TONGASS ENGINEERING

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(907) 617-8982 | www.tongassengineering.com

State of Alaska DEC Contaminated Sites Program
Attn: Ms. Evonne Reese
PO Box 111800
Juneau, AK 99801

January 5, 2021

Re: 2020 Annual Monitoring Report
Petro Marine Services, Ketchikan
DEC File: 1516.38.026

Dear Ms. Reese,

This report summarizes the total aromatic hydrocarbons (TAH) and total aqueous hydrocarbons (TAqH) monitoring for 2020 at the Petro Marine Services plant and marina located along the waterfront of Tongass Narrows at 1100 Stedman Street in Ketchikan, Alaska (DEC File 1516.38.026).

Background

A site description and environmental history dating back to 1999 for the property is summarized in a decision document from DEC to Petro Marine Services dated 6/3/14, and the DEC public record is available here: https://dec.alaska.gov/Applications/SPAR/PublicMVC/CSP/SiteReport/3888. This information is not repeated herein. However, the following summarizes the associated monitoring.

In consultation with DEC in October 2011, a third-party consultant initiated a monitoring plan to collect subsurface water samples via existing valves in seawalls at the site for analytical laboratory analysis of contaminants of concern, TAH and TAqH. Sampling occurred twice in November 2011; once per month for December 2011, January 2012, and February 2012; and once per quarter for Quarters 2 and 3 of 2012. In consultation with DEC, sample collection was suspended in October 2012 pending DEC determination of further requirements and controls.

On 6/3/14, DEC issued a Cleanup Complete Determination with Institutional Controls letter to Petro Marine Services documenting the decision to institute long term monitoring to report trends in concentrations of contaminants of concern previously detected above regulatory levels in seawall subsurface waters, as a condition for closure determination. Monitoring consisted of quarterly collection of analytical samples from "Port E", a valve at the base of the south seawall facing Tongass Narrows, for laboratory analysis of BTEX and PAH compounds as TAH and TAqH.

From Quarter 3 of 2014 to Quarter 4 of 2016, Petro Marine Services contracted with a third-party consultant to collect the "Port E" quarterly samples for laboratory analysis; six quarterly samples were obtained during the ten-quarter period. The *2014 to 2016 Monitoring Report* by Tongass Engineering dated 5/12/17 summarizes the results of the analyses and includes data from the 2011-2012 sampling. While the 2014-2016 sampling exceeded the water quality standard and showed a slight upward trend in TAH and TAqH concentrations over the small sample period, the results showed significant declines in concentrations over the longer period from 2011 to 2016.

The *2014 to 2016 Monitoring Report* by Tongass Engineering served as the basis to recommend, in consultation with DEC, continuing the current monitoring program but reduce the sampling

frequency from quarterly to twice per year, once in March/April and once in September/October, as the steep declines in concentrations are likely to moderate and reveal less percent change each quarter. DEC approved the revised sampling plan by email on 5/19/17.

Petro Marine Services proposed no changes to the annual monitoring report requirement or the requirement to continue sampling until concentrations of TAH and TAqH are below regulatory levels for four sampling events, as outlined in Institutional Controls 1 and 2 described in the DEC 6/3/14 Cleanup Complete Determination with Institutional Controls letter to Petro Marine Services.

2020 Sampling

For both the spring and fall 2020 water sampling events, Tongass Engineering collected water samples from "Port E", a valve at the base of the south seawall facing Tongass Narrows. Using Tongass Engineering's standard sampling procedures to prevent contamination, samples were collected in a cleaned Pyrex glass vessel due to the valve proximity near the ground surface, the high flow intensity exiting the valve, the irregularity of the valve water stream, to reduce air bubble entrapment, and to avoid potential splash-out of preservatives. Samples were then transferred into glass containers provided by ALS Environmental following standard protocol for each analysis.

For both the spring and fall 2020 water sampling events, the sample containers were packaged in a cooler with frozen gel packs and shipped express delivery to the ALS Environmental laboratory in Kelso, Washington, for laboratory analysis of BTEX and PAH compounds as TAH and TAqH. All samples were recorded by the laboratory as arriving in good condition and properly preserved.

Testing

The ALS Environmental laboratory tested for the presence and concentrations of the contaminants of concern within the "Port E" samples. The laboratory analyzed BTEX VOC samples per EPA Method 8260C and PAH samples per EPA Method 8270D. Each contaminant is described as follows:

1. Total aromatic hydrocarbons (TAH): The sum of volatile monocyclic aromatic hydrocarbon compounds benzene, toluene, ethylbenzene, and three isomers of xylene (BTEX) typically found in petroleum products such as gasoline and diesel fuel. As the most soluble of the major gasoline compounds, they are common indicators of gasoline contamination. – DEC 18 AAC 70 / US Environmental Protection Agency / US Geological Survey

2. Total aqueous hydrocarbons (TAqH): The collective dissolved and water-accommodated monocyclic aromatic hydrocarbon compounds of BTEX and polycyclic/polynuclear aromatic hydrocarbons (PAH) that are persistent in the water column, not including floating surface oil or grease. PAH are organic compounds built from two or more benzene rings arranged in various configurations, found naturally in the environment and in petroleum and emissions from fossil fuel utilization and conversion processes. Many are listed by the US Environmental Protection Agency as priority pollutants for monitoring due to toxic and hazardous properties. – DEC 18 AAC 70 / National Research Council / US Geological Survey

Results

TAH and TAqH laboratory test results for all sampling are summarized in Table 1 of Attachment 1. Chart 1 and Chart 2 of Attachment 2 depict TAH and TAqH concentration trends from 2014 to 2020

and 2011 to 2020, respectively. Attachments 3 and 4 include the ALS Environmental laboratory reports from the 2020 spring and fall water sampling events; past lab reports were previously provided to DEC as attachments to the subject year annual monitoring report.

Conclusion

This site is subject to tidal waters of Tongass Narrows, and the applicable water quality standard for petroleum hydrocarbons for marine water uses per 18 AAC 70.020(b)(17)(A) is the following:

Contaminant	Water Quality Standard
TAH	May not exceed 10 µg/L
TAqH	May not exceed 15 µg/L

While the 2020 sampling exceeds the applicable water quality standard indicated above, and while the 2020 spring and fall sampling indicates a slight uptick from the 2019 sampling events, the decreasing trends in TAH and TAqH concentrations over a short period between 2014 and 2020 continues to be represented, as shown in Chart 1. Additionally, the 2020 sampling reflects the continuing significant declines relative to the initial sampling conducted from 2011 to 2012, as shown in Chart 2.

Recommendations

Per DEC's Cleanup Complete Determination with Institutional Controls letter dated 6/3/14 and as amended by email on 5/19/17, we recommend continuing the current monitoring program of twice per year water sample collection at "Port E" for laboratory analysis of BTEX and PAH compounds as TAH and TAqH to document the trend in concentrations. We recommend no changes to the annual monitoring report requirement or the requirement to continue sampling until concentrations of TAH and TAqH are below regulatory levels for four sampling events.

Please do not hesitate to contact us with any questions or if we can be of further assistance.

Sincerely,
TONGASS ENGINEERING, LLC

Brett Serlin

Brett Serlin, PE

Attachment:

1. Table 1. TAH and TAqH Results
2. TAH and TAqH monitoring charts
    a. Chart 1. TAH and TAqH Monitoring 2014 to 2020
    b. Chart 2. TAH and TAqH Monitoring 2011 to 2020
3. ALS Environmental analytical report, 4/24/20
4. ALS Environmental analytical report, 10/30/20

Cc: Mr. David Simmerman, Petro Marine Services, davids@petro49.com
Mr. Kris Hall, Petro Marine Services, krish@petro49.com

Attachment 1

Table 1. TAH and TAqH Results

Year	Sample Event	Collection Date	Sampler	Sample ID	TAH (µg/L)	TAqH (µg/L)
2011	Nov 2011	11/10/11	R&M Engr Ktn		16,250	16,250
	Nov 2011	11/23/11	R&M Engr Ktn		11,700	11,700
	Dec 2011	12/7/11	R&M Engr Ktn		10,020	10,095
2012	Jan 2012	1/11/12	R&M Engr Ktn		10,070	10,150
	Feb 2012	2/14/12	R&M Engr Ktn		18,200	18,300
	Quarter 2	6/13/12	R&M Engr Ktn		21,000	21,000
	Quarter 3	9/11/12	R&M Engr Ktn		21,000	21,000
2012 Quarter 4 thru 2014 Quarter 2: Awaiting DEC decision					--	--
2014	Quarter 3	No sampling performed		--	--	--
	Quarter 4	11/24/14	Full Cycle LLC	PMS outfall 1 (1)	- ND -	- ND -
2015	Quarter 1	No sampling performed		--	--	--
	Quarter 2	No sampling performed		--	--	--
	Quarter 3	7/20/15	Full Cycle LLC	PMS-SW1	630	660
	Quarter 4	10/20/15	Full Cycle LLC	PMS-W-3	2,500	2,500
2016	Quarter 1	2/1/16	Full Cycle LLC	PMS-SW1	1,300	1,300
	Quarter 2	4/29/16	Full Cycle LLC	Port E (2)	1,200	1,200
	Quarter 3	9/13/16	Full Cycle LLC	Port E	1,900	1,900
	Quarter 4	No sampling performed		--	--	--
2017	Quarter 1	3/27/17	Full Cycle LLC	PORT E	2,300	2,300
	Quarter 2	6/26/17	Full Cycle LLC	PORT E	510	510
	Fall: Q3/Q4	11/8/17	Tongass Engr	Port E	850	870
2018	Spring: Q1/Q2	5/31/18	Tongass Engr	Port E	1,070	1,090
	Fall: Q3/Q4	10/10/18	Tongass Engr	Port E	380	380
2019	Spring: Q1/Q2	6/21/19	Tongass Engr	Port E	860	880
	Fall: Q3/Q4	10/22/19	Tongass Engr	Port E	510	520
2020	Spring: Q1/Q2	4/9/20	Tongass Engr	Port E	1,030	1,050
	Fall: Q3/Q4	10/6/20	Tongass Engr	Port E	580	590

Notes: (1) Based on issues outlined in the associated lab report and the resultant data, it is believed that this sampling event should not be considered representative. This data set is excluded from the graphical charts due to uncertainty.

