MAYFLOWER ISLAND LIMITED MERCURY SOIL REMOVAL ACTION REPORT

FINAL

AUGUST 2020

100 Savikko Road
Douglas, Alaska

Contract No. 140L631P0015

Submitted to:

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Prepared by:

AGVIQ ENVIRONMENTAL SERVICES

ADEC Contaminated Sites Database File ID 1538.38.003; Hazard ID 2543

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ACRONYMS AND ABBREVIATIONS

AAC ..... Alaska Administrative Code
ADEC ..... Alaska Department of Environmental Conservation
AES……. Agviq Environmental Services, LLC
BLM ..... Bureau of Land Management
CSM ..... Conceptual Site Model
JRMIC……. John Rishel Mineral Information Center
mg/Kg..... milligrams per kilogram
RCRA ..... Resource Conservation and Recovery Act
TCLP ..... Toxicity Characteristic Leaching Procedure
US..... United States

EXECUTIVE SUMMARY

On behalf of the U.S. Department of the Interior, Bureau of Land Management (BLM), Agviq Environmental Services, LLC. (AES), performed a corrective soil removal action at the former John Rishel Mineral Information Center (JRMIC) on Mayflower Island in Douglas, Alaska. Original ownership of the JRMIC belonged to the U.S. Bureau of Mines before transferring to BLM in the mid-1990s. In 2016, a surface soil sample, collected from beneath the outfall of a drainage pipe originating at the former assay lab, was analyzed for RCRA metals, volatile organic compounds, and semi-volatile organic compounds. Only mercury exceeded Alaska Department of Environmental Conservation cleanup criteria, with a concentration of 5.5 milligrams per kilogram (mg/Kg). Background concentrations of mercury on Mayflower Island were determined to be 0.58 mg/Kg. From analytical results, it was assumed that soils from the outfall of the discharge pipe to an area extending approximately ten feet down slope to the high tide line was contaminated with mercury.

Mercury impacted soils were hand excavated from the outfall of the discharge pipe to above the high tide line. Excavated soils were placed into 5-gallon buckets and hauled up the slope to the staging area via a pulley system. The excavated area, measuring approximately 5-feet wide by 10-feet long was hand excavated to bedrock or weathered bedrock. Bedrock and weathered bedrock are considered refusal, so no confirmation soil samples were collected. All removed soils were placed into two 55-gallon drums and transported to Waste Management in Oregon for final disposal. The exposed section of the discharge pipe (the outfall pipe) was cut off approximately two feet above where it daylighted from the slope, cut into pieces and disposed of accordingly.

1. INTRODUCTION

Agviq Environmental Services, LLC. (AES) was contracted by the Bureau of Land Management (BLM) under Contract Number 140L6318P0015 to provide environmental services pertaining to the removal of mercury contaminated soils at the former John Rishel Mineral Information Center (JRMIC) on Mayflower Island in Douglas, Alaska. All field activities were performed in accordance with the *Mayflower Island Limited Mercury Soil Work Plan* (AES. 2018). Mayflower Island is identified by the Alaska Department of Environmental Conservation (ADEC) as Contaminated Sites Database File Number 1538.38.003; Hazard Number 2543.

1.1. Project Location and Description

Mayflower Island (also referred to as Juneau Island) is located at 100 Savikko Road, Douglas, AK. The JRMIC located on Mayflower Island, was initially property of the United States (US) Bureau of Mines. The facility was transferred to the BLM under the US Department of the Interior in the mid-1990s. Constructed in 1949, the JRMIC consists of a two-story concrete office building and several small wood frame buildings that housed a chemistry lab, ore-processing and assay lab, a shop, and a warehouse (SUNEX Incorporated [SUNEX] 2006). Only the two-story concrete office building remains of the original structures. The US Coast Guard is the current tenant occupying the facility.

Mayflower Island is located in Douglas approximately two miles from Juneau, Alaska (**Figure 1**). Located at 58.275943 north latitude and -134.384839 west longitude, Mayflower Island resides along the western shore of Gastineau Channel. The area is situated between hot and cold temperate climatic zones, being classified as either continental or oceanic depending upon elevation and the proximity to Gastineau Channel and the Pacific Ocean. Temperatures range from an average low of 32º Fahrenheit to an average high of 65º Fahrenheit throughout the year. Juneau receives an average of 62.27 inches of precipitation annually but ranges from 55 to 92 inches within the various micro-climates of the area.

1.2. Site History

The JRMIC was constructed in 1949. Currently, only the two-story concrete building remains after the other wood frame buildings were demolished in 2008. As part of the assay and chemistry labs, a discharge pipe extended east and downslope from the lab facilities and terminated about 10 feet above the highest high tide line (**Figure 2**).

In 2016, as part of a Phase I environmental site assessment, a single surface soil sample was collected from the outfall beneath the discharge pipe and analyzed for Resource Conservation and Recovery Act (RCRA) metals, volatile organic compounds, and semi-volatile organic compounds. Analytical results indicated mercury was the only contaminant above ADEC cleanup levels with a concentration of 5.5 milligrams per kilogram (mg/Kg). Background concentrations of mercury on Mayflower Island were determined to be 0.58 mg/Kg. From analytical results, it was assumed that soils from the outfall of the discharge pipe to an area extending approximately ten feet down slope to the high tide line was contaminated with mercury.

1.3. Project Objectives and Regulatory Framework

The project objective was to fully remove mercury contaminated soils below the outfall discharge pipe in order to meet the ADEC cleanup level for mercury in soil (3.1 milligram per kilogram [mg/kg]). ADEC soil cleanup levels are established in Table B1 of 18 Alaska Administrative Code (AAC) 75-*Oil and Other Hazardous Substances Pollution Control* (ADEC. 2018). In addition to the removal of mercury impacted soils, non-hazardous debris was to be collected and disposed of at the Juneau Landfill. The assay lab outfall pipe was included in the debris removal.

The approved work plan and this report were written in accordance with ADEC's *Site Characterization Work Plan and Reporting Guidance for Investigation of Contaminated Sites* (ADEC. 2017b). Soil samples for removal confirmation of the contaminated media and waste characterization purposes were collected in accordance with ADEC *Field Sampling Guidance* (ADEC. 2019).

1.4. Summary of Field Activities

Activities performed at Mayflower Island included soil removal from the outfall below the laboratory discharge pipe, removal of non-hazardous debris along the slope leading down to the outfall and around the adjacent parking area, and containment of the removed soil for off-site shipment and disposal. All removed soil was placed into two 55-gallon metal drums for disposal at Chemical Waste Management in Arlington, Oregon. Non-hazardous debris was disposed of in the Juneau Landfill.

2. FIELD WORK

During May 2019, AES personnel performed field work pertaining to the soil removal at the pipe outfall. Soil removal activities were performed in conjunction with a separate BLM cleanup effort, also on Mayflower Island. Photographs of the field activities are presented in **Appendix A**. The removal area located downslope from the parking area (**Figure 2**), is in an area of large rock and boulders, with little to no soils. The high tide line is below the outfall of the discharge pipe, below the soil removal area.

2.1. Discharge Pipe and Contaminated Soil Removal

The plastic discharge pipe emanating from the demolished mineral assay lab and ran below ground, down slope from the parking area, until it daylighted approximately 20 feet above the outfall area. The pipe was cut approximately two feet above where it daylighted, in an area that had sufficient overburden soils so erosion would not uncover the cut end. The pipe and associated cribbing were hauled to the surface, cut into sections, and the pipe containerized and disposed with the excavated soils. Associated pipe cribbing was disposed as non-hazardous debris at the Juneau Landfill.

A pathway was chosen for the pulley system, with clearing and grubbing performed to establish unimpeded operation. The pulley system was utilized for the hauling of buckets containing soil up the slope from the work area to parking area. The pulley system was constructed of 1/8” steel cable with two pulleys, one anchored at the top around a tree near the parking area and one anchored down slope near the removal area. The pulleys were placed high enough off the ground for the soil buckets to avoid vegetation and scraping on the ground when pulled up slope to the staging area.

Excavation commenced at the discharge point of the outfall and proceeded down slope to above the mean high tide line. Hand tools such as picks, trowels, brushes, and dust pans were utilized. Rocks and boulders that could be moved by hand or leveraging tools were placed aside to gain access to soils below or in crevices. Bedrock and rocks too large to move were considered refusal and allowed to remain in place. Excavation ceased at bedrock, considered refusal, and at the point near the high tide line where no soils were left to remove.

Hand brushes were used to clean off rocks of soils and detritus. Soils were collected into 5-gallon buckets. After several buckets were filled, each bucket was hooked onto the pulley system and transferred upslope to the parking lot area. At the staging area, buckets were taken off the pulley system and soils placed into 55-gallon open top steel drums for transportation and disposal.

Excavation proceeded both horizontally and vertically (**Appendix A**) from the outfall of the discharge pipe and down slope to above the high tide line. Removed soils depths were shallow and contained in a small area by bedrock and large rocks. As removal continued, it was noted that soils were being replaced with friable weathered bedrock typical of Mayflower Island. Once bedrock was reached in the removal area, and contaminated soil was removed to the fullest extent possible, AES and the onsite BLM project manager agreed that refusal had been reached and no further soil removal was warranted. The ADEC Project Manager was contacted and informed of site conditions, sent site photos via email, and was invited to the site to view conditions. From the site photos and conversation with the onsite BLM representative, ADEC granted approval that refusal had been reached in the removal area. The removal area measured approximately five feet at its widest and approximately ten feet long downslope. The width of the excavation narrowed proceeding down slope and terminated above the high tide water line.

