SITE INVESTIGATION REPORT

For

NOME HARBOR REPAIRS AND UPGRADES

(ADEC FILE No. 400.38.034)

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ACRONYMS

AAC	Alaska Administrative Code
ADEC	Alaska Department of Environmental Conservation
bgs	Below Ground Surface
BTEX	Benzene, Toluene, Ethlybenzene, and Xylene
DRO	Diesel Range Organics
GPS	Global Positioning System
GRO	Gasoline Range Organics
IDW	Investigative Derived Waste
mg/kg	milligram per kilogram
MS/MSD	Matrix Spike/Matrix Spike Duplicate
LCS/LCSD	Lab Control Spike/Lab Control Spike Duplicate
LOQ	Limit of Quantitation
PAH	Polynuclear Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyls
PCS	Petroleum Contaminated Soil
PID	Photoionization Detector
PPM	Pacific Pile and Marine
RPD	Relative Percent Difference
SGS	SGS North America Inc.
Tutka	Tutka, LLC
USACE	United States Army Corps of Engineers

EXECUTIVE SUMMARY

Tutka, LLC (Tutka) was contracted by Pacific Pile and Marine (PPM) for environmental consulting services to investigate suspected soil contamination that may be encountered during utility trenching and light pole base foundation activities during the Nome Harbor Improvements Project.

Field site investigation activities began on August 25th, 2014 and ended on September 3rd, 2014. Tutka was onsite to:

- collect soil samples for field screening from the excavated areas if contamination is observed (i.e. odor or staining);
- direct the segregation and stockpiling of PCS soil excavated during construction activities;
- collect field screening soil samples from stockpiled soil;
- collect soil samples from excavated areas for laboratory analysis where field screening indicates the presence of PCS;
- collect soil samples for laboratory analysis from stockpiled soil where field screening indicates the presence of PCS.

A total of 39 field screening samples were collected and analyzed during project activities. As specified in the ADEC approved Soil Sampling Work Plan (Bristol, 2014. *Soil Sampling Work Plan*, April), soil exceeding 25 ppm was stockpiled meeting the requirements of Title 18 Alaska Administrative Code (AAC) 75.370. Once the utility trenching and light pole foundation base excavation activities were completed, the stockpiled soil and excavation area were sampled and analytical samples were collected and analyzed for Gasoline Range Organics (GRO) by AK101, Diesel Range Organics (DRO) by AK102, Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX) by SW8260B, polynuclear aromatic hydrocarbons (PAHs) by 8270D SIMS, and polychlorinated biphenyls (PCB) by SW8082 per the ADEC approved Soil Sampling Work Plan. Analytical samples were submitted to SGS North America Inc – Anchorage, AK (SGS).

A total of 14 cubic yards of suspected contaminated soil was stockpiled during trenching and light pole base foundation work. Three primary samples and one duplicate sample were collected for laboratory testing. Based on laboratory results, the stockpiled material contains Benzene and Diesel above ADEC cleanup levels. Disposal of the stockpiled soil was not included in the scope of work for this project.

In addition to stockpile sampling, three laboratory samples were also collected from the excavation area confirming both Benzene and Diesel above ADEC cleanup levels remain within the excavation limits. Remediation of the site was not included in the scope of the work for this project.

The intent of this report is to summarize field screening and analytical sampling conducted onsite during project activities for the Nome Harbor Improvements Project. The information in this report will also assist the City of Nome with disposal options for the stockpiled soil remaining at the site.

1.0 INTRODUCTION

Tutka, LLC (Tutka) was contracted by Pacific Pile and Marine (PPM) for environmental consulting services to investigate suspected soil contamination that may be encountered during the Nome Harbor Improvements Project. Field work followed the approved work plan (Bristol, 2014. *Soil Sampling Work Plan*, April) and this report details the site investigation activities conducted during utility and light pole excavation work.

1.1.1 Project Objectives

The objective of this work was to visually monitor for petroleum contaminated soil (PCS) and field screen, stockpile, and collect laboratory analytical samples where photoionization detector (PID) field screening results exceed the site specific screening level of 25 parts per million (ppm) during utility trenching activities and light pole base foundation installation.

Tutka's scope of work during the Nome Harbor Improvements Project included:

- Collection of soil samples for field screening from the excavated areas if contamination is observed (i.e. odor or staining).
- Stockpile and segregate PCS soil excavated during construction activities.
- Collection of field screening soil samples from stockpiled soil.
- Collection of soil samples from excavated areas for laboratory analysis where field screening indicates the presence of PCS.
- Collection of soil samples for laboratory analysis from stockpiled soil where field screening indicates the presence of PCS.

Work was completed in accordance to the ADEC approved Soil Sampling Work Plan and in some cases Title 18 Alaska Administrative Code, Section 75 (18 AAC 75) as well as 18 AAC 78 and supplemental Alaska Department of Environmental Conservation (ADEC) guidance was followed.

1.1.2 Site Location

The project area is generally located on the east side of the Nome Harbor turning basin in Nome, Alaska (Figure 1).

1.1.3 Site History

The present-day Crowley Marine dock area at Nome Harbor has been in use since 1920. The dockside fuel headers and underground pipelines were operated by Chevron Oil Company prior to 1985, but are now operated by Crowley Marine Services. The fueling system currently handles Diesel No. 2, Jet A 50, unleaded gasoline, and aviation gasolines. Based on previous history of the dock area, the site is an "active" contaminated site in the ADEC database (ADEC File No. 400.38.034) due to a release of approximately 50 gallons of jet fuel from fueling operations at the site. In 2003 the United States Army Corps of Engineers (USACE) conducted an investigation of subsurface soils and collected soil samples from 20 soil borings of which seventeen of the borings were located on the Crowley dock. The investigation concluded that Diesel Range Organics (DRO) is the site's predominant contaminant. Based on the past and current use of the site as well as the reported active site in ADEC's database, the City of Nome

requested PPM to monitor for contamination during excavation operations within the upland areas of concern.

2.0 FIELD ACTIVITIES

Tutka collected soil samples for field screening from the light pole base foundations and from the electrical utility trenches when contamination (i.e. odor or staining) was observed during project activities. Light pole base foundations were excavated to seven feet below ground surface (bgs) and electrical utility trenches were excavated to 36 inches bgs. Where field screening indicated the presence of PCS, soil was segregated, stockpiled, and field screened for further assessment. Analytical samples were also collected from the stockpiled soil and excavation area with observed PCS.

Soil sampling procedures followed the ADEC approved Soil Sampling Work Plan. There were no deviations from the plan. The following sections detail field activities conducted on site during excavation activities.

2.1.1 Mobilization

Tutka mobilized from Anchorage, Alaska to Nome, Alaska on August 25th, 2014 for planned project activities. Tutka's field crew consisted of two environmental professionals: Amie Sommer and Chris Locke. Field activities were conducted from August 25th through September 3rd, 2014.

2.1.2 Field Screening Activities

Field screening procedures followed the ADEC approved Soil Sampling Work Plan. Visual and olfactory observation methods were used during auger and excavation operations. Additional field screening was conducted using a PID if contamination (i.e. odor or staining) was observed. The PID was calibrated daily using isobutylene calibration gas. Field screening soils were placed in Ziploc® bags using a new stainless steel spoon for each sample and were generally allowed to warm for up to 20 minutes prior to being screened using the PID. After warming, the bags were agitated for approximately 15 seconds, and then the tip of the PID was inserted into the headspace portion of the bags. The greatest PID reading was recorded for each sample. A total of 39 field screening samples were collected and analyzed. PID field screening results are summarized in Table 1.

2.1.3 Soil Sampling Activities

Soil sampling procedures followed the ADEC approved Soil Sampling Work Plan. Analytical samples were collected where contamination was observed (PID reading exceeding 25 ppm). A total of four samples were collected from stockpiled soil (including one field duplicate) and a total of three samples were collected from the excavation area with PCS. Samples were submitted to SGS for Gasoline Range Organics (GRO) AK101, DRO by AK102, Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX) by SW8260B, ploynuclear aromatic hydrocarbons (PAHs) by 8270D SIMS, and polychlorinated biphenyls (PCB) by SW8082. Analytical results with reported detections are summarized in Table 2.

Several Global Positioning System (GPS) coordinates were collected for control points as well as at each light pole base location and analytical sampling location. The unit used in the field was a Leica Uno, sub-meter post-process mapping receiver. GPS coordinates collected during project activities can be found in Appendix A. Also, Figure 2 includes the light pole base

foundation locations and Figure 3 includes soil sampling locations and any associated data that was above ADEC cleanup levels.

2.1.3.1 Stockpile Sampling

Soils excavated from the light pole base foundations and utility trenches were field screened only if odors and staining were observed. Soil exceeding 25 ppm was stockpiled meeting the requirements of 18 AAC 75.370. Once the utility trenching and light pole foundation base excavation activities were completed, the stockpile soil was sampled for analytical testing as defined by the ADEC's Draft Field Sampling Guidance (2010) and as specified in the ADEC approved Soil Sampling Work Plan. A total of 14 cubic yards of suspected contaminated soil was stockpiled during trenching and light pole base foundation work. A total of nine field screening samples were collected for field analysis. Three primary samples and one duplicate sample were collected for laboratory testing. Field screening and analytical laboratory testing met the requirements in the ADEC approved Soil Sampling Work Plan.

2.1.3.2 Excavation Sampling

The excavation area for utility trenching was measured to be 87 square feet. A total of nine field screening samples were collected on excavated soils and three samples were collected for laboratory analysis. Per the ADEC approved Soil Sampling Work Plan, samples were not collected at ADEC Table 2B frequency, but only at locations with field screening results greater than 25 ppm.

2.1.4 Investigative Derived Waste

Only minimal solid investigative derived waste (IDW) was generated during field activities and included; nitrile gloves, sampling baggies, and spoons which were disposed of at the local permitted landfill in Nome, Alaska. Excavated soil suspected of soil contamination exceeding 25 ppm via field screening was temporarily stockpiled onsite and after being sampled for analytical testing was transferred to the contaminated stockpile at the Nome Landfill. Handling, treatment, and/or disposal of contaminated soil were not within Tutka's scope of work. Based on the ADEC approved Soil Sampling Work Plan and Tutka's contract with the Operator/Owner, Bristol Environmental will coordinate with the Nome Landfill and ADEC for disposal options of stockpiled soil.

2.1.5 Demobilization

Documentation of field activities in the field logbooks is located in Appendix A of this report, a photograph log is included in Appendix B, and analytical data for samples submitted to the laboratory is included in Appendix C. Tutka personnel demobilized from the site once light pole base foundations and utility trench work was complete for project activities.

3.0 SOIL RESULTS AND DISCUSSION

A total of six (6) primary soil samples were collected for laboratory analyses in addition to one (1) quality control sample (One Field Duplicate). Primary samples included three (3) samples from the stockpiled soil and three (3) from the excavation area. Samples were collected and analyzed for GRO by AK101, DRO by AK102, BTEX by SW8260B, PAHs by 8270D SIMS, and PCBs by SW8082. Analytical results with reported detections are summarized in Table 2 and a complete copy of the analytical data is included in Appendix C. Analytical results were compared to ADEC's cleanup levels referenced in Title 18, Alaska Administrative Code, Chapter 75.341, Table B-1 & B-2 Method Two, Migration to Groundwater. The following sections discuss the laboratory results.

3.1.1 Gasoline Range Organics by AK101

Six primary samples were collected for GRO analysis by AK101. Laboratory results indicate the soil does not exceed the ADEC cleanup level; 300 mg/kg (18 AAC 75.341 – Method 2, Table B2).

3.1.2 BTEX Compounds by 8260B

Six primary samples were collected for BTEX analysis by 8260B. Laboratory results indicate the soil does not exceed the ADEC cleanup level (see 18 AAC 75.341 - Method 2, Table B1 for specific analyte levels) with the exception of the following samples and analytes;

Sample ID	Description	Analyte	Result
ST06	Stockpile Sample	Benzene	**35.7 ug/kg**
EX06	Bottom of Excavation	Benzene	**55.1 ug/kg**

3.1.3 Diesel Range Organics by AK102

Six primary samples were collected for DRO analysis by AK102. Laboratory results indicate the soil **exceeds** the ADEC cleanup level; 250 mg/kg (18 AAC 75.341 - Method 2, Table B2) for the following samples;

Sample ID	Description	DRO Result
ST01	**Stockpile Sample**	**730 mg/kg**
ST06	**Stockpile Sample**	**492 mg/kg**
EX04	**Bottom of Excavation Sidewall**	**479 mg/kg**
EX06	**Bottom of Excavation**	**442 mg/kg**

3.1.4 PAH Compounds by 8270D SIM

Six primary samples were collected for PAH analysis by 8270D SIM. Laboratory results indicate the soil does not exceed the ADEC cleanup levels (see 18 AAC 75.341 - Method 2, Table B1 for specific analyte levels).