(2) The laboratory receipt notes that the samples were received outside of the required preservation temperature criteria of 4°C ± 2°C. The resultant data does not indicate that this sampling event should otherwise be considered suspect.

ND Indicates that the particular contaminant was not detected in the analyzed sample.

Attachment 2

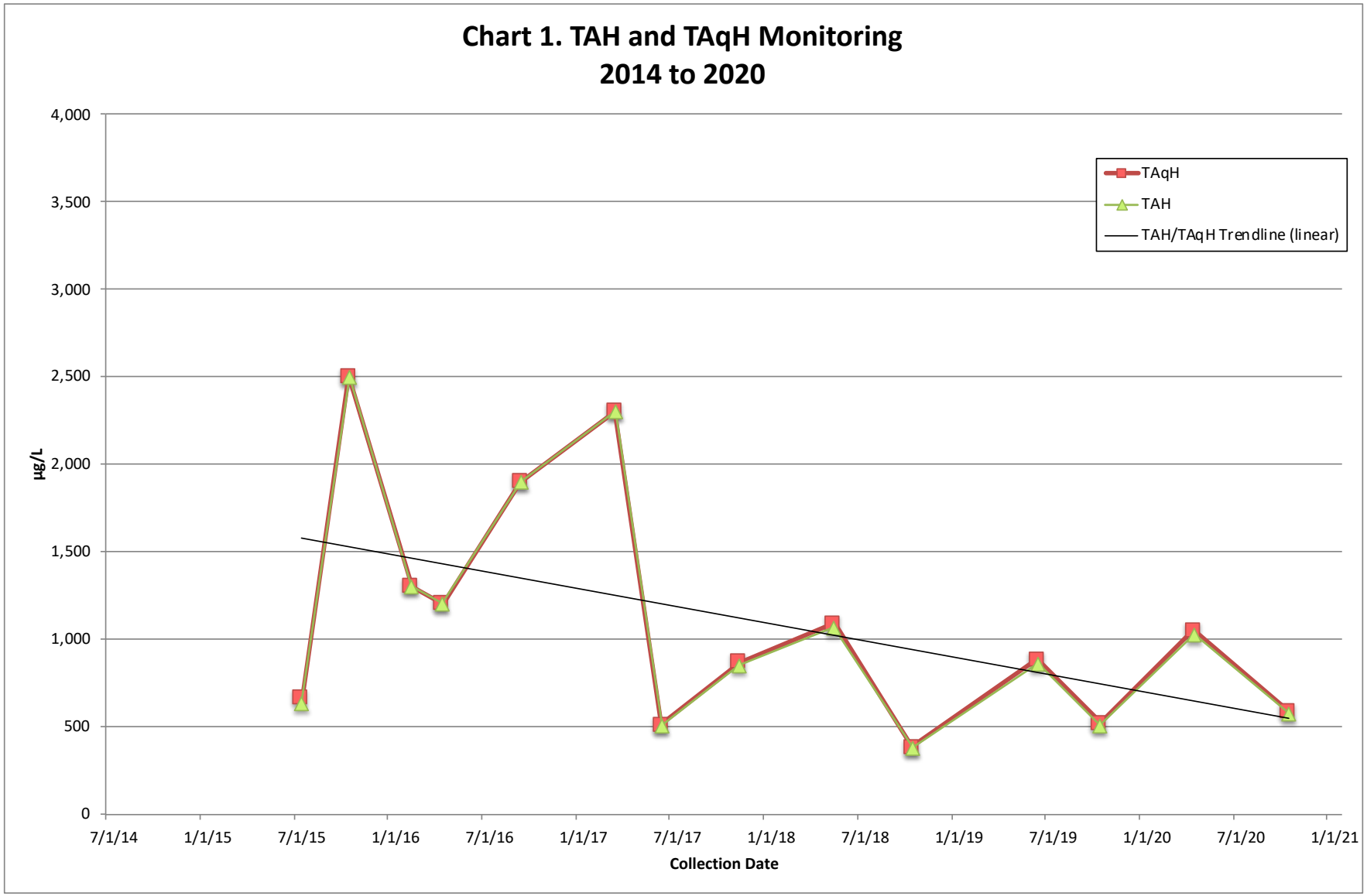
Chart 1. TAH and TAqH Monitoring
2014 to 2020
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
µg/L
TAqH
TAH
TAH/TAqH Trendline (linear)
7/1/14
1/1/15
7/1/15
1/1/16
7/1/16
1/1/17
7/1/17
1/1/18
7/1/18
1/1/19
7/1/19
1/1/20
7/1/20
1/1/21
Collection Date

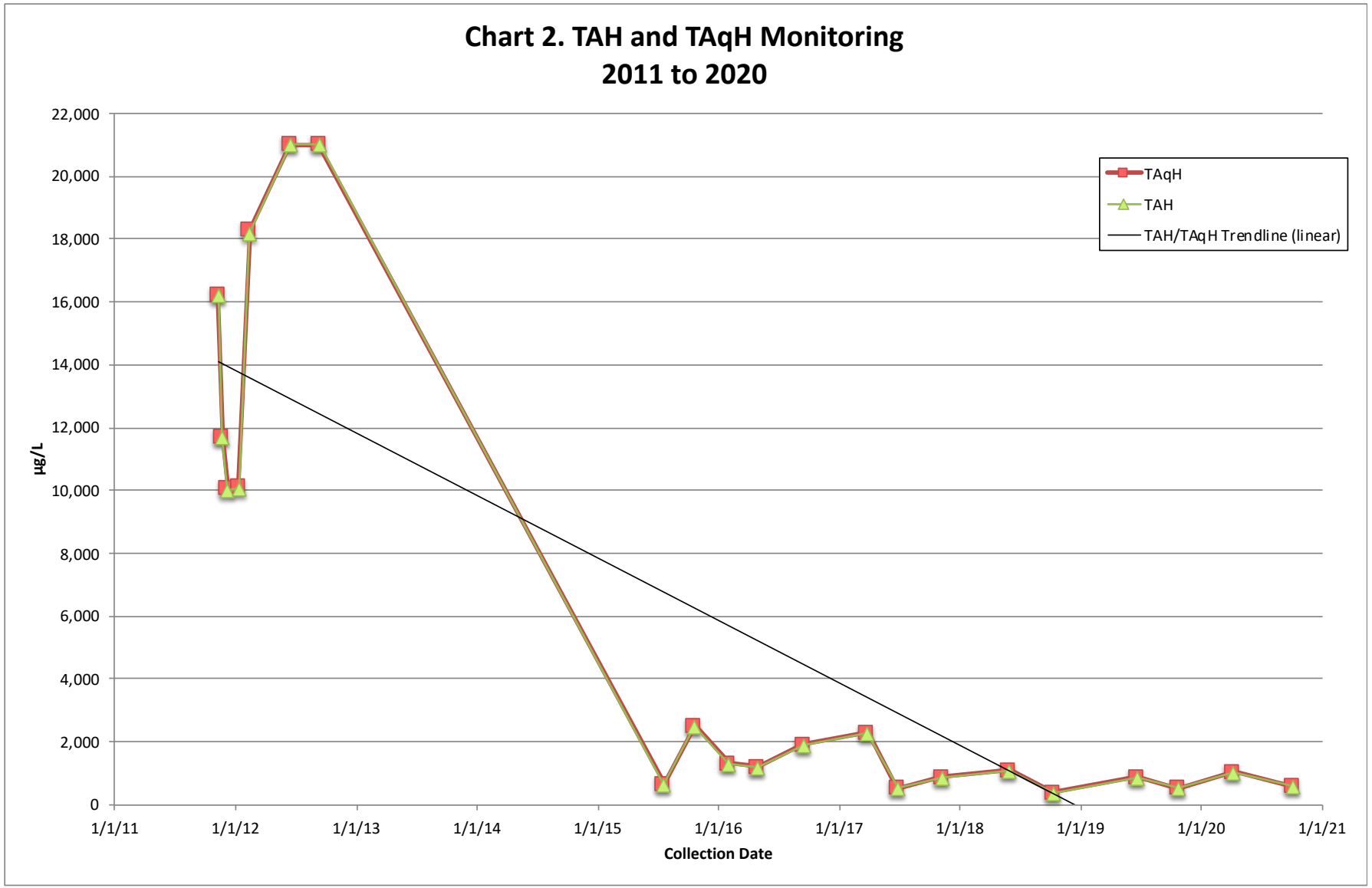
Chart 2. TAH and TAqH Monitoring
2011 to 2020
22,000
20,000
18,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
ug/L
1/1/11
1/1/12
1/1/13
1/1/14
1/1/15
1/1/16
1/1/17
1/1/18
1/1/19
1/1/20
1/1/21
Collection Date
TAqH
TAH
TAH/TAqH Trendline (linear)

