	11:33																															
P10604DB	1.00	11:36																															
P10604DQ	1.00	11:39																															
P10604DQ	1.00	11:42																															
1034407BKG	1.00	11:45	X																														
1034407A	1.00	11:49																															
1034410DUP	1.00	11:52	X																														
1034408MS	1.00	11:55	X																														
1034409MSD	1.00	11:58	X																														
1034407L	5.00	12:02	X																														
CCV	1.00	12:05	X																														
CCB	1.00	12:08	X																														
ZZZZZZ	1.00	12:11																															
ZZZZZZ	1.00	12:14																															
ZZZZZZ	1.00	12:17																															
1034406	1.00	12:20	X																														
1034411	1.00	12:23	X																														
1034413	1.00	12:26	X																														
ZZZZZZ	1.00	12:29																															
ZZZZZZ	5.00	12:32																															
ZZZZZZ	1.00	12:36																															

METHODS:
- P = ICP Atomic Emission Spectrometer
- MS = ICP Mass Spectrometry
- CV = Cold Vapor
- AF = Cold Vapor Atomic Fluorescence

LEGEND:
- BKG = Background
- DUP = Duplicate
- MS = Matrix Spike
- MSD = Matrix Spike Duplicate
- A = Post Digest Spike
- L = Serial Dilution
- B = Blank
- Q = Laboratory Control Sample
- Y = Laboratory Control Sample Duplicate

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QUALITY ASSURANCE SUMMARY
FORM 14
ANALYSIS RUN LOG
SDG No.: LSV40

Method: P
Instrument ID: 23745
Run Name: 1911304T74

Run Start Date: 04/23/2019
Run End Date: 04/23/2019

Lab Sample ID	D/F	Time	Analytes																														
			P B																														
ZZZZZZ	5.00	12:39																															
CCV	1.00	12:42	X																														
CCB	1.00	12:45	X																														
ZZZZZZ	1.00	12:48																															
ZZZZZZ	5.00	12:51																															
ZZZZZZ	1.00	12:54																															
ZZZZZZ	5.00	12:57																															
ZZZZZZ	1.00	13:00																															
ZZZZZZ	5.00	13:03																															
ZZZZZZ	5.00	13:07																															
ZZZZZZ	1.00	13:10																															
ZZZZZZ	1.00	13:13																															
ZZZZZZ	1.00	13:16																															
CCV	1.00	13:19	X																														
CCB	1.00	13:22	X																														
ZZZZZZ	1.00	13:25																															
ZZZZZZ	5.00	13:29																															
LLC	1.00	13:32	X																														
ICSA	1.00	13:35	X																														
ICSAB	1.00	13:38	X																														
CCV	1.00	13:41	X																														
CCB	1.00	13:44	X																														

METHODS:
- P = ICP Atomic Emission Spectrometer
- MS = ICP Mass Spectrometry
- CV = Cold Vapor
- AF = Cold Vapor Atomic Fluorescence

LEGEND:
- BKG = Background
- DUP = Duplicate
- MS = Matrix Spike
- MSD = Matrix Spike Duplicate
- A = Post Digest Spike
- L = Serial Dilution
- B = Blank
- Q = Laboratory Control Sample
- Y = Laboratory Control Sample Duplicate

APPENDIX D

ADEC Data Review Checklist

Laboratory Data Review Checklist

Completed By:

Suresh PR

Title:

Project Chemist

Date:

July 9, 2019

CS Report Name:

First Semiannual 2019 Groundwater Monitoring Report

Report Date:

May 07, 2019

Consultant Firm:

ARCADIS U.S., Inc

Laboratory Name:

Eurofins Lancaster Laboratory, Lancaster, Pennsylvania

Laboratory Report Number:

2038996 – LSV40

ADEC File Number:

2100.26.006

Hazard Identification Number:

23831

1. Laboratory

   a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?

   ☒ Yes ☐ No Comments:

Yes.

   b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?

   ☐ Yes ☒ No Comments:

Samples were not transferred to another lab.

2. Chain of Custody (CoC)

   a. CoC information completed, signed, and dated (including released/received by)?

   ☒ Yes ☐ No Comments:

Yes.

   b. Correct Analyses requested?

   ☒ Yes ☐ No Comments:

Yes.

3. Laboratory Sample Receipt Documentation

   a. Sample/cooler temperature documented and within range at receipt (0° to 6° C)?

   ☒ Yes ☐ No Comments:

Yes.

   b. Sample preservation acceptable – acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?

   ☒ Yes ☐ No Comments:

Yes.

   c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?

   ☒ Yes ☐ No Comments:

Yes.

   d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, etc.?

   ☐ Yes ☒ No Comments:

No discrepancies.

e. Data quality or usability affected?

☐ Yes ☒ No Comments:

Data quality/usability was not affected.

4. Case Narrative

a. Present and understandable?

☒ Yes ☐ No Comments:

Yes.

b. Discrepancies, errors, or QC failures identified by the lab?

☒ Yes ☐ No Comments:

Yes.

c. Were all corrective actions documented?

☒ Yes ☐ No Comments:

Yes.

d. What is the effect on data quality/usability according to the case narrative?

☐ Yes ☒ No Comments:

Data quality/usability was not affected.

5. Samples Results

a. Correct analyses performed/reported as requested on COC?

☒ Yes ☐ No Comments:

Yes.

b. All applicable holding times met?

☒ Yes ☐ No Comments:

Yes.

c. All soils reported on a dry weight basis?

☐ Yes ☒ No Comments:

No soil samples were submitted for analysis.

d. Are the reported LOQs less than the Cleanup Level or the minimum required detection level for the project?

☒ Yes ☐ No Comments:

Yes.

e. Data quality or usability affected?

☐ Yes ☒ No Comments:

Data quality/usability was not affected.

6. QC Samples

a. Method Blank

i. One method blank reported per matrix, analysis and 20 samples?

☒ Yes ☐ No Comments:

Yes.

ii. All method blank results less than Method Detection Limit (MDL)?

☐ Yes ☒ No Comments:

The compound DRO C10-C25 was detected (0.085 J mg/l) below the limit of quantitation in a method blank batch 191080037A. A blank action level was established at five times of the detected blank concentration. The compound DRO C10-C25 result in samples MW-1-W-190410, MW-14-W-190410 and BD-1-WD-190410 were reported less than the action level and qualified as non-detect (UB) at the reporting limit.

iii. If above MDL, what samples are affected?

☒ Yes ☐ No Comments:

Compound DRO C10-C25 in samples MW-1-W-190410, MW-14-W-190410 and BD-1-WD-190410 qualified as non-detect (UB).

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

☒ Yes ☐ No Comments:

Yes.

v. Data quality or usability affected?

☒ Yes ☐ No Comments:

The compound DRO C10-C25 results in few samples were qualified as non-detect. The reported data should still be considered as usable.

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)

☒ Yes ☐ No Comments:

Yes.

ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?

☒ Yes ☐ No Comments:

Yes.

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable. (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

☒ Yes ☐ No Comments:

All compounds associated with the LCS analysis exhibited recoveries within the control limits.

iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits? And project specified DQOs, if applicable. RPD reported from LCS/LCSD, MS/MSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

☒ Yes ☐ No Comments:

The RPDs between LCS/LCSD were within the control limits.

v. If %R or RPD is outside of acceptable limits, what samples are affected?

☐ Yes ☒ No Comments:

None of the sample affected.

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

☐ Yes ☒ No Comments:

No.

vii. Data quality or usability affected?

☐ Yes ☒ No Comments:

Data quality/usability was not affected.

c. Matrix spike/Matrix Spike Duplicate (MS/MSD)

i. Organics – One MS/MSD reported per matrix, analysis and 20 samples?

☒ Yes ☐ No Comments:

Sample MW-1-W-190410 was used as the MS/MSD analysis.

ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable. (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

☒ Yes ☐ No Comments:

The MS and MSD recoveries in sample MW-1-W-190410 were within the control limits.

iii. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits? And project specified DQOs, if applicable. RPD reported from LCS/LCSD, MS/MSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

☒ Yes ☐ No Comments:

Yes.

iv. If %R or RPD is outside of acceptable limits, what samples are affected?

☐ Yes ☒ No Comments:

None of the samples affected.

v. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

☐ Yes ☒ No Comments:

No.

vi. Data quality or usability affected? (use comment box to explain)

☐ Yes ☒ No Comments:

Data quality/usability was not affected.

d. Surrogates – Organics Only

i. Are surrogate recoveries reported for organic analyses – field, QC and laboratory samples?

☒ Yes ☐ No Comments:

Yes

ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable. (AK Petroleum methods 50-150 %R; all other analyses see the laboratory report pages)

☒ Yes ☐ No Comments:

All surrogate recoveries were within the control limits.

iii. Do the sample results with failed surrogate recoveries have data flags? If so, are the data flags clearly defined?

☐ Yes ☒ No Comments:

No.

iv. Data quality or usability affected? (use comment box to explain)

☐ Yes ☒ No Comments:

Data quality/usability was not affected.

e. Trip blank – Volatile analyses only (GRO, BTEX, etc): Water and Soil

i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples?
(If not, enter explanation below.)

☐ Yes ☒ No Comments:

No.

ii. All results less than MDL?

☐ Yes ☒ No Comments:

Trip Blank not collected.

iii. If above MDL, what samples are affected?

☐ Yes ☒ No Comments:

None of the data affected.

iv. Data quality or usability affected?

☐ Yes ☒ No Comments:

Data quality/usability was not affected.

f. Field Duplicate

i. One field duplicate submitted per matrix, analysis and 10 project samples?

☒ Yes ☐ No Comments:

Yes.

ii. Submitted blind to lab?

☒ Yes ☐ No Comments:

BD-1-WD-190410 was collected from MW-14-W-190410.

iii. Precision – All relative percent differences (RPD) less than specified DQOs? (Recommended: 30% water, 50% soil)

$$\text{RPD (\%)} = \text{Absolute value of: } \frac{(R_1-R_2)}{((R_1+R_2)/2)} \times 100$$

Where R_1 = Sample Concentration
R_2 = Field Duplicate Concentration

☒ Yes ☐ No Comments:

The RPDs between parent and duplicate samples were acceptable.

iv. Data quality or usability affected?

☐ Yes ☒ No Comments:

Data quality/usability was not affected.

g. Decontamination or Equipment Blank (If not applicable, a comment stating why must be entered below).