Since the soil removal proceeded to refusal (bedrock), it was determined by AES, BLM, and ADEC that final confirmation soil sampling within the removal area was not necessary. Due to this, no soil samples were collected from the removal area. However, a single soil sample was collected from the soil drums for waste characterization purposes.

2.2. Non-Hazardous Debris Removal

Non-hazardous debris was collected from various areas near the soil removal area and around the island. Debris included wooden pipe cribbing, a metal bed frame, plastic flowerpots, cable spool, metal vent covers, and a deteriorating picnic table. All non-hazardous debris was loaded into a pickup truck and brought to the Juneau Landfill for disposal.

3. WASTE CHARACTERIZATION / TRANSPORTATION AND DISPOSAL

All mercury contaminated waste was placed into two 55-gallon open top steel drums. A sample of the impacted soil was collected for waste characterization purposes and analyzed for total mercury and toxicity characteristic leaching procedure (TCLP) mercury. The analytical laboratory report (Report Number 1192683) is presented in **Appendix B**, results are summarized in **Table 1**. Within the report, only sample 5001-501 pertains to the removal of the mercury impacted soil. The sample titled Sublanding, was collected for another removal action being performed at Mayflower Island during the same timeframe.

Waste characterization analytical results indicated that the total mercury result of 2.22 mg/kg classified the material as hazardous waste (Waste Code D009). TCLP results indicated that mercury was not detected in the sample (**Table 1**). Drums were palletized, labeled, covered, and placed into an existing temporary staging area at the site. Based upon the soil analytical results, a waste profile was created for the material (Profile Number OR342794), and upon subsequent approval from the permitted disposal facility, the drums were loaded into a shipping van for transport and disposal under Uniform Hazardous Waste Manifest 013781412FLE, to Chemical Waste Management, Inc. in Arlington, Oregon. A copy of the manifest is provided in **Appendix C**. Also included on the manifest is waste generated and disposed of pertaining to a separate removal action performed in conjunction with the mercury soil removal at Mayflower Island. Information regarding the profiling and shipping of the two 55-gallon drums containing mercury impacted soil can be found on Line 3 of Uniform Hazardous Waste Manifest (**Appendix C**).

The two drums containing mercury impacted soil were disposed of at Chemical Waste Management of the Northwest on February 4, 2020, under Certificate of Disposal 250533. A copy of the disposal certificate is provided in **Appendix C**.

4. CONCEPTUAL SITE MODEL

This Conceptual Site Model (CSM) describes the information presented in the ADEC CSM scoping form and graphic form provided in **Appendix D**, which have been updated using information from this report.

As detailed in the report, mercury in surface soil is the only impacted media at the site. Mercury at Mayflower Island was sourced from the mineral ore assay lab that was operational when the site was under ownership of the US Bureau of Mines, and released to the soil via discharge from an outfall pipe starting at the assay lab and terminating downslope above the high tide line. Impacted media at the site is limited to surface soils due to very shallow depths to bedrock and limited soil cover on the island.

Potential receptors at the site include site visitors and site workers, however, the risk for exposure to both visitors and workers is low. The island is a secure site, requiring permission from in command Coast Guard personnel to pass the security gate at the causeway leading to the island. The location of the mercury contamination is limited to a very small area located down a steep and highly vegetated slope from the parking area to above the high tide line. Chances for any visitors or site workers to even be near the area in which mercury was released from the outfall pipe is low and unlikely.

Potential exposure pathways at the site include incidental soil ingestion, dermal absorption of contaminants from soil, and inhalation of fugitive dust due to mercury present in the surface soils. Ingestion and dermal pathways are not considered complete and inhalation of fugitive dust is considered an insignificant pathway. There is no potential for mercury to migrate to subsurface soil or groundwater, due to very shallow depths to bedrock. Groundwater was not encountered during excavation activities. No impacted sediment or surface water is suspected at the site.

Conversations between the BLM representative onsite and the ADEC project manager responsible for the site at the time of the removal, determined that the mercury impacted soil was removed to the fullest extent possible. Soils within the discharge zone of the outfall pipe were excavated to bedrock resulting in refusal. Due to the removal of the mercury impacted media, all associated risks and potential exposure hazards have been eliminated.

5. CONCLUSIONS AND RECOMMENDATIONS

Mercury impacted soils, located at the outfall of a discharge pipe emanating from a demolished mineral assay lab on Mayflower Island, were removed from an area approximately 5-feet at the widest by 10-feet. The removal area terminated above the mean high tide water line, where no soils remained. Soils were excavated to bedrock (refusal) to the largest extent possible. Due to the removal area reaching bedrock, no confirmation samples were taken. Via emails and conversations between the BLM representative onsite and the ADEC Project Manager (at the time), an agreement was reached that the limits of soil removal had been reached and the mercury impacted soil sufficiently removed. It is recommended that this site be considered for closure by ADEC.

6. REFERENCES

Agviq Environmental Services (AES). 2018. *Mayflower Island Limited Mercury Soil Removal Work Plan*. July 2018.

Alaska Department of Environmental Conservation (ADEC). 2019. *Field Sampling Guidance*. October 2019.

ADEC. 2018. Alaska Administrative Code (AAC) 75, *Oil and Other Hazardous Substances Pollution Control*. October 2018.

ADEC. 2017a. *Guidance on Developing Conceptual Site Models*. January 2017.

ADEC. 2017b. *Site Characterization Work Plan and Reporting Guidance for Investigation of Contaminated Sites*. March 2017.

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TABLE

TABLE 1 SOIL ANALYTICAL RESULTS - MAY 2019
BUREAU OF LAND MANAGEMENT
MAYFLOWER ISLAND, ALASKA
MAYFLOWER ISLAND LIMITED MERCURY SOIL REMOVAL ACTION REPORT

		Client Sample Id:	5011-501		5011-501	
		Lab Sample Id:	1192683001		1192683002	
		Matrix:	Soil		Soil	
		Location:	Soil Drum		Soil Drum	
		Date Sampled:	5/17/2019		5/17/2019	
Analysis	**Analyte**	**Unit**	**Result**	**IQ**	**Result**	**IQ**
SM21 2540G	Total Solids	%	85.9		-	
SW6020A	Mercury	mg/Kg	2.22		-	
SW6020A TCLP	Mercury	mg/L	-		0.00500	U

Notes:

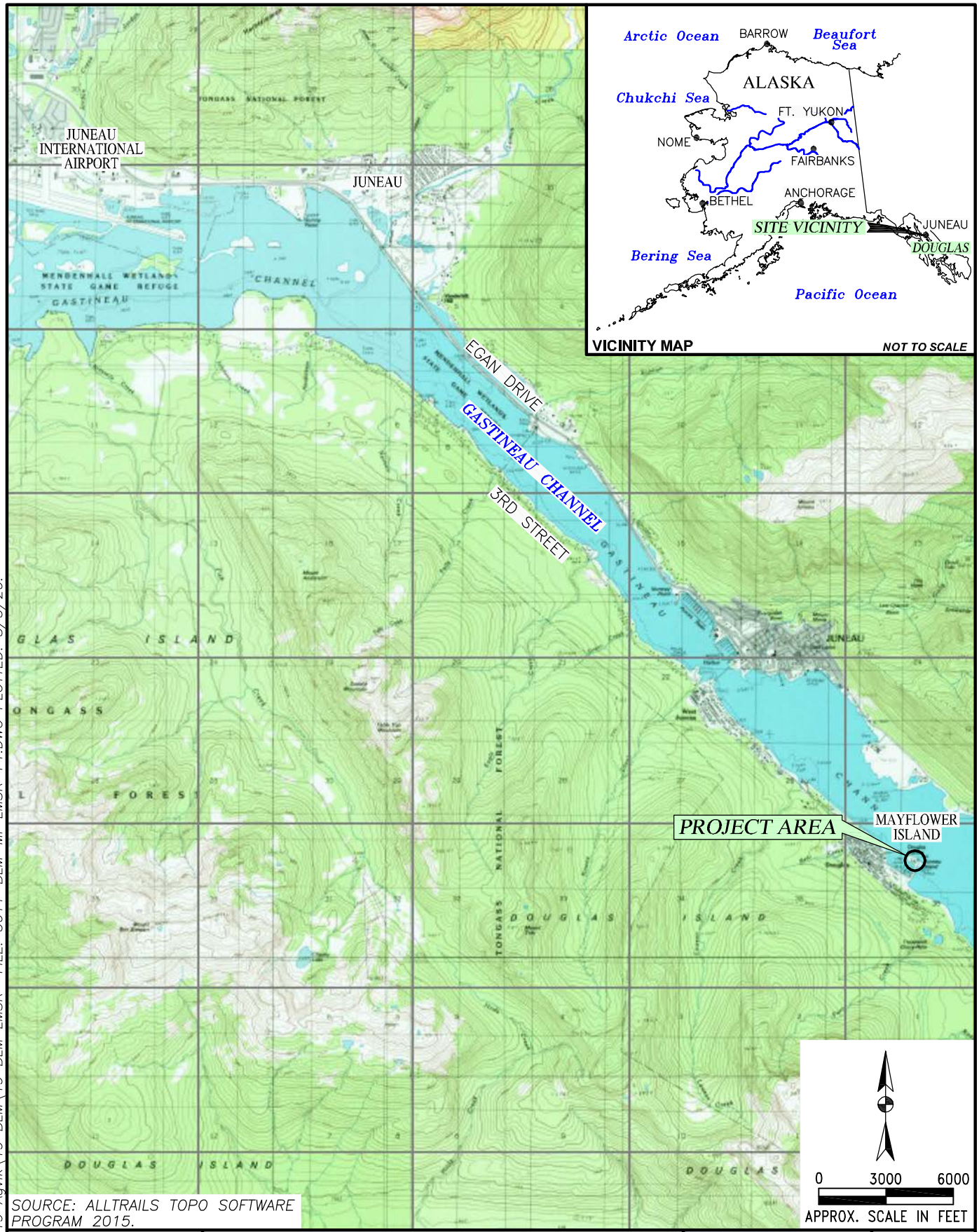
TCLP = toxicity characteristic leaching procedure

mg/Kg = milligrams per kilogram

mg/L = milligrams per liter

U = the analyte was analyzed for but not detected

FIGURES



SOURCE: ALLTRAILS TOPO SOFTWARE PROGRAM 2015.

