Travis/Peterson
Environmental Consulting, Inc.

Michael D. Travis P.E.
President

3305 Arctic Boulevard, Suite 102
Anchorage, Alaska 99503

Phone: 907-522-4337
Fax: 907-522-4313
e-mail: mtravis@tpeci.com

Laurence A. Peterson
Operations Manager

329 2nd Street
Fairbanks, Alaska 99701

Phone: 907-455-7225
Fax: 907-455-7228
e-mail: larry@tpeci.com

November 22, 2017
1563-03

Mr. Grant Lidren
Alaska Department of Environmental Conservation
555 Cordova Street
Anchorage, AK 99501

Attention: **Mr. Grant Lidren**
Environmental Program Specialist IV

Re: Lot 6F, Block 2, Unalaska Airport Landfarm Sampling Report
ADEC File No. 2542.38.010

Dear Mr. Lidren:

In September 2016, Travis/Peterson Environmental Consulting, Inc. (TPECI) submitted the *2016 Unalaska Airport Debris Pile Removal Report* describing the removal and characterization of potentially contaminated soils on the property identified as Lot 6F, Block 2, Unalaska Airport in Dutch Harbor, AK (see Figure 1 enclosed).

The investigation found elevated Diesel Range Organics (DRO) concentrations within soil stockpile #4. DRO concentrations ranged from 182 mg/Kg to 271 mg/Kg. The latter being above the Alaska Department of Environmental Conservation (ADEC) Method Two cleanup level of 230 mg/kg. Observed Residual Range Organics (RRO) concentrations ranged from 1,450 mg/Kg to 1,990 mg/Kg, below the applicable ADEC Method Two cleanup level of 9,700 mg/Kg. Gasoline Range Organics (GRO) and Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX) concentrations were all below laboratory detection limits within the stockpile soils. No Polycyclic Aromatic Hydrocarbon (PAH) analysis was conducted on stockpile #4 soils. However, PAH analysis on other soil stockpiles found PAH analytes to be below laboratory detection levels or at concentrations significantly below applicable ADEC Method Two cleanup levels.

Due to the DRO concentrations above the applicable ADEC Method Two cleanup levels, the soils in stockpile #4 required specific treatment or disposal. The stockpile remained covered, on site for approximately one year.

On August 28, 2017, a landfarm treatment cell was constructed on the property in accordance with Section 12.3 of the September 2016 *Unalaska Airport Debris Pile Removal Report* and the March 2011 ADEC Technical Memorandum *Landfarming at Sites in Alaska.* Stockpile #4 was placed in the landfarm and spread to a depth of twelve inches. The landfarm is 16.5-feet wide by 30-feet long. The landfarm was actively maintained with the addition of inorganic fertilizers and frequently mixing of soils. TPECI developed a Landfarm Treatment Log to document the remediation efforts.

Given the relatively low-level DRO concentrations within the soils, time spent with the soil in a stockpile, and several months of active treatment within the landfarm, TPECI and Western Power Engineering believed that DRO concentrations were below the applicable ADEC Method Two cleanup levels. TPECI conducted sampling of these soils on November 7th, 2017 to evaluate and determine treatment status.

This report describes the TPECI field work and the collection of samples for field screening and laboratory analysis from the landfarm comprised of soils of former Stockpile #4. This work was conducted in accordance with the *ADEC 18 AAC 75 Oil and Other Hazardous Substances Pollution Control (revised October 2017).* Where applicable, the sampling and analysis was modeled after procedures described in the *ADEC Site Characterization Work Plan and Reporting Guidance for Investigation of Contaminated Sites (March 2017).* Sampling efforts were conducted in accordance with the *ADEC Field Sampling Guidance (August 2017)* unless otherwise specified within this document.

To confirm that DRO treatment objectives have been met, the landfarm was divided into a grid; field screening was conducted across the grid and discrete confirmation samples for laboratory analysis were collected from the areas with the highest field screening results. TPECI divided the 30 ft by 16.5 ft landfarm into 10 grid cells, each measuring approximately six feet by eight feet. One soil sample was collected for field screening from each of the grid cells. Soil samples were identified as LF-1 through LF-10 (Figure 2 enclosed).

The four grid cells with the highest field screening results were collected for laboratory analysis. All soil samples for field screening and laboratory analysis were collected at a depth of approximately six to eight inches below the soil surface.

Heated headspace field screening was conducted using a MiniRAE™ Systems 3000 PID. The PID was calibrated according to the manufacturer's specifications in the field using a fresh-air charcoal blank and 100-ppm isobutylene calibration span gas. A re-sealable polyethylene bag with a total capacity not less than eight ounces (approximately 250mL) was filled one-third to one-half full of soil from the screening sample. The soil, sealed in the bag, was allowed to warm up to 40 degrees Fahrenheit where it was held for at least 10 minutes, but no longer than 60 minutes. The tip of the calibrated PID was then be placed inside the bag for thirty seconds or until the PID reading stabilized.

DRO is the contaminant of concern (COC). All laboratory soil samples were analyzed for DRO by Method AK102. Samples were submitted to SGS Environmental Laboratories, Inc. in Anchorage, Alaska for laboratory analysis.