3.1.5 Polychlorinated Biphenyls by SW8082

Six primary samples were collected for PCB analysis by 8082. Laboratory results indicate the soil does not exceed the ADEC cleanup levels (see 18 AAC 75.341 - Method 2, Table B1 for specific analyte levels).

4.0 QUALITY ASSURANCE/QUALITY CONTROL

Tutka performed a chemical data quality assessment for all quality control analytical data obtained during the investigative field work for project activities. Analytical data was reviewed in accordance to the ADEC approved Soil Sampling Work Plan. Also, a laboratory data review checklist was completed for each lab submittal per the ADEC Technical Memorandum dated March 2009. The checklists are included within Appendix D of this report. The data quality assessment included examination and review of sample temperatures at time of receipt at the laboratory, sample holding times, chain of custody records, reported results for project, laboratory QC and field QC samples. SGS North America Inc (SGS), Anchorage Laboratory, received all of the samples. Their current ADEC Contaminated Sites Lab approval is UST-005.

Soil samples collected for laboratory analyses were submitted in two separate deliveries and SGS assigned Project Numbers of 1144174 and 1144270. Samples were analyzed for DRO by AK102, GRO by AK101, BTEX by 8260B, PAHs by 8270D, and PCBs by 8082. A field duplicate QC sample was collected and submitted to the laboratory for each analysis (one field duplicate was collected for six primary samples) and two trip blanks were included to accompany GRO and BTEX analysis samples for the two shipments.

4.1.1 Sample Receipt and Holding Times

Samples collected for laboratory analyses were delivered from Nome to Anchorage in one cooler via Alaska Air Cargo. They were all received in good condition with and with two custody seals per cooler (one in front and one in back).

SGS Project #1144174
One cooler was associated with #1144174 with a receipt temperature of 1.4°C at arrival to TestAmerica, Anchorage. The cooler contained a total of 5 samples and a Trip Blank. While the temperature was slightly outside the acceptance range (below 2°C), there are no data impacts to the 5 samples collected, shipped, received, and analyzed.

SGS Project #1144270
One cooler was associated with #1144270 with a receipt temperature of 3.8°C at arrival to TestAmerica, Anchorage. The cooler contained a total of 2 Samples and a Trip Blank. Samples were received within acceptable temperature range and within good condition.

4.1.2 Precision and Accuracy

The following section summarizes field duplicates, laboratory control samples and duplicates, matrix spike and matrix spike duplicates, and surrogate recoveries.

4.1.3 Gasoline Range Organics (AK101)

Field Duplicate
#1144174 - One field duplicate was submitted and the Relative Percent Difference (RPD) was within recommended acceptance limits for GRO analyses.

#1144270 – No field duplicate was submitted in this delivery.

Lab Control Spike/Lab Control Spike Duplicate (LCS/LCSD)
#1144174 - LCS/LCSD recoveries all reported within limits.

#1144270 - LCS/LCSD recoveries all reported within limits.

Matrix Spike/Matrix Spike Duplicate (MS/MSD)
No MS/MSD analyses was performed on GRO, see LCS for accuracy.

Surrogate Recoveries
#1144174 - Surrogates were recovered within limits.

#1144270 - Surrogates were recovered within limits.

4.1.4 BTEX (8260B)

Field Duplicate

#1144174 – One field duplicate was submitted and RPDs were not calculated as sample/sample duplicate results were undetected.

#1144270 – No field duplicate was submitted in this delivery.

LCS/LCSD
#1144174 - LCS/LCSD recoveries all reported within limits.

#1144270 - LCS/LCSD recoveries all reported within limits.

MS/MSD
#1144174 – MS recovery for hexachlorobutadiene does not meet QC criteria (biased high). This analyte was not detected above the LOQ in the original sample. This project is only related to BTEX compounds and the LCS recoveries as well as surrogates are all within acceptable limits indicative of no notable data impacts to the sample results.

#1144270 – MS/MSD recovery for hexachlorobutadiene does not meet QC criteria (biased high). This analyte was not detected above the Limit of Quantitation (LOQ) in the original sample. This project is only related to BTEX compounds and the LCS recoveries as well as surrogates are all within acceptable limits indicative of no notable data impacts to the sample results.

Surrogate Recoveries
#1144174 – 1,2-Dichloroethane-D4 and Toluene-d8 surrogate recovery does not meet QC criteria. Analytes associated with these surrogates were not detected above the LOQ.

#1144270 - Surrogates were recovered within limits.

4.1.5 Diesel Range Organics (AK102)

#1144174 – One field duplicate was submitted and RPDs were within recommended acceptance limits for DRO analyses.

#1144270 – No field duplicate was submitted in this delivery.

LCS/LCSD
#1144174 - LCS/LCSD recoveries all reported within limits.

#1144270 - LCS/LCSD recoveries all reported within limits.

MS/MSD
No MS/MSD analyses was performed on GRO, see LCS for accuracy.

Surrogate Recoveries
#1144174 - Surrogates were recovered within limits.

#1144270 - Surrogates were recovered within limits.

4.1.6 Semi-Volatile Organic Compounds (8270D)

Field Duplicate

#1144174 – One field duplicate was submitted and the RPDs for only the analytes detected above the reporting limits were calculated. The RPDs for several analytes were outside of acceptance limits. However, there is no effect on data usability because the estimated quantities reported were at least 50 times below the applicable cleanup levels for these analytes.

#1144270 – No field duplicate was submitted in this delivery.

LCS/LCSD
#1144174 - LCS/LCSD recoveries all reported within limits.

#1144270 - LCS/LCSD recoveries all reported within limits.

MS/MSD
#1144174 – MS/MSD sample was analyzed for PAH out of holding time. MSD recoveries for phenanthrene, fluoranthene, and chrysene are outside of QC criteria. Refer to the LCS for accuracy.

#1144270 – MS recovery for multiple analytes is outside of QC criteria. Refer to the LCS for accuracy. MSD recovery for multiple analytes is outside of QC criteria. Refer to the LCS for accuracy. MS/MSD RPD for benzo(a)pyrene does not meet QC criteria. No data impacts are noted for results and LCS recovery is within acceptable limits.

Surrogate Recoveries
#1144174 – Surrogate (2-fluorobiphenyl) recovery is outside of QC criteria due to sample dilution. Data usability is not impacted.

#1144270 - Surrogates were recovered within limits.

4.1.7 Polychlorinated Biphenyls (8082)

Field Duplicate
#1144174 – One field duplicate was submitted and the RPDs were not calculated for PCB analytes due to results not being detected above reporting limits.

#1144270 – No field duplicate was submitted in this delivery.

LCS/LCSD
#1144174 - LCS/LCSD recoveries all reported within limits.

#1144270 - LCS/LCSD recoveries all reported within limits.

MS/MSD
No MS/MSD analyses was performed on PCB, see LCS for accuracy.

Surrogate Recoveries
#1144174 - Surrogates were recovered within limits.

#1144270 – Surrogates were recovered within limits.

4.1.8 Sensitivity

The following sections summarize trip blanks, method blanks, and reporting limits.

4.1.9 Gasoline Range Organics (AK101)

Trip Blank
#1144174- One trip blank was reported for GRO (by AK101). Results showed the trip blank to be free of contamination.

#1144270 - One trip blank was reported for GRO (by AK101). Results showed the trip blank to be free of contamination.

Method Blank
#1144174 – There were no method blank contamination issues for GRO above the laboratory reporting limits.

#1144270 - There were no method blank contamination issues for GRO above the laboratory reporting limits.

Reporting Limits
#1144174 - Laboratory reporting limits for GRO are acceptable for data quality objectives.

#1144270 - Laboratory reporting limits for GRO are acceptable for data quality objectives.

4.1.10 BTEX (8260B)

Trip Blank
#1144174- One trip blank was reported for BTEX (8260B). Results showed the trip blank to be free of contamination.

#1144270 - One trip blank was reported for BTEX (8260B). Results showed the trip blank to be free of contamination.

Method Blank
#1144174 – There were no method blank contamination issues for BTEX above the laboratory reporting limits.

#1144270 - There were no method blank contamination issues for BTEX above the laboratory reporting limits.

Reporting Limits
#1144174 - Laboratory reporting limits for BTEX are acceptable for data quality objectives.

#1144270 - Laboratory reporting limits for BTEX are acceptable for data quality objectives.

4.1.11 Diesel Range Organics (AK102)

Trip Blanks are not applicable to DRO analyses.

Method Blank
#1144174 – There were no method blank contamination issues for DRO above the laboratory reporting limits.

#1144270 - There were no method blank contamination issues for DRO above the laboratory reporting limits.

Reporting Limits
#1144174 - Laboratory reporting limits for DRO are acceptable for data quality objectives.

#1144270 - Laboratory reporting limits for DRO are acceptable for data quality objectives.

4.1.12 PAH (8270D SIM)

Trip blanks are not applicable to PAH analyses.
Method Blank
#1144174 – There were no method blank contamination issues for PAH above the laboratory reporting limits.

#1144270 - There were no method blank contamination issues for PAH above the laboratory reporting limits.

Reporting Limits
#1144174 - Laboratory reporting limits for PAH are acceptable for data quality objectives.

#1144270 - Laboratory reporting limits for PAH are acceptable for data quality objectives.

4.1.13 Polychlorinated Biphenyls (8082)

Trip blanks are not applicable to PCB analyses.

Method Blank
#1144174 – There were no method blank contamination issues for PCB above the laboratory reporting limits.

#1144270 - There were no method blank contamination issues for PCB above the laboratory reporting limits.

Reporting Limits
#1144174 - Laboratory reporting limits for PCB are acceptable for data quality objectives.

#1144270 - Laboratory reporting limits for PCB are acceptable for data quality objectives.

4.1.14 Representativeness

Data Quality Objectives of the ADEC approved Soil Sampling Work Plan were met by the collection, submission, and analyses of samples with the exceptions noted above. The data characterizes site conditions within the scope of the project.

4.1.15 Comparability

There were no comparability issues with the data as dimensional units were commonly applied per standard practice.

4.1.16 Completeness

The completeness goal of the ADEC approved Soil Sampling Work Plan is 90% and the number of valid, usable results for all analyses exceeded this goal.

5.0 SUMMARY

The primary objective of this work was to visually monitor for PCS and field screen, stockpile, and collect laboratory analytical samples where PID field screening results exceed the site specific screening level of 25 ppm during utility trenching and light pole base foundation project activities. Soil excavated from the light pole base foundations and utility trenches were field screened using a PID only if odors and staining were observed. A total of 39 field screening samples were collected and analyzed during project activities. Soil exceeding 25 ppm was stockpiled meeting the requirements of 18 AAC 75.370. Once the utility trenching and light pole foundation base excavation activities were completed, the stockpiled soil and excavation area was sampled for analytical analyses as defined by the ADEC approved Soil Sampling Work Plan and analytical samples were collected and analyzed for GRO by AK101, DRO by AK102, BTEX by SW8260B, PAHs by 8270D SIMS, and PCB by SW8082.

A total of 14 cubic yards of suspected contaminated soil was stockpiled during trenching and light pole base foundation work. Three primary samples and one duplicate sample were collected from the stockpiled soil for laboratory testing. Based on laboratory results, the stockpiled material contains Benzene and Diesel above ADEC cleanup levels. Disposal of the stockpiled soil was not included in the scope of work for this project.

In addition to stockpile sampling, three laboratory samples were also collected from the excavation area confirming both Benzene and Diesel above ADEC cleanup levels remain within the excavation limits. Remediation of the site was not included in the scope of the work for this project.