☒ Yes ☐ No

Equipment blank sample was collected as QA-O-190410.

i. If above MDL, what samples are affected?

☐ Yes ☒ No Comments:

The compound DRO C10-C25 was detected (0.13 J mg/l) below the limit of quantitation in an equipment blank sample QA-O-190410 for method AK-102. A blank action level was established at five times of the detected blank concentration. The compound DRO C10-C25 result in samples MW-1-W-190410, MW-14-W-190410 and BD-1-WD-190410 were reported less than the action level and qualified as non-detect (UB) at the reporting limit.

ii. Data quality or usability affected?

The compounds toluene and DRO C10-C25 results in few samples were qualified as non-detect. The reported data should still be considered as usable.

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

a. Defined and appropriate?

☒ Yes ☐ No Comments:

Yes.

APPENDIX E

Additional Historic Groundwater Data

Table 2

Historical Groundwater Analytical Results
Chevron-Branded Service Station 98557
415 Muldoon Road
Anchorage, Alaska

					HYDROCARBONS			PRIMARY VOCS					ADDITIONAL VOCS		Metals
Location	Date	TOC	DTW	GWE	TPH	DRO	GRO	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	HVOC	SVOC	Lead
	Units	ft msl	ft btoc	ft msl	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
ADEC Groundwater Cleanup Levels					**1.1**	**1.5**	**2.2**	**0.0046**	**1.1**	**0.015**	**0.19**	**0.14**			**0.015**
MW-1	02/01/1991**	98.73	9.26	89.47	**14**	ND	-	0.001	ND	ND	0.003	-	-	-	-
MW-1	06/01/1991**	98.73	18.86	79.87	**15**	**7.5**	0.12	ND	ND	ND	ND	-	0.002	-	-
MW-1	07/01/1991**	98.73	19.00	79.73	-	-	-	-	-	-	-	-	-	-	-
MW-1	09/01/1991**	98.73	18.65	80.08	**14**	**26**	0.6	**0.005**	0.001	ND	0.024	-	-	-	-
MW-1	11/01/1991**	98.73	18.39	80.34	-	-	-	-	-	-	-	-	-	-	-
MW-1	12/01/1991**	98.73	19.13	79.60	**9.6**	**4.7**	0.18	ND	ND	ND	0.005	-	-	-	-
MW-1	01/01/1992**	98.73	18.52	80.21	-	-	-	-	-	-	-	-	-	-	-
MW-1	03/01/1992**	98.73	19.65	79.08	**2.9**	**6.8**	0.18	**0.006**	0.01	ND	0.022	-	-	-	-
MW-1	04/01/1992**	98.73	18.12	80.61	-	-	-	-	-	-	-	-	-	-	-
MW-1	05/01/1992**	98.73	18.58	80.15	-	-	-	-	-	-	-	-	-	-	-
MW-1	06/01/1992**	98.73	18.82	79.91	**8.6**	**5**	ND	ND	0.005	ND	ND	-	-	-	-
MW-1	07/01/1992**	98.73	18.32	80.41	-	-	-	-	-	-	-	-	-	-	-
MW-1	08/01/1992**	98.73	18.21	80.52	-	-	-	-	-	-	-	-	-	-	-
MW-1	09/01/1992**	98.73	18.19	80.54	-	ND	ND	ND	ND	ND	0.001	-	-	-	-
MW-1	10/01/1992**	98.73	18.50	80.23	-	-	-	-	-	-	-	-	-	-	-
MW-1	11/01/1992**	98.73	18.44	80.29	-	-	-	-	-	-	-	-	-	-	-
MW-1	12/01/1992**	98.73	18.31	80.42	**3.4**	**8.7**	ND	ND	ND	ND	0.004	-	-	-	-
MW-1	05/01/1993**	98.73	18.90	79.83	ND	ND	0.11	ND	ND	ND	0.001	-	-	-	-
MW-1	08/01/1993**	98.73	18.47	80.26	ND	0.16	0.095	ND	ND	ND	ND	-	-	-	-
MW-1	11/01/1993**	98.73	18.57	80.16	-	0.4	0.065	ND	ND	ND	0.002	-	0.004	-	-
MW-1	03/01/1994**	98.73	19.04	79.69	-	0.24	0.07	-	-	-	-	-	ND	-	-
MW-1	06/01/1994**	98.73	18.78	79.95	-	0.4	0.13	-	-	-	-	-	ND	-	-
MW-1	08/18/1994	98.73	18.52	80.21	-	0.38	0.11	-	-	-	-	-	0.0007	-	-
MW-1	12/13/1994	98.73	19.16	79.57	ND	ND	ND	ND	ND	ND	ND	-	ND	-	-
MW-1	03/24/1995	98.73	19.74	78.99	-	1.1	ND	ND	ND	ND	ND	-	ND	-	-
MW-1	04/24/1995	98.73	-	-	-	-	0.099	ND	ND	ND	0.0012	-	-	-	-
MW-1	06/19/1995	98.73	18.21	80.52	-	1.5	0.11	-	-	-	-	-	ND	-	-
MW-1	09/06/1995	98.73	18.09	80.64	-	**2**	0.084	ND	ND	ND	ND	-	0.0026	-	-
MW-1	11/14/1995	98.73	18.43	80.30	-	**4.5**	0.1	-	-	-	-	-	ND	-	-
MW-1	02/14/1996	98.73	19.18	79.55	-	1.5	0.11	-	-	-	-	-	ND	-	-
MW-1	06/01/1996	98.73	20.68	78.05	-	**8.09**	-	-	-	-	-	-	<0.0005 / <0.005	-	-
MW-1	08/23/1996	98.73	20.96	77.77	-	0.59 / 0.96	-	-	-	-	-	-	<0.0005 / <0.001 / <0.0005 / <0.001	-	-
MW-1	10/21/1996	98.73	20.97	77.76	-	**1.79** / **2.61**	-	-	-	-	-	-	<0.0005 / <0.005 / <0.0005 / <0.005	-	-
MW-1	04/27/1997	98.73	21.25	77.48	-	0.73 / **2.88**	-	-	-	-	-	-	<0.001 / <0.005 / <0.001 / <0.005	-	-
MW-1	09/08/1997	98.73	19.45	79.28	-	**1.74**	-	-	-	-	-	-	<0.001 / <0.005	-	-
MW-1	04/22/1998	98.73	19.25	79.48	-	0.496	-	-	-	-	-	-	<0.001 / <0.01	-	-
MW-1	09/17/1998	98.73	19.00	79.73	-	0.139	-	-	-	-	-	-	<0.001 / <0.005	-	-
MW-1	04/26/1999	98.73	19.11	79.62	-	0.45	-	-	-	-	-	-	<0.0005 / <0.002	-	-
MW-1	10/13/1999	98.73	19.28	79.45	-	<0.1	-	-	-	-	-	-	<0.001 / <0.01	-	-
MW-1	05/17/2000	98.73	19.16	79.57	-	0.157	-	-	-	-	-	-	<0.0005 / <0.005	-	-
MW-1	09/22/2000	98.73	18.64	80.09	-	<0.1	-	-	-	-	-	-	<0.001 / <0.005	-	-
MW-1	05/01/2001	98.73	19.48	79.25	-	0.149	-	-	-	-	-	-	<0.001 / <0.005	-	-
MW-1	09/25/2001	98.73	18.99	79.74	-	0.339	-	-	-	-	-	-	<0.001 / <0.005	-	-
MW-1	05/02/2002	98.73	19.40	79.33	-	-	-	-	-	-	-	-	<0.001 / <0.005	-	-
MW-1	09/27/2002	98.73	18.60	80.13	-	0.42	-	-	-	-	-	-	<0.001 / <0.005	-	-
MW-1	05/23/2003	98.73	19.00	79.73	-	0.55	-	-	-	-	-	-	<0.0005 / <0.002	-	-
MW-1	10/08/2003	98.73	19.38	79.35	-	0.28	-	-	-	-	-	-	<0.0005 / <0.002	-	-
MW-1	06/04/2004	98.73	19.61	79.12	-	**1.9**	-	-	-	-	-	-	<0.0005 / <0.002	-	-
MW-1	09/28/2004	98.73	19.50	79.23	-	0.74 / 0.67	-	-	-	-	-	-	<0.0005 / <0.002 / <0.0005 / <0.002	-	-

Table 2

Historical Groundwater Analytical Results
Chevron-Branded Service Station 98557
415 Muldoon Road
Anchorage, Alaska