Table 1: Analytical Methods and Sample Requirements

Method	Matrix	Container (jars)	Preservative	Hold time
AK102 (DRO)	Soil	1 4-oz amber wide mouth jar	0° to 6° C	14days

Sampling was performed in accordance with the applicable regulations:

- All samples were collected using disposable or cleaned and decontaminated sampling equipment;
- Field personnel wore disposable gloves, safety goggles, steel toed boots, hard hat, reflective vest, and other appropriate Class D personal protective equipment. Gloves and sampling devices were changed between samples;
- Samples were collected as quickly as possible and placed in laboratory supplied containers;
- Soil for analytical sample testing were not obtained from field screening *sample* material;
- All samples were labeled; and
- All samples were preserved in accordance with laboratory specifications and cooled to a temperature of 0 to 6 degrees Celsius.

Table 2 shows the field screening and laboratory results (for DRO) for samples collected from the landfarm, LF-1 through LF-10. Sample LF-100 is a field duplicate of sample LF-5. Complete analytical results are in the SGS Laboratory Report enclosed with this letter. The ADEC Data Review Checklist has also been completed for this report and is enclosed with this letter.

Table 2: Land Farm Field Screening and Laboratory Results

Sample ID	Depth (ft)	PID Reading	DRO
		ppm	200 mg/Kg
LF-1	0.5	0.8	120U
LF-2	0.5	0.6	117U
LF-3	0.5	0.3	-
LF-4	0.5	0.4	-
LF-5	0.5	0.9	94.3U
LF-6	0.5	0.3	-
LF-7	0.5	0.2	-
LF-8	0.5	0.3	-
LF-9	0.5	0.4	-
LF-10	0.5	0.7	127
LF-100	0.5	0.9	94.2U

Notes:
Bold indicates concentration exceed ADEC Method Two (Table B1) Over 40 Inch Zone Cleanup Level.
J The quantitation is an estimate.
U Indicates the analyte was analyzed for but not detected.
Sample LF-100 is a field duplicate of sample LF-5.

Based on heated headspace field screening results, samples LF-1, LF-2, LF-5 and LF-10 were selected for laboratory analysis for DRO. DRO concentrations were found to be below laboratory detection limits in LF-1, LF-2, LF-5 and the field duplicate LF-100. In sample LF-10, the DRO concentration was 127 mg/Kg. The laboratory detection limits/Level of Quantitation (LOQ) for the DRO in several of the samples were elevated due to sample dilution (required based on the color of the extract). However, all LOQs were below the ADEC Method Two cleanup level for DRO for the over 40-inch zone, 230 mg/Kg. Additionally, the only detectable result, in LF-10, at 127 mg/Kg was also below the applicable ADEC cleanup level.

The original sampling of the former Stockpile #4 found a DRO concentration of 271 mg/Kg. Based on the November 2017 laboratory analysis, samples were found to be below the applicable ADEC cleanup levels for DRO. This indicates that land farm treatment as well as time spent in the stockpile successfully reduced DRO contaminant concentrations to below ADEC Method Two cleanup levels.

The current contaminant concentrations allow for disposal of the soil as cover material at the City of Unalaska landfill. Pending ADEC approval, Western Power Engineering will contract Northern Mechanical to transport the approximately 18 cubic yards of soil currently in the land farm to the City of Unalaska landfill. As the soils will not be formally "disposed" at the landfill, but instead will be used as cover material, the City of Unalaska will provide a tipping receipt. Northern Mechanical shall write a letter to Western Power Engineering documenting the transport and disposal of the soils. An ADEC *Transport, Treatment, & Disposal Approval Form* has been completed for this transport of media and is enclosed with this letter. TPECI and Western Power Engineering request approval to transport the treated soils.

The 18, one-cubic yard SuperSacks® containing soils with Total Lead concentrations above applicable ADEC cleanup levels remain on site. The SuperSacks® (including soils) will be stored on site until the soils can be incorporated into the facility foundation. If the contaminated

soil cannot be reused, it will be transported via barge to the WasteManagement facility in Arlington, Oregon. Western Power Engineering will request Approval to Transport from the ADEC before any material is transported off site.

If you have any questions or comments, please contact me a (907) 522-4337 or EMundahl@tpeci.com.

Sincerely,

Erik D. Mundahl, P.E.
Environmental Engineer

Encl.: 1) Figure 1 – Location and Vicinity Map
2) Figure 2 – Landfarm Sampling Site Plan
3) SGS Laboratory Report
4) ADEC Laboratory Data Review Checklist
5) Field Notes
6) Photo Log
7) ADEC Transport, Treatment, & Disposal Approval Form