PATH: 19 Dwgs\19 Agvik\19 BLM\19 BLM LMSR FILE: 5011-BLM-MI-LMSR-F1.DWG PLOTTED: 8/3/20.

DATE: AUGUST 2020
CHKD: J.C.
DRAWN: C.E.H.
PROJ. No.: 5011

SITE LOCATION MAP

MAYFLOWER ISLAND
LIMITED MERCURY SOIL REMOVAL
Douglas, Alaska

AGVIQ ENVIRONMENTAL SERVICES
701 S. Knik Goose Bay Road, Suite B
Wasilla, Alaska 99645

FIGURE
1

SOURCE: IMAGE DOWNLOADED FROM BING MAPS, DATED UNKNOWN.

PATH: 19 Dwgs\19 Agvik\19 BLM\19 BLM LMSR FILE: 5011-BLM-MI-LMSR-F2.DWG PLOTTED: 8/3/20.

DATE: AUGUST 2020
CHKD: J.C.
DRAWN: C.E.H.
PROJ. No.: 5011

SITE PLAN

MAYFLOWER ISLAND
LIMITED MERCURY SOIL REMOVAL
Douglas, Alaska

AGVIQ ENVIRONMENTAL SERVICES
701 S. Knik Goose Bay Road, Suite B
Wasilla, Alaska 99645

FIGURE
2

APPENDIX A:
PHOTOGRAPHS

Photograph 1: June 6, 2018 Access down slope to outfall pipe from parking area

Photograph 2: June 6, 2018 Looking up slope from soil removal area to parking lot

Photograph 3: May 10, 2019 Assay lab outfall discharge pipe

Photograph 4: May 10, 2019 Cable system used to haul soil buckets from removal area to parking area

Photograph 5: May 10, 2019 Outfall pipe terminating above the high tide line

Photograph 6: May 10, 2019 Soil removal at discharge zone of removed pipe

Photograph 7: May 10, 2019 Weathered friable bedrock below removed soil

Photograph 8: May 10, 2019 All soil removed down to bedrock

APPENDIX B:
ANALYTICAL LABORATORY REPORT

Laboratory Report of Analysis

To: AGVIQ Environmental Services (AES)
701 S. Knik Goodse Bay Rd., B
Wasilla, AK 99654

Report Number: **1192683**

Client Project: **Mayflower Island BLM**

Dear Bill Loskutoff,

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 Chuck 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.

Chuck Homestead
Project Manager
Charles.Homestead@sgs.com

Date

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

Case Narrative

SGS Client: **AGVIQ Environmental Services (AES)**
SGS Project: **1192683**
Project Name/Site: **Mayflower Island BLM**
Project Contact: **Bill Loskutoff**

Refer to sample receipt form for information on sample condition.

LB1 for HBN 1794523 [TCLP/1006 (1510902) LB1

6020A - Metals analyte lead is detected in the LB at a concentration greater than half of the LOQ but less than the LOQ. The associated sample concentrations are less than the LOQ.

1192729006(1510842MS) (1510843) MS

6020A - Metals MS recoveries for barium and lead does not meet QC criteria. The post digestion spike was successful.

1192729006(1510842MSD) (1510844) MSD

6020A - Metals MSD recovery for lead does not meet QC criteria. The post digestion spike was successful.

*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

Report of Manual Integrations

Laboratory ID	Client Sample ID	Analytical Batch	Analyte	Reason
SW8082A				
1510448	LCS for HBN 1794435 [XXX/41507	XGC10429	Aroclor-1016	SP
1510453	1192729006MS	XGC10429	Aroclor-1016	SP
1510454	1192729006MSD	XGC10429	Aroclor-1016	SP
1510454	1192729006MSD	XGC10429	Aroclor-1260	SP

Manual Integration Reason Code Descriptions

Code	Description
O	Original Chromatogram
M	Modified Chromatogram
SS	Skimmed surrogate
BLG	Closed baseline gap
RP	Reassign peak name
PIR	Pattern integration required
IT	Included tail
SP	Split peak
RSP	Removed split peak
FPS	Forced peak start/stop
BLC	Baseline correction
PNF	Peak not found by software

All DRO/RRO analysis are integrated per SOP.

Print Date: 06/07/2019 4:42:22PM

Laboratory Qualifiers

Enclosed are the analytical results associated with the above work order. The results apply to the samples as received. 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 & Microbiology) & 17-021 (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	Analytical 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.

Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
5011-501	1192683001	05/17/2019	05/31/2019	Soil/Solid (dry weight)
5011-501	1192683002	05/17/2019	05/31/2019	Solid/Soil (Wet Weight)
Sublanding	1192683003	05/17/2019	05/30/2019	Soil/Solid (dry weight)

Method	Method Description
SW6020A TCLP	Metals by ICP-MS
SW6020A	Metals by ICP-MS (S)
SM21 2540G	Percent Solids SM2540G
SW8082A	SW8082 PCB's

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200 West Potter Drive, Anchorage, AK 99518
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Detectable Results Summary

Client Sample ID: **5011-501**
Lab Sample ID: 1192683001
Metals by ICP/MS

Parameter	Result	Units
Mercury	2.22	mg/Kg

Client Sample ID: **Sublanding**
Lab Sample ID: 1192683003
Polychlorinated Biphenyls

Parameter	Result	Units
Aroclor-1254	390	ug/Kg

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

Results of **5011-501**

Client Sample ID: **5011-501**
Client Project ID: **Mayflower Island BLM**
Lab Sample ID: 1192683001
Lab Project ID: 1192683

Collection Date: 05/17/19 08:00
Received Date: 05/31/19 12:32
Matrix: Soil/Solid (dry weight)
Solids (%):85.9
Location:

Results by **Metals by ICP/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Mercury	2.22		0.0873	0.0218	mg/Kg	10		06/04/19 16:35

Batch Information

Analytical Batch: MMS10527
Analytical Method: SW6020A
Analyst: DSH
Analytical Date/Time: 06/04/19 16:35
Container ID: 1192683001-A

Prep Batch: MXX32457
Prep Method: SW3050B
Prep Date/Time: 06/04/19 07:45
Prep Initial Wt./Vol.: 1.067 g
Prep Extract Vol: 50 mL

Print Date: 06/07/2019 4:42:25PM

J flagging is activated

Results of **5011-501**

Client Sample ID: **5011-501**
Client Project ID: **Mayflower Island BLM**
Lab Sample ID: 1192683002
Lab Project ID: 1192683

Collection Date: 05/17/19 08:00
Received Date: 05/31/19 12:32
Matrix: Solid/Soil (Wet Weight)
Solids (%):
Location:

Results by **TCLP Constituents Metals**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Mercury	0.00500	U	0.0100	0.00310	mg/L	25	(<0.2)	06/06/19 16:38

Batch Information

Analytical Batch: MMS10529
Analytical Method: SW6020A TCLP
Analyst: DSH
Analytical Date/Time: 06/06/19 16:38
Container ID: 1192683002-A

Prep Batch: MXT5813
Prep Method: SW3010A
Prep Date/Time: 06/05/19 07:30
Prep Initial Wt./Vol.: 2.5 mL
Prep Extract Vol: 25 mL

Print Date: 06/07/2019 4:42:25PM

J flagging is activated

Results of **Subland**ing

Client Sample ID: **Subland**ing
Client Project ID: **Mayflower Island BLM**
Lab Sample ID: 1192683003
Lab Project ID: 1192683

Collection Date: 05/17/19 08:00
Received Date: 05/30/19 12:32
Matrix: Soil/Solid (dry weight)
Solids (%):30.1
Location:

Results by **Polychlorinated Biphenyls**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Aroclor-1016	82.0	U	164	41.0	ug/Kg	1		06/05/19 11:07
Aroclor-1221	164	U	328	82.0	ug/Kg	1		06/05/19 11:07
Aroclor-1232	82.0	U	164	41.0	ug/Kg	1		06/05/19 11:07
Aroclor-1242	82.0	U	164	41.0	ug/Kg	1		06/05/19 11:07
Aroclor-1248	82.0	U	164	41.0	ug/Kg	1		06/05/19 11:07
Aroclor-1254	390		164	41.0	ug/Kg	1		06/05/19 11:07
Aroclor-1260	82.0	U	164	41.0	ug/Kg	1		06/05/19 11:07
Surrogates								
Decachlorobiphenyl (surr)	102		60-125		%	1		06/05/19 11:07