Attachment 3

April 24, 2020 Service Request No:K2003092

Brett Serlin
Tongass Engineering LLC
PO Box 5436
Ketchikan, AK 99901

Laboratory Results for: Petro Marine Services "Port E"

Dear Brett,

Enclosed are the results of the sample(s) submitted to our laboratory April 10, 2020
For your reference, these analyses have been assigned our service request number **K2003092.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3376. You may also contact me via email at Mark.Harris@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Mark Harris
Project Manager

ADDRESS 1317 S. 13th Avenue, Kelso, WA 98626
PHONE +1 360 577 7222 | FAX +1 360 636 1068
ALS Group USA, Corp.
dba ALS Environmental

Narrative Documents

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

ALS Environmental

Client: Tongass Engineering LLC
Project: Petro Marine Services "Port E"
Sample Matrix: Water

Service Request: K2003092
Date Received: 04/10/2020

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier I level requested by the client.

Sample Receipt:

One water sample was received for analysis at ALS Environmental on 04/10/2020. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The sample was stored at minimum in accordance with the analytical method requirements.

Semivolatiles by GC/MS:

Method 8270D, Polycyclic Aromatic Hydrocarbons by GC/MS SIM 04/14/2020: The results reported for Acenaphthylene in sample Port E may contain a slight bias. The chromatogram indicated the presence of non-target background components. The matrix interference may have resulted in a slight high bias in the affected sample. The result was flagged with “X” to indicate the issue.

Volatiles by GC/MS:

Method 8260C, 4/22/20; The following analytes were flagged as outside the control criterion for Continuing Calibration Verification (CCV) MS13\0422F007.D: Acetone, Naphthalene, and 1,2,3-Trichlorobenzene. In accordance with the EPA Method, 80% or more of the CCV analytes must pass within 20% of the true value. The ALS SOP allows for 40% difference for the remaining analytes. The CCV met these criteria. The quality of the sample data was not significantly affected. No further corrective action was required.

Approved by Noe D. Dan Date 04/24/2020

SAMPLE DETECTION SUMMARY

CLIENT ID: Port E	Lab ID: K2003092-001					
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Benzene	380			10	ug/L	8260C
Ethylbenzene	270			10	ug/L	8260C
Isopropylbenzene	27			4.0	ug/L	8260C
Naphthalene	18			4.0	ug/L	8260C
n-Propylbenzene	75			4.0	ug/L	8260C
Toluene	20			1.0	ug/L	8260C
1,2,4-Trimethylbenzene	140			4.0	ug/L	8260C
o-Xylene	5.7			1.0	ug/L	8260C
m,p-Xylenes	350			10	ug/L	8260C
2-Methylnaphthalene	2.9			0.020	ug/L	8270D
Acenaphthene	0.59			0.020	ug/L	8270D
Acenaphthylene	0.12	X		0.020	ug/L	8270D
Anthracene	0.039			0.020	ug/L	8270D
Dibenzofuran	0.22			0.020	ug/L	8270D
Fluoranthene	0.024			0.020	ug/L	8270D
Fluorene	0.70			0.020	ug/L	8270D
Naphthalene	20			0.10	ug/L	8270D
Phenanthrene	0.23			0.020	ug/L	8270D
Pyrene	0.031			0.020	ug/L	8270D

Sample Receipt Information

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

Client: Tongass Engineering LLC **Service Request:**K2003092

Project: Petro Marine Services "Port E"/ADEC 1516.38.026

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
K2003092-001	Port E	4/9/2020	1000

Chain of Custody

K 2003092

ADDRESS 1317 South 13th Ave., Kelso, WA 98626
PHONE 1 360 577 7222 FAX 1 360 636 1068

Part of the ALS Group A Campbell Brothers Limited Company

Work Order No.: 106601

Project Manager:	Brett Serlin, Tongass Engineering		**Bill to:**	Brett Serlin	Notes: 1. Please calculate sums for TAH and TAqH and include in report
Client Name:	Petro Marine Services		**Company:**	Tongass Engineering	
Address:	1100 Stedman St		**Address:**	PO Box 5436	
City, State ZIP:	Ketchikan, AK 99901		**City, State ZIP:**	Ketchikan, AK 99901	
Email:	brett@tongassengineering.com	**Phone:** 907-617-8982	**Email:**	brett@tongassengineering.com	**PO #**
Project Name:	Petro Marine Services "Port E"				
Project Number:	ADEC 1516.38.026				
Sampler's Name:	Brett Serlin, Tongass Engineering, Ketchikan, Alaska brett@tongassengineering.com, 907-617-8982				

SAMPLE RECEIPT

Temperature (°C):		Temp Blank Present		
Received Intact:	Yes	No	N/A	Wet Ice / Blue Ice
Cooler Custody Seals:	Yes	No	N/A	Total Containers:
Sample Custody Seals:	Yes	No	N/A	

REQUESTED ANALYSIS

TAT

- ✓ Routine 21day
- Same Day *** 100%
- Next Day ***
- 3 Day
- 5 Day 50%

Surcharges. Please call for availability

Due Date:

Comments

Sample Identification	Matrix	Date Sampled	Time Sampled	Lab ID	No. of Containers	8270D / PAH	8260C / VOC FP
1. Port E	WT	4/9/20	1000		5	✓	✓
2.							
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.							
11.							
12.							
13.							

Dissolved	Ag Al As B Ba Be Ca Cd Co Cr Cu Fe K Li Mg Mn Mo Na Ni P Pb Sb Se Si Sn Sr Th Tl U V Zn Hg
Total	Ag Al As B Ba Be Ca Cd Co Cr Cu Fe K Li Mg Mn Mo Na Ni P Pb Sb Se Si Sn Sr Th Tl U V Zn Hg

Additional Methods Available Upon Request

RELINQUISHED BY			RECEIVED BY		
Print Name	Signature	Date/Time	Print Name	Signature	Date/Time
Brett Serlin, Tongass Engineering	Brett Serlin	4/9/20 @ 1100			4/10/20 1305

PC MH

Cooler Receipt and Preservation Form

Client Tongass Service Request K20 03092

Received: 4/10/20 Opened: 4/10/20 By: BR Unloaded: 4/10/20 By: BR

1. Samples were received via? *USPS* *Fed Ex* *UPS* *DHL* (*PDX*) (*Courier*) *Hand Delivered*
2. Samples were received in: (circle) (*Cooler*) *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA (Y) N If yes, how many and where? front
   If present, were custody seals intact? (Y) N If present, were they signed and dated? (Y) N

Temp Blank	Sample 1	Sample 2	Sample 3	Sample 4	IR GUN	Cooler / COC ID (NA)	Tracking Number (NA)	Filed
4.0	—	—	—	—	3980488			✓

4. Packing material: *Inserts* *Baggies* (*Bubble Wrap*) (*Gel Packs*) *Wet Ice* *Dry Ice* *Sleeves* _____
5. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
6. Were samples received in good condition (temperature, unbroken)? *Indicate in the table below.* NA (Y) N
   If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*
7. Were all sample labels complete (i.e analysis, preservation, etc.)? NA (Y) N
8. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA (Y) N
9. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
10. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* (NA) Y N
11. Were VOA vials received without headspace? *Indicate in the table below.* NA (Y) N
12. Was C12/Res negative? NA (Y) N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Out of Temp	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, & Resolutions: _____

Miscellaneous Forms

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEH	http://dec.alaska.gov/eh/lab/cs/csapproval.htm	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L16-58-R4
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	http://health.hawaii.gov/	-
ISO 17025	http://www.pjlabs.com/	L16-57
Louisiana DEQ	http://www.deq.louisiana.gov/page/la-lab-accreditation	03016
Maine DHS	http://www.maine.gov/dhhs/	WA01276
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/enforcement/oqa.html	WA005
New York - DOH	https://www.wadsworth.org/regulatory/elap	12060
North Carolina DEQ	https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/EnvironmentalLabCertification/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wyoming (EPA Region 8)	https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water-	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Client:	Tongass Engineering LLC	**Service Request:**	K2003092
Project:	Petro Marine Services "Port E"/ADEC 1516.38.026		