					HYDROCARBONS			PRIMARY VOCS					ADDITIONAL VOCS		Metals
Location	Date	TOC	DTW	GWE	TPH	DRO	GRO	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	HVOC	SVOC	Lead
	Units	ft msl	ft btoc	ft msl	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
ADEC Groundwater Cleanup Levels					**1.1**	**1.5**	**2.2**	**0.0046**	**1.1**	**0.015**	**0.19**	**0.14**			**0.015**
MW-1	05/13/2005	98.73	18.54	80.19	-	0.83	-	-	-	-	-	-	<0.0005 / <0.002	-	-
MW-1	09/26/2005	98.73	18.67	80.06	-	<0.024	-	-	-	-	-	-	<0.0005 / <0.002	-	-
MW-1	05/17/2006	98.73	19.54	79.19	-	0.14	-	-	-	-	-	-	<0.0008 / <0.002	-	-
MW-1	09/25/2006	98.73	18.76	79.97	-	**8.5**	-	-	-	-	-	-	<0.0008 / <0.002	-	-
MW-1	05/15/2007	98.73	18.91	79.82	-	0.5	-	-	-	-	-	-	<0.0008 / <0.002	<0.001 / <0.021	-
MW-1	09/24/2007	98.73	18.40	80.33	-	**3.5**	-	-	-	-	-	-	<0.0008 / <0.002	<0.001 / <0.019	-
MW-1	05/14/2008	98.73	18.37	80.36	-	0.35	-	-	-	-	-	-	<0.0008 / <0.002	<0.001 / <0.019	-
MW-1	09/16/2008	98.73	18.02	80.71	-	**1.6**	-	-	-	-	-	-	<0.0001 / <0.0003	<0.001 / <0.0002	-
MW-1	06/18/2009	98.73	18.53	80.20	-	0.27	-	-	-	-	-	-	ND	ND	-
MW-1	09/07/2009	98.73	18.76	79.97	-	**2.5**	-	-	-	-	-	-	ND	0.012	-
MW-1	04/21/2010	98.73	19.46	79.27	-	1.5	-	<0.0005	<0.0005	<0.0005	<0.0005	-	ND	0.21	-
MW-1	07/22/2010	98.73	19.08	79.65	-	1.4	-	-	-	-	-	-	ND	ND	-
MW-1	04/19/2011	98.73	19.35	79.38	-	**1.6**	-	-	-	-	-	-	ND	0.040 J	-
MW-1	08/22/2011	252.78	19.09	233.69	-	0.17 J	-	-	-	-	-	-	ND	ND	<0.0047 UJ
MW-1	05/22/2012	252.78	18.22	234.56	-	0.20 J	-	-	-	-	-	-	ND	ND	<0.0022
MW-1	07/30/2012	252.78	17.55	235.23	-	0.10 J	-	-	-	-	-	-	ND	ND	0.0071 J
MW-1	05/14/2013	252.78	17.90	234.88	-	0.62	-	-	-	-	-	-	-	-	<0.0019
MW-1[HS]	05/14/2013	252.78	17.90	234.88	-	**1.6**	-	-	-	-	-	-	-	-	<0.0019
MW-1	09/17/2013	252.78	17.57	235.21	-	-	-	-	-	-	-	-	-	-	
MW-1	09/18/2013	-	-	-	-	0.38 J	-	-	-	-	-	-	-	-	0.0096 J
MW-1	05/02/2014	252.78	19.95	232.83	-	0.13 J	-	-	-	-	-	-	-	-	0.0010
MW-1	11/08/2014	252.78	18.48	234.10	-	0.26 J	-	-	-	-	-	-	-	-	0.0077 J
MW-1	05/06/2015	252.78	19.12	233.66	-	0.37 J	-	-	-	-	-	-	-	-	<0.0047
MW-1	10/21/2015	252.78	18.68	234.10	-	0.35	-	-	-	-	-	-	-	-	**0.0260**
MW-1	06/03/2016	252.78	18.69	234.09	-	**3.7**	-	-	-	-	-	-	-	-	**0.0293 J**
MW-1	10/14/2016	252.78	18.57	234.21	-	**2.4**	-	-	-	-	-	-	-	-	0.0137 J
MW-1	05/23/2017	252.78	18.29	234.49	-	**3.5**	-	-	-	-	-	-	-	-	**0.0983**
MW-1	09/01/2017	252.78	18.85	233.93	-	0.80 J / 0.52 J	-	-	-	-	-	-	-	-	0.0103 J / **0.0151 J**
MW-1	05/21/2018	252.78	19.10	233.68	-	**1.9 J** / 1.5 J	-	-	-	-	-	-	-	-	**0.0484**
MW-1	09/25/2018	252.58*	19.02	233.76	-	1.0	-	-	-	-	-	-	-	-	**0.0241**
MW-3	02/01/1991**	98.52	19.21	79.31	**7.9**	ND	-	ND	ND	ND	ND	-	-	-	-
MW-3	06/01/1991**	98.52	19.10	79.42	ND	ND	ND	ND	ND	ND	ND	-	-	-	-
MW-3	07/01/1991**	98.52	19.19	79.33	-	-	-	-	-	-	-	-	-	-	-
MW-3	09/01/1991**	98.52	18.82	79.70	ND	ND	0.1	ND	ND	ND	ND	-	-	-	-
MW-3	11/01/1991**	98.52	18.83	79.69	-	-	-	-	-	-	-	-	-	-	-
MW-3	12/01/1991**	98.52	19.26	79.26	ND	0.1	ND	ND	ND	ND	ND	-	-	-	-
MW-3	01/01/1992**	98.52	18.63	79.89	-	-	-	-	-	-	-	-	-	-	-
MW-3	03/01/1992**	98.52	19.62	78.90	ND	**1.8**	ND	ND	0.011	ND	ND	-	-	-	-
MW-3	04/01/1992**	98.52	18.30	80.22	-	-	-	-	-	-	-	-	-	-	-
MW-3	05/01/1992**	98.52	19.24	79.28	-	-	-	-	-	-	-	-	-	-	-
MW-3	06/01/1992**	98.52	19.00	79.52	**1.2**	ND	ND	ND	ND	ND	0.006	-	-	-	-
MW-3	07/01/1992**	98.52	18.50	80.02	-	-	-	-	-	-	-	-	-	-	-
MW-3	08/01/1992**	98.52	18.37	80.15	-	-	-	-	-	-	-	-	-	-	-
MW-3	09/01/1992**	98.52	18.35	80.17	-	ND	ND	ND	ND	ND	ND	-	-	-	-
MW-3	10/01/1992**	98.52	18.66	79.86	-	-	-	-	-	-	-	-	-	-	-
MW-3	11/01/1992**	98.52	18.59	79.93	-	-	-	-	-	-	-	-	-	-	-
MW-3	12/01/1992**	98.52	18.46	80.06	**6.3**	ND	ND	ND	ND	ND	ND	-	-	-	-
MW-3	05/01/1993**	98.52	19.06	79.46	-	ND	ND	ND	ND	ND	ND	-	ND	-	-

Table 2

Historical Groundwater Analytical Results
Chevron-Branded Service Station 98557
415 Muldoon Road
Anchorage, Alaska

					HYDROCARBONS			PRIMARY VOCS					ADDITIONAL VOCS		Metals
Location	Date	TOC	DTW	GWE	TPH	DRO	GRO	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	HVOC	SVOC	Lead
	Units	ft msl	ft btoc	ft msl	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
ADEC Groundwater Cleanup Levels					**1.1**	**1.5**	**2.2**	**0.0046**	**1.1**	**0.015**	**0.19**	**0.14**			**0.015**
MW-3	08/01/1993**	98.52	18.63	79.89	-	ND	ND	ND	ND	ND	ND	-	0.001	-	-
MW-3	11/01/1993**	98.52	18.63	79.89	-	ND	ND	ND	ND	ND	0.006	-	0.004	-	-
MW-3	03/01/1994**	98.52	19.18	79.34	-	ND	-	-	-	-	-	-	ND	-	-
MW-3	06/01/1994**	98.52	18.93	79.59	-	ND	-	-	-	-	-	-	ND	-	-
MW-3	08/18/1994	98.52	18.67	79.85	-	ND	-	-	-	-	-	-	ND	-	-
MW-3	03/24/1995	98.52	20.02	78.50	-	-	-	-	-	-	-	-	ND	-	-
MW-3	03/31/1995	98.52	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-3	09/06/1995	98.52	18.36	80.16	-	0.53	-	-	-	-	-	-	0.0036	-	-
MW-3	02/14/1996	98.52	19.45	79.07	-	0.17	-	-	-	-	-	-	ND	-	-
MW-3	06/01/1996	98.52	21.01	77.51						SAMPLED SEMI-ANNUALLY					-
MW-3	08/23/1996	98.52	21.17	77.35	-	0.193	-	-	-	-	-	-	<0.0005 / <0.001	-	-
MW-3	10/21/1996	98.52	21.25	77.27	-	-	-	-	-	-	-	-	-	-	-
MW-3	04/27/1997	98.52	21.46	77.06	-	0.229	-	-	-	-	-	-	<0.001 / <0.005	-	-
MW-3	09/08/1997	98.52	19.68	78.84	-	0.221	-	-	-	-	-	-	<0.001 / <0.005	-	-
MW-3	04/22/1998	98.52	19.25	79.27	-	0.125 / 0.125	-	-	-	-	-	-	<0.001 / <0.01 / <0.001 / <0.01	-	-
MW-3	09/17/1998	98.52	18.88	79.64	-	0.144 / 0.106	-	-	-	-	-	-	<0.001 / <0.005 / <0.001 / <0.005	-	-
MW-3	04/26/1999	98.52	19.31	79.21	-	<0.1	-	-	-	-	-	-	<0.0005 / <0.002	-	-
MW-3	10/13/1999	98.52	19.47	79.05	-	-	-	-	-	-	-	-	<0.001 / <0.01	-	-
MW-3	05/17/2000	98.52	19.33	79.19	-	<0.1	-	-	-	-	-	-	<0.0005 / <0.005	-	-
MW-3	09/22/2000	98.52	18.80	79.72	-	<0.1	-	-	-	-	-	-	<0.001 / <0.005	-	-
MW-3	05/01/2001	98.52	19.61	78.91	-	0.126	-	-	-	-	-	-	<0.001 / <0.005	-	-
MW-3	09/25/2001	98.52	19.15	79.37	-	0.102	- / <0.05	- / <0.0002	- / <0.0005	- / <0.0005	- / <0.001	- / <0.001	<0.001 / <0.005 / -	-	-
MW-3	05/02/2002	98.52	19.48	79.04	-	-	-	-	-	-	-	-	<0.001 / <0.005 / <0.001 / <0.005	-	-
MW-3	09/27/2002	98.52	18.79	79.73	-	<0.1	-	-	-	-	-	-	<0.001 / <0.005	-	-
MW-3	05/23/2003	98.52	19.19	79.33	-	<0.024	-	-	-	-	-	-	<0.0005 / <0.002	-	-
MW-3	10/08/2003	98.52	19.55	78.97	-	0.043 / 0.045	-	-	-	-	-	-	<0.0005 / <0.002 / <0.0005 / <0.002	-	-
MW-3	06/04/2004	98.52	19.78	78.74	-	0.062	-	-	-	-	-	-	<0.0005 / <0.002	-	-
MW-3	09/28/2004	98.52	19.88	78.64	-	<0.02	-	-	-	-	-	-	<0.0005 / <0.002	-	-
MW-3	05/13/2005	98.52	18.86	79.66	-	0.084 / 0.067	-	-	-	-	-	-	<0.0005 / <0.002 / <0.0005 / <0.002	-	-
MW-3	09/26/2005	98.52	18.52	80.00	-	<0.024 / <0.024	-	-	-	-	-	-	<0.0005 / <0.002 / <0.0005 / <0.002	-	-
MW-3	05/17/2006	98.52	19.63	78.89	-	<0.025	-	-	-	-	-	-	<0.0008 / <0.002	-	-
MW-3	09/25/2006	98.52	18.73	79.79	-	0.22	-	-	-	-	-	-	<0.0008 / <0.002	-	-
MW-3	05/15/2007	98.52	18.78	79.74	-	0.13	-	-	-	-	-	-	<0.0008 / <0.002	<0.001 / <0.021	-
MW-3	09/24/2007	98.52	18.43	80.09	-	**1.6**	-	-	-	-	-	-	<0.0005 / <0.002	<0.001 / <0.020	-
MW-3	05/14/2008	98.52	18.42	80.10	-	0.084 / 0.087	<0.01	<0.0005	<0.0007	<0.0008	<0.0016	<0.002	<0.0008 / <0.002 / <0.0008 / <0.002	<0.001 / <0.021 / <0.001 / <0.021	-
MW-3	09/16/2008	98.52	18.06	80.46	-	<0.05 / <0.053	0.01	<0.0005	0.003	<0.0005	0.0008	<0.002	<0.0001 / <0.0003 / <0.0001 / <0.0003	<0.001 / <0.020 / <0.001 / <0.020	-
MW-3	06/18/2009	98.52	18.65	79.87	-	<0.050	-	-	-	-	-	-	ND	ND	-
MW-3	09/07/2009	98.52	18.88	79.64	-	<0.048	-	-	-	-	-	-	ND	ND	-
MW-3	04/21/2010	98.52	19.60	78.92	-	<0.053 UJ	-	<0.0005	<0.0005	<0.0005	<0.0005	-	ND	ND	-
MW-3	07/22/2010	98.52	19.18	79.34	-	0.055 J	-	-	-	-	-	-	ND	ND	-
MW-3	04/19/2011	98.52	19.47	79.05	-	0.084 J	-	-	-	-	-	-	ND	ND	-
MW-3	08/22/2011	253.02	19.17	233.85	-	0.12 J	-	-	-	-	-	-	ND	ND	<0.0022
MW-3	05/22/2012	253.02	18.34	234.68	-	<0.048	-	-	-	-	-	-	ND	ND	<0.0022
MW-3	07/30/2012	253.02	17.69	235.33	-	0.096 J	-	-	-	-	-	-	ND	ND	<0.0051
MW-3	05/14/2013	253.02	18.04	234.98	-	-	-	-	-	-	-	-	-	-	-
MW-3	09/17/2013	253.02	17.69	235.33	-	-	-	-	-	-	-	-	-	-	-
MW-3	05/02/2014	253.02	18.06	234.96	-	-	-	-	-	-	-	-	-	-	-
MW-3	11/08/2014	253.02	18.60	234.42	-	-	-	-	-	-	-	-	-	-	-
MW-3	05/06/2015	253.02	19.24	233.78	-	-	-	-	-	-	-	-	-	-	-