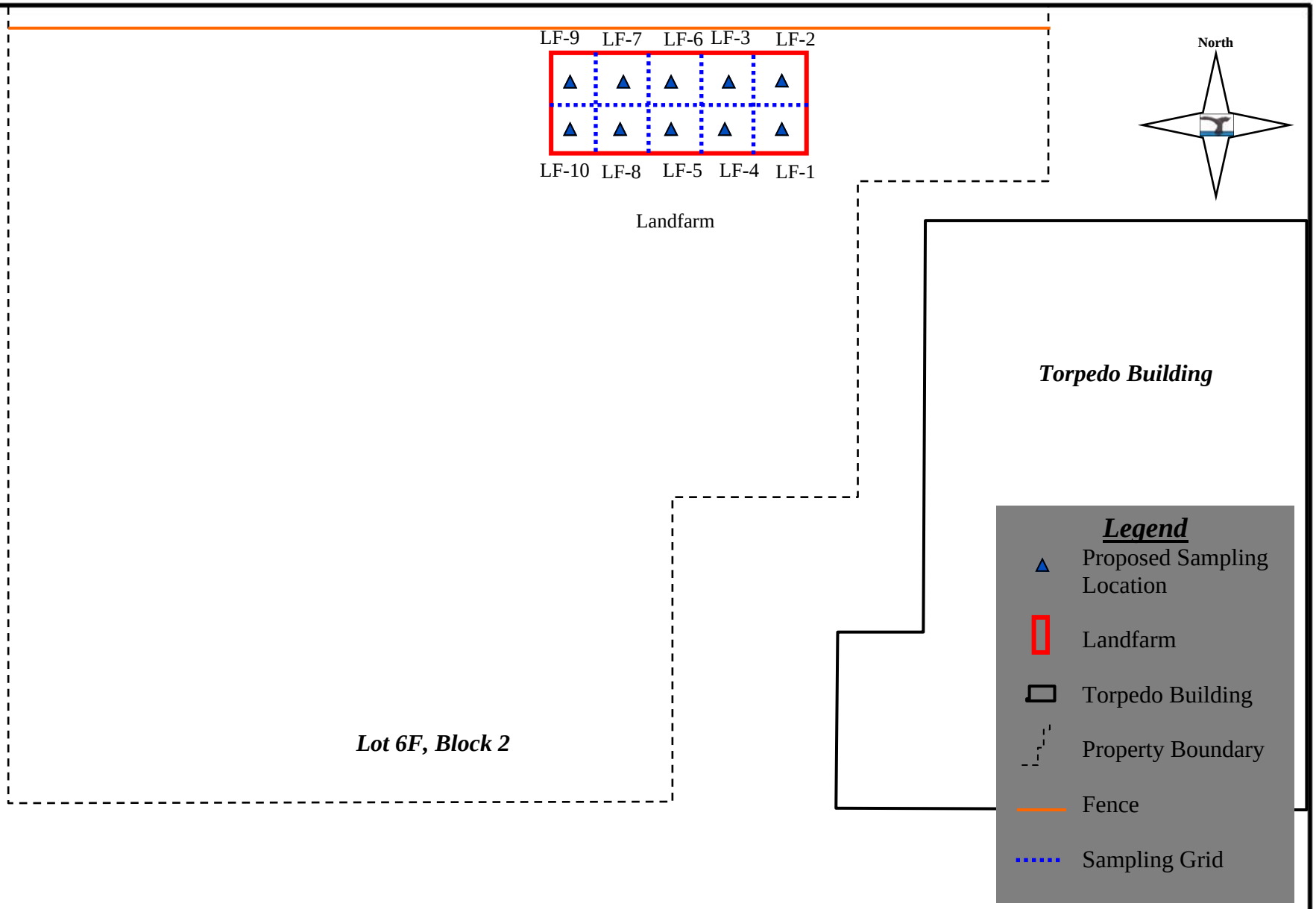
Travis/Peterson Environmental Consulting, Inc.
3305 Arctic Boulevard, Suite 102
Anchorage, AK 99503
907-522-4337

Lot 6F, Block 2, Unalaska Airport Landfarm Sampling Report

Dutch Harbor, Alaska

Figure #1
Location & Vicinity Map

Project No: 1563-03	**File: Jupiter\backup\Erik\1563-03\Figures**	**Date: 11/21/2017**	**Scale: None**



Travis/Peterson Environmental Consulting, Inc. 3305 Arctic Boulevard, Suite 102 Anchorage, AK 99503 907-522-4337	**Lot 6F, Block 2, Unalaska Airport Landfarm Sampling Report** **Dutch Harbor, Alaska**	**Figure #2** **Landfarm Sampling Site Plan**

Project No: 1563-03	**File: Jupiter\backup\Erik\1563-03\Figures**	**Date: 11/21/2017**	**Scale: None**

Laboratory Report of Analysis

To: Travis/Peterson (TPECI)
3305 Arctic Blvd Suite 102
Anchorage, AK 99503
(907)522-4337

Report Number: **1179691**

Client Project: **Lot 6F, Block 2 Landfarm**

Dear Erik Mundahl,

Enclosed are the results of the analytical services performed under the referenced project for the received samples and associated QC as applicable. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period of ten years in the event they are required for future reference. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. Any samples submitted to our laboratory will be retained for a maximum of fourteen (14) days from the date of this report unless other archiving requirements were included in the quote.

If there are any questions about the report or services performed during this project, please call Victoria at (907) 562-2343. We will be happy to answer any questions or concerns which you may have.

Thank you for using SGS North America Inc. for your analytical services. We look forward to working with you again on any additional analytical needs.

Sincerely,
SGS North America Inc.

Victoria Pennick Date
Project Manager
Victoria.Pennick@sgs.com

Print Date: 11/17/2017 10:59:07AM

Case Narrative

SGS Client: **Travis/Peterson (TPECI)**
SGS Project: **1179691**
Project Name/Site: **Lot 6F, Block 2 Landfarm**
Project Contact: **Erik Mundahl**

Refer to sample receipt form for information on sample condition.

LF-5 (1179691003) PS

AK102 - The LOQ for DRO is elevated. The sample was diluted due to the dark color of the extract.

LF-100 (1179691004) PS

AK102 - The LOQ for DRO is elevated. The sample was diluted due to the dark color of the extract.

*QC comments may be associated with the field samples found in this report. When applicable, comments will be applied to associated field samples.