Batch Information

Analytical Batch: XGC10429
Analytical Method: SW8082A
Analyst: CMC
Analytical Date/Time: 06/05/19 11:07
Container ID: 1192683003-A

Prep Batch: XXX41507
Prep Method: SW3550C
Prep Date/Time: 06/03/19 11:45
Prep Initial Wt./Vol.: 22.774 g
Prep Extract Vol: 5 mL

Print Date: 06/07/2019 4:42:25PM

J flagging is activated

Method Blank

Blank ID: LB1 for HBN 1794523 [TCLP/1006
Blank Lab ID: 1510902

Matrix: Solid/Soil (Wet Weight)

QC for Samples:
1192683002

Results by **SW6020A TCLP**

Parameter	Results	LOQ/CL	DL	Units
Mercury	0.00200U	0.00400	0.00124	mg/L

Batch Information

Analytical Batch: MMS10529
Analytical Method: SW6020A TCLP
Instrument: Perkin Elmer Nexlon P5
Analyst: DSH
Analytical Date/Time: 6/6/2019 3:18:51PM

Prep Batch: MXT5813
Prep Method: SW3010A
Prep Date/Time: 6/5/2019 7:30:38AM
Prep Initial Wt./Vol.: 6.25 mL
Prep Extract Vol: 25 mL

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

Method Blank

Blank ID: MB for HBN 1794541 [MXT/5813]
Blank Lab ID: 1510974

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1192683002

Results by **SW6020A TCLP**

Parameter	Results	LOQ/CL	DL	Units
Mercury	0.000500U	0.00100	0.000310	mg/L

Batch Information

Analytical Batch: MMS10529
Analytical Method: SW6020A TCLP
Instrument: Perkin Elmer Nexlon P5
Analyst: DSH
Analytical Date/Time: 6/6/2019 3:23:33PM

Prep Batch: MXT5813
Prep Method: SW3010A
Prep Date/Time: 6/5/2019 7:30:38AM
Prep Initial Wt./Vol.: 25 mL
Prep Extract Vol: 25 mL

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

Blank Spike Summary

Blank Spike ID: LCS for HBN 1192683 [MXT5813]
Blank Spike Lab ID: 1510975
Date Analyzed: 06/06/2019 15:28

Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1192683002

Results by **SW6020A TCLP**

Blank Spike (mg/L)

Parameter	Spike	Result	Rec (%)	CL
Mercury	0.01	0.0104	104	(70-124)

Batch Information

Analytical Batch: **MMS10529**
Analytical Method: **SW6020A TCLP**
Instrument: **Perkin Elmer Nexion P5**
Analyst: **DSH**

Prep Batch: **MXT5813**
Prep Method: **SW3010A**
Prep Date/Time: **06/05/2019 07:30**
Spike Init Wt./Vol.: 0.01 mg/L Extract Vol: 25 mL
Dupe Init Wt./Vol.: Extract Vol:

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Matrix Spike Summary

Original Sample ID: 1510976
MS Sample ID: 1510978 MS
MSD Sample ID: 1510979 MSD

QC for Samples: 1192683002

Analysis Date: 06/06/2019 15:32
Analysis Date: 06/06/2019 15:37
Analysis Date: 06/06/2019 15:42
Matrix: Solid/Soil (Wet Weight)

Results by **SW6020A TCLP**

		Matrix Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Mercury	0.00200U	0.0400	.0379	95	0.0400	0.0408	102	70-124	7.44	(< 20)

Batch Information

Analytical Batch: MMS10529
Analytical Method: SW6020A TCLP
Instrument: Perkin Elmer Nexlon P5
Analyst: DSH
Analytical Date/Time: 6/6/2019 3:37:36PM

Prep Batch: MXT5813
Prep Method: Waters Digest for Metals by ICP-MS(TCLP)
Prep Date/Time: 6/5/2019 7:30:38AM
Prep Initial Wt./Vol.: 6.25mL
Prep Extract Vol: 25.00mL

Print Date: 06/07/2019 4:42:29PM

Method Blank

Blank ID: MB for HBN 1794463 [MXX/32457]
Blank Lab ID: 1510628

Matrix: Soil/Solid (dry weight)

QC for Samples:
1192683001

Results by **SW6020A**

Parameter	Results	LOQ/CL	DL	Units
Mercury	0.0400U	0.0800	0.0200	mg/Kg

Batch Information

Analytical Batch: MMS10527
Analytical Method: SW6020A
Instrument: Perkin Elmer Nexlon P5
Analyst: DSH
Analytical Date/Time: 6/4/2019 1:46:10PM

Prep Batch: MXX32457
Prep Method: SW3050B
Prep Date/Time: 6/4/2019 7:45:57AM
Prep Initial Wt./Vol.: 1 g
Prep Extract Vol: 50 mL

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200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 **f** 907.561.5301 www.us.sgs.com

Blank Spike Summary

Blank Spike ID: LCS for HBN 1192683 [MXX32457]
Blank Spike Lab ID: 1510629
Date Analyzed: 06/04/2019 13:50

Matrix: Soil/Solid (dry weight)

QC for Samples: 1192683001

Results by **SW6020A**

Blank Spike (mg/Kg)

Parameter	Spike	Result	Rec (%)	CL
Mercury	0.5	0.500	100	(74-126)

Batch Information

Analytical Batch: **MMS10527**
Analytical Method: **SW6020A**
Instrument: **Perkin Elmer Nexion P5**
Analyst: **DSH**

Prep Batch: **MXX32457**
Prep Method: **SW3050B**
Prep Date/Time: **06/04/2019 07:45**
Spike Init Wt./Vol.: 0.5 mg/Kg Extract Vol: 50 mL
Dupe Init Wt./Vol.: Extract Vol:

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Matrix Spike Summary

Original Sample ID: 1510842
MS Sample ID: 1510843 MS
MSD Sample ID: 1510844 MSD

QC for Samples: 1192683001

Analysis Date: 06/04/2019 13:55
Analysis Date: 06/04/2019 14:00
Analysis Date: 06/04/2019 14:04
Matrix: Solid/Soil (Wet Weight)

Results by **SW6020A**

		Matrix Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Mercury	0.0658J	0.482	.499	90	0.483	0.506	91	74-126	1.33	(< 20)

Batch Information

Analytical Batch: MMS10527
Analytical Method: SW6020A
Instrument: Perkin Elmer Nexlon P5
Analyst: DSH
Analytical Date/Time: 6/4/2019 2:00:16PM

Prep Batch: MXX32457
Prep Method: Soils/Solids Digest for Metals by ICP-MS
Prep Date/Time: 6/4/2019 7:45:57AM
Prep Initial Wt./Vol.: 1.04g
Prep Extract Vol: 50.00mL

Print Date: 06/07/2019 4:42:32PM

Method Blank

Blank ID: MB for HBN 1794469 [SPT/10783]
Blank Lab ID: 1510645

Matrix: Soil/Solid (dry weight)

QC for Samples:
1192683001, 1192683003

Results by **SM21 2540G**

Parameter	Results	LOQ/CL	DL	Units
Total Solids	100			%

Batch Information

Analytical Batch: SPT10783
Analytical Method: SM21 2540G
Instrument:
Analyst: A.A
Analytical Date/Time: 6/3/2019 4:59:00PM

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t 907.562.2343 **f** 907.561.5301 www.us.sgs.com

Duplicate Sample Summary

Original Sample ID: 1192664003
Duplicate Sample ID: 1510646
QC for Samples:
1192683001, 1192683003

Analysis Date: 06/03/2019 16:59
Matrix: Soil/Solid (dry weight)

Results by **SM21 2540G**

NAME	Original	Duplicate	Units	RPD (%)	RPD CL
Total Solids	79.7	80.8	%	1.30	(< 15)

Batch Information

Analytical Batch: SPT10783
Analytical Method: SM21 2540G
Instrument:
Analyst: A.A

Print Date: 06/07/2019 4:42:33PM

Duplicate Sample Summary

Original Sample ID: 1192730014
Duplicate Sample ID: 1510647
QC for Samples:
1192683001, 1192683003

Analysis Date: 06/03/2019 16:59
Matrix: Soil/Solid (dry weight)

Results by **SM21 2540G**

NAME	Original	Duplicate	Units	RPD (%)	RPD CL
Total Solids	69.2	70.3	%	1.60	(< 15)

Batch Information

Analytical Batch: SPT10783
Analytical Method: SM21 2540G
Instrument:
Analyst: A.A

Print Date: 06/07/2019 4:42:33PM

Method Blank

Blank ID: MB for HBN 1794435 [XXX/41507]
Blank Lab ID: 1510447

Matrix: Soil/Solid (dry weight)