Table 2

Historical Groundwater Analytical Results
Chevron-Branded Service Station 98557
415 Muldoon Road
Anchorage, Alaska

					HYDROCARBONS			PRIMARY VOCS					ADDITIONAL VOCS		Metals
Location	Date	TOC	DTW	GWE	TPH	DRO	GRO	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	HVOC	SVOC	Lead
	Units	ft msl	ft btoc	ft msl	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
ADEC Groundwater Cleanup Levels					**1.1**	**1.5**	**2.2**	**0.0046**	**1.1**	**0.015**	**0.19**	**0.14**			**0.015**
MW-3	10/21/2015	253.02	18.79	234.23	-	-	-	-	-	-	-	-	-	-	-
MW-3	06/03/2016	253.02	18.81	234.21	-	-	-	-	-	-	-	-	-	-	-
MW-3	10/14/2016	253.02	18.69	234.33	-	-	-	-	-	-	-	-	-	-	-
MW-3	05/23/2017	253.02	18.35	234.67	-	-	-	-	-	-	-	-	-	-	-
MW-3	09/01/2017	253.02	18.84	234.18	-	-	-	-	-	-	-	-	-	-	-
MW-3	05/21/2018	253.02	19.11	233.91	-	-	-	-	-	-	-	-	-	-	-
MW-3	09/25/2018	252.92*	19.12	233.90	-	-	-	-	-	-	-	-	-	-	-
MW-3-FB	05/14/2008	-	-	-	-	<0.024	<0.01	<0.0005	<0.0007	<0.0008	<0.0016	<0.002	<0.0008 / <0.002	<0.001 / <0.020	-
MW-3-FB	09/16/2008	-	-	-	-	<0.050	0.01	<0.0005	0.003	<0.0005	0.0008	<0.002	<0.0001 / <0.0003	<0.001 / <0.00021	-
MW-4R	05/01/1993**	-	-	-	-	-	**2.9**	0.003	0.02	0.016	0.048	-	ND	-	-
MW-4R	08/01/1993**	-	-	-	-	0.44	1.2	0.005	ND	0.006	0.019	-	0.0008	-	-
MW-4R	11/01/1993**	-	-	-	-	0.36	0.52	0.001	0.016	0.003	0.008	-	0.003	-	-
MW-4R	03/01/1994**	-	-	-	-	0.07	0.3	0.0015	0.015	0.0068	0.015	-	ND	-	-
MW-4R	06/01/1994**	-	-	-	-	0.7	2	0.0014	0.014	0.0031	0.019	-	ND	-	-
MW-4R	08/18/1994	-	17.71	-	-	0.3	0.53	0.002	ND	0.0024	0.0055	-	ND	-	-
MW-4R	03/24/1995	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-4R	04/24/1995	-	17.90	-	-	-	0.51	ND	0.0005	0.001	0.0037	-	-	-	-
MW-4R	09/06/1995	-	17.37	-	**3.3**	1.1	1.2	ND	0.0014	0.0024	0.0028	-	0.0023	-	-
MW-4R	02/14/1996	-	18.44	-	-	0.57	**3.2**	0.00063	0.0039	0.0066	0.012	-	ND	-	-
MW-4R	06/01/1996	-	20.05							SAMPLED SEMI-ANNUALLY					
MW-4R	08/23/1996	-	20.19	-	-	**1.57**	0.586	<0.0025	0.0147	0.0041	0.0254	-	<0.0005 / <0.001	-	-
MW-4R	10/21/1996	-	20.22	-	-	-	-	-	-	-	-	-	-	-	-
MW-4R	04/27/1997	-	20.45	-	-	**2.57**	0.199	<0.0005	<0.0005	<0.0005	0.00228	-	<0.001 / <0.005	-	-
MW-4R	09/08/1997	-	18.67	-	-	**2.24 / 2.33**	0.227 / 0.267	0.000577 / 0.000665	0.00146 / 0.00166	<0.0005 / <0.0005	0.00293 / 0.00324	-	<0.001 / <0.005 / <0.001 / <0.005	-	-
MW-4R	04/22/1998	-	18.50	-	-	0.326	0.324	<0.0006	<0.0012	<0.0005	<0.0012	-	<0.001 / <0.01	-	-
MW-4R	09/17/1998	-	18.22	-	-	0.23	0.17	<0.0005	<0.0085	<0.0005	<0.001	-	<0.001 / <0.005	-	-
MW-4R	04/26/1999	-	18.28	-	-	0.11	<0.05	<0.0005	0.00062	<0.0005	<0.0005	<0.005	<0.0005 / <0.002	-	-
MW-4R	10/13/1999	-	18.45	-	-	0.21	0.119 / <0.05	**0.0163**	<0.0005	<0.0005	<0.0005	<0.005	<0.001 / <0.01	-	-
MW-4R	05/17/2000	-	18.30	-	-	0.155	<0.08	0.000718	<0.0005	<0.0005	<0.001	<0.002	<0.0005 / <0.005	-	-
MW-4R	09/22/2000	-	17.79	-	-	0.18	0.0622	<0.00093	<0.0005	<0.0005	<0.001	<0.001	<0.001 / <0.005	-	-
MW-4R	05/01/2001	-	18.60	-	-	0.208	<0.05	0.000392	<0.0005	<0.0005	<0.001	<0.001	<0.001 / <0.005	-	-
MW-4R	09/25/2001	-	18.11	-	-	-	0.17	0.00433	0.000978	<0.0005	0.00113	0.00172	<0.001 / <0.005	-	-
MW-4R	05/02/2002	-	18.45	-	-	-	0.0547	0.000266	<0.0005	<0.0005	<0.001	<0.001	<0.001 / <0.005	-	-
MW-4R	09/27/2002	-	17.80	-	-	-	<0.08	<0.0005	<0.0005	<0.0005	<0.001	<0.002	<0.001 / <0.005	-	-
MW-4R	05/23/2003	-	18.17	-	-	-	0.22 / 0.2	<0.0005 / <0.0005	<0.0005 / <0.0005	<0.0005 / <0.0005	<0.001 / <0.001	<0.0005 / <0.0005	<0.0005 / <0.002 / <0.0005 / <0.002	-	-
MW-4R	10/08/2003	-	18.55	-	-	-	0.12	<0.0005	<0.0005	<0.0005	<0.001	<0.002	<0.0005 / <0.002	-	-
MW-4R	06/04/2004	-	18.76	-	-	-	0.03	<0.0005	<0.0005	<0.0005	<0.001	<0.002	<0.0005 / <0.002	-	-
MW-4R	09/28/2004	-	18.65	-	-	-	<0.01	<0.0005	<0.0005	<0.0005	<0.001	<0.002	<0.0005 / <0.002	-	-
MW-4R	05/13/2005	-	17.69	-	-	-	0.03	<0.0005	<0.0005	<0.0005	<0.001	<0.002	<0.0005 / <0.002	-	-
MW-4R	09/26/2005	-	17.50	-	-	-	<0.01	<0.0005	<0.0005	<0.0005	<0.001	<0.002	<0.0005 / <0.002	-	-
MW-4R	05/17/2006	-	18.61	-	-	-	<0.01	<0.0005	<0.0007	<0.0008	<0.0016	<0.002	<0.0008 / <0.002	-	-
MW-4R	09/25/2006	-	17.85	-	-	-	0.34	<0.0005	<0.0007	<0.0008	<0.0016	<0.002	<0.0008 / <0.002	-	-
MW-4R	05/15/2007	-								UNABLE TO LOCATE					
MW-4R	09/24/2007	-								UNABLE TO LOCATE					
MW-4R	05/14/2008	-								UNABLE TO LOCATE					
MW-4R	09/16/2008	-								UNABLE TO LOCATE					

Table 2

Historical Groundwater Analytical Results
Chevron-Branded Service Station 98557
415 Muldoon Road
Anchorage, Alaska