SGS North America Inc.
200 West Potter Drive, Anchorage, AK 99518
t 907.562.2343 **f** 907.561.5301 www.us.sgs.com

Member of SGS Group

Laboratory Qualifiers

Enclosed are the analytical results associated with the above work order. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. This document is issued by the Company under its General Conditions of Service accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx>. Attention is drawn to the limitation of liability, indenmification and jurisdiction issues defined therein.

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the context or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS maintains a formal Quality Assurance/Quality Control (QA/QC) program. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request. The laboratory certification numbers are **AK00971 DW Chemistry (Provisionally Certified as of 10/12/2017) & Microbiology (Provisionally Certified as of 9/21/2017)** & UST-005 (CS) for ADEC and 2944.01 for DOD ELAP/ISO17025 (RCRA methods: 1020B, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035A, 6020A, 7470A, 7471B, 8015C, 8021B, 8082A, 8260C, 8270D, 8270D-SIM, 9040C, 9045D, 9056A, 9060A, AK101 and AK102/103). Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP and, when applicable, other regulatory authorities.

The following descriptors or qualifiers may be found in your report:

*	The analyte has exceeded allowable regulatory or control limits.
!	Surrogate out of control limits.
B	Indicates the analyte is found in a blank associated with the sample.
CCV/CVA/CVB	Continuing Calibration Verification
CCCV/CVC/CVCA/CVCB	Closing Continuing Calibration Verification
CL	Control Limit
DF	Dilution Factor
DL	Detection Limit (i.e., maximum method detection limit)
E	The analyte result is above the calibrated range.
GT	Greater Than
IB	Instrument Blank
ICV	Initial Calibration Verification
J	The quantitation is an estimation.
LCS(D)	Laboratory Control Spike (Duplicate)
LLQC/LLIQC	Low Level Quantitation Check
LOD	Limit of Detection (i.e., 1/2 of the LOQ)
LOQ	Limit of Quantitation (i.e., reporting or practical quantitation limit)
LT	Less Than
MB	Method Blank
MS(D)	Matrix Spike (Duplicate)
ND	Indicates the analyte is not detected.
RPD	Relative Percent Difference
U	Indicates the analyte was analyzed for but not detected.

Note: Sample summaries which include a result for "Total Solids" have already been adjusted for moisture content. All DRO/RRO analyses are integrated per SOP.

SGS North America Inc. 200 West Potter Drive, Anchorage, AK 99518
t 907.562.2343 **f** 907.561.5301 www.us.sgs.com

Member of SGS Group

Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
LF-1	1179691001	11/07/2017	11/10/2017	Soil/Solid (dry weight)
LF-2	1179691002	11/07/2017	11/10/2017	Soil/Solid (dry weight)
LF-5	1179691003	11/07/2017	11/10/2017	Soil/Solid (dry weight)
LF-100	1179691004	11/07/2017	11/10/2017	Soil/Solid (dry weight)
LF-10	1179691005	11/07/2017	11/10/2017	Soil/Solid (dry weight)

Method	Method Description
AK102	Diesel Range Organics (S)
SM21 2540G	Percent Solids SM2540G

SGS North America Inc.
200 West Potter Drive, Anchorage, AK 99518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

Member of SGS Group

Detectable Results Summary

Client Sample ID: **LF-10**
Lab Sample ID: 1179691005
Semivolatile Organic Fuels

Parameter	Result	Units
Diesel Range Organics	127	mg/Kg

Print Date: 11/17/2017 10:59:13AM

Results of **LF-1**

Client Sample ID: **LF-1**
Client Project ID: **Lot 6F, Block 2 Landfarm**
Lab Sample ID: 1179691001
Lab Project ID: 1179691

Collection Date: 11/07/17 12:07
Received Date: 11/10/17 09:04
Matrix: Soil/Solid (dry weight)
Solids (%):82.2
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	120	U	120	37.3	mg/Kg	1		11/15/17 16:59
Surrogates								
5a Androstane (surr)	91.2		50-150		%	1		11/15/17 16:59

Batch Information

Analytical Batch: XFC13975
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 11/15/17 16:59
Container ID: 1179691001-A

Prep Batch: XXX38850
Prep Method: SW3550C
Prep Date/Time: 11/14/17 12:15
Prep Initial Wt./Vol.: 30.343 g
Prep Extract Vol: 5 mL

Print Date: 11/17/2017 10:59:14AM

Results of **LF-2**

Client Sample ID: **LF-2**
Client Project ID: **Lot 6F, Block 2 Landfarm**
Lab Sample ID: 1179691002
Lab Project ID: 1179691

Collection Date: 11/07/17 12:09
Received Date: 11/10/17 09:04
Matrix: Soil/Solid (dry weight)
Solids (%):85.0
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	117	U	117	36.4	mg/Kg	1		11/15/17 17:09
Surrogates								
5a Androstane (surr)	95.8		50-150		%	1		11/15/17 17:09

Batch Information

Analytical Batch: XFC13975
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 11/15/17 17:09
Container ID: 1179691002-A

Prep Batch: XXX38850
Prep Method: SW3550C
Prep Date/Time: 11/14/17 12:15
Prep Initial Wt./Vol.: 30.059 g
Prep Extract Vol: 5 mL

Print Date: 11/17/2017 10:59:14AM

Results of **LF-5**

Client Sample ID: **LF-5**
Client Project ID: **Lot 6F, Block 2 Landfarm**
Lab Sample ID: 1179691003
Lab Project ID: 1179691