6.0 REFERENCES

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FIGURES

FIGURE 1 – GENERAL PROJECT LOCATION

FIGURE 2 - SAMPLING LOCATIONS OF LIGHT POLE BASE FOUNDATIONS

(No Contamination Observed During Light Pole Base Foundation Work Activities)

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FIGURE 3 – STOCKPILE AND EXCAVATION SOIL SAMPLING LOCATIONS FOR LABORATORY ANALYSES

Approximate limits of excavation for utility trenching Analytical Sampling Location

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TABLES

Table 1 Soil Field Screening and Analytical Sample Log

								Field Screening					
Tutka Field ID	**Depth bgs**	**Tutka Laboratory Sample ID**	**Sample Description / Location**	**SGS ID**	**Date Sampled**	**Time Sampled**	**Sample Type (FS/PR/QC)**	**PID Result**	**GRO (AK101)**	**DRO (AK102)**	**BTEX (8260B)**	**PCB (8082)**	**PAH (8270D) SIMS**
LT7-01	3.0	N/A	Lightpole	N/A	8/25/2014	13:27	FS	0.1 ppm					
LT7-02	4.0	N/A	Lightpole	N/A	8/25/2014	13:30	FS	0.2 ppm					
LT7-03	5.0	N/A	Lightpole	N/A	8/25/2014	13:45	FS	0.2 ppm					
LT7-04	7.0	N/A	Lightpole	N/A	8/25/2014	13:59	FS	0.2 ppm					
LT8-01	12.0	N/A	Lightpole	N/A	8/25/2014	13:40	FS	0.1 ppm					
LT8-02	12.0	N/A	Lightpole	N/A	8/25/2014	13:41	FS	0.7 ppm					
LT7-05	1.0	N/A	Lightpole	N/A	8/25/2014	14:26	FS	1.0 ppm					
LT6-01	3.0	N/A	Lightpole	N/A	8/25/2014	14:31	FS	1.0 ppm					
LT6-02	4.0	N/A	Lightpole	N/A	8/25/2014	14:34	FS	1.5 ppm					
LT6-03	6.0	N/A	Lightpole	N/A	8/25/2014	14:37	FS	1.2 ppm					
LT6-04	6.0	N/A	Lightpole	N/A	8/25/2014	14:41	FS	1.3 ppm					
LT6-05	7.0	N/A	Lightpole	N/A	8/25/2014	14:46	FS	1.4 ppm					
LT5-01	<3	N/A	Lightpole	N/A	8/25/2014	15:21	FS	1.5 ppm					
LT5-02	4.0	N/A	Lightpole	N/A	8/25/2014	15:24	FS	7.4 ppm					
LT5-03	6.0	N/A	Lightpole	N/A	8/25/2014	15:27	FS	0.9 ppm					
LT5-04	7.0	N/A	Lightpole	N/A	8/25/2014	15:30	FS	1.0 ppm					
NU-01	6.0	N/A	Auger	N/A	8/25/2014	15:45	FS	11 ppm					
NU-02	4.0	N/A	Auger	N/A	8/25/2014	15:46	FS	3.1 ppm					
NU-03	2.0	N/A	Auger	N/A	8/25/2014	15:47	FS	3.2 ppm					
LT4-01	3.0	N/A	Lightpole	N/A	8/25/2014	16:00	FS	Not Recorded					
FS-01	0.6	ST01	ST01 - Stockpile	1144174001	8/27/2014	8:27	FS, PR	31 ppm	X	X	X	X	X
FS-10	0.6	ST10	ST10 - Stockpile	1144174005	8/27/2014	8:27	FS,PR, QC	31 ppm	X	X	X	X	X
FS-02	0.6	N/A	Stockpile	N/A	8/27/2014	8:36	FS	44 ppm					
FS-03	0.6	N/A	Stockpile	N/A	8/27/2014	8:44	FS	10 ppm					
FS-04	0.6	N/A	Stockpile	N/A	8/27/2014	8:53	FS	47 ppm					

FS = Field Screening
PID = Photoionization Detector
ppm = parts per million
PR = Primary Sample
QC = Quality Control Sample
bgs = below ground surface

Table 1 Soil Field Screening and Analytical Sample Log

								Field Screening					
Tutka Field ID	**Depth bgs**	**Tutka Laboratory Sample ID**	**Sample Description / Location**	**SGS ID**	**Date Sampled**	**Time Sampled**	**Sample Type (FS/PR/QC)**	**PID Result**	**GRO (AK101)**	**DRO (AK102)**	**BTEX (8260B)**	**PCB (8082)**	**PAH (8270D) SIMS**
FS-05	0.6	N/A	Stockpile	N/A	8/27/2014	9:04	FS	61 ppm					
FS-06	0.6	ST06	ST06 - Stockpile	1144174004	8/27/2014	9:07	FS	51 ppm	X	X	X	X	X
FS-07	0.6	N/A	Stockpile	N/A	8/27/2014	9:07	FS	30 ppm					
FS-08	0.6	N/A	Stockpile	N/A	8/27/2014	9:14	FS	24.7 ppm					
ST-09	0.6	ST09	Stockpile	1144270002	8/27/2014	9:50	FS	0.1 ppm	X	X	X	X	X
EX-01	4.0	EX01	EX01 - Bottom of Excavation	1144174002	8/27/2014	9:45	FS/PR	3.8 ppm	X	X	X	X	X
EX-02	4.0	N/A	Bottom of Excavation	N/A	8/27/2014	9:48	FS	22 ppm					
EX-03	4.0	N/A	Bottom of Excavation	N/A	8/27/2014	9:50	FS	1.3 ppm					
EX-04	4.0	EX04	EX04 - Bottom of Excavation	1144174003	8/27/2014	9:52	FS/PR	41 ppm	X	X	X	X	X
EX-05	3.7	N/A	Bottom of Excavation	N/A	8/29/2014	14:57	FS	1.7 ppm					
EX-06	3.7	EX06	Bottom of Excavation	1144270001	8/29/2014	14:58	FS/PR	112 ppm	X	X	X	X	X
EX-07	3.7	N/A	Excavation	N/A	8/29/2014	15:14	FS	3.7 ppm					
EX-08	4.1	N/A	Excavation	N/A	8/29/2014	16:19	FS	9 ppm					
EX-09	4.0	N/A	Excavation	N/A	8/29/2014	16:55	FS	7.1 ppm					

FS = Field Screening
PID = Photoionization Detector
ppm = parts per million
PR = Primary Sample
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bgs = below ground surface

APPENDIX A – FIELD LOG BOOK

Rite in the Rain®
ALL-WEATHER WRITING PAPER

Name Amie Sommer, Tetra Tech

Address

Phone

Project PPM Nome Harbor Improvements

Rite in the Rain — A patented, environmentally responsible, all-weather writing paper that sheds water and enables you to write anywhere, in any weather. Using a pencil or all-weather pen, *Rite in the Rain* ensures that your notes survive the rigors of the field, regardless of the conditions.

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CONTENTS

PAGE	REFERENCE	DATE

8/25/14 - ≈ 40°F - Clear, Sunny/ Sam mobed
12pm arrived in Rome
1pm picked up freight & met w/ PPM Super.

110pm arrived on site.

Bump tested mini-Rae PID w/ 100 ppm isobutylene- meter calibrated by TTI prior to shipment.
Bump test 100ppm 150 = 106 ppm
60% Range
screen
Collected field samples.

FS LT 7 - began auguring using mini X.
collected field screens from auger attachment.
No sheen, no odors, no distinct layers observed throughout Auger Operations.

#	Time Collect	BGS Depth	PPM	PID Sample Time	NOTES
LT7-01	127pm	3'	0.1	149pm	
LT7-02	130pm	4'	0.2	150pm	
LT7-03	145pm	5'	0.2	214pm	
LT7-04	159pm	7'	0.2	217pm	Bottom of X
- High water/moisture due to winds & Tides @ ≈ 7' BGS					
LT8-01	140pm	12'	0.1	220pm	Stockpile
LT8-02	141pm	12'	0.1	220pm	Stockpile
LT8-03					
LT8-04					
LT8-05					

* LT8 - all samples/FS collected upon arrival - NOT during auger as it was augered prior to my arrival. Approx .5 cy of soil (will measure) no odor, no sheen, no indicator of contamination present in stockpile. Approx time of EX was 10:20 am Samples taken from various depths & locations using Shovel to agitate & dig 12' in to the pile.

LT8-01 & 02 - assume bottom of EX - Top of pile

LT7-05 - 226pm - Stockpile FS
PID @ 248pm 0.7ppm

LT6-01 - 3' - 231pm - 1pm 301pm
LT6-02 - 4' - 234pm - 1.5ppm - 303pm
LT6-03 - 6' - 238pm - 1.2ppm - 310pm
LT6-04 - 6' - 241pm - 1.3ppm - 316pm
LT6-05 - 7' - 246pm - 1.4ppm Bottom X
No sheen, odor, etc

LT5-01 - <3' - 321pm - 1.5ppm - 337pm
LT5-02 - 4' - 324pm - 7.4ppm 339pm
LT5-03 - 6' - 327pm - 0.9ppm - 340pm
LT5-04 - 7', 330pm - 1 ppm 355pm
~~LT5-05 8', 333pm~~ (B) discarded

341pm - went to City of Nome U site. Took samples from auger.
NU-01 - 6' - 345pm - 1ppm - 416ppm
NU-02 - 4' - 346pm - 3.1ppm - 417pm
NU-03 - 2' - 347pm - 3.2ppm - 418pm

- Dark sand, no visual contamination

#	Time	BGS'	ppm	Time	Notes
LT04-01	4pm	3'	3.4	0.1ppm	
LT04-02					
LT04-03	John Bristol called &				
LT04-04	said only field screen				
LT04-05	when "suspect" Contamination.				

- Encountered no visual Contamination on light bases today.

4:45pm - Wrapped up for the day.

* approx 3/2 yds of soil removed per LT.

2 Aug 14 - Overcast 54°F

730am - arrived on site. PPM doing layout on LT3. None U. not there yet.

803 - bump tested unit - Red 99 ppm - good to go.

803 - Started digging LT3.

812am - ~4.5' hit water @ LT3 - approx 1/4 cy of gravel removed. No sheen, no odor, no fuel screens necessary. Pic #986 on iphone. None Utilities

839am - ~~Electrical Contractors~~ Started ~~stubbing~~ digging w/ a backhoe. Pic #988 near L98 - Hit sheet pile during EX - operator said mostly new fill from prior work so far. Pic # 989-992 - N.U. Beginning of EX.

850am - PK Electric getting set up - Super's name PAT. Let them know to notify me if any odors, visual cont., etc. Going between 2 or 3 Contractors now.

Nome Utilities Started Ex
approx 30' ℄ EAST OF LT8

- PK Electric starting to
Stub electrical at LT8. 902am
Started digging @ ~~LT~~ LT8 location
w/ Backhoe.
930am.
- ~~Hammon~~ Ridge Contracting.
Matt Hamann, Supr.
907-444-4471
Visited Nome Richard Foster
Building Site Prep & Utilities
JOB. Begin Plan review:
Cliff @ Montak can't come
Until tomorrow so they
need a field screener.
Trench 250' and 9' down.
City of Nome Project.
Bristol Owner Rep.
CE2 Engineering Co.

Discussed Plan w/ ~~BS~~
Bristol Site Rep.

1038 - no visual cont on
deck w/ Electricians @ LT7
and city trenching from
LT8 East ≈ '80'. Welders
Cutting sheet pile in
trench.

1107am - Electricians have
LT8 & LT7 stubbed in ~~LT6~~
& LT6. Working on LT5.
Trenches approx 5' length
1 bucket wide (backhoe)
ant 4' deep. NO signs on
Contamination.

PPM - working on LT3 Steel
due to water issue.

→ John Beise (won bottle of Tiska wine BTW)
Coming to site
tomorrow. Wants us to bill
PPM Day rate $1100 up to
12 days Because they have
LS change order. Then bill

Nome Utilities after that.
PND working on water/design issue for LT3 & 2.

-Said limits of Ex C~~B~~ Museum site is at L2 commerce benchsub, where they need a sampler to observe during EX.
Tomorrow he's coming to Nome as well as the head EPA of Brownfield sites as well as Robert Burgess w/ ADEC (who is pushing toward Nome cleanup).

1pm PPM started augering LT1 - on other side of harbor near Red-Restroom & 1st dock Ramp. - Pic# 1004

2pm - NU Backfilling & compacting trench on dock
217 - fighting ~~hard~~ large Rocks in the hole at LT1

315 - LT1 Set. PPM done w/me for the day.
Checked on City excavation discovered Red & yellow cedar pilings as well & steel pilings in trench. No signs of contaminat

no signs of contamination. Found coal ash. 411 backfilled most of trench & shut down for the day.