					HYDROCARBONS			PRIMARY VOCS					ADDITIONAL VOCS		Metals
Location	Date	TOC	DTW	GWE	TPH	DRO	GRO	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	HVOC	SVOC	Lead
	Units	ft msl	ft btoc	ft msl	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
ADEC Groundwater Cleanup Levels					**1.1**	**1.5**	**2.2**	**0.0046**	**1.1**	**0.015**	**0.19**	**0.14**			**0.015**
MW-7	02/01/1991**		-	-	-	-	-	-	-	-	-	-	-	-	-
MW-7	06/01/1991**	98.98	19.18	79.80	**2**	ND	ND	ND	ND	ND	ND	-	-	-	-
MW-7	07/01/1991**	98.98	19.25	79.73	-	-	-	-	-	-	-	-	-	-	-
MW-7	09/01/1991**	98.98	18.80	80.18	ND	1.1	0.1	0.004	ND	ND	0.012	-	-	-	-
MW-7	11/01/1991**	98.98	18.90	80.08	-	-	-	-	-	-	-	-	-	-	-
MW-7	12/01/1991**	98.98	19.32	79.66	ND	1.2	ND	ND	ND	ND	ND	-	-	-	-
MW-7	01/01/1992**	98.98	18.72	80.26	-	-	-	-	-	-	-	-	-	-	-
MW-7	03/01/1992**	98.98	19.65	79.33	ND	1.1	ND	ND	0.01	0.009	ND	-	-	-	-
MW-7	04/01/1992**	98.98	18.34	80.64	-	-	-	-	-	-	-	-	-	-	-
MW-7	05/01/1992**	98.98	18.77	80.21	-	-	-	-	-	-	-	-	-	-	-
MW-7	06/01/1992**	98.98	19.01	79.97	ND	0.32	ND	**0.006**	0.004	ND	ND	-	-	-	-
MW-7	07/01/1992**	98.98	18.53	80.45	-	-	-	-	-	-	-	-	-	-	-
MW-7	08/01/1992**	98.98	18.41	80.57	-	-	-	-	-	-	-	-	-	-	-
MW-7	09/01/1992**	98.98	18.41	80.57	-	ND	ND	ND	ND	ND	ND	-	-	-	-
MW-7	10/01/1992**	98.98	18.72	80.26	-	-	-	-	-	-	-	-	-	-	-
MW-7	11/01/1992**	98.98	18.63	80.35	-	-	-	-	-	-	-	-	-	-	-
MW-7	12/01/1992**	98.98	18.50	80.48	**3.8**	ND	ND	ND	ND	ND	ND	-	-	-	-
MW-7	05/01/1993**	98.98	19.11	79.87	-	ND	ND	ND	ND	ND	ND	-	ND	-	-
MW-7	08/01/1993**	98.98	18.68	80.30	-	ND	ND	ND	ND	ND	ND	-	ND	-	-
MW-7	11/01/1993**	98.98	18.68	80.30	-	0.09	ND	ND	ND	ND	ND	-	0.0005	-	-
MW-7	06/01/1994**	98.98	18.94	80.04	-	ND	-	-	-	-	-	-	ND	-	-
MW-7	08/18/1994	98.98	18.78	80.20	-	ND	-	-	-	-	-	-	ND	-	-
MW-11	02/01/1991**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-11	06/01/1991**	98.14	18.70	79.44	**1.2**	ND	ND	ND	ND	ND	ND	-	-	-	-
MW-11	09/01/1991**	98.14	18.04	80.10	**1.7**	0.67	0.6	0.004	ND	ND	0.022	-	-	-	-
MW-11	12/01/1991**	98.14	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-11	06/01/1992**	98.14	18.31	79.83	**2.9**	0.92	ND	ND	0.008	ND	0.008	-	-	-	-
MW-11	09/01/1992**	98.14	17.63	80.51	-	ND	ND	ND	ND	ND	ND	-	-	-	-
MW-11	12/01/1992**	98.14	17.78	80.36	**2.1**	ND	ND	ND	ND	ND	ND	-	-	-	-
MW-11	05/01/1993**	98.14	18.39	79.75	-	0.094	ND	ND	ND	ND	ND	-	ND	-	-
MW-11	08/01/1993**	98.14	17.96	80.18	-	ND	ND	ND	ND	ND	ND	-	ND	-	-
MW-11	11/01/1993**	98.14	17.95	80.19	-	0.06	ND	ND	ND	ND	ND	-	ND	-	-
MW-11	03/01/1994**	98.14	18.52	79.62	-	ND	-	-	-	-	-	-	ND	-	-
MW-11	06/01/1994**	98.14	18.25	79.89	-	ND	-	-	-	-	-	-	ND	-	-
MW-11	08/18/1994	98.14	18.00	80.14	-	ND	-	-	-	-	-	-	ND	-	-
MW-11	03/24/1995	98.14	19.38	78.76	-	-	-	-	-	-	-	-	-	-	-
MW-11	06/19/1995	98.14	17.88	80.26	-	-	-	-	-	-	-	-	-	-	-
MW-11	09/06/1995	97.76	17.73	80.03	-	-	-	-	-	-	-	-	-	-	-
MW-11	11/14/1995	97.76	17.59	80.17	-	-	-	-	-	-	-	-	-	-	-
MW-11	02/14/1996	97.76	15.48	82.28	-	-	-	-	-	-	-	-	-	-	-
MW-11	06/01/1996	97.76	19.94	77.82	-	-	-	-	-	-	-	-	-	-	-
MW-11	08/23/1996	97.76	20.08	77.68	-	-	-	-	-	-	-	-	-	-	-
MW-11	10/21/1996	97.76	20.17	77.59	-	-	-	-	-	-	-	-	-	-	-
MW-11	04/27/1997	97.76	20.31	77.45	-	-	-	-	-	-	-	-	-	-	-
MW-11	09/08/1997	97.76	18.62	79.14	-	-	-	-	-	-	-	-	-	-	-
MW-11	04/22/1998	97.76	18.40	79.36	-	-	-	-	-	-	-	-	-	-	-
MW-11	09/17/1998	97.76	18.00	79.76	-	-	-	-	-	-	-	-	-	-	-
MW-11	04/26/1999	97.76								UNABLE TO LOCATE					

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Historical Groundwater Analytical Results
Chevron-Branded Service Station 98557
415 Muldoon Road
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					HYDROCARBONS			PRIMARY VOCS					ADDITIONAL VOCS		Metals
Location	Date	TOC	DTW	GWE	TPH	DRO	GRO	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	HVOC	SVOC	Lead
	Units	ft msl	ft btoc	ft msl	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
ADEC Groundwater Cleanup Levels					**1.1**	**1.5**	**2.2**	**0.0046**	**1.1**	**0.015**	**0.19**	**0.14**			**0.015**
MW-11	10/13/1999	97.76	18.42	79.34	-	-	-	-	-	-	-	-	-	-	-
MW-11	05/17/2000	97.76	18.28	79.48	-	-	-	-	-	-	-	-	-	-	-
MW-11	09/22/2000	97.76	17.75	80.01	-	-	-	-	-	-	-	-	-	-	-
MW-11	05/01/2001	97.76	18.56	79.20	-	-	-	-	-	-	-	-	-	-	-
MW-11	09/25/2001	97.76	18.09	79.67	-	-	-	-	-	-	-	-	-	-	-
MW-11	05/02/2002	97.76	18.52	79.24	-	-	-	-	-	-	-	-	-	-	-
MW-11	09/27/2002	97.76								INACCESSIBLE - DUE TO FLOODING					
MW-11	05/23/2003	97.76	18.14	79.62	-	-	-	-	-	-	-	-	-	-	-
MW-11	10/08/2003	97.76	18.53	79.23	-	-	-	-	-	-	-	-	-	-	-
MW-11	06/04/2004	97.76	18.76	79.00	-	-	-	-	-	-	-	-	-	-	-
MW-11	09/28/2004	97.76								INACCESSIBLE - DUE TO FLOODING					
MW-11	05/13/2005	97.76	17.65	80.11	-	-	-	-	-	-	-	-	-	-	-
MW-11	09/26/2005	97.76								DRY					
MW-11	05/17/2006	97.76								DRY					
MW-12	05/01/1993**	-	-	-	-	**3.1**	0.62	ND	0.0005	ND	0.002	-	ND	-	-
MW-12	08/01/1993**	98.52	-	-	-	0.38	0.42	ND	ND	ND	ND	-	ND	-	-
MW-12	11/01/1993**	98.52	-	-	-	0.06	0.18	ND	0.011	0.001	0.001	-	0.0038	-	-
MW-12	03/01/1994**	98.52	-	-	-	0.076	0.18	ND	0.0045	0.001	0.0016	-	ND	-	-
MW-12	06/01/1994**	98.52	-	-	-	0.45	ND	ND	ND	ND	ND	-	ND	-	-
MW-12	08/18/1994	98.52	18.26	80.26	-	ND	0.12	ND	ND	ND	ND	-	0.0007	-	-
MW-12	03/31/1995	98.52	19.53	78.99	0.014	**7**	0.14	0.0012	0.0011	ND	0.0011	-	ND	-	-
MW-12	06/19/1995	98.52	18.08	80.44	-	-	-	-	-	-	-	-	-	-	-
MW-12	09/06/1995	98.52	17.94	80.58	**9.2**	**8.4**	0.23	ND	0.00052	ND	ND	-	0.0017	-	-
MW-12	11/14/1995	98.52	18.25	80.27	-	-	-	-	-	-	-	-	-	-	-
MW-12	02/14/1996	98.52	19.01	79.51	-	**5.6**	**3.5**	ND	0.0045	ND	0.0025	-	ND	-	-
MW-12	06/01/1996	98.52	20.58	77.94						SAMPLED SEMI-ANNUALLY					-
MW-12	08/23/1996	98.52	20.69	77.83	-	**7.72**	0.657	<0.0005	0.00109	<0.0005	0.00252	-	<0.00051 / <0.001	-	-
MW-12	10/21/1996	98.52	20.76	77.76	-	-	-	-	-	-	-	-	-	-	-
MW-12	04/27/1997	98.52	20.99	77.53	-	**5.6**	0.365	<0.0005	<0.0005	<0.0005	0.00371	-	<0.001 / <0.005	-	-
MW-12	09/08/1997	98.52	19.22	79.30	-	1.48	0.0598	<0.0005	<0.0005	<0.0005	<0.001	-	<0.001 / <0.005	-	-
MW-12	04/22/1998	98.52	19.00	79.52	-	0.559	<0.05	<0.0005	<0.0005	<0.0005	<0.001	-	<0.001 / <0.01	-	-
MW-12	09/17/1998	98.52	19.00	79.52	-	0.239	<0.05	<0.0005	<0.0005	<0.0005	<0.001	-	<0.001 / <0.005	-	-
MW-12	04/26/1999	98.52	18.81	79.71	-	0.14	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.005	<0.0005 / <0.002	-	-
MW-12	10/13/1999	98.52	18.98	79.54	-	0.2	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.005	<0.001 / <0.01	-	-
MW-12	05/17/2000	98.52	18.86	79.66	-	0.103	<0.08	<0.0005	<0.0005	<0.0005	<0.001	<0.002	<0.0005 / <0.005	-	-
MW-12	09/22/2000	98.52	18.34	80.18	-	0.106 / <0.1	<0.05 / <0.05	<0.0002 / <0.0002	<0.0005 / <0.0005	<0.0005 / <0.0005	<0.001 / <0.001	<0.001 / <0.001	<0.001 / <0.005 / <0.001 / <0.005	-	-
MW-12	05/01/2001	98.52	19.14	79.38	-	0.113	<0.05	0.000213	<0.0005	<0.0005	<0.001	<0.001	<0.001 / <0.005	-	-
MW-12	09/25/2001	98.52	18.67	79.85	-	-	<0.05	<0.0002	<0.0005	<0.0005	<0.001	<0.001	<0.001 / <0.005	-	-
MW-12	05/02/2002	98.52	18.98	79.54	-	-	<0.05	<0.0002	<0.0005	<0.0005	<0.001	<0.001	<0.001 / <0.005	-	-
MW-12	09/27/2002	98.52	18.31	80.21	-	-	<0.08	<0.0005	<0.0005	<0.0005	<0.001	<0.002	<0.001 / <0.005	-	-
MW-12	05/23/2003	98.52	18.71	79.81	-	-	<0.01	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.0005 / <0.002	-	-
MW-12	10/08/2003	98.52	19.06	79.46	-	-	<0.01	<0.0005	<0.0005	<0.0005	<0.001	<0.002	<0.0005 / <0.002	-	-
MW-12	06/04/2004	98.52	19.28	79.24	-	-	<0.01 / <0.01	<0.0005 / <0.0005	<0.0005 / <0.0005	<0.0005 / <0.0005	<0.001 / <0.001	<0.002 / <0.002	<0.0005 / <0.002 / <0.0005 / <0.002	-	-
MW-12	09/28/2004	98.52	19.23	79.29	-	-	<0.01	<0.0005	<0.0005	<0.0005	<0.001	<0.002	<0.0005 / <0.002	-	-
MW-12	05/13/2005	98.52	18.27	80.25	-	-	<0.01	<0.0005	<0.0005	<0.0005	<0.001	<0.002	<0.0005 / <0.002	-	-
MW-12	09/26/2005	98.52								DRY					
MW-12	05/17/2006	98.52	19.23	79.29	-	-	<0.01 / <0.01	<0.0005 / <0.0005	<0.0007 / <0.0007	<0.0008 / <0.0008	<0.0016 / <0.0016	<0.002 / <0.002	<0.0008 / <0.002 / <0.0008 / <0.002	-	-