Collection Date: 11/07/17 12:17
Received Date: 11/10/17 09:04
Matrix: Soil/Solid (dry weight)
Solids (%):83.7
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	94.3	U	94.3	29.2	mg/Kg	4		11/15/17 17:30
Surrogates								
5a Androstane (surr)	89.6		50-150		%	4		11/15/17 17:30

Batch Information

Analytical Batch: XFC13975
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 11/15/17 17:30
Container ID: 1179691003-A

Prep Batch: XXX38850
Prep Method: SW3550C
Prep Date/Time: 11/14/17 12:15
Prep Initial Wt./Vol.: 30.427 g
Prep Extract Vol: 1 mL

Print Date: 11/17/2017 10:59:14AM

Results of **LF-100**

Client Sample ID: **LF-100**
Client Project ID: **Lot 6F, Block 2 Landfarm**
Lab Sample ID: 1179691004
Lab Project ID: 1179691

Collection Date: 11/07/17 12:17
Received Date: 11/10/17 09:04
Matrix: Soil/Solid (dry weight)
Solids (%):83.6
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	94.2	U	94.2	29.2	mg/Kg	4		11/15/17 17:40
Surrogates								
5a Androstane (surr)	87.8		50-150		%	4		11/15/17 17:40

Batch Information

Analytical Batch: XFC13975
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 11/15/17 17:40
Container ID: 1179691004-A

Prep Batch: XXX38850
Prep Method: SW3550C
Prep Date/Time: 11/14/17 12:15
Prep Initial Wt./Vol.: 30.493 g
Prep Extract Vol: 1 mL

Print Date: 11/17/2017 10:59:14AM

Results of **LF-10**

Client Sample ID: **LF-10**
Client Project ID: **Lot 6F, Block 2 Landfarm**
Lab Sample ID: 1179691005
Lab Project ID: 1179691

Collection Date: 11/07/17 12:30
Received Date: 11/10/17 09:04
Matrix: Soil/Solid (dry weight)
Solids (%):83.3
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	127		118	36.6	mg/Kg	1		11/15/17 17:20
Surrogates								
5a Androstane (surr)	97.8		50-150		%	1		11/15/17 17:20

Batch Information

Analytical Batch: XFC13975
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 11/15/17 17:20
Container ID: 1179691005-A

Prep Batch: XXX38850
Prep Method: SW3550C
Prep Date/Time: 11/14/17 12:15
Prep Initial Wt./Vol.: 30.452 g
Prep Extract Vol: 5 mL

Print Date: 11/17/2017 10:59:14AM

Method Blank

Blank ID: MB for HBN 1772023 [SPT/10368]
Blank Lab ID: 1425379

Matrix: Soil/Solid (dry weight)

QC for Samples:
1179691001, 1179691002, 1179691003, 1179691004, 1179691005

Results by **SM21 2540G**

Parameter	Results	LOQ/CL	DL	Units
Total Solids	100			%

Batch Information

Analytical Batch: SPT10368
Analytical Method: SM21 2540G
Instrument:
Analyst: CNB
Analytical Date/Time: 11/10/2017 4:53:00PM

Print Date: 11/17/2017 10:59:16AM

Duplicate Sample Summary

Original Sample ID: 1179691003
Duplicate Sample ID: 1425380
Analysis Date: 11/10/2017 16:53
Matrix: Soil/Solid (dry weight)

QC for Samples:

1179691001, 1179691002, 1179691003, 1179691004, 1179691005

Results by **SM21 2540G**

NAME	Original	Duplicate	Units	RPD (%)	RPD CL
Total Solids	83.7	84.9	%	1.40	(< 15)

Batch Information

Analytical Batch: SPT10368
Analytical Method: SM21 2540G
Instrument:
Analyst: CNB

Print Date: 11/17/2017 10:59:17AM

Method Blank

Blank ID: MB for HBN 1772135 [XXX/38850]
Blank Lab ID: 1425625

Matrix: Soil/Solid (dry weight)

QC for Samples:
1179691001, 1179691002, 1179691003, 1179691004, 1179691005

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	10.0U	20.0	6.20	mg/Kg
Surrogates				
5a Androstane (surr)	90.1	60-120		%

Batch Information

Analytical Batch: XFC13975
Analytical Method: AK102
Instrument: Agilent 7890B F
Analyst: JMG
Analytical Date/Time: 11/15/2017 2:26:00PM

Prep Batch: XXX38850
Prep Method: SW3550C
Prep Date/Time: 11/14/2017 12:15:51PM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 1 mL

Print Date: 11/17/2017 10:59:19AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1179691 [XXX38850]
Blank Spike Lab ID: 1425626
Date Analyzed: 11/15/2017 14:36

Spike Duplicate ID: LCSD for HBN 1179691 [XXX38850]
Spike Duplicate Lab ID: 1425627
Matrix: Soil/Solid (dry weight)

QC for Samples: 1179691001, 1179691002, 1179691003, 1179691004, 1179691005

Results by **AK102**

	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Diesel Range Organics	167	157	94	167	158	95	(75-125)	0.74	(< 20)
Surrogates									
5a Androstane (surr)	3.33	97.1	97	3.33	98.3	98	(60-120)	1.10	

Batch Information

Analytical Batch: **XFC13975**
Analytical Method: **AK102**
Instrument: **Agilent 7890B F**
Analyst: **JMG**

Prep Batch: **XXX38850**
Prep Method: **SW3550C**
Prep Date/Time: **11/14/2017 12:15**
Spike Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL
Dupe Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL

SGS North America Inc.
200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

Member of SGS Group

SGS

SGS North America Inc.
CHAIN OF CUSTODY RECORD

1179691

Locations Nationwide
ska Maryland
/ Jersey New York
th Carolina

www.us.sgs.com

Instructions: Sections 1 - 5 must be filled out. Omissions may delay the onset of analysis.