QC for Samples:
1192683003

Results by **SW8082A**

Parameter	Results	LOQ/CL	DL	Units
Aroclor-1016	25.0U	50.0	12.5	ug/Kg
Aroclor-1221	50.0U	100	25.0	ug/Kg
Aroclor-1232	25.0U	50.0	12.5	ug/Kg
Aroclor-1242	25.0U	50.0	12.5	ug/Kg
Aroclor-1248	25.0U	50.0	12.5	ug/Kg
Aroclor-1254	25.0U	50.0	12.5	ug/Kg
Aroclor-1260	25.0U	50.0	12.5	ug/Kg
Surrogates				
Decachlorobiphenyl (surr)	114	60-125		%

Batch Information

Analytical Batch: XGC10429
Analytical Method: SW8082A
Instrument: HP 6890 Series II ECD SV H F
Analyst: CMC
Analytical Date/Time: 6/4/2019 7:11:00PM

Prep Batch: XXX41507
Prep Method: SW3550C
Prep Date/Time: 6/3/2019 11:45:41AM
Prep Initial Wt./Vol.: 22.5 g
Prep Extract Vol: 5 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1192683 [XXX41507]
Blank Spike Lab ID: 1510448
Date Analyzed: 06/04/2019 19:26

Matrix: Soil/Solid (dry weight)

QC for Samples: 1192683003

Results by **SW8082A**

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
Aroclor-1016	222	189	85	(47-134)
Aroclor-1260	222	209	94	(53-140)
Surrogates				
Decachlorobiphenyl (surr)	222	112	112	(60-125)

Batch Information

Analytical Batch: **XGC10429**
Analytical Method: **SW8082A**
Instrument: **HP 6890 Series II ECD SV H F**
Analyst: **CMC**

Prep Batch: **XXX41507**
Prep Method: **SW3550C**
Prep Date/Time: **06/03/2019 11:45**
Spike Init Wt./Vol.: 222 ug/Kg Extract Vol: 5 mL
Dupe Init Wt./Vol.: Extract Vol:

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Matrix Spike Summary

Original Sample ID: 1192729006
MS Sample ID: 1510453 MS
MSD Sample ID: 1510454 MSD

QC for Samples: 1192683003

Analysis Date: 06/04/2019 19:41
Analysis Date: 06/04/2019 19:56
Analysis Date: 06/04/2019 20:11
Matrix: Soil/Solid (dry weight)

Results by **SW8082A**

		Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Aroclor-1016	38.8U	346	318	92	346	344	100	47-134	8.03	(< 30)
Aroclor-1260	38.8U	346	296	86	346	299	86	53-140	0.69	(< 30)
Surrogates										
Decachlorobiphenyl (surr)		346	366	106	346	380	110	60-125	3.59	

Batch Information

Analytical Batch: XGC10429
Analytical Method: SW8082A
Instrument: HP 6890 Series II ECD SV H F
Analyst: CMC
Analytical Date/Time: 6/4/2019 7:56:00PM

Prep Batch: XXX41507
Prep Method: Sonication Extraction Soil SW8080 PCB
Prep Date/Time: 6/3/2019 11:45:41AM
Prep Initial Wt./Vol.: 22.53g
Prep Extract Vol: 5.00mL

Print Date: 06/07/2019 4:42:37PM

SGS **1192683**

SGS North America Inc.
CHAIN OF CUSTODY RECORD

Locations Nationwide

Alaska	Maryland
New Jersey	New York
North Carolina	Indiana
West Virgina	Kentucky

www.us.sgs.com

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

Page ___ of ___

Section 1

CLIENT: Agvig Environmental

CONTACT: Dumitru Radu PHONE NO: 907-980-9936

PROJECT NAME: Mayflower Island BLM PROJECT/ PWSID/ PERMIT#:

REPORTS TO: Dumitru Radu E-MAIL: dradu@agvig.com

INVOICE TO: QUOTE #:

P.O. #: 5005 & 5011

Section 2

RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HH:MM	MATRIX/ MATRIX CODE	# CONTAINERS	Type C = COMP G = GRAB MI = Multi Incre-mental Soils	Section 3 Preservative									REMARKS/ LOC ID
1A 2A	5011 - ~~5005~~ 5011	5/17/19	0800	Soil	2	C	X	X								
3A	Subloading	5/17/19	0800	Soil	1	G			X							

Section 4

DOD Project? Yes No

Cooler ID: _____

Data Deliverable Requirements:

Requested Turnaround Time and/or Special Instructions:

Section 5

	Date	Time	Received By:
Relinquished By: (1)	5/30/19		
Relinquished By: (2)			
Relinquished By: (3)			
Relinquished By: (4)	5.30.19	1232	Received For Laboratory By:

Temp Blank °C: _____

or Ambient [ ]

(See attached Sample Receipt Form)

Chain of Custody Seal: (Circle)

INTACT BROKEN ABSENT

(See attached Sample Receipt Form)

[ ] 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

SGS

SGS North America Inc.
200 W. Potter Drive, Anchorage, AK 99518
phone (907) 562-2343, fax (907) 561-5301

Characterization of TCLP Samples for LIMS Login

Date Characterized: 05.31.19 **Analyst:** Elie Moreno

Sample Container ID:	Matrix	%	Is sufficient volume/mass available?	Notes:
2183-2A	Xylene miscible (Top layer * = matrix 3 **)		(Yes) / No	If multiple jars were received, were they consistent? Yes / No / (NA) If biphasic, was there only one layer with sufficient sample ? Yes / No / (NA) Sample description/other observations: Soil and Rock, **Are samples Glycol or Solvent in appearance or odor? If yes schedule TCLP Metals matrix 6 acode.
	Water miscible (Middle layer = matrix 6)			
	Solid (Bottom layer = matrix 7 or 2 if % solids required)	7/100%		
	Xylene miscible (Top layer * = matrix 3 **)		Yes / No	If multiple jars were received, were they consistent? Yes / No / NA If biphasic, was there only one layer with sufficient sample ? Yes / No / NA Sample description/other observations: **Are samples Glycol or Solvent in appearance or odor? If yes schedule TCLP Metals matrix 6 acode.
	Water miscible (Middle layer = matrix 6)			
	Solid (Bottom layer = matrix 7 or 2 if % solids required)			
	Xylene miscible (Top layer * = matrix 3 **)		Yes / No	If multiple jars were received, were they consistent? Yes / No / NA If biphasic, was there only one layer with sufficient sample ? Yes / No / NA Sample description/other observations: **Are samples Glycol or Solvent in appearance or odor? If yes schedule TCLP Metals matrix 6 acode.
	Water miscible (Middle layer = matrix 6)			
	Solid (Bottom layer = matrix 7 or 2 if % solids required)			
	Xylene miscible (Top layer * = matrix 3 **)		Yes / No	If multiple jars were received, were they consistent? Yes / No / NA If biphasic, was there only one layer with sufficient sample ? Yes / No / NA Sample description/other observations: **Are samples Glycol or Solvent in appearance or odor? If yes schedule TCLP Metals matrix 6 acode.
	Water miscible (Middle layer = matrix 6)			
	Solid (Bottom layer = matrix 7 or 2 if % solids required)			
	Xylene miscible (Top layer * = matrix 3 **)		Yes / No	If multiple jars were received, were they consistent? Yes / No / NA If biphasic, was there only one layer with sufficient sample ? Yes / No / NA Sample description/other observations: **Are samples Glycol or Solvent in appearance or odor? If yes schedule TCLP Metals matrix 6 acode.
	Water miscible (Middle layer = matrix 6)			
	Solid (Bottom layer = matrix 7 or 2 if % solids required)			

Remember: **** = Chlorinated oils will be heavier than water and present as the bottom later.***
***** = Oils must be filterable to be logged in as matrix 3. Nonfilterable oils must be logged in as matrix 7.***
****** = Refer to F078 'Characterization of TCLP Samples for LIMS' to determine if there's sufficent volume/mass.***

e-Sample Receipt Form

SGS Workorder #: **1192683**

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	N/A	HD
COC accompanied samples?	Yes	
DOD: Were samples received in COC corresponding coolers?		
Yes — **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)?	N/A	Cooler ID: 1 @ Ambient °C Therm. ID:
If samples received without a temperature blank, the "cooler temperature" will be documented instead & "COOLER TEMP" will be noted to the right. "ambient" or "chilled" will be noted if neither is available.		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
*If >6°C, were samples collected <8 hours ago?	N/A	no chilling required
If <0°C, were sample containers ice free?	N/A	
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.		
***Note: If sample information on containers differs from COC, SGS will default to COC informatic		
Were analytical requests clear? (i.e., method is specified for analyses with multiple option for analysis (Ex: BTEX, Metals)	Yes	
		***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
1192683001-A	No Preservative Required	OK			
1192683002-A	No Preservative Required	OK			
1192683003-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.