8/27/14 - Overcast, Rainy 52°F
806 am - Crews getting set up.
N.V. commencing where left off yesterday @ the E end of the dock expansion
Electrical Contractor & PPM also setting up.
Calibrated PID # 11109 MiniRae 2K w/ 100ppm cal gas Lot # 14[illegible]4972

FS-01 - 827am
FS-02 - 836am
FS-03 - 844am
FS-04 - 853am
} Stockpile FS samples

FS-01 - 847am - 31ppm
FS-02 - 858am - 44ppm
FS-03 - 901am - 10ppm
FS-04 - 909 am - 47ppm

Tobi Shield - NJU.

FS collection	PID
FS-05 - 904am -	920 - 60ppm
FS-06 - 907 am -	921 - 51ppm
FS-07 - 912 am -	936 - 30ppm
FS-08 - 914 am -	937 - 24.7ppm

Stockpile - 27'2" x 9'
Slope 3.5' average height

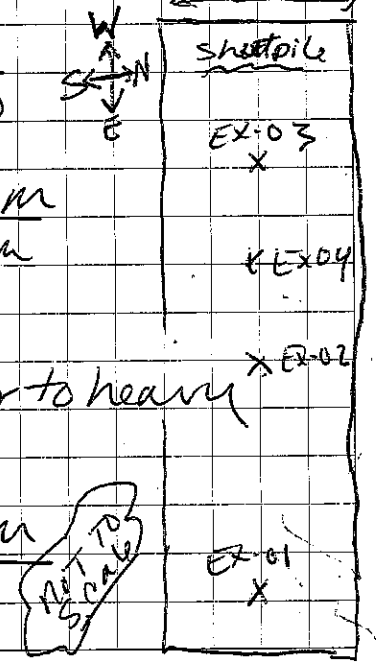
TOOK Base of EX field screen samples.

FS-EX-01 - 945 am
Base of EX at E END

FS-EX-02 - 948am
Center of EX @ Bottom

FS-EX-03 - 950am
W. Base of EX - prior to heavy contamination

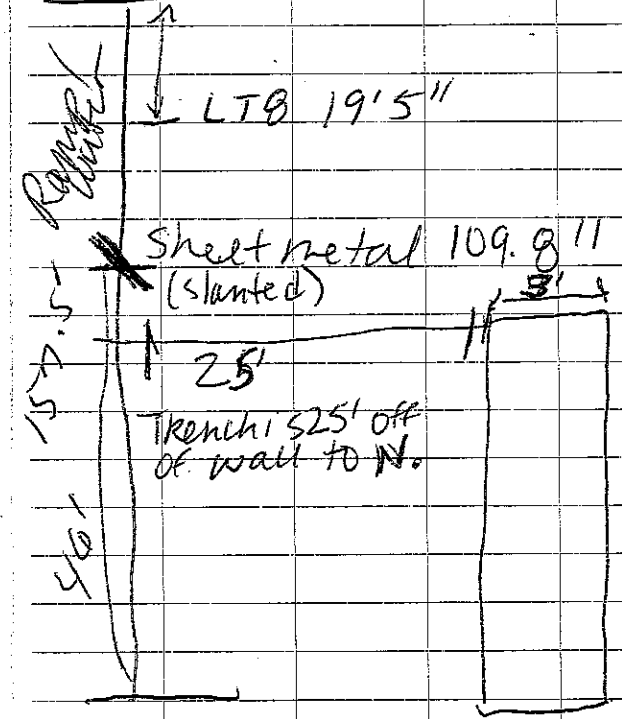
FS-EX-04 - 952 am
Center Bottom of EX (where cont. started)



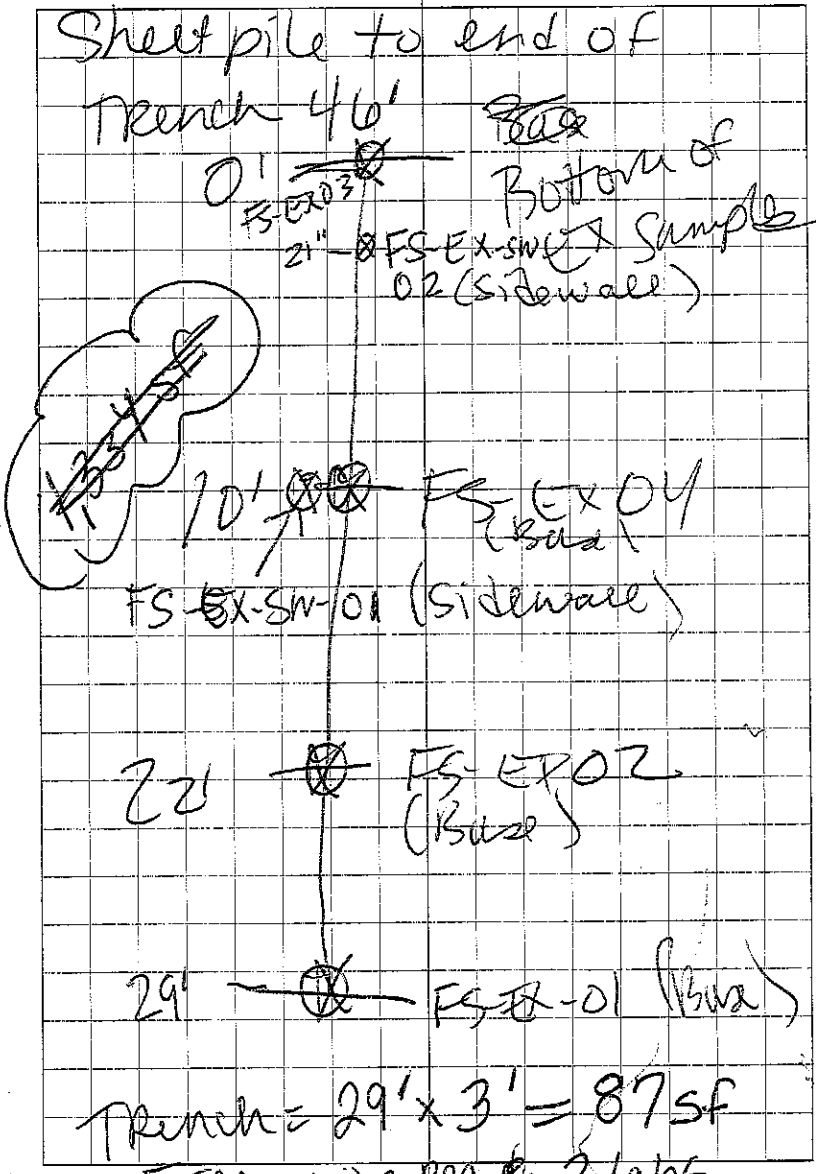
PID # 1024

12 Base of EX	Collect	Read	PPM
FSEX-01	945	1013	3.8ppm
FS-EX-02	948	1015	22 ppm
FSEX-03	950	1016	1.3 ppm
FS-EX-04	952	1017	41 ppm

4'3" depth of Trench



Sheet pile to end of Trench 46'



Trench = 29' x 3' = 87sf

5 screening req & 2 labs

$27 \times 9 \times 3^2/2 = 14$ yards

Stockpile sample req = 5 screens
2 analytical

FS-EX-SW-02 – 1102am (12ppm / 1128am)
Taken 21" W. of FS-EX-03 (Beginning of EX) at approx 1' above Bottom of EX ON South sidewall

FS-EX-SW-01 – 1059am (45ppm / 1126am)
Taken on ℄ Northsidewall approx 2' from bottom of E at same location as bottom of X sample # FS-EX-04.

Need to take 2 analytical Samples of Stockpiled soil & 2 lab samples of excavation.

1151am - TOOK Survey/GPS points of Field samples in Trench
1152 - Crews broke for lunch.
Going to pickup Chris @ Airport.
Picked up Chris Locke @ 904 to B&B to drop off Stuff

Begin Field Samples

Sample ID	Sample time
Sample ID	Sample time

1344 hrs
8-27-14

28 August 2014

0740 Chris Locke Arrives on site. Track-hoe Running But ~~No people on site yet.~~ Took pictures. Employees Not working yet.

Weather AM → Mostly Clear, Temp ≈ 55° wind 5-10 mph.
PM → Mostly Clear, Temp ≈ 60, wind 10-15 mph.

0810 - Excavation crew Begins Excavation work for today.
Excavation crew for light poles Begins work near LT8.

0830 - Observed Excavation crew utility trench. Observed/smelled no oil smell or odors.

Observed Excavation crew light poles. Between LT8 and LT7. No oil smelled or observed.

0900-1000 Collected GPS Data.
Observed Both Excavation crews. Trench and light pole. No contamination smelled or observed.

1100 Observed Both Excavation crews Trench and light pole. No contamination smelled or observed.

1100-1140 Went to Nome Airport to get sample cooler for shipping samples - Alaska Air Cargo closed until 1300 hrs. Travel Back to site. Made GPS control points map.

1150 Excavation crews go to lunch. No contamination observed/smelled in either Excavation.

1250 - Both excavation crews Back from lunch. Light pole crew has excavated from LT8-LT6. Utility crew continues Excavation to Building and toward ocean. See pictures.

1300-1515 - Travel to Airport to get SGS sample coolers, Packed the soil samples collected yesterday. Took samples to Airport. Gold-streaked them to Anchorage. Should get there at ≈ ~~1000~~ 2200 hrs tonight.

Contacted Amie with Alaska Air Way Bill # of the samples so they can be pick up at the Airport.

1530 - Observed Both Excavation crews. Utility trench (City) and light tower (PPM) had no signs of contamination.

1630 Same

1640 City (Trench utility) crew leaves the site

1650 Chris leaves the site. Light tower crew not going to trench anymore today so they don't need me on site

1650 End of Day

Day Summary
1) Monitored Trench crew (City) and Light Tower (PPM) crew for signs visual or smell only of petroleum contamination in the soil. No noted
2) Shipped samples to Anchorage via Alaska Air Cargo Gold Streak.

Rite in the Rain.

29 August 2014

Weather: AM → Clear, 0-5 mph winds, Temp ≈ 35° F

PM Mostly cloudy, 10-15 mph wind Temp ≈ 50° F

Daily Summary:

1) Observed Excavation for PPM 1 (near LT5 and LT4). - No contamination noticed
2) Observed Excavation for PPM crew #2. (near LT2 and LT3) No contamination
3) Collected PID and ~~Am~~ Analyzed samples parallel to Bldg A (City crew).

Important phone calls

0750	Chris Locke arrives on Site
0755	Spoke to Mike Clark (PPM) about working this weekend/Monday. He will find out. Note: Received email from Amie (Tetra) saying if not working this weekend/Monday I should come home.
0800	City crew (Andy French) shows up on-site.
0810-	Light Tower crew (PPM) Begins Digging. No signs (visual or smell) of petroleum hydrocarbons in either Excavations.
0840	Calibrated PID.
0930	Observed both the utility (City) Excavation crew and the Light tower (PPM) Excavation crew. No visual or smell of petroleum hydrocarbons noticed. Light crew #1 has excavated from LT8- to LT5. Currently near LT5. Light crew #2 (PPM) is preparing to work near LT 2 and LT3. No Excavation has occurred near LT 2 or LT3 yet.
1100 - 1130	Lunch at Housing
1130-	Observed PPM crew #2 Excavating LT3. They just started. Observed no petroleum hydrocarbon or odors.
1135-	City Excavation crew goes to Lunch
~~1135~~ 1135-	City Excavation and PPM crew (near LT5) Excavation both have no observation or smell of petroleum hydrocarbon @ 1
~~1145~~ 1155	PPM crew 1 (located near LT5) and PPM crew 2 (located near LT3) go to Lunch. No contamination observed/smelled at either location.
1250	All crews come back from Lunch.
1330	City utility crew now Excavating parallel to Building A. No odors/visual sign of contamination present
	PPM crew # near LT 4. PPM crew #2 near LT 3. No signs of contamination near either crew.
1430	PPM crew #2 (near ~~LT3~~ LT 2) just Began Excavating. No signs of petroleum contamination.
	City crew (near Bldg A): No signs of contamination.

PPM crew #1 (NEAR CT 4 AND N-S shoot D.C.) NO SIGNS visible or odor of petroleum hydrocarbons.