Sample Name:	Port E	**Date Collected:**	04/9/20
Lab Code:	K2003092-001	**Date Received:**	04/10/20
Sample Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
8260C		JJAMES
8270D	SDANIELS	LWEISKOPF

Sample Name:	Port E	**Date Collected:**	04/9/20
Lab Code:	K2003092-001.R01	**Date Received:**	04/10/20
Sample Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
8260C		JJAMES
8270D	SDANIELS	LWEISKOPF

Sample Results

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Volatile Organic Compounds by GC/MS

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Analytical Report

Client:	Tongass Engineering LLC	**Service Request:**	K2003092
Project:	Petro Marine Services "Port E"/ADEC 1516.38.026	**Date Collected:**	04/09/20 10:00
Sample Matrix:	Water	**Date Received:**	04/10/20 13:05
Sample Name:	Port E	**Units:**	ug/L
Lab Code:	K2003092-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	Dil.	Date Analyzed	Q
Acetone	ND U	40	2	04/22/20 14:11	*
Benzene	**380**	10	20	04/22/20 14:38	
Bromobenzene	ND U	4.0	2	04/22/20 14:11	
Bromochloromethane	ND U	1.0	2	04/22/20 14:11	
Bromodichloromethane	ND U	1.0	2	04/22/20 14:11	
Bromoform	ND U	1.0	2	04/22/20 14:11	
Bromomethane	ND U	1.0	2	04/22/20 14:11	
2-Butanone (MEK)	ND U	40	2	04/22/20 14:11	
n-Butylbenzene	ND U	8.0	2	04/22/20 14:11	
sec-Butylbenzene	ND U	4.0	2	04/22/20 14:11	
tert-Butylbenzene	ND U	4.0	2	04/22/20 14:11	
Carbon Disulfide	ND U	1.0	2	04/22/20 14:11	
Carbon Tetrachloride	ND U	1.0	2	04/22/20 14:11	
Chlorobenzene	ND U	1.0	2	04/22/20 14:11	
Chloroethane	ND U	1.0	2	04/22/20 14:11	
Chloroform	ND U	1.0	2	04/22/20 14:11	
Chloromethane	ND U	1.0	2	04/22/20 14:11	
2-Chlorotoluene	ND U	4.0	2	04/22/20 14:11	
4-Chlorotoluene	ND U	4.0	2	04/22/20 14:11	
1,2-Dibromo-3-chloropropane	ND U	4.0	2	04/22/20 14:11	
Dibromochloromethane	ND U	1.0	2	04/22/20 14:11	
1,2-Dibromoethane (EDB)	ND U	4.0	2	04/22/20 14:11	
Dibromomethane	ND U	1.0	2	04/22/20 14:11	
1,2-Dichlorobenzene	ND U	1.0	2	04/22/20 14:11	
1,3-Dichlorobenzene	ND U	1.0	2	04/22/20 14:11	
1,4-Dichlorobenzene	ND U	1.0	2	04/22/20 14:11	
Dichlorodifluoromethane	ND U	1.0	2	04/22/20 14:11	
1,1-Dichloroethane	ND U	1.0	2	04/22/20 14:11	
1,2-Dichloroethane (EDC)	ND U	1.0	2	04/22/20 14:11	
1,1-Dichloroethene	ND U	1.0	2	04/22/20 14:11	
cis-1,2-Dichloroethene	ND U	1.0	2	04/22/20 14:11	
trans-1,2-Dichloroethene	ND U	1.0	2	04/22/20 14:11	
1,2-Dichloropropane	ND U	1.0	2	04/22/20 14:11	
1,3-Dichloropropane	ND U	1.0	2	04/22/20 14:11	
2,2-Dichloropropane	ND U	1.0	2	04/22/20 14:11	
1,1-Dichloropropene	ND U	1.0	2	04/22/20 14:11	
cis-1,3-Dichloropropene	ND U	1.0	2	04/22/20 14:11	
trans-1,3-Dichloropropene	ND U	1.0	2	04/22/20 14:11	
Ethylbenzene	**270**	10	20	04/22/20 14:38	
Hexachlorobutadiene	ND U	4.0	2	04/22/20 14:11	
2-Hexanone	ND U	40	2	04/22/20 14:11	
Isopropylbenzene	**27**	4.0	2	04/22/20 14:11	
4-Isopropyltoluene	ND U	4.0	2	04/22/20 14:11	

Analytical Report

Client:	Tongass Engineering LLC	**Service Request:**	K2003092
Project:	Petro Marine Services "Port E"/ADEC 1516.38.026	**Date Collected:**	04/09/20 10:00
Sample Matrix:	Water	**Date Received:**	04/10/20 13:05
Sample Name:	Port E	**Units:**	ug/L
Lab Code:	K2003092-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	Dil.	Date Analyzed	Q
4-Methyl-2-pentanone (MIBK)	ND U	40	2	04/22/20 14:11	
Methylene Chloride	ND U	4.0	2	04/22/20 14:11	
Naphthalene	**18**	4.0	2	04/22/20 14:11	*
n-Propylbenzene	**75**	4.0	2	04/22/20 14:11	
Styrene	ND U	1.0	2	04/22/20 14:11	
1,1,1,2-Tetrachloroethane	ND U	1.0	2	04/22/20 14:11	
1,1,2,2-Tetrachloroethane	ND U	1.0	2	04/22/20 14:11	
Tetrachloroethene (PCE)	ND U	1.0	2	04/22/20 14:11	
Toluene	**20**	1.0	2	04/22/20 14:11	
1,2,3-Trichlorobenzene	ND U	4.0	2	04/22/20 14:11	*
1,2,4-Trichlorobenzene	ND U	4.0	2	04/22/20 14:11	
1,1,2-Trichloroethane	ND U	1.0	2	04/22/20 14:11	
1,1,1-Trichloroethane (TCA)	ND U	1.0	2	04/22/20 14:11	
Trichloroethene (TCE)	ND U	1.0	2	04/22/20 14:11	
Trichlorofluoromethane (CFC 11)	ND U	1.0	2	04/22/20 14:11	
1,2,3-Trichloropropane	ND U	1.0	2	04/22/20 14:11	
1,2,4-Trimethylbenzene	**140**	4.0	2	04/22/20 14:11	
1,3,5-Trimethylbenzene	ND U	4.0	2	04/22/20 14:11	
Vinyl Chloride	ND U	1.0	2	04/22/20 14:11	
o-Xylene	**5.7**	1.0	2	04/22/20 14:11	
m,p-Xylenes	**350**	10	20	04/22/20 14:38	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	86	68 - 117	04/22/20 14:11	
Dibromofluoromethane	101	73 - 122	04/22/20 14:11	
Toluene-d8	105	65 - 144	04/22/20 14:11	

Semivolatile Organic Compounds by GC/MS

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dba ALS Environmental

Analytical Report

Client:	Tongass Engineering LLC	**Service Request:**	K2003092
Project:	Petro Marine Services "Port E"/ADEC 1516.38.026	**Date Collected:**	04/09/20 10:00
Sample Matrix:	Water	**Date Received:**	04/10/20 13:05
Sample Name:	Port E	**Units:**	ug/L
Lab Code:	K2003092-001	**Basis:**	NA

Polycyclic Aromatic Hydrocarbons by GC/MS SIM

Analysis Method: 8270D
Prep Method: EPA 3511

Analyte Name	Result		MRL	Dil.	Date Analyzed	Date Extracted	Q
2-Methylnaphthalene	**2.9**		0.020	1	04/14/20 12:08	4/13/20	
Acenaphthene	**0.59**		0.020	1	04/14/20 12:08	4/13/20	
Acenaphthylene	**0.12**	**X**	0.020	1	04/14/20 12:08	4/13/20	
Anthracene	**0.039**		0.020	1	04/14/20 12:08	4/13/20	
Benz(a)anthracene	ND	U	0.020	1	04/14/20 12:08	4/13/20	
Benzo(a)pyrene	ND	U	0.020	1	04/14/20 12:08	4/13/20	
Benzo(b)fluoranthene	ND	U	0.020	1	04/14/20 12:08	4/13/20	
Benzo(g,h,i)perylene	ND	U	0.020	1	04/14/20 12:08	4/13/20	
Benzo(k)fluoranthene	ND	U	0.020	1	04/14/20 12:08	4/13/20	
Chrysene	ND	U	0.020	1	04/14/20 12:08	4/13/20	
Dibenz(a,h)anthracene	ND	U	0.020	1	04/14/20 12:08	4/13/20	
Dibenzofuran	**0.22**		0.020	1	04/14/20 12:08	4/13/20	
Fluoranthene	**0.024**		0.020	1	04/14/20 12:08	4/13/20	
Fluorene	**0.70**		0.020	1	04/14/20 12:08	4/13/20	
Indeno(1,2,3-cd)pyrene	ND	U	0.020	1	04/14/20 12:08	4/13/20	
Naphthalene	**20**		0.10	5	04/14/20 11:22	4/13/20	
Phenanthrene	**0.23**		0.020	1	04/14/20 12:08	4/13/20	
Pyrene	**0.031**		0.020	1	04/14/20 12:08	4/13/20	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Fluoranthene-d10	90	42 - 133	04/14/20 12:08	
Fluorene-d10	100	42 - 131	04/14/20 12:08	
Terphenyl-d14	66	32 - 129	04/14/20 12:08	