Page 1 of 1

Section 1

CLIENT: Travis Peterson

CONTACT: Erik Mundahl | PHONE #: 522-4337

PROJECT NAME: Lot 6F, Block 2 Landfarm | Project/ PWSID/ PERMIT#:

REPORTS TO: Erik Mundahl | E-MAIL:

INVOICE TO: Travis Peterson | QUOTE #: | P.O. #: 1563-03

Section 2

RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HH:MM	MATRIX/ MATRIX CODE	# CONTAINERS	Pres: Type: Comp Grab MI (Multi-incremental)	AK102 - DRO	None									REMARKS/ LOC ID
(1) A	LF-1	11/7/17	12:07	Soil	1	G	X										
(2) A	LF-2	"	12:09	"	1	"	X										
(3) A	LF-5	"	12:17	"	1	"	X										
(4) A	LF-100	"	12:17	"	1	"	X										
(5) A	LF-10	"	12:36	"	1	"	X										

Section 5

	Date	Time	
Relinquished By: (1)	11/10/17	2:04	Received By:
Relinquished By: (2)	Date	Time	Received By:
Relinquished By: (3)	Date	Time	Received By:
Relinquished By: (4)	11/10/17	09:04	Received For Laboratory By:

Section 4

DOD Project? Yes No

Data Deliverable Requirements:

Cooler ID:

Requested Turnaround Time and/or Special Instructions:

Temp Blank °C: 2.6 #D26

or Ambient [ ]

Chain of Custody Seal: (Circle)

INTACT BROKEN ABSENT

Delivery Method: (Check) Hand Delivered [X] Commerical Delivered [ ]

NCW

[ ] 200 W. Potter Drive Anchorage, AK 99518 Tel: (907) 562-2343 Fax: (907) 561-5301
[ ] 5500 Business Drive Wilmington, NC 28405 Tel: (910) 350-1903 Fax: (910) 350-1557

http://www.sgs.com/terms-and-conditions

e-Sample Receipt Form

SGS Workorder #: **1179691**

Review Criteria	Condition (Yes, No, N/A)	Exceptions Noted below
Chain of Custody / Temperature Requirements		yes Exemption permitted if sampler hand carries/delivers.
Were Custody Seals intact? Note # & location	yes	1-F
COC accompanied samples?	yes	
n/a **Exemption permitted if chilled & collected <8 hours ago, or for samples where chilling is not required		
Temperature blank compliant* (i.e., 0-6 °C after CF)?	yes	Cooler ID: 1 @ 2.6 °C Therm. ID: D26
	n/a	Cooler ID: @ °C Therm. ID:
	n/a	Cooler ID: @ °C Therm. ID:
	n/a	Cooler ID: @ °C Therm. ID:
	n/a	Cooler ID: @ °C Therm. ID:
If >6°C, were samples collected <8 hours ago?	n/a	
If <0°C, were sample containers ice free?	n/a	
If samples received without a temperature blank, the "cooler temperature" will be documented in lieu of the temperature blank & "**COOLER TEMP**" will be noted to the right. In cases where neither a temp blank nor cooler temp can be obtained, note "ambient" or "chilled".		
Note: Identify containers received at non-compliant temperature . Use form FS-0029 if more space is needed.		
Holding Time / Documentation / Sample Condition Requirements		Note: Refer to form F-083 "Sample Guide" for specific holding times.
Were samples received within holding time?	yes	
Do samples **match COC**** (i.e.,sample IDs,dates/times collected)?	yes	
**Note: If times differ <1hr, record details & login per COC.		
Were analyses requested unambiguous? (i.e., method is specified for analyses with >1 option for analysis)	yes	
	n/a	***Exemption permitted for metals (e.g,200.8/6020A).
Were proper containers (type/mass/volume/preservative***)used?	yes	
Volatile / LL-Hg Requirements		
Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with samples?	n/a	
Were all water VOA vials free of headspace (i.e., bubbles ≤ 6mm)?	n/a	
Were all soil VOAs field extracted with MeOH+BFB?	n/a	

Note to Client: Any "No", answer above indicates non-compliance with standard procedures and may impact data quality.

Additional notes (if applicable):

Sample Containers and Preservatives

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition
1179691001-A	No Preservative Required	OK			
1179691002-A	No Preservative Required	OK			
1179691003-A	No Preservative Required	OK			
1179691004-A	No Preservative Required	OK			
1179691005-A	No Preservative Required	OK			

Container Condition Glossary

Containers for bacteriological, low level mercury and VOA vials are not opened prior to analysis and will be assigned condition code OK unless evidence indicates than an inappropriate container was submitted.

OK - The container was received at an acceptable pH for the analysis requested.
BU - The container was received with headspace greater than 6mm.
DM - The container was received damaged.
FR - The container was received frozen and not usable for Bacteria or BOD analyses.
IC - The container provided for microbiology analysis was not a laboratory-supplied, pre-sterilized container and therefore was not suitable for analysis.
PA - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt and the container is now at the correct pH. See the Sample Receipt Form for details on the amount and lot # of the preservative added.
PH - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt, but was insufficient to bring the container to the correct pH for the analysis requested. See the Sample Receipt Form for details on the amount and lot # of the preservative added.