EX-07 = 10.6 at 1514hrs. 3.7 ft BGS

1500 City Utility crew hit contaminated soil parallel to Building A. Took headspace samples

1550 PPM crew #1 is Excavating Between CT 4 and Shoot D.C. PPM #2 has completed digging CT 2. Both have NO signs of contamination.

/ EX 8 - taken at 1619hrs at 4.1 BGS. headspace 9.0 ppm 1.3

1700 PPM crew #1 is Excavating Between CT 4 and Shoot D.C. NO contamination observed or smelled

PPM crew #2 is installing CT 2 and CT 3 Light tower Fixtures NO Excavation occurring NO signs of contamination observed

City crew continues to Excavate parallel to Building A. Took headspace samples. Any visibly contaminated soil.

1715 End of Day - Left Site for housing.

Note - Removed 1 City Dump truck approx 5 cubic yards of contaminated soil to LAND fill.

30 August 2010
Weather → AM = Light RAIN Mostly cloudy, 0-5 mph winds, temp ~ 35°F

PM = Heavy RAIN. 5-10 ~~5-8~~ mph winds temp ~ 45°F

Daily Summary

Important phone calls.

0745 Chris Locke arrives on-Site. Conduct Site Recon. NO City or PPM crews on Site

0810 PPM crew #1 and City crew arrive on Site

0900 PPM crew continues to Excavate toward point DOCK E (Refer to Chris Locke's) Site Map. NO contamination observed / smelled

City crew is only Digging pipe to the work Site. NO Excavation yet for today.

0920 PPM crew #1 is at Dock E. NO signs of contamination. City crew arrives on site. Continues Excavating parallel W/ Building A NO signs of petroleum hydrocarbon observed / smelled.

1020 PPM crew Excavating Between pond Dock E and LT3. No obvious signs (smell or site) of petroleum hydrocarbon contamination
City crew excavating near intersection of River Street and West E St. No signs of petroleum hydrocarbon contamination

1115 Summer to about. Informed city crew will stop work on this project now to go to a non-project related emergency. No more excavation for city crew today. Excavation is at the intersection of River Street and West E St.

1130-1200 Chris goes to lunch
1200- ~~1255~~ 1255 Back on S.C.
PPM crew comes back from lunch

1420 PPM crew backfills area between Dock E and LT3. No excavation work. No signs of contaminated soil (odors or visual).

1530 Same to H2ohrs.
Chris Locke leaves SC

1830-1930 Chris fly from Nome to Anchorage
1930 End of Day

2 Sept 2010

Personnel: Chris Locke
Weather AM → Mostly cloudy, 5-10 mph wind temp ≈ 38°F
PM → Mostly cloudy, light to heavy scattered rain, 10-20 mph winds, temp ≈ 45°F

Daily Summary: 1) travel from Anchorage to Nome via Alaska Airlines
2) Monitor City crew, and PPM crews excavations
a) City crew is excavating near the intersection of River Street and West E Street. No contamination observed
B) PPM crew excavated near LT1 and between LT2 + LT3. No contamination was observed or smelled at either location

Important phone calls 1) Text Amie about my departure date from Nome to Anchorage

~~0600~~
0530-0700- Travel to Anchorage Airport. Wait for plane.

0900 Chris arrives in Nome.
0900-0940 Chris takes cab from airport to car rental (Aurora Inn). Gets rental car, travels to housing to get field gear
0940 Travel to S.C. City crew has not begun excavating (still in same location as on 30 August when I left S.C. Not on S.C.
PPM crew #1 not excavating but installing [illegible]

Rite in the Rain

0935 Spoke to Mike Clark (PPM). he told me the city crew was more easy But Dose not know where they are now.
Mike Clark told me ppm crew #1 was Digging near LT 1. And pre-existing Light pole. OBSERVED/smelled no petroleum odor contamination in the Excavation.

1015 City Excavator operator arrives on S.te.

1035 collected ST of soil shovelful SAMPLE of the AREA where EXCL soil originated from. Note city crew Removed Approx 6-8 cubic yards of contaminated soil From the AREA near Excl to the lined Shovelful in the None LAND fill.

1120 City crew Back filling Excavation parallel to Building A. See picture No signs of petroleum contamination

PPM crew # 1 Installing cable near LT 1. No signs of petroleum hydrocarbon contamination
PPM crew #2 Installing Rein forced concrete Structures at LT 2. No signs of petroleum contamination

1145-1245 1240 Lunch
City crew Begins Excavating near River Street And west E Street Int.

PPM crew # 1 is Backfilling Excavation Between LT 1 AND pre-existing light pole. No signs of petroleum hydrocarbon contamination

1420 Similar to above - Except PPM # 1 has
1515 City crew is similar to above Excavation
PPM crew has moved to LT 2.
Lining out cable. Not Excavating yet.
PPM crew #2 not on S.te

1610 PPM crew # 1 Excavating near LT 3. No signs of petroleum hydrocarbons
City crew Excavating near River Street And west E Street Intersection. No signs of petroleum hydrocarbon observed/smelled

1645 City crew End of Day
1650 PPM crew # 1 End of Day.
Chris Locke End of Day

3 Sept 2014

Personnel:

Weather — Chris Locke

AM → Cloudy 0-5 mph winds

Temp ≈ 30°F

PM

Daily summary

Important phone calls

0745	Arrive on-site. City crew and PPM crew will on site also Mike Clark (PPM) on site
0750	City operator arrives and starts Equipment.
0800	Calibrate PID
0805	city crew arrives on-site
~~0815~~ 0815	City crew called to another job. They will return to this site and Finish the project today
0840	PPM crew arrives on site
0900	City crew returns to site. continue Excavation near Intersection of River Street and West E Street. No signs of contamination
1015	City crew has completed the Excavation near the Intersection of River Street And West E Street. No signs of contamination observed/smelled. City crew begins to install electrical lines
	PPM crew is Excavating between LT2 And LT3. No signs of petroleum Hydrocarbon contamination.
1115	City crew similar to 1015hrs entry PPM crew has completed the excavation Between LT2 and LT3. No signs of contamination observed or smelled.
1145-1230	Excavation crews go to Lunch
~~12~~ 1315	Both crews are done Excavating their respective Excavations. No signs of petroleum Hydrocarbon contamination.
1415	Similar to B15 hrs Entry.
1800-2200	Wait at Airport Fly From Nome to Anchorage
2200	End of Day

Rite in the Rain.

PID CAP CALIBRATION Log

TIME/ DATE	PID READING Before CALIBRATION (PPM)	CALIBRATION GAS AND CONTR.	CALIBRATION READING After CAL
0800 hrs 8-28-2014	95.3	ISOBUTYLENE 100 PPM	98.5 PPM
0840 hrs 8-29-2014	98.1	ISOBUTYLENE 100 PPM	99.0
0834 hrs 8-30-2014	92.1	ISOBUTYLENE 100PPM	99.1
0945 9-2-2014	91.3	ISOBUTYLENE 100 PPM	100
0800 hrs 9-3-2014	95.6	ISOBUTYLENE 100 PPM	99.6

NOME Soil Sampling
August 2014 1 of

Field ID	Depth taken (Ft BGS)	PID collection Time / Date	PID sample Time / Date	PID Reading (PPM)	Analytical samples collected	Analytical time / date	other
LT7-01	3	1327 hrs 8-25-2014	1349 hrs 8-25-2014	0.1	No,	N/A	N/A Amie's Book
LT7-02	4	1330 hrs 8-25-2014	1350 hrs 8-25-2014	0.2	No,	N/A	Amie's Book
LT7-03	5	1345 hrs 8-25-2014	1414 hrs 8-25-2014	0.2	No,	N/A	Amie's Book
LT7-04	7	1359 hrs 8-25-2014	1417 hrs 8-25-2014	0.2	No,	N/A	Amie's Book Bottom of LT.
LT8-01	12	1340 hrs 8-25-2014	1420 hrs 8-25-2014	0.1	No,	N/A	Amie's Book stockpile
LT8-02	12	1341 hrs 8-25-2014	1420 hrs 8-25-2014	0.1	No,	N/A	Amie's Book. Stockpile.
LT7-05		1426 hrs 8-25-2014	1448 hrs 8-25-2014	0.7	No,	N/A	Amie's Book stockpile.
LT6-01	3	1431 hrs 8-25-2014	1501 hrs 8-25-2014	1.0	No	N/A	Amie's Book. @
LT6-02	4	1434 hrs 8-25-2014	1503 hrs 8-25-2014	1.5	No	N/A	Amie's Book

Rotten in the Rain

Nome soil samples
August 2014 2 of

Field ID	Depth taken (Ft bgs)	PID collection time/Date	PID sample time/Date	PID Reading (ppm)	Analytical samples collect	Analytical time/Date	other
LT6-03	6	1437 hrs 8-25-2014	1510 hrs 8-25-2014	1.2	No,	NA	Amie's Book
LT6-04	6	1441 hrs 8-25-2014	1511 hrs 8-25-2014	1.3	No,	N/A	Amie's Book
LT6-05	7	1446 hrs 8-25-2014	8-25-2014	1.4	No,	N/A	Amie's Book Bottom of LT
LT5-01	<3	1521 hrs 8-25-2014	1537 hrs 8-25-2014	1.5	No,	N/A	Amie's Book
LT5-02	4	1524 hrs 8-25-2014	1539 hrs 8-25-2014	7.4	No,	N/A	Amie's Book
LT5-03	6	1527 hrs 8-25-2014	1540 hrs 8-25-2014	0.9	No,	N/A	Amie's Book
LT5-04	7	1530 hrs 8-25-2014	1559 hrs 8-25-2014	1.0	No,	N/A	Amie's Book
NU-01	6	1545 hrs 8-25-2014	1616 hrs 8-25-2014	11	No,	N/A	Amies Book
NU-02	4	1546 hrs 8-25-2014	1617 hrs 8-25-2014	3.1	No	N/A	Amie's Book

Kite in the Rain

NOME Soil Sample
August 2014 3 of

Field ID	Depth taken (Ft BGS)	PID collection time/Date	PID sample time/Date	PID Reading (PPM)	Anaylsed sample collect	Anaylsed time/Date	other
NU-03	2	1547 hrs 8-25-2014	1618 hrs 8-25-2014	3.2	No,	N/A	Amie's Book
LT4-01	3	1600 hrs 8-25-2014			No,	N/A	Amie's Book
FS-01	0.6	0827 hrs 8-27-2014	0847 hrs 8-27-2014	31	yes, ST01 Stockpile	1410 hrs 8-27-2014	stockpile sample.
FS-10	0.6	0827 hrs 8-27-2014	0847 hrs 8-27-2014	31	yes, ST10 Stockpile	1500 hrs 8-27-2014	stockpile. Dupe of FS-01 (ST01)
FS-02	0.6	0836 hrs 8-27-2014	0858 hrs 8-27-2014	44	No,	N/A	N/A - stockpile
FS-03	0.6	0844 hrs 8-27-2014	0901 hrs 8-27-2014	10	No,	N/A	stockpile. sample
FS-04	0.6	0853 hrs 8-27-2014	0909 hrs 8-27-2014	417	No,	N/A	stockpile sample.
FS-05	0.6	0904 hrs 8-27-2014	0920 hrs 8-27-2014	61	No,	N/A	stockpile sample.
FS-06	0.6	0907 hrs 8-27-2014	0921 hrs 8-27-2014	51	yes, ST06 Stockpile	1420 hrs 8-27-2014	stockpile sample.

Rain in the Rain.