APPENDIX C:
SHIPPING MANIFEST AND CERTIFICATE OF DISPOSAL

CWMI

Please print or type. 474957 1/10 Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
	VSQG	3	(800)424-9300	013781412 FLE

5. Generator's Name and Mailing Address
BUREAU OF LAND MANAGEMENT
100 SAVIKKO RD
DOUGLAS AK 99824
Generator's Phone: (907)364-6162

Generator's Site Address (if different than mailing address)

6. Transporter 1 Company Name: ALASKA MARINE TRUCKING — U.S. EPA ID Number: AKR000200105

7. Transporter 2 Company Name: ALASKA MARINE LINES — U.S. EPA ID Number: WAD991281809

8. Designated Facility Name and Site Address
CHEMICAL WASTE MANAGEMENT, INC.
17629 CEDAR SPRINGS LANE
ARLINGTON OR 97812-9709
Facility's Phone: (541)454-2643
U.S. EPA ID Number: ORD089452353

	9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes		
GENERATOR	X	1. UN3432, POLYCHLORINATED BIPHENYLS, SOLID, 9, PGII, RQ (MARINE POLLUTANT) OR341907	1	DM	478	K	X002		
	X	2. UN2315, POLYCHLORINATED BIPHENYLS, LIQUID, 9, PGII, RQ (MARINE POLLUTANT) OR341908	2	DM	~~952~~ 860	K	X002		
	X	3. NA3077, HAZARDOUS WASTE SOLID, N.O.S., (MERCURY), 9, PGIII, RQ OR342794	2	DM	362	~~P~~ K	D009		
	X	4. UN3432, POLYCHLORINATED BIPHENYLS, SOLID, 9, PGII, RQ (MARINE POLLUTANT) OR341908	~~3~~ 2 KCF 1/24/20	BA	1428	K	X002		

14. Special Handling Instructions and Additional Information
1. PROFILE OR341907: PCB01 - PCB REMEDIATION CONTAMINATED MATERIAL; ERG # = 171; RQ = 1 LB.
Out of service date: ____-____-____. 2. PROFILE OR341908: PCB05 - NON-HAZ WATER; ERG # = 171; RQ = 1 LB.
Out of service date: ____-____-____. 3. PROFILE OR342794: MERC04 - MERCURY CONTAMINATED SOIL;
ERG # = 171; RQ = 1 LB.
CONTAINER #

15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Lawrence J Beck — Signature — Month 11 Day 04 Year 19

INT'L
16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER
17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: AMT 238 — Signature — Month 11 Day 13 Year 19
Transporter 2 Printed/Typed Name: Cindy Littlejohn — Signature — Month 12 Day 3 Year 19

DESIGNATED FACILITY
18. Discrepancy
18a. Discrepancy Indication Space ☑ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Page 2 of 3 Line 22a. Profile OR341936 50M
Manifest Reference Number:
18b. Alternate Facility (or Generator) U.S. EPA ID Number
1 Changed weights to match Canadian manifest Per Dumitru Radu/Environmental Professional ICF 1/22/20
to 4 Changed to 2 Bag as only 2 were shipped. Per Dumitru Radu/Environmental Professional ICF 1/24/20
Facility's Phone:
18c. Signature of Alternate Facility (or Generator) Month Day Year
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H132	H040	H110	H132

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name: Dawn Duke — Signature — Month 1 Day 24 Year 20

EPA Form 8700-22 (Rev. 12-17) Previous editions are obsolete. DESIGNATED FACILITY TO EPA's e-MANIFEST SYSTEM

gm

CWMI

Please print or type. 474957 Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST (Continuation Sheet)	21. Generator ID Number	22. Page 2 of 3	23. Manifest Tracking Number
	VSQG		013781412 FLE

24. Generator's Name: BUREAU OF LAND MANAGEMENT

25. Transporter 3 Company Name: LTI INC — U.S. EPA ID Number: WAD980835664

26. Transporter 4 Company Name: UNION PACIFIC RAILROAD — U.S. EPA ID Number: NED001792910

27a. HM	27b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	28. Containers No.	28. Containers Type	29. Total Quantity	30. Unit Wt./Vol.	31. Waste Codes		
X	UN3432, POLYCHLORINATED BIPHENYLS, SOLID, 9, PGII, RQ (MARINE POLLUTANT) OR341906 DM	6	DM	2856	K	X002		

GENERATOR

32. Special Handling Instructions and Additional Information

4 & 5. PROFILE OR341906: PCB01 - PCB CONTAMINATED CONCRETE; ERG # = 171; RQ = 1 LB;
Out of service date: ____-____-____. CHEMTREC CCN: 24117

TRANSPORTER

33. Transporter ____ Acknowledgment of Receipt of Materials

Printed/Typed Name: AMT 238 — Signature: [signature] — Month/Day/Year: 11/13/19

34. Transporter 4 Acknowledgment of Receipt of Materials — 1/14/20 KF 2/7/20

Printed/Typed Name: H. Malo — Signature: H. Malo — Month/Day/Year: 01/14/20

DESIGNATED FACILITY

35. Discrepancy: Profile OR341906 6 DM (Line 27a)
LTI signature see attached section 25. KF 2/7/20

36. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

S) H132

EPA Form 8700-22A (Rev. 12-17) Previous editions are obsolete.

DESIGNATED FACILITY TO EPA's e-MANIFEST SYSTEM

CWM

Please print or type. 474957

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST (Continuation Sheet)	21. Generator ID Number	22. Page 2 of 3	23. Manifest Tracking Number
	VSQG		013781412 FLE

24. Generator's Name: BUREAU OF LAND MANAGEMENT

1/14/20 kf 2/11/20

25. Transporter 3 Company Name: LTI INC Alexis Cardenas Alexis C 2/6 — U.S. EPA ID Number: WAD980635684

26. Transporter 4 Company Name: UNION PACIFIC RAILROAD — U.S. EPA ID Number: NED001792910

27a. HM	27b. U.S. DOT Description (Including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	28. Containers No.	28. Containers Type	29. Total Quantity	30. Unit Wt./Vol.	31. Waste Codes
	UN3432, POLYCHLORINATED BIPHENYLS, SOLID, 9, PGII, RQ (MARINE POLLUTANT) OR341906 DM	6	DM	2856	K	K002

32. Special Handling Instructions and Additional Information

4 & 5. PROFILE OR341906 PCB01 - PCB CONTAMINATED CONCRETE, ERG # = 171; RQ = 1 LB.
Out of service date: ___-___-___ CHEMTREC CCN. 24117

GENERATOR

TRANSPORTER

33. Transporter ___ Acknowledgment of Receipt of Materials
Printed/Typed Name: ADOT 238 — Signature — Month/Day/Year: 1/13/19

34. Transporter 4 Acknowledgment of Receipt of Materials
Printed/Typed Name: A. Malo — Signature: A. Malo — Month/Day/Year: 01/14/20

DESIGNATED FACILITY

35. Discrepancy: Profile OR341906 5 DM (Line 27a)

36. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)
H132

CWMI

Please print or type. 474957 Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST (Continuation Sheet)	21. Generator ID Number	22. Page 3 of 3	23. Manifest Tracking Number
	VSQG		013781412 FLE

24. Generator's Name: BUREAU OF LAND MANAGEMENT

25. Transporter 5 Company Name: COLUMBIA RIDGE LANDFILL — U.S. EPA ID Number: ORD987173457

26. Transporter _____ Company Name — U.S. EPA ID Number:

GENERATOR

27a. HM	27b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	28. Containers No.	28. Containers Type	29. Total Quantity	30. Unit Wt./Vol.	31. Waste Codes

32. Special Handling Instructions and Additional Information

WMXU 60303

TRANSPORTER

33. Transporter _____ Acknowledgment of Receipt of Materials

Printed/Typed Name: AMIT 238 — Signature: [signature] — Month: 12 Day: 13 Year: 19

34. Transporter 5 Acknowledgment of Receipt of Materials

Printed/Typed Name: Jan L Gabbey — Signature: Jan L Gabbey — Month: 1 Day: 16 Year: 2020

DESIGNATED FACILITY

35. Discrepancy

36. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

EPA Form 8700-22A (Rev. 12-17) Previous editions are obsolete.

DESIGNATED FACILITY TO EPA's e-MANIFEST SYSTEM

WASTE MANAGEMENT

CWM OF THE NORTHWEST
Federal EPA ID: ORD089452353
17629 CEDAR SPRINGS LANE
ARLINGTON, OR 97812

BUREAU OF LAND MANAGEMENT
ATTN: MANIFEST SECTION
AKZ000011109
100 SAVIKKO RD
DOUGLAS AK 99824

CERTIFICATE OF DISPOSAL

CWM OF THE NORTHWEST, EPA ID: ORD089452353, has received waste material from BUREAU OF LAND MANAGEMENT on 01/23/20 as described on Shipping Document number 013781412FLE.

Profile Number: OR342794
CWM Tracking ID: 47495703
CWM Unit #: 1*0 thru 2*0
Disposal Date: 02/04/20

I certify, on behalf of the above listed treatment facility, that to the best of my knowledge, the above-described waste was managed in compliance with all applicable laws, regulations, permits and licenses on the date listed above.

CWMNW RECORDS DEPARTMENT
Certificate # 250533
08/07/20

APPENDIX D:
CONCEPTUAL SITE MODEL

Human Health Conceptual Site Model
Scoping Form

Site Name: Mayflower Island, Douglas, AK

File Number: 1538.38.003

Completed by: AES

Introduction

The form should be used to reach agreement with the Alaska Department of Environmental Conservation (DEC) about which exposure pathways should be further investigated during site characterization. From this information, a CSM graphic and text must be submitted with the site characterization work plan.

General Instructions: Follow the italicized instructions in each section below.