QC Summary Forms

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Volatile Organic Compounds by GC/MS

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Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

Client: Tongass Engineering LLC **Service Request:** K2003092
Project: Petro Marine Services "Port E"/ADEC 1516.38.026
Sample Matrix: Water

SURROGATE RECOVERY SUMMARY
Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Extraction Method: None

Sample Name	Lab Code	4-Bromofluorobenzene 68-117	Dibromofluoromethane 73-122	Toluene-d8 65-144
Port E	K2003092-001	86	101	105
Batch QC	K2003162-003	91	97	107
Method Blank	KQ2005446-07	87	100	105
Lab Control Sample	KQ2005446-05	94	104	106
Duplicate Lab Control Sample	KQ2005446-06	93	101	108
Batch QC	KQ2005446-01	95	106	106
Batch QC	KQ2005446-02	97	103	106

Analytical Report

Client:	Tongass Engineering LLC	**Service Request:**	K2003092
Project:	Petro Marine Services "Port E"/ADEC 1516.38.026	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KQ2005446-07	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	Dil.	Date Analyzed	Q
Acetone	ND U	20	1	04/22/20 13:45	
Benzene	ND U	0.50	1	04/22/20 13:45	
Bromobenzene	ND U	2.0	1	04/22/20 13:45	
Bromochloromethane	ND U	0.50	1	04/22/20 13:45	
Bromodichloromethane	ND U	0.50	1	04/22/20 13:45	
Bromoform	ND U	0.50	1	04/22/20 13:45	
Bromomethane	ND U	0.50	1	04/22/20 13:45	
2-Butanone (MEK)	ND U	20	1	04/22/20 13:45	
n-Butylbenzene	ND U	4.0	1	04/22/20 13:45	
sec-Butylbenzene	ND U	2.0	1	04/22/20 13:45	
tert-Butylbenzene	ND U	2.0	1	04/22/20 13:45	
Carbon Disulfide	ND U	0.50	1	04/22/20 13:45	
Carbon Tetrachloride	ND U	0.50	1	04/22/20 13:45	
Chlorobenzene	ND U	0.50	1	04/22/20 13:45	
Chloroethane	ND U	0.50	1	04/22/20 13:45	
Chloroform	ND U	0.50	1	04/22/20 13:45	
Chloromethane	ND U	0.50	1	04/22/20 13:45	
2-Chlorotoluene	ND U	2.0	1	04/22/20 13:45	
4-Chlorotoluene	ND U	2.0	1	04/22/20 13:45	
1,2-Dibromo-3-chloropropane	ND U	2.0	1	04/22/20 13:45	
Dibromochloromethane	ND U	0.50	1	04/22/20 13:45	
1,2-Dibromoethane (EDB)	ND U	2.0	1	04/22/20 13:45	
Dibromomethane	ND U	0.50	1	04/22/20 13:45	
1,2-Dichlorobenzene	ND U	0.50	1	04/22/20 13:45	
1,3-Dichlorobenzene	ND U	0.50	1	04/22/20 13:45	
1,4-Dichlorobenzene	ND U	0.50	1	04/22/20 13:45	
Dichlorodifluoromethane	ND U	0.50	1	04/22/20 13:45	
1,1-Dichloroethane	ND U	0.50	1	04/22/20 13:45	
1,2-Dichloroethane (EDC)	ND U	0.50	1	04/22/20 13:45	
1,1-Dichloroethene	ND U	0.50	1	04/22/20 13:45	
cis-1,2-Dichloroethene	ND U	0.50	1	04/22/20 13:45	
trans-1,2-Dichloroethene	ND U	0.50	1	04/22/20 13:45	
1,2-Dichloropropane	ND U	0.50	1	04/22/20 13:45	
1,3-Dichloropropane	ND U	0.50	1	04/22/20 13:45	
2,2-Dichloropropane	ND U	0.50	1	04/22/20 13:45	
1,1-Dichloropropene	ND U	0.50	1	04/22/20 13:45	
cis-1,3-Dichloropropene	ND U	0.50	1	04/22/20 13:45	
trans-1,3-Dichloropropene	ND U	0.50	1	04/22/20 13:45	
Ethylbenzene	ND U	0.50	1	04/22/20 13:45	
Hexachlorobutadiene	ND U	2.0	1	04/22/20 13:45	
2-Hexanone	ND U	20	1	04/22/20 13:45	
Isopropylbenzene	ND U	2.0	1	04/22/20 13:45	
4-Isopropyltoluene	ND U	2.0	1	04/22/20 13:45	

Client:	Tongass Engineering LLC	**Service Request:**	K2003092
Project:	Petro Marine Services "Port E"/ADEC 1516.38.026	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KQ2005446-07	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	Dil.	Date Analyzed	Q
4-Methyl-2-pentanone (MIBK)	ND U	20	1	04/22/20 13:45	
Methylene Chloride	ND U	2.0	1	04/22/20 13:45	
Naphthalene	ND U	2.0	1	04/22/20 13:45	
n-Propylbenzene	ND U	2.0	1	04/22/20 13:45	
Styrene	ND U	0.50	1	04/22/20 13:45	
1,1,1,2-Tetrachloroethane	ND U	0.50	1	04/22/20 13:45	
1,1,2,2-Tetrachloroethane	ND U	0.50	1	04/22/20 13:45	
Tetrachloroethene (PCE)	ND U	0.50	1	04/22/20 13:45	
Toluene	ND U	0.50	1	04/22/20 13:45	
1,2,3-Trichlorobenzene	ND U	2.0	1	04/22/20 13:45	
1,2,4-Trichlorobenzene	ND U	2.0	1	04/22/20 13:45	
1,1,2-Trichloroethane	ND U	0.50	1	04/22/20 13:45	
1,1,1-Trichloroethane (TCA)	ND U	0.50	1	04/22/20 13:45	
Trichloroethene (TCE)	ND U	0.50	1	04/22/20 13:45	
Trichlorofluoromethane (CFC 11)	ND U	0.50	1	04/22/20 13:45	
1,2,3-Trichloropropane	ND U	0.50	1	04/22/20 13:45	
1,2,4-Trimethylbenzene	ND U	2.0	1	04/22/20 13:45	
1,3,5-Trimethylbenzene	ND U	2.0	1	04/22/20 13:45	
Vinyl Chloride	ND U	0.50	1	04/22/20 13:45	
o-Xylene	ND U	0.50	1	04/22/20 13:45	
m,p-Xylenes	ND U	0.50	1	04/22/20 13:45	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	87	68 - 117	04/22/20 13:45	
Dibromofluoromethane	100	73 - 122	04/22/20 13:45	
Toluene-d8	105	65 - 144	04/22/20 13:45	

Semivolatile Organic Compounds by GC/MS

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Client: Tongass Engineering LLC **Service Request:** K2003092

Project: Petro Marine Services "Port E"/ADEC 1516.38.026

Sample Matrix: Water

SURROGATE RECOVERY SUMMARY
Polycyclic Aromatic Hydrocarbons by GC/MS SIM

Analysis Method: 8270D

Extraction Method: EPA 3511

Sample Name	Lab Code	Fluoranthene-d10 42-133	Fluorene-d10 42-131	Terphenyl-d14 32-129
Port E	K2003092-001	90	100	66
Method Blank	KQ2005006-04	84	93	56
Lab Control Sample	KQ2005006-03	92	98	64
Port E	KQ2005006-01	93	97	59
Port E	KQ2005006-02	92	97	60

Analytical Report

Client:	Tongass Engineering LLC	**Service Request:**	K2003092
Project:	Petro Marine Services "Port E"/ADEC 1516.38.026	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KQ2005006-04	**Basis:**	NA