NOME Soil Samples
August 2014 4 of

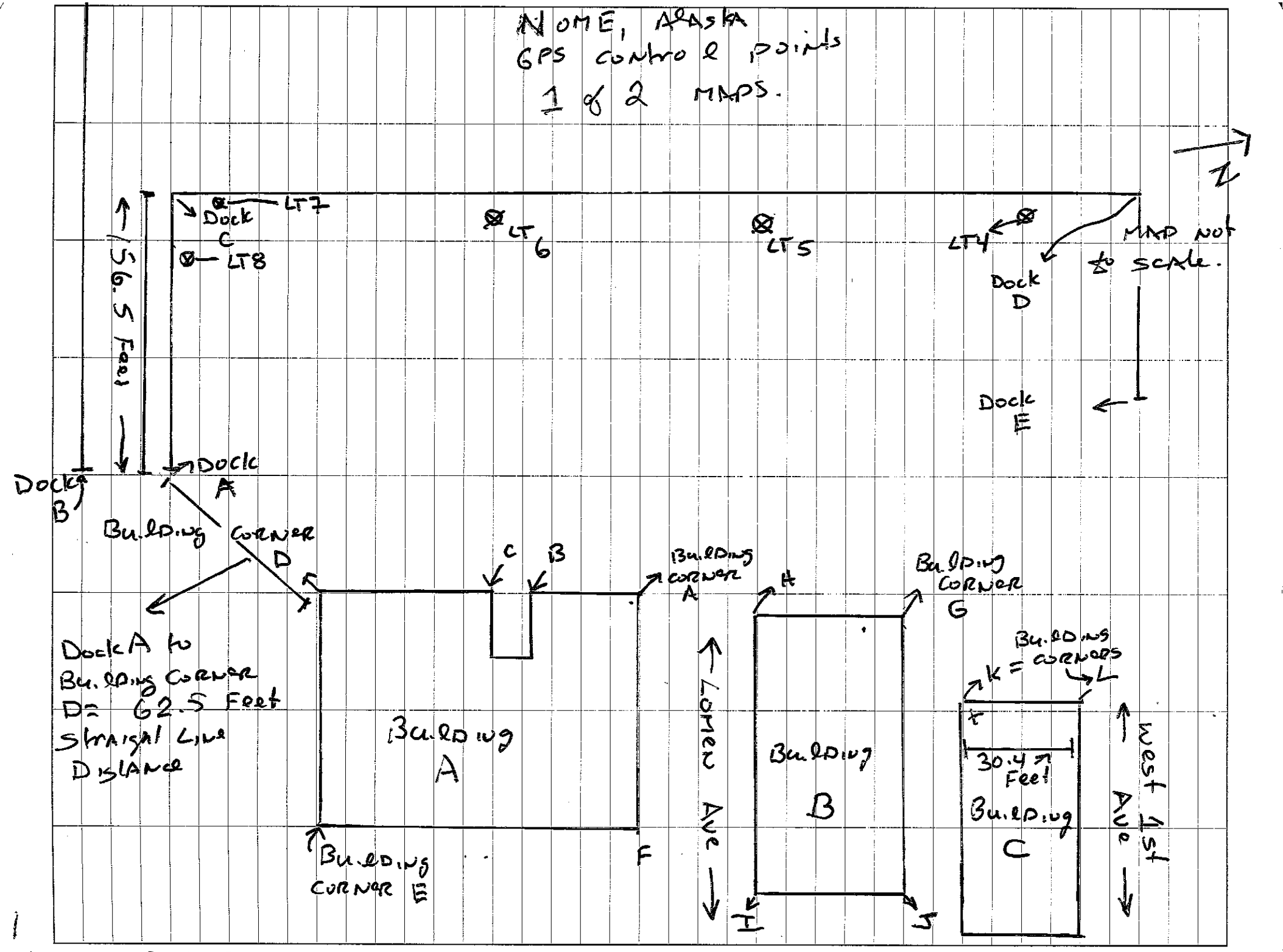
Field ID	Depth Taken (CM FT BGS)	PID collect time / Date	PID sample time / Date	PID Reading (ppm)	Analytical sample collect	Analytical time / Date	other
FS-07	0.6	0907hrs 8-27-2014	0926hrs 8-27-2014	30	No,	N/A	Stockpile sample.
FS-08	0.6	0914hrs 8-27-2014	0937hrs 8-27-2014	24.7	No,	N/A	Stockpile sample.
ST-09	0.6	0950hrs 9-2-2014	1005hrs 9-2-2014	~~45~~ 0.1	yes, ST09	1035hrs 9-2-2014	stockpile sample
EX-01	4.0	0945hrs 8-27-2014	1013hrs 8-27-2014	3.8	yes, EX01 Excavation	1340hrs 8-27-2014	Bottom & Excavate sample
EX-02	4.0	0948hrs 8-27-2014	1015hrs 8-27-2014	22	No,	N/A	Bottom of Excavation sample.
EX-03	4.0	0950hrs 8-27-2014	1016hrs 8-27-2014	1.3	No,	N/A	Bottom of Excavation Side-wall
EX-04	4.0	0952hrs 8-27-2014	1017hrs 8-27-2014	41	yes, EX04 Excavation	1344hrs 8-27-2014	Bottom of Excavation - side wall
EX-05	3.7	1457hrs 8-29-2014	1511hrs 8-29-2014	1.7			Bottom of Excavation
EX-06	3.7	1458hrs 8-29-2014	1512hrs 8-29-2014	112	yes, EX06 Excavation	1650hrs 8-29-2014	Bottom of Excavation

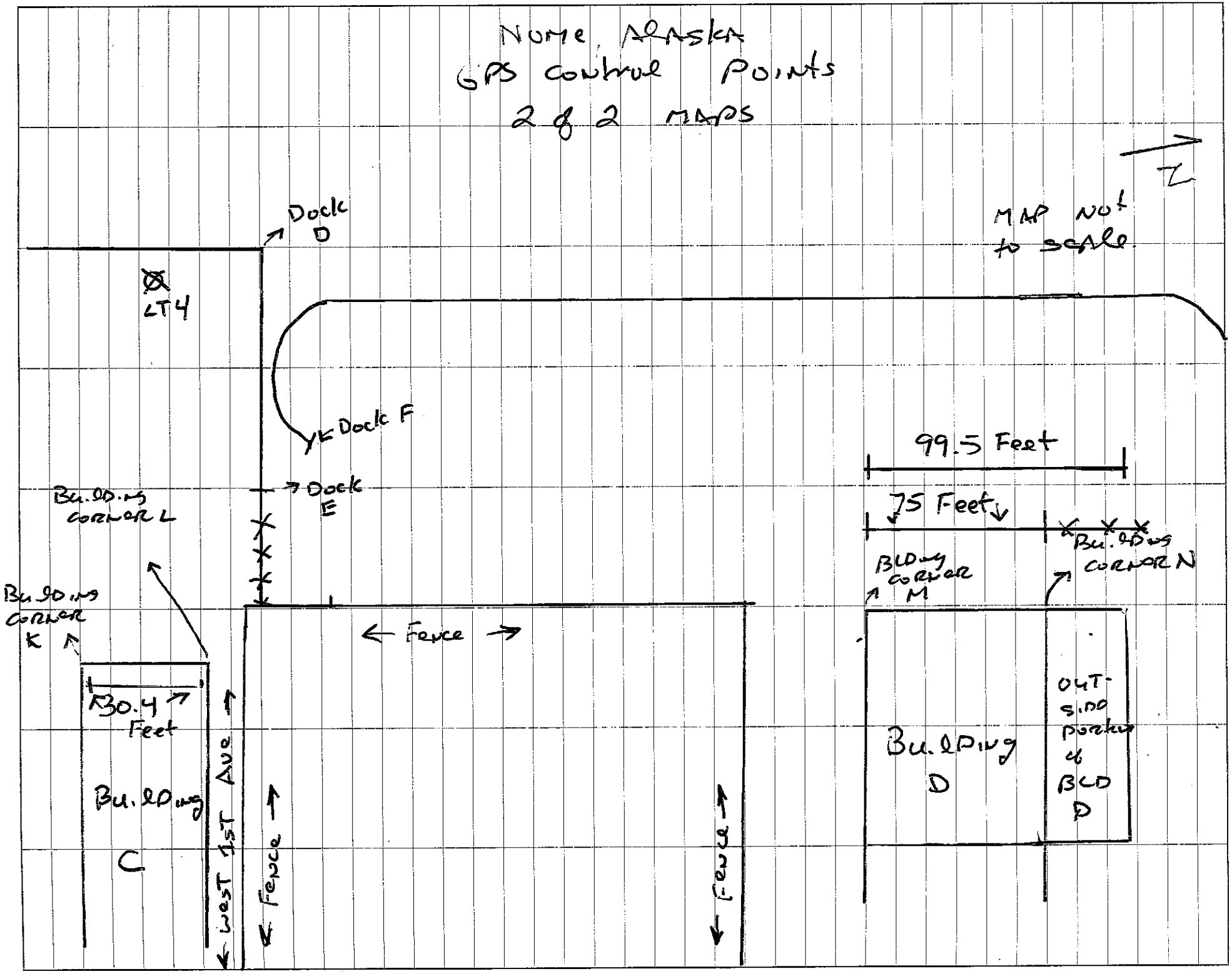
Note in the Rain

Nome Soil Samples
August - Sept 2014
5 of 6

Field ID	Depth taken (Ft BGS)	PID collect time/Date	PID Sample time/Date	PID Reading (ppm)	Analytical Sample collected	Analytical time/Date	other
EY-07	3.7	1514 hrs 8-29-2014	1526 hrs 8-29-2014	3.7	No,	N/A	N/A
EY-08	4.1	1619 hrs 8-29-2014	1632 hrs 8-29-2014	~~9~~ 9.0	No,	N/A	N/A
EY-09	4.0	1655 hrs 8-29-2014	1715 hrs 8-29-2014	7.1	No,	N/A	N/A

Life in the Rain


NOME, ALASKA
GPS CONTROL POINTS
1 of 2 MAPS.
N
LT7
Dock C
LT8
LT6
LT5
LT4
MAP NOT to SCALE.
Dock D
Dock E
56.5 Feet
Dock B
Dock A
Building Corner D
C
B
Building Corner A
H
Building Corner G
Dock A to Building Corner D = 62.5 Feet Straight Line Distance
Building A
Lomen Ave
Building B
K = Corners L
30.4 Feet
Building C
West 1st Ave
Building Corner E
F
I
J


Nome, Alaska
GPS control Points
2 of 2 maps
N
MAP NOT to scale
Dock D
LT4
Dock F
Dock E
Building corner L
Building corner K
Fence
99.5 Feet
75 Feet
Building corner M
Building corner N
30.4 Feet
Building C
West 1st Ave
Fence
Fence
Building D
Outside portion of BLD D

APPENDIX B – PHOTOGRAPH LOG

Auguring Light Poles

Utility Trench

Utility Trench

Soil Sampling

Sampling Points Flagged in Utility Trench

Sampling Points Flagged in Utility Trench

Stained Soil

Contaminated soil stockpile area

APPENDIX C – ANALYTICAL DATA PACKAGES

Laboratory Report of Analysis

To: Tutka, LLC
620 E Whitney Rd, Suite B
Anchorage, AK 99501
(907)272-8010

Report Number: **1144174**

Client Project: **Nome Harbor Improvements**

Dear Amie Sommer,

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 five 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.

SGS North America Inc.
Environmental Services – Alaska Division
Project Manager

Victoria Pennick
2014.09.11
14:56:38 -08'00'

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

Print Date: 09/11/2014 2:51:05PM

Case Narrative

SGS Client: **Tutka, LLC**
SGS Project: **1144174**
Project Name/Site: **Nome Harbor Improvements**
Project Contact: **Amie Sommer**

Refer to sample receipt form for information on sample condition.

ST01 (1144174001) PS

AK102 - The pattern is consistent with a weathered middle distillate.
8270D SIM - LOQs are elevated due to sample dilution. Sample analyzed at a dilution due to matrix interference with internal standards.

EX01 (1144174002) PS

AK102 - The pattern is consistent with a weathered middle distillate.
8270D SIM - LOQs are elevated due to sample dilution. Sample analyzed at a dilution due to matrix interference with internal standards.

EX04 (1144174003) PS

AK102 - The pattern is consistent with a weathered middle distillate.
8270D SIM - Surrogate (2-fluorobiphenyl) recovery is outside of QC criteria due to sample dilution.
8270D SIM - LOQs are elevated due to sample dilution. Sample analyzed at a dilution due to matrix interference with internal standards.

ST06 (1144174004) PS

AK102 - The pattern is consistent with a weathered middle distillate.
8270D SIM - Surrogate (2-fluorobiphenyl) recovery is outside of QC criteria due to sample dilution.
8270D SIM - LOQs are elevated due to sample dilution. Sample analyzed at a dilution due to matrix interference with internal standards.

ST10 (1144174005) PS

AK102 - The pattern is consistent with a weathered middle distillate.
8260B - 1,2-Dichloroethane-D4 (surrogate) recovery does not meet QC criteria (biased high). Analytes associated with this surrogate were not detected above the LOQ.
8270D SIM - LOQs are elevated due to sample dilution. Sample analyzed at a dilution due to matrix interference with internal standards.