Table 2

Historical Groundwater Analytical Results
Chevron-Branded Service Station 98557
415 Muldoon Road
Anchorage, Alaska

					HYDROCARBONS			PRIMARY VOCS					ADDITIONAL VOCS		Metals
Location	Date	TOC	DTW	GWE	TPH	DRO	GRO	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	HVOC	SVOC	Lead
	Units	ft msl	ft btoc	ft msl	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
ADEC Groundwater Cleanup Levels					**1.1**	**1.5**	**2.2**	**0.0046**	**1.1**	**0.015**	**0.19**	**0.14**			**0.015**
MW-13	07/30/2012	252.83	17.86	234.97	-	**6.6 J / 17 J**	1.7 / 1.5	**0.0098 / 0.010**	0.012 / 0.012	**0.036 / 0.037**	0.19 / 0.19	-	0.004 / 0.004	0.126 J / 0.176 J	**0.490 / 0.443**
MW-13	05/14/2013	252.83	18.15	234.68	-	1.0 / 0.73	0.38 / 0.37	0.0012 / 0.0012	0.00087 J / 0.00088 J	0.0098 / 0.010	0.028 / 0.030	-	ND / ND	-	**0.74 / 0.57**
MW-13[HS]	05/14/2013	252.83	18.15	234.68	-	**3.5 J / 1.6 J**	0.27 / 0.31	0.0012 / 0.0012	0.00093 J / 0.00097 J	0.0087 / 0.0085	0.026 / 0.026	-	-	-	**1.4 / 0.97**
MW-13	09/17/2013	252.83	17.82	235.01	-	-	-	-	-	-	-	-	-	-	-
MW-13	09/18/2013	252.83	-	-	-	0.71 / 0.77	0.17 / 0.18	0.00098 J / 0.00097 J	0.00059 J / 0.00063 J	0.0057 / 0.0057	0.015 / 0.015	-	-	-	**0.21 J / 1.2 J**
MW-13	05/02/2014	252.83	18.20	234.63	-	0.62 / 0.54	0.16 / 0.14	0.00090 J / 0.00077 J	0.00041 J / <0.00036	0.0049 / 0.0041	0.0034 / 0.0028 J	-	-	-	**0.025 / 0.018**
MW-13	11/08/2014	252.83	18.70	234.13	-	0.55 J/0.50 J	0.089 J/0.087 J	0.00054 J/0.00046 J	<0.00019 J/<0.00018 J	0.0018/0.0018	0.0011 J/0.0012 J	-	-	-	**0.033/0.020**
MW-13	05/06/2015	252.83	19.38	233.45	-	0.39 J / 0.35 J	-	-	-	-	-	-	-	-	**0.673 / 0.875**
MW-13	10/21/2015	252.83	18.93	233.90	-	**11 / 4.1 J**	-	-	-	-	-	-	-	-	**0.0748 / 0.0539**
MW-13	06/03/2016	252.83	18.94	233.89	-	0.53 J / **5.2 J**	-	-	-	-	-	-	-	-	**0.223 / 0.219**
MW-13	10/14/2016	252.83	18.83	234.00	-	0.71 / 0.65	-	-	-	-	-	-	-	-	**0.0747 / 0.0696**
MW-13	05/23/2017	252.83	18.53	234.30	-	0.36 J / **1.9 J**	-	-	-	-	-	-	-	-	**0.0298 J / 0.226 J**
MW-13	09/01/2017	252.83	19.11	233.72	-	0.59 J	-	-	-	-	-	-	-	-	**0.137**
MW-13	05/21/2018	252.83	19.23	233.60	-	**5.1 J**	-	-	-	-	-	-	-	-	**1.24 / 0.910**
MW-13	09/25/2018	252.83	19.27	233.56	-	**9.1 / 7.4**	-	-	-	-	-	-	-	-	**0.193 / 0.265**
MW-14	08/22/2011	251.41	17.99	233.42	-	<0.049	0.043 J	<0.0005	<0.0005	<0.0005	<0.0015	-	ND	ND	<0.0026 UJ
MW-14	05/22/2012	251.41	17.11	234.30	-	<0.049 UJ	<0.010	<0.0005	<0.0005	<0.0005	<0.0015	-	ND	0.0003	<0.0022
MW-14	07/30/2012	251.41	16.51	234.90	-	<0.048	<0.010	<0.0005	<0.0005	<0.0005	<0.0015	-	ND	ND	<0.0051
MW-14	05/14/2013	251.41	16.81	234.60	-	<0.063 J	<0.050	<0.00024	<0.00023	<0.00024	<0.00072	-	-	-	**0.020**
MW-14[HS]	05/14/2013	251.41	16.81	234.60	-	<0.12 J	<0.050	<0.00024	<0.00023	<0.00024	<0.00072	-	-	-	**0.10**
MW-14	09/17/2013	251.41	16.45	234.96	-	-	-	-	-	-	-	-	-	-	-
MW-14	09/18/2013	-	-	-	-	<0.23	<0.050	<0.00024	<0.00023	<0.00024	<0.00072	-	-	-	**0.018**
MW-14	05/02/2014	251.41	16.88	234.53	-	<0.068	<0.050	<0.00015	<0.00011	<0.00016	<0.00040	-	-	-	0.00018
MW-14	11/08/2014	251.41	17.37	234.04	-	0.091 J	<0.050 J	<0.00015	<0.00011	<0.00016	<0.00040	-	-	-	0.0018 J
MW-14	05/06/2015	251.41	18.01	233.40	-	<0.051 J	-	-	-	-	-	-	-	-	0.0053 J
MW-14	10/21/2015	251.87	18.04	233.83	-	<0.051 J	-	-	-	-	-	-	-	-	**0.0561 J**
MW-14	06/03/2016	251.41	18.07	233.34	-	<0.051	-	-	-	-	-	-	-	-	<0.0051
MW-14	10/14/2016	251.41	17.98	233.43	-	1.2	-	-	-	-	-	-	-	-	<0.0062
MW-14	05/23/2017	251.41	17.65	233.76	-	<0.053	-	-	-	-	-	-	-	-	<0.0062
MW-14	09/01/2017	251.41	18.23	233.18	-	<0.050 J	-	-	-	-	-	-	-	-	0.0125 J
MW-14	05/21/2018	251.41	19.36	232.05	-	<0.050 J	-	-	-	-	-	-	-	-	**0.0300**
MW-14	09/25/2018	251.41	18.41	233.00	-	<0.051	-	-	-	-	-	-	-	-	<0.0071
RW-1	05/01/1993**	-	-	-	-	ND	**3.3**	0.003	0.019	**0.021**	0.15	-	ND	-	-
RW-1	08/01/1993**	-	-	-	-	**2.3**	**3.2**	**0.01**	0.009	**0.018**	0.11	-	ND	-	-
RW-1	11/01/1993**	-	-	-	-	**2.7**	1.5	0.001	0.012	0.009	0.049	-	ND	-	-
RW-1	03/01/1994**	-	-	-	-	0.31	**3.9**	0.0017	0.017	**0.015**	0.099	-	ND	-	-
RW-1	06/01/1994**	-	-	-	-	**2.5**	**3.6**	0.0017	0.013	0.011	0.073	-	ND	-	-
RW-1	08/18/1994	-	18.25	-	-	1.4	1.7	0.0047	0.0052	0.0071	0.033	-	ND	-	-
RW-1	12/13/1994	-	18.86	-	ND	**2.1**	**3.8**	**0.012**	0.013	**0.016**	0.071	-	ND	-	-
RW-1	03/24/1995	-	19.59	-	**12**	**2.3**	0.99	0.0023	0.0027	0.003	0.0096	-	ND	-	-
RW-1	04/24/1995	-	-	-	-	-	1.3	0.0018	0.0019	0.0024	0.039	-	-	-	-
RW-1	06/19/1995	-	18.08	-	**5.7**	**2.9**	0.41	0.0007	0.00062	0.00072	0.016	-	ND	-	-
RW-1	09/06/1995	-	18.01	-	**2.2**	1.1	0.095	0.0006	0.00098	0.0016	0.012	-	0.003	-	-
RW-1	11/14/1995	-	18.25	-	**7.2**	**3.4**	**2.3 / 3.3**	0.0016 / 0.0013	0.0025 / 0.004	0.0039 / 0.0067	0.013 / 0.02	-	ND	-	-
RW-1	02/14/1996	-	19.02	-	-	0.9	**2.7**	0.0026	0.0033	0.0049	0.026	-	ND	-	-
RW-1	06/01/1996	-	20.59	-	-	1.38 / **1.54**	1.06 / 1.14	0.000847 / 0.000909	0.00201 / 0.00203	0.00219 / 0.00243	0.00666 / 0.00745	-	<0.0005 / <0.005 / <0.0005 / <0.005	-	-
RW-1	08/23/1996	-	20.69	-	-	1.2	0.082	0.000742	0.00204	0.00263	0.00666	-	<0.0005 / <0.001	-	-