Polycyclic Aromatic Hydrocarbons by GC/MS SIM

Analysis Method: 8270D
Prep Method: EPA 3511

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
2-Methylnaphthalene	ND U	0.020	1	04/14/20 07:56	4/13/20	
Acenaphthene	ND U	0.020	1	04/14/20 07:56	4/13/20	
Acenaphthylene	ND U	0.020	1	04/14/20 07:56	4/13/20	
Anthracene	ND U	0.020	1	04/14/20 07:56	4/13/20	
Benz(a)anthracene	ND U	0.020	1	04/14/20 07:56	4/13/20	
Benzo(a)pyrene	ND U	0.020	1	04/14/20 07:56	4/13/20	
Benzo(b)fluoranthene	ND U	0.020	1	04/14/20 07:56	4/13/20	
Benzo(g,h,i)perylene	ND U	0.020	1	04/14/20 07:56	4/13/20	
Benzo(k)fluoranthene	ND U	0.020	1	04/14/20 07:56	4/13/20	
Chrysene	ND U	0.020	1	04/14/20 07:56	4/13/20	
Dibenz(a,h)anthracene	ND U	0.020	1	04/14/20 07:56	4/13/20	
Dibenzofuran	ND U	0.020	1	04/14/20 07:56	4/13/20	
Fluoranthene	ND U	0.020	1	04/14/20 07:56	4/13/20	
Fluorene	ND U	0.020	1	04/14/20 07:56	4/13/20	
Indeno(1,2,3-cd)pyrene	ND U	0.020	1	04/14/20 07:56	4/13/20	
Naphthalene	ND U	0.020	1	04/14/20 07:56	4/13/20	
Phenanthrene	ND U	0.020	1	04/14/20 07:56	4/13/20	
Pyrene	ND U	0.020	1	04/14/20 07:56	4/13/20	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Fluoranthene-d10	84	42 - 133	04/14/20 07:56	
Fluorene-d10	93	42 - 131	04/14/20 07:56	
Terphenyl-d14	56	32 - 129	04/14/20 07:56	

Attachment 4

October 30, 2020 Service Request No:K2008976

Brett Serlin
Tongass Engineering LLC
PO Box 5436
Ketchikan, AK 99901

Laboratory Results for: Port E

Dear Brett,

Enclosed are the results of the sample(s) submitted to our laboratory October 07, 2020
For your reference, these analyses have been assigned our service request number **K2008976.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3376. You may also contact me via email at Mark.Harris@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Mark Harris
Project Manager

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ALS Group USA, Corp.
dba ALS Environmental

Narrative Documents

ALS Environmental—Kelso Laboratory
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Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

Client: Petro Marine Services
Project: Port E
Sample Matrix: Water

Service Request: K2008976
Date Received: 10/07/2020

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier I level requested by the client.

Sample Receipt:

One water sample was received for analysis at ALS Environmental on 10/07/2020. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The sample was stored at minimum in accordance with the analytical method requirements.

Semivolatiles by GC/MS:

Method 8270D, 10/15/2020: The result for Acenaphthylene in Port E may contain a slight bias. The chromatogram indicated the presence of non-target components. The matrix interference may have resulted in a slight high bias in the affected sample. The result was flagged with "X" to indicate the issue.

Volatiles by GC/MS:

No significant anomalies were noted with this analysis.

Approved by _____ Date 10/30/2020

SAMPLE DETECTION SUMMARY

CLIENT ID: Port E	Lab ID: K2008976-001					
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Benzene	340			2.5	ug/L	8260C
Ethylbenzene	97			2.5	ug/L	8260C
Isopropylbenzene	28			10	ug/L	8260C
n-Propylbenzene	76			10	ug/L	8260C
Toluene	11			2.5	ug/L	8260C
1,2,4-Trimethylbenzene	64			10	ug/L	8260C
o-Xylene	3.6			2.5	ug/L	8260C
m,p-Xylenes	130			2.5	ug/L	8260C
2-Methylnaphthalene	1.4			0.040	ug/L	8270D
Acenaphthene	0.56			0.040	ug/L	8270D
Acenaphthylene	0.12	X		0.040	ug/L	8270D
Dibenzofuran	0.23			0.040	ug/L	8270D
Fluorene	0.69			0.040	ug/L	8270D
Naphthalene	10			0.040	ug/L	8270D
Phenanthrene	0.23			0.040	ug/L	8270D

Sample Receipt Information

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

Client: Petro Marine Services **Service Request:**K2008976
Project: Port E/ADEC 1516.38.026

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
K2008976-001	Port E	10/6/2020	1120

Chain of Custody

ADDRESS 1317 South 13th Ave., Kelso, WA 98626
PHONE 1 360 577 7222 FAX 1 360 636 1068

Part of the ALS Group A Campbell Brothers Limited Company

Work Order No.: 110771

R2008976

Project Manager:	Brett Serlin, Tongass Engineering		**Bill to:**	Brett Serlin	Notes: 1. Please calculate sums for TAH and TAqH and include in report
Client Name:	Petro Marine Services		**Company:**	Tongass Engineering	
Address:	1100 Stedman St		**Address:**	PO Box 5436	
City, State ZIP:	Ketchikan, AK 99901		**City, State ZIP:**	Ketchikan, AK 99901	
Email:	brett@tongassengineering.com	**Phone:** 907-617-8982	**Email:**	brett@tongassengineering.com	**PO #**
Project Name:	Petro Marine Services "Port E"				
Project Number:	ADEC 1516.38.026				
Sampler's Name:	Brett Serlin, Tongass Engineering, Ketchikan, Alaska brett@tongassengineering.com, 907-617-8982				

SAMPLE RECEIPT

Temperature (°C):		Temp Blank Present		
Received Intact:	Yes	No	N/A	Wet Ice / Blue Ice
Cooler Custody Seals:	Yes	No	N/A	Total Containers:
Sample Custody Seals:	Yes	No	N/A	

REQUESTED ANALYSIS

TAT

- ✓ Routine 21day
- Same Day *** 100%
- Next Day ***
- 3 Day
- 5 Day 50%

Surcharges. Please call for availability

Due Date:

Comments

Sample Identification	Matrix	Date Sampled	Time Sampled	Lab ID	No. of Containers	8270D / PAH	8260C / VOC FP
1. Port E	WT	10/6/20	1120		5	✓	✓
2.							
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.							
11.							
12.							
13.							

Dissolved	Ag Al As B Ba Be Ca Cd Co Cr Cu Fe K Li Mg Mn Mo Na Ni P Pb Sb Se Si Sn Sr Th Tl U V Zn Hg
Total	Ag Al As B Ba Be Ca Cd Co Cr Cu Fe K Li Mg Mn Mo Na Ni P Pb Sb Se Si Sn Sr Th Tl U V Zn Hg

Additional Methods Available Upon Request

RELINQUISHED BY			RECEIVED BY		
Print Name	Signature	Date/Time	Print Name	Signature	Date/Time
Brett Serlin, Tongass Engineering	Brett Serlin	10/6/20 @ 1330	Naomi Pedersen		10/7/20 1030

PM Mark

Cooler Receipt and Preservation Form

Client Petro Marine Services Service Request K20 089976

Received: 10/7/20 Opened: 10/7/20 By: AP Unloaded: 10/7/20 By: AP

1. Samples were received via? *USPS* *Fed Ex* *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) *Cooler* *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA (Y) N If yes, how many and where? 1 front
   If present, were custody seals intact? (Y) N If present, were they signed and dated? (Y) N
4. Was a Temperature Blank present in cooler? NA (Y) N If yes, notate the temperature in the appropriate column below:
   If no, take the temperature of a representative sample bottle contained within the cooler; notate in the column "Sample Temp":
5. Were samples received within the method specified temperature ranges? NA (Y) N
   If no, were they received on ice and same day as collected? If not, notate the cooler # below and notify the PM. (NA) Y N

If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*

Temp Blank	Sample Temp	IR Gun	Cooler #/COC ID / (NA)	Out of temp indicate with "X"	PM Notified If out of temp	Tracking Number (NA)	Filed
3.6	—	1R01		—	—		

6. Packing material: *Inserts* *Baggies* *Bubble Wrap* *Gel Packs* *Wet Ice* *Dry Ice* *Sleeves* _____
7. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
8. Were samples received in good condition (unbroken) NA (Y) N
9. Were all sample labels complete (ie, analysis, preservation, etc.)? NA (Y) N
10. Did all sample labels and tags agree with custody papers? NA (Y) N
11. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
12. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* (NA) Y N
13. Were VOA vials received without headspace? *Indicate in the table below.* NA (Y) N
14. Was C12/Res negative? NA (Y) N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, Resolutions: _____

Miscellaneous Forms

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
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www.alsglobal.com

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEH	http://dec.alaska.gov/eh/lab/cs/csapproval.htm	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L16-58-R4
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	http://health.hawaii.gov/	-
ISO 17025	http://www.pjlabs.com/	L16-57
Louisiana DEQ	http://www.deq.louisiana.gov/page/la-lab-accreditation	03016
Maine DHS	http://www.maine.gov/dhhs/	WA01276
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/enforcement/oqa.html	WA005
New York - DOH	https://www.wadsworth.org/regulatory/elap	12060
North Carolina DEQ	https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/EnvironmentalLabCertification/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wyoming (EPA Region 8)	https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water-	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Client:	Petro Marine Services	**Service Request:**	K2008976
Project:	Port E/ADEC 1516.38.026		

Sample Name:	Port E	**Date Collected:**	10/6/20
Lab Code:	K2008976-001	**Date Received:**	10/7/20
Sample Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
8260C		JJAMES
8270D	JWALTER	LWEISKOPF

Sample Results

ALS Environmental—Kelso Laboratory
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Volatile Organic Compounds by GC/MS

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Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