1. *General Information:*

Sources *(check potential sources at the site)*

- ☐ USTs
- ☐ ASTs
- ☐ Dispensers/fuel loading racks
- ☐ Drums
- ☐ Vehicles
- ☐ Landfills
- ☐ Transformers
- ☑ Other: Ore assay laboratory facility

Release Mechanisms *(check potential release mechanisms at the site)*

- ☐ Spills
- ☐ Leaks
- ☐ Direct discharge
- ☐ Burning
- ☑ Other: Discharge from outfall pipe

Impacted Media *(check potentially-impacted media at the site)*

- ☑ Surface soil (0-2 feet bgs*)
- ☐ Subsurface Soil (>2 feet bgs)
- ☐ Air
- ☐ Groundwater
- ☐ Surface water
- ☐ Other: _____

Receptors (*check receptors that could be affected by contamination at the site)*

- ☐ Residents (adult or child)
- ☐ Commercial or industrial worker
- ☐ Construction worker
- ☐ Subsistence harvester (i.e., gathers wild foods)
- ☐ Subsistence consumer (i.e., eats wild foods)
- ☑ Site visitor
- ☐ Trespasser
- ☐ Recreational user
- ☐ Farmer
- ☑ Other: Site worker

* bgs – below ground surface

2. *Exposure Pathways:* *(The answers to the following questions will identify complete exposure pathways at the site. Check each box where the answer to the question is "yes".)*

a) Direct Contact –

1 Incidental Soil Ingestion

Is soil contaminated anywhere between 0 and 15 feet bgs? ☑

Do people use the site or is there a chance they will use the site in the future? ☐

If both boxes are checked, label this pathway complete: _____

2 Dermal Absorption of Contaminants from Soil

Is soil contaminated anywhere between 0 and 15 feet bgs? ☑

Do people use the site or is there a chance they will use the site in the future? ☐

Can the soil contaminants permeate the skin? (Contaminants listed below, or within the groups listed below, should be evaluated for dermal absorption). ☐

Arsenic	Lindane
Cadmium	PAHs
Chlordane	Pentachlorophenol
2,4-dichlorophenoxyacetic acid	PCBs
Dioxins	SVOCs
DDT	

If all of the boxes are checked, label this pathway complete: _____

b) Ingestion –

1 Ingestion of Groundwater

Have contaminants been detected or are they expected to be detected in the groundwater, OR are contaminants expected to migrate to groundwater in the future? ☐

Could the potentially affected groundwater be used as a current or future drinking water source? *Please note, only leave the box unchecked if ADEC has determined the groundwater is not a currently or reasonably expected future source of drinking water according to 18 AAC 75.350.* ☐

If both the boxes are checked, label this pathway complete: _____

2 Ingestion of Surface Water

Have contaminants been detected or are they expected to be detected in surface water OR are contaminants expected to migrate to surface water in the future? ☐

Could potentially affected surface water bodies be used, currently or in the future, as a drinking water source? *Consider both public water systems and private use (i.e., during residential, recreational or subsistence activities).* ☐

If both boxes are checked, label this pathway complete: _____

3 Ingestion of Wild Foods

Is the site in an area that is used or reasonably could be used for hunting, fishing, or harvesting of wild food? ☐

Do the site contaminants have the potential to bioaccumulate (*see* Appendix A)? ☑

Are site contaminants located where they would have the potential to be taken up into biota? (i.e. the top 6 feet of soil, in groundwater that **could be** connected to surface water, etc.) ☐

If all of the boxes are checked, label this pathway complete: _____

c) Inhalation

1 Inhalation of Outdoor Air

Is soil contaminated anywhere between 0 and 15 feet bgs? ☑

Do people use the site or is there a chance they will use the site in the future? ☐

Are the contaminants in soil volatile (*See Appendix B*)? ☐

If all of the boxes are checked, label this pathway complete: _____

2 Inhalation of Indoor Air

Are occupied buildings on the site or reasonably expected to be placed on the site in an area that could be affected by contaminant vapors? (i.e., within 100 feet, horizontally or vertically, of the contaminated soil or groundwater, <u>or</u> subject to "preferential pathways" that promote easy airflow, like utility conduits or rock fractures) ☐

Are volatile compounds present in soil or groundwater (*See Appendix C*)? ☐

If both boxes are checked, label this pathway complete: _____

3. Additional Exposure Pathways: *(Although there are no definitive questions provided in this section, these exposure pathways should also be considered at each site. Use the guidelines provided below to determine if further evaluation of each pathway is warranted.)*

Dermal Exposure to Contaminants in Groundwater and Surface Water

Exposure from this pathway may need to be assessed only in cases where DEC water-quality or drinking-water standards are not being applied as cleanup levels. Examples of conditions that may warrant further investigation include:

- Climate permits recreational use of waters for swimming,
- Climate permits exposure to groundwater during activities, such as construction, without protective clothing, or
- Groundwater or surface water is used for household purposes.

Check the box if further evaluation of this pathway is needed: ☐

Comments:

Inhalation of Volatile Compounds in Household Water

Exposure from this pathway may need to be assessed only in cases where DEC water-quality or drinking-water standards are not being applied as cleanup levels. Examples of conditions that may warrant further investigation include:

- The contaminated water is used for household purposes such as showering, laundering, and dish washing, and
- The contaminants of concern are volatile (common volatile contaminants are listed in Appendix B)

Check the box if further evaluation of this pathway is needed: ☐

Comments:

Inhalation of Fugitive Dust

Generally DEC soil ingestion cleanup levels in Table B1 of 18 AAC 75 are protective of this pathway, although this is not true in the case of chromium. Examples of conditions that may warrant further investigation include:

- Nonvolatile compounds are found in the top 2 centimeters of soil. The top 2 centimeters of soil are likely to be dispersed in the wind as dust particles.
- Dust particles are less than 10 micrometers. This size can be inhaled and would be of concern for determining if this pathway is complete.

Check the box if further evaluation of this pathway is needed: ☑

Comments:

Mercury was detected above ADEC cleanup level in the surface soil (0-2' bgs) at 5.5 mg/kg at the outfall of the discharge pipe. Contaminated soil was removed from surface to bedrock and placed into drums for off-site shipment and disposal.

Direct Contact with Sediment

This pathway involves people's hands being exposed to sediment, such as during recreational or some types of subsistence activities. People then incidentally **ingest** sediment from normal hand-to-mouth activities. In addition, **dermal absorption of contaminants** may be of concern if people come in contact with sediment and the contaminants are able to permeate the skin (see dermal exposure to soil section). This type of exposure is rare but it should be investigated if:

- Climate permits recreational activities around sediment, and/or
- Community has identified subsistence or recreational activities that would result in exposure to the sediment, such as clam digging.

ADEC soil ingestion cleanup levels are protective of direct contact with sediment. If they are determined to be over-protective for sediment exposure at a particular site, other screening levels could be adopted or developed.

Check the box if further evaluation of this pathway is needed: ☐

Comments:

4. Other Comments (*Provide other comments as necessary to support the information provided in this form.)*

APPENDIX A

BIOACCUMULATIVE COMPOUNDS

Table A-1: List of Compounds of Potential Concern for Bioaccumulation

Organic compounds are identified as bioaccumulative if they have a BCF equal to or greater than 1,000 or a log K_{ow} greater than 3.5. Inorganic compounds are identified as bioaccumulative if they are listed as such by EPA (2000). Those compounds in Table X of 18 AAC 75.345 that are bioaccumulative, based on the definition above, are listed below.

Aldrin	DDT	Lead
Arsenic	Dibenzo(a,h)anthracene	Mercury
Benzo(a)anthracene	Dieldrin	Methoxychlor
Benzo(a)pyrene	Dioxin	Nickel
Benzo(b)fluoranthene	Endrin	PCBs
Benzo(k)fluoranthene	Fluoranthene	
Cadmium	Heptachlor	Pyrene
Chlordane	Heptachlor epoxide	Selenium
Chrysene	Hexachlorobenzene	Silver
Copper	Hexachlorocyclopentadiene	Toxaphene
DDD	Indeno(1,2,3-c,d)pyrene	Zinc
DDE		

Because BCF values can relatively easily be measured or estimated, the BCF is frequently used to determine the potential for a chemical to bioaccumulate. A compound with a BCF greater than 1,000 is considered to bioaccumulate in tissue (EPA 2004b).

For inorganic compounds, the BCF approach has not been shown to be effective in estimating the compound's ability to bioaccumulate. Information available, either through scientific literature or site-specific data, regarding the bioaccumulative potential of an inorganic site contaminant should be used to determine if the pathway is complete.

The list was developed by including organic compounds that either have a BCF equal to or greater than 1,000 or a log K_{ow} greater than 3.5 and inorganic compounds that are listed by the United States Environmental Protection Agency (EPA) as being bioaccumulative (EPA 2000). The BCF can also be estimated from a chemical's physical and chemical properties. A chemical's octanol-water partitioning coefficient (K_{ow}) along with defined regression equations can be used to estimate the BCF. EPA's Persistent, Bioaccumulative, and Toxic (PBT) Profiler (EPA 2004) can be used to estimate the BCF using the K_{ow} and linear regressions presented by Meylan et al. (1996). The PBT Profiler is located at http://www.pbtprofiler.net/. For compounds not found in the PBT Profiler, DEC recommends using a log K_{ow} greater than 3.5 to determine if a compound is bioaccumulative.

APPENDIX B

VOLATILE COMPOUNDS

Table B-1: List of Volatile Compounds of Potential Concern
Common volatile contaminants of concern at contaminated sites. A chemical is defined as volatile if the Henry's Law constant is 1 x 10^{-5} atm-m^3/mol or greater and the molecular weight less than 200 g/mole (g/mole; EPA 2004a). Those compounds in Table X of 18 AAC 75.345 that are volatile, based on the definition above, are listed below.