Table 2

Historical Groundwater Analytical Results
Chevron-Branded Service Station 98557
415 Muldoon Road
Anchorage, Alaska

					HYDROCARBONS			PRIMARY VOCS					ADDITIONAL VOCS		Metals
Location	Date	TOC	DTW	GWE	TPH	DRO	GRO	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	HVOC	SVOC	Lead
	Units	ft msl	ft btoc	ft msl	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
ADEC Groundwater Cleanup Levels					**1.1**	**1.5**	**2.2**	**0.0046**	**1.1**	**0.015**	**0.19**	**0.14**			**0.015**
RW-1	10/21/1996	-	20.76	-	-	0.842	0.586	0.000828	0.00172	0.00187	0.00352	-	<0.0005 / <0.005	-	-
RW-1	04/27/1997	-	21.02	-	-	0.864	0.459	0.000617	0.000904	0.000862	0.00212	-	<0.001 / <0.005	-	-
RW-1	09/08/1997	-	19.22	-	-	**4.77**	0.791	0.00404	0.00271	0.00207	0.00622	-	<0.001 / <0.005	-	-
RW-1	04/22/1998	-	19.22	-	-	0.651	0.484	<0.0016	<0.0017	<0.0016	<0.0021	-	<0.001 / <0.01	-	-
RW-1	09/17/1998	-	18.96	-	-	0.232	0.352	<0.0005	<0.0165	<0.0015	<0.001	-	<0.001 / <0.005	-	-
RW-1	04/26/1999	-	18.81	-	-	**1.53**	0.167 / 0.168	0.0009 / 0.00093	0.00093 / 0.00106	0.00202 / 0.00237	0.00081 / 0.00159	<0.005 / <0.005	<0.0005 / <0.002 / <0.0005 / <0.002	-	-
RW-1	10/13/1999	-	19.00	-	-	0.39	0.209	<0.0005	<0.0005	<0.0005	<0.0005	<0.005	<0.001 / <0.01	-	-
RW-1	05/17/2000	-	18.85	-	-	0.164 / 0.225	<0.08 / <0.08	<0.0005 / <0.0005	<0.0005 / <0.0005	<0.0005 / <0.0005	<0.001 / <0.001	<0.002 / <0.002	<0.0005 / <0.005 / <0.0005 / <0.005	-	-
RW-1	09/22/2000	-	18.33	-	-	0.333	0.0675	<0.0002	<0.0005	<0.0005	<0.00113	<0.001	<0.001 / <0.005	-	-
RW-1	05/01/2001	-	19.16	-	-	0.299	0.167	0.000487	<0.0005	<0.0005	0.0013	<0.001	<0.001 / <0.005	-	-
RW-1	09/25/2001	-	18.68	-	-	-	0.172	0.000351	<0.0005	<0.0005	0.00143	<0.001	<0.001 / <0.005	-	-
RW-1	05/02/2002	-	17.96	-	-	-	0.0876	<0.0002	<0.0005	<0.0005	<0.001	<0.001	<0.001 / <0.005	-	-
RW-1	09/27/2002	-	18.32	-	-	-	<0.08	<0.0005	<0.0005	<0.0005	<0.001	<0.002	<0.001 / <0.005	-	-
RW-1	05/23/2003	-	18.71	-	-	-	0.056	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.0005 / <0.002	-	-
RW-1	10/08/2003	-	19.09	-	-	-	0.019	<0.0005	<0.0005	<0.0005	<0.001	<0.002	<0.0005 / <0.002	-	-
RW-1	06/04/2004	-	19.30	-	-	-	0.034	<0.0005	<0.0005	<0.0005	<0.001	<0.002	<0.0005 / <0.002	-	-
RW-1	09/28/2004	-	19.27	-	-	-	<0.01	<0.0005	<0.0005	<0.0005	<0.001	<0.002	<0.0005 / <0.002	-	-
RW-1	05/13/2005	-	18.20	-	-	-	0.023	<0.0005	<0.0005	<0.0005	<0.001	<0.002	<0.0005 / <0.002	-	-
RW-1	09/26/2005	-	18.04	-	-	-	0.014	<0.0005	<0.0005	<0.0005	<0.001	<0.002	<0.0005 / <0.002	-	-
RW-1	09/25/2006	-	18.04	-	-	-	0.057	<0.0005	<0.0007	<0.0008	<0.0016	<0.002	<0.0008 / <0.002	-	-
RW-1	05/15/2007	-	18.56	-	-	<0.12 / <0.12	<0.01 / <0.01	<0.0005 / <0.0005	<0.0007 / <0.0007	<0.0008 / <0.0008	<0.0016 / <0.0016	<0.002 / <0.002	<0.0008 / <0.002 / <0.0008 / <0.002	<0.001 / <0.021 / <0.001 / <0.021	-
RW-1	09/24/2007	-	18.57	-	-	0.083 / 0.098	0.02 / 0.02	<0.0005 / <0.0005	<0.0005 / <0.0005	<0.0005 / <0.0005	<0.001 / <0.001	<0.002 / <0.002	<0.0005 / <0.002 / <0.0005 / <0.002	<0.001 / <0.019 / <0.001 / <0.020	-
RW-1	05/14/2008	-	18.52	-	-	0.083	0.02	<0.0005	<0.0007	<0.0008	<0.0016	<0.002	<0.0008 / <0.002	<0.001 / <0.021	-
RW-1	09/16/2008	-	18.19	-	-	0.061	0.06	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0001 / <0.0003	<0.001 / <0.00020	-
RW-1	06/18/2009	-	18.54	-	-	0.20 J / 0.13 J	0.039 J / 0.034 J	<0.0005 / <0.0005	<0.0005 / <0.0005	<0.0005 / <0.0005	<0.0015 / <0.0015	-	ND / ND	ND / ND	-
RW-1	09/07/2009	-	18.77	-	-	0.18 J / 0.14 J	0.053 J / 0.054 J	<0.0005 / <0.0005	<0.0005 / <0.0005	<0.0005 / <0.0005	<0.0015 / <0.0015	-	ND / ND	ND / ND	-
RW-1	04/21/2010	-	19.49	-	-	0.052 J / <0.051	-	<0.0005 / <0.0005	<0.0005 / <0.0005	<0.0005 / <0.0005	<0.0005	-	ND	ND	-
RW-1	07/22/2010	-	19.11	-	-	<0.051 / <0.051	0.010 J / <0.010	<0.0005 / <0.0005	<0.0005 / <0.0005	<0.0005 / <0.0005	<0.0015 / <0.0015	-	ND	ND	-
RW-1	04/19/2011	-	19.41	-	-	0.099 J / 0.089 J	0.019 J / <0.010	<0.0005 / <0.0005	<0.0005 / <0.0005	<0.0005 / <0.0005	<0.0015 / <0.0015	-	ND / ND	ND / ND	-
RW-1	08/22/2011	252.85	19.09	233.76	-	<0.048 / <0.049	0.019 J / 0.011 J	<0.0005 / <0.0005	<0.0005 / <0.0005	<0.0005 / <0.0005	<0.0015 / <0.0015	-	ND / ND	ND / ND	<0.0026 UJ/<0.0022
RW-1	05/22/2012	252.85	18.23	234.62	-	0.051 J / 0.056 J	<0.010 / <0.010	<0.0005 / <0.0005	<0.0005 / <0.0005	<0.0005 / <0.0005	<0.0015 / <0.0015	-	ND / ND	ND / ND	<0.0022/<0.0022
RW-1	07/30/2012	252.85	17.63	235.22	-	<0.051	<0.010	<0.0005	<0.0005	<0.0005	<0.0015	-	ND	ND	<0.0051
RW-1	05/14/2013	252.85	17.95	234.90	-	-	-	-	-	-	-	-	-	-	-
RW-1	09/17/2013	252.85	17.58	235.27	-	-	-	-	-	-	-	-	-	-	-
RW-1	05/02/2014	252.85	18.00	234.85	-	-	-	-	-	-	-	-	-	-	-
RW-1	11/08/2014	252.85	18.47	234.38	-	-	-	-	-	-	-	-	-	-	-
RW-1	05/06/2015	252.85	20.13	232.72	-	-	-	-	-	-	-	-	-	-	-
RW-1	10/21/2015	252.85	18.87	233.98	-	-	-	-	-	-	-	-	-	-	-
RW-1	06/03/2016	252.85	18.71	234.14	-	-	-	-	-	-	-	-	-	-	-
RW-1	10/14/2016	252.85	18.61	234.24	-	-	-	-	-	-	-	-	-	-	-
RW-1	05/23/2017	252.85	18.28	234.57	-	-	-	-	-	-	-	-	-	-	-
RW-1	09/01/2017	252.85	18.87	233.98	-	-	-	-	-	-	-	-	-	-	-
RW-1	05/21/2018	252.85	18.48	234.37	-	-	-	-	-	-	-	-	-	-	-
RW-1	09/25/2018	252.85	19.03	233.82	-	-	-	-	-	-	-	-	-	-	-
SUMP-1	06/01/1991**	-	-	79.82	**52**	**19**	1.1	ND	ND	ND	0.001	-	0.01	-	-
SUMP-1	07/01/1991**	-	-	79.70	-	-	-	-	-	-	-	-	-	-	-
SUMP-1	09/01/1991**	-	-	80.04	**47**	**43**	0.7	**0.007**	ND	ND	0.033	-	-	-	-
SUMP-1	11/01/1991**	-	-	80.13	-	-	-	-	-	-	-	-	-	-	-