Laboratory Data Review Checklist

Completed by:	Erik Mundah, P.E.		
Title:	Environmental Engineer	Date:	Nov 21, 2017
CS Report Name:		Report Date:	Nov 17, 2017
Consultant Firm:	Travis/Peterson Environmental Consulting, Inc.		
Laboratory Name:	SGS North America, Inc.	Laboratory Report Number:	1179691
ADEC File Number:	2542.38.010	ADEC RecKey Number:	

1. Laboratory

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

(•) Yes ( ) No ( ) NA (Please explain.) Comments:

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 (•) NA (Please explain) Comments:

All samples analyzed by SGS.

2. Chain of Custody (COC)

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

(•) Yes ( ) No ( ) NA (Please explain) Comments:

b. Correct analyses requested?

(•) Yes ( ) No ( ) NA (Please explain) Comments:

3. Laboratory Sample Receipt Documentation

a. Sample/cooler temperature documented and within range at receipt (4° ± 2° C)?

(•) Yes ( ) No ( ) NA (Please explain) Comments:

All cooler temperature blanks were recorded within range at time of receipt.

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

(•) Yes ( ) No ( ) NA (Please explain) Comments:

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

(•) Yes ( ) No ( ) NA (Please explain) Comments:

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

( ) Yes ( ) No (•) NA (Please explain) Comments:

There were no discrepancies.

e. Data quality or usability affected? (Please explain)

Comments:

Data quality and usability is unaffected.

4. Case Narrative

a. Present and understandable?

(•) Yes ( ) No ( ) NA (Please explain) Comments:

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

(•) Yes ( ) No ( ) NA (Please explain) Comments:

Several QC failures identified. All described in Checklist Supplement.

c. Were all corrective actions documented?

(•) Yes ( ) No ( ) NA (Please explain) Comments:

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

Comments:

Sample data is usable. See Checklist Supplement for details.

5. Samples Results

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

(•) Yes ( ) No ( ) NA (Please explain) Comments:

b. All applicable holding times met?

(•) Yes ( ) No ( ) NA (Please explain) Comments:

c. All soils reported on a dry weight basis?

(•) Yes ( ) No ( ) NA (Please explain) Comments:

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

(•) Yes ( ) No ( ) NA (Please explain) Comments:

See Checklist Supplement. SGS Uses LOQ instead of PQL.

e. Data quality or usability affected? (Please explain)

Comments:

See Checklist Supplement.

6. QC Samples

a. Method Blank

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

(•) Yes ( ) No ( ) NA (Please explain) Comments:

ii. All method blank results less than PQL?

(•) Yes ( ) No ( ) NA (Please explain) Comments:

iii. If above PQL, what samples are affected? Comments:

No affected samples.

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

(•) Yes ( ) No (•) NA (Please explain) Comments:

No affected samples.

v. Data quality or usability affected? (Please explain) Comments:

Data quality and usability not affected.

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 ( ) NA (Please explain) Comments:

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

( ) Yes (•) No ( ) NA (Please explain) Comments:

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 ( ) NA (Please explain) Comments:

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/DMSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

(•) Yes ( ) No ( ) NA (Please explain) Comments:

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

Comments:

No affected samples.

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

○ Yes ○ No ◉ NA (Please explain) Comments:

No affected samples.

vii. Data quality or usability affected? (Please explain) Comments:

Data quality and usability not affected.

c. Surrogates - Organics Only

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

◉ Yes ○ No ○ NA (Please explain) Comments:

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 ○ NA (Please explain) Comments:

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

○ Yes ○ No ◉ NA (Please explain) Comments:

No failed surrogate recoveries occurred. No samples were affected.

iv. Data quality or usability affected? (Use the comment box to explain.). Comments:

Data quality and usability not affected.

d. Trip Blank - Volatile analyses only (GRO, BTEX, Volatile Chlorinated Solvents, 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 ◉ NA (Please explain.) Comments:

No volatile analyses.

ii. Is the cooler used to transport the trip blank and VOA samples clearly indicated on the COC? (If not, a comment explaining why must be entered below)

○ Yes ○ No ◉ NA (Please explain.) Comments:

No volatile analyses.

iii. All results less than PQL?

○ Yes ○ No ◉ NA (Please explain.) Comments:

No volatile analyses.

iv. If above PQL, what samples are affected?

Comments:

No affected samples.

v. Data quality or usability affected? (Please explain.)

Comments:

No affected samples.

e. Field Duplicate

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

◉ Yes ○ No ○ NA (Please explain) Comments:

ii. Submitted blind to lab?

◉ Yes ○ No ○ NA (Please explain.) Comments:

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 ○ NA (Please explain) Comments:

iv. Data quality or usability affected? (Use the comment box to explain why or why not.)

○ Yes ◉ No ○ NA (Please explain) Comments:

Data quality and usability not affected. RPD within recommended range.

f. Decontamination or Equipment Blank (if applicable)

○ Yes ○ No ◉ NA (Please explain) Comments:

No equipment blank used.

i. All results less than PQL?

○ Yes ○ No ◉ NA (Please explain) Comments:

NA

ii. If above PQL, what samples are affected?

Comments:

NA

iii. Data quality or usability affected? (Please explain.)

Comments:

NA

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

a. Defined and appropriate?

○ Yes ○ No ◉ NA (Please explain) Comments:

No other data flags present.