MB for HBN 1634763 [VXX/26383] (1231429) MB

8260B - Toluene-d8 (surrogate) recovery does not meet QC criteria (biased high). Analytes associated with this surrogate were not detected above the LOQ.

1144133001MS (1230792) MS

8270D SIM - Sample analyzed for PAH outside of holding time per client request.

1144174002MS (1231431) MS

8260B - Toluene-d8 (surrogate) recovery does not meet QC criteria (biased high). Analytes associated with this surrogate were not detected above the LOQ in the original sample.

ST06(1144174004MS) (1231603) MS

8260B - MS recovery for hexachlorobutadiene does not meet QC criteria (biased high). This analyte was not detected above the LOQ in the original sample.

1144133001MSD (1230793) MSD

8270D SIM - Sample analyzed for PAH outside of holding time per client request.
8270D SIM - MSD recovery for phenanthrene, fluoranthene and chrysene is outside of QC criteria (biased high). Refer to LCS for accuracy.

1144174002MSD (1231432) MSD

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Case Narrative

SGS Client: **Tutka, LLC**
SGS Project: **1144174**
Project Name/Site: **Nome Harbor Improvements**
Project Contact: **Amie Sommer**

8260B - Toluene-d8 (surrogate) recovery does not meet QC criteria (biased high). Analytes associated with this surrogate were not detected above the LOQ in the original sample.

ST06(1144174004MSD) (1231604) MSD

8260B - MSD recovery for hexachlorobutadiene does not meet QC criteria (biased high). This analyte was not detected above the LOQ in the original sample.

Trip Blank (1144174006) TB

"Trip Blank" is 3 vials of Methanol w/BFB.
8260B - Default weight used due to the absence of blank sand.
AK101 -Default weight is used due to the absence of blank sand.

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

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Report of Manual Integrations

Laboratory ID	Client Sample ID	Analytical Batch	Analyte	Reason
8270D SIMS (PAH)				
1144174001	ST01	XMS8268	Naphthalene	SP
1144174003	EX04	XMS8268	Naphthalene	SP
1144174004	ST06	XMS8268	Naphthalene	SP
1144174005	ST10	XMS8268	Benzo(a)Anthracene	RP
1144174005	ST10	XMS8268	Benzo[b]Fluoranthene	IT
1144174005	ST10	XMS8268	Naphthalene	SP
SW8082A				
1144174003	EX04	XGC8874	Aroclor-1260	BLC

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: 09/11/2014 2:51:07PM

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. If you have any questions regarding this report, or if we can be of any other assistance, please contact your SGS Project Manager at 907-562-2343. All work is provided under SGS general terms and conditions (<http://www.sgs.com/terms_and_conditions.htm>), unless other written agreements have been accepted by both parties.

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) & UST-005 (CS) for ADEC and 2944.01 for DOD ELAP/ISO17025 (RCRA methods: 1020A, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035B, 6020, 7470A, 7471B, 8021B, 8082A, 8260B, 8270D, 8270D-SIM, 9040B, 9045C, 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	Continuing Calibration Verification
CL	Control Limit
D	The analyte concentration is the result of a dilution.
DF	Dilution Factor
DL	Detection Limit (i.e., maximum method detection limit)
E	The analyte result is above the calibrated range.
F	Indicates value that is greater than or equal to the DL
GT	Greater Than
IB	Instrument Blank
ICV	Initial Calibration Verification
J	The quantitation is an estimation.
JL	The analyte was positively identified, but the quantitation is a low estimation.
LCS(D)	Laboratory Control Spike (Duplicate)
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
M	A matrix effect was present.
MB	Method Blank
MS(D)	Matrix Spike (Duplicate)
ND	Indicates the analyte is not detected.
Q	QC parameter out of acceptance range.
R	Rejected
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.

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Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
ST01	1144174001	08/27/2014	08/29/2014	Soil/Solid (dry weight)
EX01	1144174002	08/27/2014	08/29/2014	Soil/Solid (dry weight)
EX04	1144174003	08/27/2014	08/29/2014	Soil/Solid (dry weight)
ST06	1144174004	08/27/2014	08/29/2014	Soil/Solid (dry weight)
ST10	1144174005	08/27/2014	08/29/2014	Soil/Solid (dry weight)
Trip Blank	1144174006	08/27/2014	08/29/2014	Soil/Solid (dry weight)

Method	Method Description
8270D SIMS (PAH)	8270 PAH SIM Semi-Volatiles GC/MS
AK102	Diesel Range Organics (S)
AK101	Gasoline Range Organics (S)
SM21 2540G	Percent Solids SM2540G
SW8082A	SW8082 PCB's
SW8260B	Volatile Organic Compounds (S) FIELD EXT

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Detectable Results Summary

Client Sample ID: **ST01**
Lab Sample ID: 1144174001

	Parameter	Result	Units
Polynuclear Aromatics GC/MS	1-Methylnaphthalene	143	ug/Kg
	2-Methylnaphthalene	94.6	ug/Kg
	Anthracene	26.0J	ug/Kg
	Benzo(a)Anthracene	96.1	ug/Kg
	Benzo[a]pyrene	90.9	ug/Kg
	Benzo[b]Fluoranthene	110	ug/Kg
	Benzo[g,h,i]perylene	57.7	ug/Kg
	Chrysene	132	ug/Kg
	Fluoranthene	265	ug/Kg
	Fluorene	104	ug/Kg
	Indeno[1,2,3-c,d] pyrene	48.3	ug/Kg
	Naphthalene	51.4	ug/Kg
	Phenanthrene	286	ug/Kg
	Pyrene	272	ug/Kg
Semivolatile Organic Fuels	Diesel Range Organics	730	mg/Kg
Volatile Fuels	Gasoline Range Organics	9.59	mg/Kg

Client Sample ID: **EX01**
Lab Sample ID: 1144174002

	Parameter	Result	Units
Polynuclear Aromatics GC/MS	1-Methylnaphthalene	12.9J	ug/Kg
	2-Methylnaphthalene	15.7J	ug/Kg
	Benzo(a)Anthracene	14.7J	ug/Kg
	Benzo[g,h,i]perylene	12.7J	ug/Kg
	Chrysene	23.4J	ug/Kg
	Fluoranthene	40.0	ug/Kg
	Fluorene	20.2J	ug/Kg
	Naphthalene	10.2J	ug/Kg
	Phenanthrene	37.8	ug/Kg
	Pyrene	51.0	ug/Kg
Semivolatile Organic Fuels	Diesel Range Organics	143	mg/Kg
Volatile Fuels	Gasoline Range Organics	2.93J	mg/Kg

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Detectable Results Summary

Client Sample ID: **EX04**
Lab Sample ID: 1144174003

	Parameter	Result	Units
Polychlorinated Biphenyls	Aroclor-1260	196J	ug/Kg
Polynuclear Aromatics GC/MS	1-Methylnaphthalene	131	ug/Kg
	2-Methylnaphthalene	144	ug/Kg
	Acenaphthene	36.5	ug/Kg
	Anthracene	16.7J	ug/Kg
	Benzo(a)Anthracene	33.1	ug/Kg
	Benzo[a]pyrene	26.2J	ug/Kg
	Benzo[g,h,i]perylene	18.0J	ug/Kg
	Chrysene	41.3	ug/Kg
	Fluoranthene	110	ug/Kg
	Fluorene	83.7	ug/Kg
	Naphthalene	36.5	ug/Kg
	Phenanthrene	156	ug/Kg
	Pyrene	115	ug/Kg
Semivolatile Organic Fuels	Diesel Range Organics	479	mg/Kg
Volatile Fuels	Gasoline Range Organics	5.92J	mg/Kg
Volatile GC/MS	Benzene	12.4J	ug/Kg
	Toluene	20.5J	ug/Kg

Client Sample ID: **ST06**
Lab Sample ID: 1144174004

	Parameter	Result	Units
Polynuclear Aromatics GC/MS	1-Methylnaphthalene	319	ug/Kg
	2-Methylnaphthalene	243	ug/Kg
	Acenaphthene	37.9	ug/Kg
	Anthracene	16.7J	ug/Kg
	Benzo(a)Anthracene	35.8	ug/Kg
	Benzo[a]pyrene	32.5	ug/Kg
	Benzo[g,h,i]perylene	20.1J	ug/Kg
	Chrysene	51.1	ug/Kg
	Fluoranthene	121	ug/Kg
	Fluorene	96.6	ug/Kg
	Naphthalene	48.4	ug/Kg
	Phenanthrene	203	ug/Kg
	Pyrene	121	ug/Kg
Semivolatile Organic Fuels	Diesel Range Organics	492	mg/Kg
Volatile Fuels	Gasoline Range Organics	7.80	mg/Kg
Volatile GC/MS	Benzene	35.7	ug/Kg
	Ethylbenzene	58.7J	ug/Kg
	o-Xylene	84.7	ug/Kg
	P & M -Xylene	114J	ug/Kg
	Toluene	67.7	ug/Kg

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Detectable Results Summary

Client Sample ID: **ST10**
Lab Sample ID: 1144174005

	Parameter	Result	Units
Polynuclear Aromatics GC/MS	1-Methylnaphthalene	166	ug/Kg
	2-Methylnaphthalene	120	ug/Kg
	Benzo(a)Anthracene	47.3	ug/Kg
	Benzo[a]pyrene	42.6	ug/Kg
	Benzo[b]Fluoranthene	85.8	ug/Kg
	Benzo[g,h,i]perylene	32.3	ug/Kg
	Chrysene	63.7	ug/Kg
	Fluoranthene	128	ug/Kg
	Fluorene	112	ug/Kg
	Naphthalene	53.7	ug/Kg
	Phenanthrene	199	ug/Kg
	Pyrene	153	ug/Kg
Semivolatile Organic Fuels	Diesel Range Organics	745	mg/Kg
Volatile Fuels	Gasoline Range Organics	8.17	mg/Kg
Volatile GC/MS	Benzene	11.0J	ug/Kg

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Results of **ST01**

Client Sample ID: **ST01**
Client Project ID: **Nome Harbor Improvements**
Lab Sample ID: 1144174001
Lab Project ID: 1144174

Collection Date: 08/27/14 14:10
Received Date: 08/29/14 13:11
Matrix: Soil/Solid (dry weight)
Solids (%): 84.5
Location:

Results by **Polychlorinated Biphenyls**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Aroclor-1016	259	U	517	155	ug/Kg	1		09/06/14 02:05
Aroclor-1221	259	U	517	155	ug/Kg	1		09/06/14 02:05
Aroclor-1232	259	U	517	155	ug/Kg	1		09/06/14 02:05
Aroclor-1242	259	U	517	155	ug/Kg	1		09/06/14 02:05
Aroclor-1248	259	U	517	155	ug/Kg	1		09/06/14 02:05
Aroclor-1254	259	U	517	155	ug/Kg	1		09/06/14 02:05
Aroclor-1260	259	U	517	155	ug/Kg	1		09/06/14 02:05
Surrogates								
Decachlorobiphenyl	101		60-125		%	1		09/06/14 02:05

Batch Information

Analytical Batch: XGC8874
Analytical Method: SW8082A
Analyst: SCL
Analytical Date/Time: 09/06/14 02:05
Container ID: 1144174001-A

Prep Batch: XXX31903
Prep Method: SW3550C
Prep Date/Time: 09/05/14 10:10
Prep Initial Wt./Vol.: 2.577 g
Prep Extract Vol: 5 mL

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Results of **ST01**

Client Sample ID: **ST01**
Client Project ID: **Nome Harbor Improvements**
Lab Sample ID: 1144174001
Lab Project ID: 1144174