Acenaphthene	1,4-dichlorobenzene	Pyrene
Acetone	1,1-dichloroethane	Styrene
Anthracene	1,2-dichloroethane	1,1,2,2-tetrachloroethane
Benzene	1,1-dichloroethylene	Tetrachloroethylene
Bis(2-chlorethyl)ether	Cis-1,2-dichloroethylene	Toluene
Bromodichloromethane	Trans-1,2-dichloroethylene	1,2,4-trichlorobenzene
Carbon disulfide	1,2-dichloropropane	1,1,1-trichloroethane
Carbon tetrachloride	1,3-dichloropropane	1,1,2-trichloroethane
Chlorobenzene	Ethylbenzene	Trichloroethylene
Chlorodibromomethane	Fluorene	Vinyl acetate
Chloroform	Methyl bromide	Vinyl chloride
2-chlorophenol	Methylene chloride	Xylenes
Cyanide	Naphthalene	GRO
1,2-dichlorobenzene	Nitrobenzene	DRO

APPENDIX C

COMPOUNDS OF CONCERN FOR VAPOR MIGRATION

Table C-1: List of Compounds of Potential Concern for the Vapor Migration

A chemical is considered sufficiently toxic if the vapor concentration of the pure component poses an incremental lifetime cancer risk greater than 10-6 or a non-cancer hazard index greater than 1. A chemical is considered sufficiently volatile if it's Henry's Law constant is 1 x 10^{-5} atm-m^3/mol or greater.

Acenaphthene	Dibenzofuran	Hexachlorobenzene
Acetaldehyde	1,2-Dibromo-3-chloropropane	Hexachlorocyclopentadiene
Acetone	1,2-Dibromoethane (EDB)	Hexachloroethane
Acetonitrile	1,3-Dichlorobenzene	Hexane
Acetophenone	1,2-Dichlorobenzene	Hydrogen cyanide
Acrolein	1,4-Dichlorobenzene	Isobutanol
Acrylonitrile	2-Nitropropane	Mercury (elemental)
Aldrin	N-Nitroso-di-n-butylamine	Methacrylonitrile
alpha-HCH (alpha-BHC)	n-Propylbenzene	Methoxychlor
Benzaldehyde	o-Nitrotoluene	Methyl acetate
Benzene	o-Xylene	Methyl acrylate
Benzo(b)fluoranthene	p-Xylene	Methyl bromide
Benzylchloride	Pyrene	Methyl chloride chloromethane)
beta-Chloronaphthalene	sec-Butylbenzene	Methylcyclohexane
Biphenyl	Styrene	Methylene bromide
Bis(2-chloroethyl)ether	tert-Butylbenzene	Methylene chloride
Bis(2-chloroisopropyl)ether	1,1,1,2-Tetrachloroethane	Methylethylketone (2-butanone)
Bis(chloromethyl)ether	1,1,2,2-Tetrachloroethane	Methylisobutylketone
Bromodichloromethane	Tetrachloroethylene	Methylmethacrylate
Bromoform	Dichlorodifluoromethane	2-Methylnaphthalene
1,3-Butadiene	1,1-Dichloroethane	MTBE
Carbon disulfide	1,2-Dichloroethane	m-Xylene
Carbon tetrachloride	1,1-Dichloroethylene	Naphthalene
Chlordane	1,2-Dichloropropane	n-Butylbenzene
2-Chloro-1,3-butadiene (chloroprene)	1,3-Dichloropropene	Nitrobenzene
Chlorobenzene	Dieldrin	Toluene
1-Chlorobutane	Endosulfan	trans-1,2-Dichloroethylene
Chlorodibromomethane	Epichlorohydrin	1,1,2-Trichloro-1,2,2-trifluoroethane
Chlorodifluoromethane	Ethyl ether	1,2,4-Trichlorobenzene
Chloroethane (ethyl chloride)	Ethylacetate	1,1,2-Trichloroethane
Chloroform	Ethylbenzene	1,1,1-Trichloroethane
2-Chlorophenol	Ethylene oxide	Trichloroethylene
2-Chloropropane	Ethylmethacrylate	Trichlorofluoromethane
Chrysene	Fluorene	1,2,3-Trichloropropane
cis-1,2-Dichloroethylene	Furan	1,2,4-Trimethylbenzene
Crotonaldehyde (2-butenal)	Gamma-HCH (Lindane)	1,3,5-Trimethylbenzene
Cumene	Heptachlor	Vinyl acetate
DDE	Hexachloro-1,3-butadiene	Vinyl chloride (chloroethene)

Source: EPA 2002.

HUMAN HEALTH CONCEPTUAL SITE MODEL GRAPHIC FORM

Site: Mayflower Island, Douglas, AK
File No: 1538.38.003

Completed By: AES
Date Completed: 8/3/2020

***Instructions*: Follow the numbered directions below. Do not consider contaminant concentrations or engineering/land use controls when describing pathways.**

(1)
Check the media that could be directly affected by the release.

(2)
For each medium identified in (1), follow the top arrow and check possible transport mechanisms. Check additional media under (1) if the media acts as a secondary source.

(3)
Check all exposure media identified in (2).

(4)
*Check all pathways that could be complete. The pathways identified in this column **must** agree with Sections 2 and 3 of the Human Health CSM Scoping Form.*

(5)
Identify the receptors potentially affected by each exposure pathway: Enter "C" for current receptors, "F" for future receptors, "C/F" for both current and future receptors, or "I" for insignificant exposure.

Current & Future Receptors

Media	Transport Mechanisms	Exposure Media	Exposure Pathway/Route	Residents (adults or children)	Commercial or industrial workers	Site visitors, trespassers, or recreational users	Construction workers	Farmers or subsistence harvesters	Subsistence consumers	Other
☑ Surface Soil (0-2 ft bgs)	☐ Direct release to surface soil — check soil	☑ soil	☐ Incidental Soil Ingestion							
	☐ Migration to subsurface — check soil		☐ Dermal Absorption of Contaminants from Soil							
	☐ Migration to groundwater — check groundwater		☑ Inhalation of Fugitive Dust			I				I
	☐ Volatilization — check air									
	☐ Runoff or erosion — check surface water									
	☐ Uptake by plants or animals — check biota									
	☐ Other (list):									
☐ Subsurface Soil (2-15 ft bgs)	☐ Direct release to subsurface soil — check soil	☐ groundwater	☐ Ingestion of Groundwater							
	☐ Migration to groundwater — check groundwater		☐ Dermal Absorption of Contaminants in Groundwater							
	☐ Volatilization — check air		☐ Inhalation of Volatile Compounds in Tap Water							
	☐ Uptake by plants or animals — check biota									
	☐ Other (list):									
☐ Ground-water	☐ Direct release to groundwater — check groundwater	☐ air	☐ Inhalation of Outdoor Air							
	☐ Volatilization — check air		☐ Inhalation of Indoor Air							
	☐ Flow to surface water body — check surface water		☐ Inhalation of Fugitive Dust							
	☐ Flow to sediment — check sediment									
	☐ Uptake by plants or animals — check biota									
	☐ Other (list):									
☐ Surface Water	☐ Direct release to surface water — check surface water	☐ surface water	☐ Ingestion of Surface Water							
	☐ Volatilization — check air		☐ Dermal Absorption of Contaminants in Surface Water							
	☐ Sedimentation — check sediment		☐ Inhalation of Volatile Compounds in Tap Water							
	☐ Uptake by plants or animals — check biota									
	☐ Other (list):									
☐ Sediment	☐ Direct release to sediment — check sediment	☐ sediment	☐ Direct Contact with Sediment							
	☐ Resuspension, runoff, or erosion — check surface water									
	☐ Uptake by plants or animals — check biota	☐ biota	☐ Ingestion of Wild or Farmed Foods							
	☐ Other (list):									

Revised, 10/01/2010

APPENDIX E:
ADEC LETTER AND RESPONSE TO COMMENTS ON DRAFT LIMITED MERCURY SOIL REMOVAL REPORT

THE STATE of ALASKA
GOVERNOR MIKE DUNLEAVY

Department of Environmental Conservation

DIVISION OF SPILL PREVENTION AND RESPONSE
Contaminated Sites Program

555 Cordova Street
Anchorage, AK 99501
Main: 907-269-7520
Fax: 907-269-7687
www.dec.alaska.gov

File No: 1525.38.026

June 16, 2020

Kyle Kraynak
Bureau of Land Management
4700 BLM Road
Anchorage, AK 99507

Re: **ADEC Comments on "Mayflower Island Limited Soil Removal Remedial Action Report 100 Savikko Road Douglas, Alaska" Dated December 2019**

Dear Mr. Kraynak:

The Alaska Department of Environmental Conservation (ADEC) Contaminated Sites Program received the above referenced document on May 14, 2020 via email. ADEC has reviewed the draft remedial action report and comments are summarized in the attached table. The report summarizes mercury contaminated soil excavation activities.

Please contact Rachael Petraeus at (907) 269-7520 or rachael.petraeus@alaska.gov with questions.

Sincerely,

Rachael Petraeus

Rachael Petraeus
Project Manager

Enclosure: ADEC Comments Table

END OF DOCUMENT