Analytical Report

Client:	Petro Marine Services	**Service Request:**	K2008976
Project:	Port E/ADEC 1516.38.026	**Date Collected:**	10/06/20 11:20
Sample Matrix:	Water	**Date Received:**	10/07/20 10:30
Sample Name:	Port E	**Units:**	ug/L
Lab Code:	K2008976-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result		MRL	Dil.	Date Analyzed	Q
Acetone	ND	U	100	5	10/18/20 23:34	
Benzene	**340**		2.5	5	10/18/20 23:34	
Bromobenzene	ND	U	10	5	10/18/20 23:34	
Bromochloromethane	ND	U	2.5	5	10/18/20 23:34	
Bromodichloromethane	ND	U	2.5	5	10/18/20 23:34	
Bromoform	ND	U	2.5	5	10/18/20 23:34	
Bromomethane	ND	U	2.5	5	10/18/20 23:34	
2-Butanone (MEK)	ND	U	100	5	10/18/20 23:34	
n-Butylbenzene	ND	U	20	5	10/18/20 23:34	
sec-Butylbenzene	ND	U	10	5	10/18/20 23:34	
tert-Butylbenzene	ND	U	10	5	10/18/20 23:34	
Carbon Disulfide	ND	U	2.5	5	10/18/20 23:34	
Carbon Tetrachloride	ND	U	2.5	5	10/18/20 23:34	
Chlorobenzene	ND	U	2.5	5	10/18/20 23:34	
Chloroethane	ND	U	2.5	5	10/18/20 23:34	
Chloroform	ND	U	2.5	5	10/18/20 23:34	
Chloromethane	ND	U	2.5	5	10/18/20 23:34	
2-Chlorotoluene	ND	U	10	5	10/18/20 23:34	
4-Chlorotoluene	ND	U	10	5	10/18/20 23:34	
1,2-Dibromo-3-chloropropane	ND	U	10	5	10/18/20 23:34	
Dibromochloromethane	ND	U	2.5	5	10/18/20 23:34	
1,2-Dibromoethane (EDB)	ND	U	10	5	10/18/20 23:34	
Dibromomethane	ND	U	2.5	5	10/18/20 23:34	
1,2-Dichlorobenzene	ND	U	2.5	5	10/18/20 23:34	
1,3-Dichlorobenzene	ND	U	2.5	5	10/18/20 23:34	
1,4-Dichlorobenzene	ND	U	2.5	5	10/18/20 23:34	
Dichlorodifluoromethane	ND	U	2.5	5	10/18/20 23:34	
1,1-Dichloroethane	ND	U	2.5	5	10/18/20 23:34	
1,2-Dichloroethane (EDC)	ND	U	2.5	5	10/18/20 23:34	
1,1-Dichloroethene	ND	U	2.5	5	10/18/20 23:34	
cis-1,2-Dichloroethene	ND	U	2.5	5	10/18/20 23:34	
trans-1,2-Dichloroethene	ND	U	2.5	5	10/18/20 23:34	
1,2-Dichloropropane	ND	U	2.5	5	10/18/20 23:34	
1,3-Dichloropropane	ND	U	2.5	5	10/18/20 23:34	
2,2-Dichloropropane	ND	U	2.5	5	10/18/20 23:34	*
1,1-Dichloropropene	ND	U	2.5	5	10/18/20 23:34	
cis-1,3-Dichloropropene	ND	U	2.5	5	10/18/20 23:34	
trans-1,3-Dichloropropene	ND	U	2.5	5	10/18/20 23:34	
Ethylbenzene	**97**		2.5	5	10/18/20 23:34	
Hexachlorobutadiene	ND	U	10	5	10/18/20 23:34	
2-Hexanone	ND	U	100	5	10/18/20 23:34	
Isopropylbenzene	**28**		10	5	10/18/20 23:34	
4-Isopropyltoluene	ND	U	10	5	10/18/20 23:34	

Analytical Report

Client:	Petro Marine Services	**Service Request:**	K2008976
Project:	Port E/ADEC 1516.38.026	**Date Collected:**	10/06/20 11:20
Sample Matrix:	Water	**Date Received:**	10/07/20 10:30
Sample Name:	Port E	**Units:**	ug/L
Lab Code:	K2008976-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	Dil.	Date Analyzed	Q
4-Methyl-2-pentanone (MIBK)	ND U	100	5	10/18/20 23:34	
Methylene Chloride	ND U	10	5	10/18/20 23:34	
Naphthalene	ND U	10	5	10/18/20 23:34	*
n-Propylbenzene	**76**	10	5	10/18/20 23:34	
Styrene	ND U	2.5	5	10/18/20 23:34	
1,1,1,2-Tetrachloroethane	ND U	2.5	5	10/18/20 23:34	
1,1,2,2-Tetrachloroethane	ND U	2.5	5	10/18/20 23:34	
Tetrachloroethene (PCE)	ND U	2.5	5	10/18/20 23:34	
Toluene	**11**	2.5	5	10/18/20 23:34	
1,2,3-Trichlorobenzene	ND U	10	5	10/18/20 23:34	
1,2,4-Trichlorobenzene	ND U	10	5	10/18/20 23:34	
1,1,2-Trichloroethane	ND U	2.5	5	10/18/20 23:34	
1,1,1-Trichloroethane (TCA)	ND U	2.5	5	10/18/20 23:34	
Trichloroethene (TCE)	ND U	2.5	5	10/18/20 23:34	
Trichlorofluoromethane (CFC 11)	ND U	2.5	5	10/18/20 23:34	
1,2,3-Trichloropropane	ND U	2.5	5	10/18/20 23:34	
1,2,4-Trimethylbenzene	**64**	10	5	10/18/20 23:34	
1,3,5-Trimethylbenzene	ND U	10	5	10/18/20 23:34	
Vinyl Chloride	ND U	2.5	5	10/18/20 23:34	
o-Xylene	**3.6**	2.5	5	10/18/20 23:34	
m,p-Xylenes	**130**	2.5	5	10/18/20 23:34	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	84	68 - 117	10/18/20 23:34	
Dibromofluoromethane	98	73 - 122	10/18/20 23:34	
Toluene-d8	96	65 - 144	10/18/20 23:34	

Semivolatile Organic Compounds by GC/MS

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Analytical Report

Client:	Petro Marine Services	**Service Request:**	K2008976
Project:	Port E/ADEC 1516.38.026	**Date Collected:**	10/06/20 11:20
Sample Matrix:	Water	**Date Received:**	10/07/20 10:30
Sample Name:	Port E	**Units:**	ug/L
Lab Code:	K2008976-001	**Basis:**	NA

Polycyclic Aromatic Hydrocarbons by GC/MS SIM

Analysis Method: 8270D
Prep Method: EPA 3511

Analyte Name	Result		MRL	Dil.	Date Analyzed	Date Extracted	Q
2-Methylnaphthalene	**1.4**		0.040	1	10/15/20 22:12	10/13/20	
Acenaphthene	**0.56**		0.040	1	10/15/20 22:12	10/13/20	
Acenaphthylene	**0.12**	**X**	0.040	1	10/15/20 22:12	10/13/20	
Anthracene	ND	U	0.040	1	10/15/20 22:12	10/13/20	
Benz(a)anthracene	ND	U	0.040	1	10/15/20 22:12	10/13/20	
Benzo(a)pyrene	ND	U	0.040	1	10/15/20 22:12	10/13/20	
Benzo(b)fluoranthene	ND	U	0.040	1	10/15/20 22:12	10/13/20	
Benzo(g,h,i)perylene	ND	U	0.040	1	10/15/20 22:12	10/13/20	
Benzo(k)fluoranthene	ND	U	0.040	1	10/15/20 22:12	10/13/20	
Chrysene	ND	U	0.040	1	10/15/20 22:12	10/13/20	
Dibenz(a,h)anthracene	ND	U	0.040	1	10/15/20 22:12	10/13/20	
Dibenzofuran	**0.23**		0.040	1	10/15/20 22:12	10/13/20	
Fluoranthene	ND	U	0.040	1	10/15/20 22:12	10/13/20	
Fluorene	**0.69**		0.040	1	10/15/20 22:12	10/13/20	
Indeno(1,2,3-cd)pyrene	ND	U	0.040	1	10/15/20 22:12	10/13/20	
Naphthalene	**10**		0.040	1	10/15/20 22:12	10/13/20	
Phenanthrene	**0.23**		0.040	1	10/15/20 22:12	10/13/20	
Pyrene	ND	U	0.040	1	10/15/20 22:12	10/13/20	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Fluoranthene-d10	101	42 - 133	10/15/20 22:12	
Fluorene-d10	105	42 - 131	10/15/20 22:12	
Terphenyl-d14	81	32 - 129	10/15/20 22:12	

QC Summary Forms

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Volatile Organic Compounds by GC/MS

ALS Environmental—Kelso Laboratory
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Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

Client: Petro Marine Services **Service Request:** K2008976
Project: Port E/ADEC 1516.38.026
Sample Matrix: Water

SURROGATE RECOVERY SUMMARY
Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Extraction Method: None