Table 2

Historical Groundwater Analytical Results
Chevron-Branded Service Station 98557
415 Muldoon Road
Anchorage, Alaska

					HYDROCARBONS			PRIMARY VOCS					ADDITIONAL VOCS		Metals
Location	Date	TOC	DTW	GWE	TPH	DRO	GRO	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	HVOC	SVOC	Lead
	Units	ft msl	ft btoc	ft msl	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
ADEC Groundwater Cleanup Levels					**1.1**	**1.5**	**2.2**	**0.0046**	**1.1**	**0.015**	**0.19**	**0.14**			**0.015**
SUMP-1	12/01/1991**	-	-	79.64	**18**	**8.2**	0.27	**0.005**	0.001	0.004	0.007	-	-	-	-
SUMP-1	01/01/1992**	-	-	80.11	-	-	-	-	-	-	-	-	-	-	-
SUMP-1	03/01/1992**	-	-	79.29	**10**	**45**	0.39	**0.007**	0.011	0.009	0.024	-	-	-	-
SUMP-1	04/01/1992**	-	-	80.59	-	-	-	-	-	-	-	-	-	-	-
SUMP-1	05/01/1992**	-	-	80.16	-	-	-	-	-	-	-	-	-	-	-
SUMP-1	06/01/1992**	-	-	79.92	**7.4**	**5.1**	ND	**0.009**	0.007	ND	0.011	-	-	-	-
SUMP-1	07/01/1992**	-	-	80.42	-	-	-	-	-	-	-	-	-	-	-
SUMP-1	08/01/1992**	-	-	80.53	-	-	-	-	-	-	-	-	-	-	-
SUMP-1	09/01/1992**	-	-	80.56	-	ND	ND	ND	ND	ND	0.002	-	-	-	-
SUMP-1	11/01/1992**	-	-	80.34	-	-	-	-	-	-	-	-	-	-	-
SUMP-1	12/01/1992**	-	-	80.45	**6.2**	**2.3**	ND	0.003	0.001	0.002	0.007	-	-	-	-
SUMP-1	05/01/1993**	-	-	79.84	-	ND	0.12	**0.005**	0.001	0.002	0.005	-	ND	-	-
SUMP-1	08/01/1993**	-	-	80.24	-	0.38	0.16	0.004	0.001	0.002	0.004	-	ND	-	-
SUMP-1	11/01/1993**	-	-	80.20	-	1.3	0.093	0.002	0.002	0.002	0.004	-	ND	-	-
Trip Blank	02/14/1996	-	-	-	-	-	ND	ND	ND	ND	ND	-	-	-	-
Trip Blank	06/01/1996	-	-	-	-	-	<0.05	<0.0005	<0.0005	<0.0005	<0.001	-	-	-	-
Trip Blank	08/23/1996	-	-	-	-	-	<0.05	<0.0005	0.000513	<0.0005	<0.001	-	-	-	-
Trip Blank	10/21/1996	-	-	-	-	-	<0.05	<0.0005	<0.0005	<0.0005	<0.001	-	-	-	-
Trip Blank	04/27/1997	-	-	-	-	-	<0.05	<0.0005	<0.0005	<0.0005	<0.001	-	-	-	-
Trip Blank	09/08/1997	-	-	-	-	-	<0.05	<0.0005	<0.0005	<0.0005	<0.001	-	-	-	-
Trip Blank	04/22/1998	-	-	-	-	-	<0.05	<0.0005	<0.0005	<0.0005	<0.001	-	-	-	-
Trip Blank	09/17/1998	-	-	-	-	-	<0.05	<0.0005	<0.0005	<0.0005	<0.001	-	-	-	-
Trip Blank	04/26/1999	-	-	-	-	-	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.005	-	-	-
Trip Blank	10/13/1999	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	-
Trip Blank	05/17/2000	-	-	-	-	-	<0.08	<0.0005	<0.0005	<0.0005	<0.001	<0.002	-	-	-
Trip Blank	09/22/2000	-	-	-	-	-	<0.05	<0.0002	<0.0005	<0.0005	<0.001	<0.001	-	-	-
Trip Blank	05/01/2001	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	-
Trip Blank	09/25/2001	-	-	-	-	-	<0.05	<0.0002	<0.0005	<0.0005	<0.001	<0.001	-	-	-
Trip Blank	05/02/2002	-	-	-	-	-	<0.05	<0.0002	<0.0005	<0.0005	<0.001	<0.001	-	-	-
Trip Blank	09/27/2002	-	-	-	-	-	<0.08	<0.0005	<0.0005	<0.0005	<0.001	<0.002	-	-	-
Trip Blank	05/23/2003	-	-	-	-	-	<0.01	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-	-	-
Trip Blank	10/08/2003	-	-	-	-	-	<0.01	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	-	-	-
Trip Blank	06/04/2004	-	-	-	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	-	-	-
Trip Blank	09/28/2004	-	-	-	-	-	<0.01	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	-	-	-
Trip Blank	05/13/2005	-	-	-	-	-	<0.01	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	-	-	-
Trip Blank	09/26/2005	-	-	-	-	-	<0.01	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	-	-	-
Trip Blank	05/15/2007	-	-	-	-	-	<0.01	<0.0005	<0.0007	<0.0008	<0.0016	<0.002	<0.0008 / <0.002	-	-
Trip Blank	09/24/2007	-	-	-	-	-	<0.01	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	-	-	-
Trip Blank	05/14/2008	-	-	-	-	-	<0.01	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	-	-	-
Trip Blank	09/16/2008	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-
Trip Blank	06/10/2009	-	-	-	-	-	<0.010	<0.0005	<0.0005	<0.0005	<0.0015	-	ND	-	-
Trip Blank	09/07/2009	-	-	-	-	-	<0.010	<0.0005	<0.0005	<0.0005	<0.0015	-	ND	-	-
Trip Blank	04/21/2010	-	-	-	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	-	ND	-	-
Trip Blank	07/22/2010	-	-	-	-	-	<0.010	<0.0005	<0.0005	<0.0005	<0.0015	-	ND	-	-
Trip Blank	04/19/2011	-	-	-	-	-	-	-	-	-	-	-	ND	-	-
Trip Blank	08/22/2011	-	-	-	-	-	<0.010	<0.0005	<0.0005	<0.0005	<0.0015	-	ND	-	-
Trip Blank	05/22/2012	-	-	-	-	-	<0.010	<0.0005	<0.0005	<0.0005	<0.0015	-	ND	-	-
Trip Blank	07/30/2012	-	-	-	-	-	<0.010	<0.0005	<0.0005	<0.0005	<0.0015	-	ND	-	-

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Historical Groundwater Analytical Results
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415 Muldoon Road
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					HYDROCARBONS			PRIMARY VOCS					ADDITIONAL VOCS		Metals
Location	Date	TOC	DTW	GWE	TPH	DRO	GRO	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	HVOC	SVOC	Lead
	Units	ft msl	ft btoc	ft msl	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
ADEC Groundwater Cleanup Levels					**1.1**	**1.5**	**2.2**	**0.0046**	**1.1**	**0.015**	**0.19**	**0.14**			**0.015**
Trip Blank-1	05/14/2013	-	-	-	-	-	<0.050	<0.00024	<0.00023	<0.00024	<0.00072	-	ND	-	-
Trip Blank-2	05/14/2013	-	-	-	-	-	<0.050	<0.00024	<0.00023	<0.00024	<0.00072	-	ND	-	-
Trip Blank	09/18/2013	-	-	-	-	-	<0.050	<0.00024	<0.00023	<0.00024	<0.00072	-	-	-	-
Trip Blank	05/02/2014	-	-	-	-	-	<0.050	<0.00015	<0.00011	<0.00016	<0.00040	-	-	-	-
Trip Blank	11/08/2014	-	-	-	-	-	<0.050	<0.00015	0.00014 J	<0.00016	<0.00040	-	-	-	-

Notes and Abbreviations

VOCs = volatile organic compounds
TOC = top of casing
DTW = depth to water
GWE = groundwater elevation
TPH = total petroleum hydrocarbons
DRO = diesel range organics by Alaska Series Method AK 102 SV
GRO = gasoline range organics by Alaska Series Method AK101
Benzene, Toluene, Ethylbenzene, and Total Xylenes by Environmental Protection Agency (EPA) Method 8021B or 8260B
Total Xylenes = sum of m-, o-, and p-xylenes
MTBE = methyl tertiary-butyl ether
HVOC = halogenated volatile organic compounds by EPA Method 524.2
SVOC = semivolatile organic compounds by EPA Method TCL 8270
Lead by EPA Method SW-846 6010B
ft msl = feet above mean sea level
ft btoc = feet below top of casing
mg/L = milligrams per liter
ADEC = Alaska Department of Environmental Conservation
[a] = Levels established in ADEC Table C Groundwater Cleanup Levels (18 AAC 75.345)
Groundwater data from 1991 through 2008 provided by Gettler-Ryan, Inc.
BOLD = Indicates concentration above the ADEC Table C Groundwater Cleanup Level
ND = Not detected above laboratory method detection limits
- = Not measured / not analyzed
x / y = Sample results / blind duplicate results
<x = Constituent not detected above x milligrams per liter
J = Estimated value
* TOC adjusted by 0.2 ft cut for MW-1 and 0.1 ft for MW-3 after 9/25/2018 gauging.
** = Sample date accurate to month and year only