Reset Form

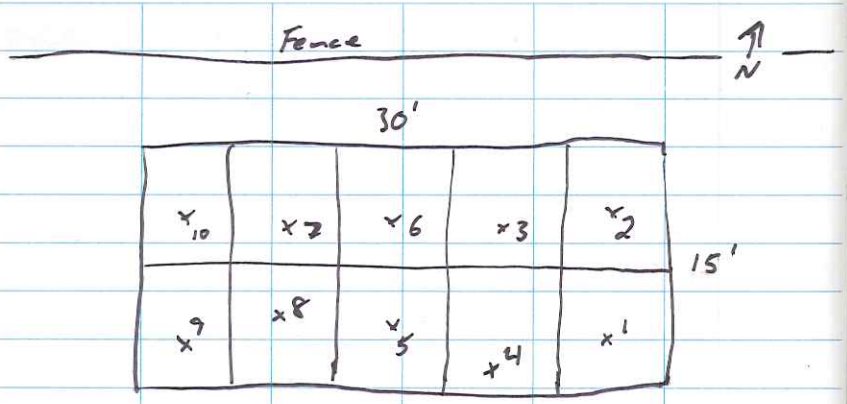
Laboratory Data Review Checklist Supplement Narrative
Lot 6F, Block 2 Unalaska Airport Landfarm Sampling

5. d. e.

SGS laboratory uses the limit of quantitation (LOQ) instead of PQL. The LOQs for AK102 (DRO) for samples LF-5 and LF-100 were elevated. The samples were diluted due to the dark color of the extract. However, all reported LOQs were less than the applicable ADEC Method Two cleanup level. All sample results were less than the applicable ADEC Method Two cleanup level. Data quality and usability was not affected.

Location Dutch Harbor, Ak Date 11/7/17

Project / Client Western Power Engineering



Location Dutch Harbor, Ak Date 11/7/17

Project / Client Western Power Engineering

Pete Jeppesen 907-359-2677

Sample ID	Time	Depth	PID ppm	Lab
LF-1	12:07	6"	0.8	DRO
LF-2	12:09	6"	0.6	DRO
LF-3	12:11	6"	0.3	—
LF-4	12:15	6"	0.4	—
LF-5	12:17	6"	0.9	DRO
LF-6	12:19	6"	0.3	—
LF-7	12:20	6"	0.2	—
EF-8	12:24	6"	0.3	—
LF-9	12:28	6"	0.4	—
LF-10	12:30	6"	0.7	DRO

- LF-100 is a field duplicate of LF-5 at 12:17 analyzed for DRO.

- Vegetation growth within landform soils.
- No visual or olfactory indications of contamination
- No deviations from work plan
- All disposable sampling waste placed in dumpster to City landfill. No soil or liquid waste.

Rite in the Rain

Lot 6F, Block 2 Unalaska Airport Landfarm Sampling: Photo Log – November, 2017

Landfarm looking west.	Landfarm looking west.
	

Landfarm, note vegetation growing.	Landfarm, note vegetation growing.
	

Landfarm looking east.	
	

Landfarm looking northeast.	SuperSacks containing lead-contaminated soils staged on site.
	

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF SPILL PREVENTION AND RESPONSE
Contaminated Sites and Prevention and Emergency Response Programs

Transport, Treatment, & Disposal Approval Form for Contaminated Media

DEC HAZARD/SPILL ID #	NAME OF SPILL OR CONTAMINATED SITE	
2542.38.010	Lot 6F Block 2, Unalaska Airport	
SITE OR SPILL LOCATION		
Dutch Harbor, Alaska		
CURRENT LOCATION AND TYPE OF CONTAMINATED MEDIA	**SOURCE OF THE CONTAMINATION**	
Lot 6F Block 2, Unalaska Airport, Soil	Unknown	
COMPOUNDS OF CONCERN	**ESTIMATED VOLUME**	**DATE(S) GENERATED**
DRO	18 cubic yards	September, 2016
POST TREATMENT ANALYSIS REQUIRED *(such as GRO, DRO, RRO, BTEX, and/or Chlorinated Solvents)*		
Not Applicable		
COMMENTS		
Soil below applicable ADEC cleanup levels for DRO. Soil to be used as cover material at landfill.		

Facility Accepting the Contaminated Media

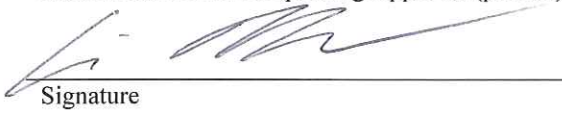
NAME OF THE FACILITY	PHYSICAL ADDRESS/PHONE NUMBER
City of Unalaska Landfill	Summers Bay Rd, Unalaska, AK/907-581-5757

Responsible Party and Contractor Information

BUSINESS/NAME	ADDRESS/PHONE NUMBER
TPECI/ Erik Mundahl, P.E.	3305 Arctic Blvd, Ste 102, Anchorage, AK/907-522-4337

Erik Mundahl, P.E.
Name of the Person Requesting Approval (printed)

Environmental Engineer
Title/Association


Signature

11/22/2017
Date

907-522-4337
Phone Number

----------**DEC USE ONLY**----------

Based on the information provided, ADEC approves transport of the above-described media for treatment in accordance with the approved facility operations plan. The Responsible Party or their consultant must submit to the DEC Project Manager a copy of weight/volume receipts of the loads transported to the facility and a post treatment analytical report. If the media is contaminated soil, it shall be transported as a covered load in compliance with 18 AAC 60.015.

DEC Project Manager Name (printed)

Project Manager Title

Signature

Date

Phone Number