Sample Name	Lab Code	4-Bromofluorobenzene 68-117	Dibromofluoromethane 73-122	Toluene-d8 65-144
Port E	K2008976-001	84	98	96
Method Blank	KQ2015844-07	86	94	99
Lab Control Sample	KQ2015844-05	98	101	98
Duplicate Lab Control Sample	KQ2015844-06	92	99	102

Analytical Report

Client:	Petro Marine Services	**Service Request:**	K2008976
Project:	Port E/ADEC 1516.38.026	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KQ2015844-07	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	Dil.	Date Analyzed	Q
Acetone	ND U	20	1	10/18/20 14:43	
Benzene	ND U	0.50	1	10/18/20 14:43	
Bromobenzene	ND U	2.0	1	10/18/20 14:43	
Bromochloromethane	ND U	0.50	1	10/18/20 14:43	
Bromodichloromethane	ND U	0.50	1	10/18/20 14:43	
Bromoform	ND U	0.50	1	10/18/20 14:43	
Bromomethane	ND U	0.50	1	10/18/20 14:43	
2-Butanone (MEK)	ND U	20	1	10/18/20 14:43	
n-Butylbenzene	ND U	4.0	1	10/18/20 14:43	
sec-Butylbenzene	ND U	2.0	1	10/18/20 14:43	
tert-Butylbenzene	ND U	2.0	1	10/18/20 14:43	
Carbon Disulfide	ND U	0.50	1	10/18/20 14:43	
Carbon Tetrachloride	ND U	0.50	1	10/18/20 14:43	
Chlorobenzene	ND U	0.50	1	10/18/20 14:43	
Chloroethane	ND U	0.50	1	10/18/20 14:43	
Chloroform	ND U	0.50	1	10/18/20 14:43	
Chloromethane	ND U	0.50	1	10/18/20 14:43	
2-Chlorotoluene	ND U	2.0	1	10/18/20 14:43	
4-Chlorotoluene	ND U	2.0	1	10/18/20 14:43	
1,2-Dibromo-3-chloropropane	ND U	2.0	1	10/18/20 14:43	
Dibromochloromethane	ND U	0.50	1	10/18/20 14:43	
1,2-Dibromoethane (EDB)	ND U	2.0	1	10/18/20 14:43	
Dibromomethane	ND U	0.50	1	10/18/20 14:43	
1,2-Dichlorobenzene	ND U	0.50	1	10/18/20 14:43	
1,3-Dichlorobenzene	ND U	0.50	1	10/18/20 14:43	
1,4-Dichlorobenzene	ND U	0.50	1	10/18/20 14:43	
Dichlorodifluoromethane	ND U	0.50	1	10/18/20 14:43	
1,1-Dichloroethane	ND U	0.50	1	10/18/20 14:43	
1,2-Dichloroethane (EDC)	ND U	0.50	1	10/18/20 14:43	
1,1-Dichloroethene	ND U	0.50	1	10/18/20 14:43	
cis-1,2-Dichloroethene	ND U	0.50	1	10/18/20 14:43	
trans-1,2-Dichloroethene	ND U	0.50	1	10/18/20 14:43	
1,2-Dichloropropane	ND U	0.50	1	10/18/20 14:43	
1,3-Dichloropropane	ND U	0.50	1	10/18/20 14:43	
2,2-Dichloropropane	ND U	0.50	1	10/18/20 14:43	
1,1-Dichloropropene	ND U	0.50	1	10/18/20 14:43	
cis-1,3-Dichloropropene	ND U	0.50	1	10/18/20 14:43	
trans-1,3-Dichloropropene	ND U	0.50	1	10/18/20 14:43	
Ethylbenzene	ND U	0.50	1	10/18/20 14:43	
Hexachlorobutadiene	ND U	2.0	1	10/18/20 14:43	
2-Hexanone	ND U	20	1	10/18/20 14:43	
Isopropylbenzene	ND U	2.0	1	10/18/20 14:43	
4-Isopropyltoluene	ND U	2.0	1	10/18/20 14:43	

Analytical Report

Client:	Petro Marine Services	**Service Request:**	K2008976
Project:	Port E/ADEC 1516.38.026	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KQ2015844-07	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	Dil.	Date Analyzed	Q
4-Methyl-2-pentanone (MIBK)	ND U	20	1	10/18/20 14:43	
Methylene Chloride	ND U	2.0	1	10/18/20 14:43	
Naphthalene	ND U	2.0	1	10/18/20 14:43	
n-Propylbenzene	ND U	2.0	1	10/18/20 14:43	
Styrene	ND U	0.50	1	10/18/20 14:43	
1,1,1,2-Tetrachloroethane	ND U	0.50	1	10/18/20 14:43	
1,1,2,2-Tetrachloroethane	ND U	0.50	1	10/18/20 14:43	
Tetrachloroethene (PCE)	ND U	0.50	1	10/18/20 14:43	
Toluene	ND U	0.50	1	10/18/20 14:43	
1,2,3-Trichlorobenzene	ND U	2.0	1	10/18/20 14:43	
1,2,4-Trichlorobenzene	ND U	2.0	1	10/18/20 14:43	
1,1,2-Trichloroethane	ND U	0.50	1	10/18/20 14:43	
1,1,1-Trichloroethane (TCA)	ND U	0.50	1	10/18/20 14:43	
Trichloroethene (TCE)	ND U	0.50	1	10/18/20 14:43	
Trichlorofluoromethane (CFC 11)	ND U	0.50	1	10/18/20 14:43	
1,2,3-Trichloropropane	ND U	0.50	1	10/18/20 14:43	
1,2,4-Trimethylbenzene	ND U	2.0	1	10/18/20 14:43	
1,3,5-Trimethylbenzene	ND U	2.0	1	10/18/20 14:43	
Vinyl Chloride	ND U	0.50	1	10/18/20 14:43	
o-Xylene	ND U	0.50	1	10/18/20 14:43	
m,p-Xylenes	ND U	0.50	1	10/18/20 14:43	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	86	68 - 117	10/18/20 14:43	
Dibromofluoromethane	94	73 - 122	10/18/20 14:43	
Toluene-d8	99	65 - 144	10/18/20 14:43	

Semivolatile Organic Compounds by GC/MS

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

Client: Petro Marine Services **Service Request:** K2008976
Project: Port E/ADEC 1516.38.026
Sample Matrix: Water

SURROGATE RECOVERY SUMMARY
Polycyclic Aromatic Hydrocarbons by GC/MS SIM

Analysis Method: 8270D
Extraction Method: EPA 3511

Sample Name	Lab Code	Fluoranthene-d10 42-133	Fluorene-d10 42-131	Terphenyl-d14 32-129
Port E	K2008976-001	101	105	81
Batch QC	K2009092-005	94	104	91
Method Blank	KQ2015447-05	92	99	70
Lab Control Sample	KQ2015447-03	96	99	83
Duplicate Lab Control Sample	KQ2015447-04	100	104	92
Batch QC	KQ2015447-01	99	103	95

Analytical Report

Client:	Petro Marine Services	**Service Request:**	K2008976
Project:	Port E/ADEC 1516.38.026	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KQ2015447-05	**Basis:**	NA

Polycyclic Aromatic Hydrocarbons by GC/MS SIM

Analysis Method: 8270D
Prep Method: EPA 3511

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
2-Methylnaphthalene	ND U	0.020	1	10/15/20 18:48	10/13/20	
Acenaphthene	ND U	0.020	1	10/15/20 18:48	10/13/20	
Acenaphthylene	ND U	0.020	1	10/15/20 18:48	10/13/20	
Anthracene	ND U	0.020	1	10/15/20 18:48	10/13/20	
Benz(a)anthracene	ND U	0.020	1	10/15/20 18:48	10/13/20	
Benzo(a)pyrene	ND U	0.020	1	10/15/20 18:48	10/13/20	
Benzo(b)fluoranthene	ND U	0.020	1	10/15/20 18:48	10/13/20	
Benzo(g,h,i)perylene	ND U	0.020	1	10/15/20 18:48	10/13/20	
Benzo(k)fluoranthene	ND U	0.020	1	10/15/20 18:48	10/13/20	
Chrysene	ND U	0.020	1	10/15/20 18:48	10/13/20	
Dibenz(a,h)anthracene	ND U	0.020	1	10/15/20 18:48	10/13/20	
Dibenzofuran	ND U	0.020	1	10/15/20 18:48	10/13/20	
Fluoranthene	ND U	0.020	1	10/15/20 18:48	10/13/20	
Fluorene	ND U	0.020	1	10/15/20 18:48	10/13/20	
Indeno(1,2,3-cd)pyrene	ND U	0.020	1	10/15/20 18:48	10/13/20	
Naphthalene	ND U	0.020	1	10/15/20 18:48	10/13/20	
Phenanthrene	ND U	0.020	1	10/15/20 18:48	10/13/20	
Pyrene	ND U	0.020	1	10/15/20 18:48	10/13/20	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Fluoranthene-d10	92	42 - 133	10/15/20 18:48	
Fluorene-d10	99	42 - 131	10/15/20 18:48	
Terphenyl-d14	70	32 - 129	10/15/20 18:48	