Collection Date: 08/27/14 14:10
Received Date: 08/29/14 13:11
Matrix: Soil/Solid (dry weight)
Solids (%): 84.5
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	143		29.4	8.83	ug/Kg	5		09/03/14 19:07
2-Methylnaphthalene	94.6		29.4	8.83	ug/Kg	5		09/03/14 19:07
Acenaphthene	14.7	U	29.4	8.83	ug/Kg	5		09/03/14 19:07
Acenaphthylene	14.7	U	29.4	8.83	ug/Kg	5		09/03/14 19:07
Anthracene	26.0	J	29.4	8.83	ug/Kg	5		09/03/14 19:07
Benzo(a)Anthracene	96.1		29.4	8.83	ug/Kg	5		09/03/14 19:07
Benzo[a]pyrene	90.9		29.4	8.83	ug/Kg	5		09/03/14 19:07
Benzo[b]Fluoranthene	110		29.4	8.83	ug/Kg	5		09/03/14 19:07
Benzo[g,h,i]perylene	57.7		29.4	8.83	ug/Kg	5		09/03/14 19:07
Benzo[k]fluoranthene	14.7	U	29.4	8.83	ug/Kg	5		09/03/14 19:07
Chrysene	132		29.4	8.83	ug/Kg	5		09/03/14 19:07
Dibenzo[a,h]anthracene	14.7	U	29.4	8.83	ug/Kg	5		09/03/14 19:07
Fluoranthene	265		29.4	8.83	ug/Kg	5		09/03/14 19:07
Fluorene	104		29.4	8.83	ug/Kg	5		09/03/14 19:07
Indeno[1,2,3-c,d] pyrene	48.3		29.4	8.83	ug/Kg	5		09/03/14 19:07
Naphthalene	51.4		29.4	8.83	ug/Kg	5		09/03/14 19:07
Phenanthrene	286		29.4	8.83	ug/Kg	5		09/03/14 19:07
Pyrene	272		29.4	8.83	ug/Kg	5		09/03/14 19:07
Surrogates								
2-Fluorobiphenyl	88.9		45-105		%	5		09/03/14 19:07
Terphenyl-d14	111		30-125		%	5		09/03/14 19:07

Batch Information

Analytical Batch: XMS8268
Analytical Method: 8270D SIMS (PAH)
Analyst: RTS
Analytical Date/Time: 09/03/14 19:07
Container ID: 1144174001-A

Prep Batch: XXX31875
Prep Method: SW3550C
Prep Date/Time: 09/02/14 08:54
Prep Initial Wt./Vol.: 22.623 g
Prep Extract Vol: 1 mL

Print Date: 09/11/2014 2:51:12PM

Results of **ST01**

Client Sample ID: **ST01**
Client Project ID: **Nome Harbor Improvements**
Lab Sample ID: 1144174001
Lab Project ID: 1144174

Collection Date: 08/27/14 14:10
Received Date: 08/29/14 13:11
Matrix: Soil/Solid (dry weight)
Solids (%): 84.5
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	730		93.5	29.0	mg/Kg	4		09/03/14 07:52
Surrogates								
5a Androstane	110		50-150		%	4		09/03/14 07:52

Batch Information

Analytical Batch: XFC11545
Analytical Method: AK102
Analyst: AYC
Analytical Date/Time: 09/03/14 07:52
Container ID: 1144174001-A

Prep Batch: XXX31880
Prep Method: SW3550C
Prep Date/Time: 09/02/14 12:30
Prep Initial Wt./Vol.: 30.394 g
Prep Extract Vol: 1 mL

Print Date: 09/11/2014 2:51:12PM

Results of **ST01**

Client Sample ID: **ST01**
Client Project ID: **Nome Harbor Improvements**
Lab Sample ID: 1144174001
Lab Project ID: 1144174

Collection Date: 08/27/14 14:10
Received Date: 08/29/14 13:11
Matrix: Soil/Solid (dry weight)
Solids (%): 84.5
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	9.59		6.58	1.98	mg/Kg	1		09/03/14 00:30
Surrogates								
4-Bromofluorobenzene	102		50-150		%	1		09/03/14 00:30

Batch Information

Analytical Batch: VFC12082
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/03/14 00:30
Container ID: 1144174001-B

Prep Batch: VXX26377
Prep Method: SW5035A
Prep Date/Time: 08/27/14 14:10
Prep Initial Wt./Vol.: 26.127 g
Prep Extract Vol: 29.0586 mL

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Results of **ST01**

Client Sample ID: **ST01**
Client Project ID: **Nome Harbor Improvements**
Lab Sample ID: 1144174001
Lab Project ID: 1144174

Collection Date: 08/27/14 14:10
Received Date: 08/29/14 13:11
Matrix: Soil/Solid (dry weight)
Solids (%): 84.5
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	16.4	U	32.9	10.3	ug/Kg	1		09/02/14 17:35
Ethylbenzene	32.9	U	65.8	20.5	ug/Kg	1		09/02/14 17:35
o-Xylene	32.9	U	65.8	20.5	ug/Kg	1		09/02/14 17:35
P & M -Xylene	66.0	U	132	39.5	ug/Kg	1		09/02/14 17:35
Toluene	32.9	U	65.8	20.5	ug/Kg	1		09/02/14 17:35
Surrogates								
1,2-Dichloroethane-D4	98.3		79-118		%	1		09/02/14 17:35
4-Bromofluorobenzene	96.9		67-138		%	1		09/02/14 17:35
Toluene-d8	91.4		85-115		%	1		09/02/14 17:35

Batch Information

Analytical Batch: VMS14422
Analytical Method: SW8260B
Analyst: KCT
Analytical Date/Time: 09/02/14 17:35
Container ID: 1144174001-B

Prep Batch: VXX26382
Prep Method: SW5035A
Prep Date/Time: 08/27/14 14:10
Prep Initial Wt./Vol.: 26.127 g
Prep Extract Vol: 29.0586 mL

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Results of **EX01**

Client Sample ID: **EX01**
Client Project ID: **Nome Harbor Improvements**
Lab Sample ID: 1144174002
Lab Project ID: 1144174

Collection Date: 08/27/14 13:40
Received Date: 08/29/14 13:11
Matrix: Soil/Solid (dry weight)
Solids (%): 93.6
Location:

Results by **Polychlorinated Biphenyls**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Aroclor-1016	240	U	479	144	ug/Kg	1		09/06/14 02:17
Aroclor-1221	240	U	479	144	ug/Kg	1		09/06/14 02:17
Aroclor-1232	240	U	479	144	ug/Kg	1		09/06/14 02:17
Aroclor-1242	240	U	479	144	ug/Kg	1		09/06/14 02:17
Aroclor-1248	240	U	479	144	ug/Kg	1		09/06/14 02:17
Aroclor-1254	240	U	479	144	ug/Kg	1		09/06/14 02:17
Aroclor-1260	240	U	479	144	ug/Kg	1		09/06/14 02:17
Surrogates								
Decachlorobiphenyl	101		60-125		%	1		09/06/14 02:17

Batch Information

Analytical Batch: XGC8874
Analytical Method: SW8082A
Analyst: SCL
Analytical Date/Time: 09/06/14 02:17
Container ID: 1144174002-A

Prep Batch: XXX31903
Prep Method: SW3550C
Prep Date/Time: 09/05/14 10:10
Prep Initial Wt./Vol.: 2.508 g
Prep Extract Vol: 5 mL

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Results of **EX01**

Client Sample ID: **EX01**
Client Project ID: **Nome Harbor Improvements**
Lab Sample ID: 1144174002
Lab Project ID: 1144174

Collection Date: 08/27/14 13:40
Received Date: 08/29/14 13:11
Matrix: Soil/Solid (dry weight)
Solids (%): 93.6
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	12.9	J	26.2	7.85	ug/Kg	5		09/03/14 19:22
2-Methylnaphthalene	15.7	J	26.2	7.85	ug/Kg	5		09/03/14 19:22
Acenaphthene	13.1	U	26.2	7.85	ug/Kg	5		09/03/14 19:22
Acenaphthylene	13.1	U	26.2	7.85	ug/Kg	5		09/03/14 19:22
Anthracene	13.1	U	26.2	7.85	ug/Kg	5		09/03/14 19:22
Benzo(a)Anthracene	14.7	J	26.2	7.85	ug/Kg	5		09/03/14 19:22
Benzo[a]pyrene	13.1	U	26.2	7.85	ug/Kg	5		09/03/14 19:22
Benzo[b]Fluoranthene	13.1	U	26.2	7.85	ug/Kg	5		09/03/14 19:22
Benzo[g,h,i]perylene	12.7	J	26.2	7.85	ug/Kg	5		09/03/14 19:22
Benzo[k]fluoranthene	13.1	U	26.2	7.85	ug/Kg	5		09/03/14 19:22
Chrysene	23.4	J	26.2	7.85	ug/Kg	5		09/03/14 19:22
Dibenzo[a,h]anthracene	13.1	U	26.2	7.85	ug/Kg	5		09/03/14 19:22
Fluoranthene	40.0		26.2	7.85	ug/Kg	5		09/03/14 19:22
Fluorene	20.2	J	26.2	7.85	ug/Kg	5		09/03/14 19:22
Indeno[1,2,3-c,d] pyrene	13.1	U	26.2	7.85	ug/Kg	5		09/03/14 19:22
Naphthalene	10.2	J	26.2	7.85	ug/Kg	5		09/03/14 19:22
Phenanthrene	37.8		26.2	7.85	ug/Kg	5		09/03/14 19:22
Pyrene	51.0		26.2	7.85	ug/Kg	5		09/03/14 19:22
Surrogates								
2-Fluorobiphenyl	89.9		45-105		%	5		09/03/14 19:22
Terphenyl-d14	95.4		30-125		%	5		09/03/14 19:22

Batch Information

Analytical Batch: XMS8268
Analytical Method: 8270D SIMS (PAH)
Analyst: RTS
Analytical Date/Time: 09/03/14 19:22
Container ID: 1144174002-A

Prep Batch: XXX31875
Prep Method: SW3550C
Prep Date/Time: 09/02/14 08:54
Prep Initial Wt./Vol.: 22.963 g
Prep Extract Vol: 1 mL

Results of **EX01**

Client Sample ID: **EX01**
Client Project ID: **Nome Harbor Improvements**
Lab Sample ID: 1144174002
Lab Project ID: 1144174

Collection Date: 08/27/14 13:40
Received Date: 08/29/14 13:11
Matrix: Soil/Solid (dry weight)
Solids (%): 93.6
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	143		21.3	6.60	mg/Kg	1		09/03/14 06:53
Surrogates								
5a Androstane	89.8		50-150		%	1		09/03/14 06:53

Batch Information

Analytical Batch: XFC11545
Analytical Method: AK102
Analyst: AYC
Analytical Date/Time: 09/03/14 06:53
Container ID: 1144174002-A

Prep Batch: XXX31880
Prep Method: SW3550C
Prep Date/Time: 09/02/14 12:30
Prep Initial Wt./Vol.: 30.102 g
Prep Extract Vol: 1 mL

Print Date: 09/11/2014 2:51:12PM

Results of **EX01**

Client Sample ID: **EX01**
Client Project ID: **Nome Harbor Improvements**
Lab Sample ID: 1144174002
Lab Project ID: 1144174

Collection Date: 08/27/14 13:40
Received Date: 08/29/14 13:11
Matrix: Soil/Solid (dry weight)
Solids (%): 93.6
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	2.93	J	5.75	1.73	mg/Kg	1		09/03/14 07:28
Surrogates								
4-Bromofluorobenzene	103		50-150		%	1		09/03/14 07:28

Batch Information

Analytical Batch: VFC12081
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/03/14 07:28
Container ID: 1144174002-B

Prep Batch: VXX26375
Prep Method: SW5035A
Prep Date/Time: 08/27/14 13:40
Prep Initial Wt./Vol.: 24.663 g
Prep Extract Vol: 26.5747 mL

Print Date: 09/11/2014 2:51:12PM

Results of **EX01**

Client Sample ID: **EX01**
Client Project ID: **Nome Harbor Improvements**
Lab Sample ID: 1144174002
Lab Project ID: 1144174

Collection Date: 08/27/14 13:40
Received Date: 08/29/14 13:11
Matrix: Soil/Solid (dry weight)
Solids (%): 93.6
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	14.4	U	28.8	8.98	ug/Kg	1		09/03/14 21:55
Ethylbenzene	28.8	U	57.5	18.0	ug/Kg	1		09/03/14 21:55
o-Xylene	28.8	U	57.5	18.0	ug/Kg	1		09/03/14 21:55
P & M -Xylene	57.5	U	115	34.5	ug/Kg	1		09/03/14 21:55
Toluene	28.8	U	57.5	18.0	ug/Kg	1		09/03/14 21:55
Surrogates								
1,2-Dichloroethane-D4	115		79-118		%	1		09/03/14 21:55
4-Bromofluorobenzene	113		67-138		%	1		09/03/14 21:55
Toluene-d8	114		85-115		%	1		09/03/14 21:55

Batch Information

Analytical Batch: VMS14423
Analytical Method: SW8260B
Analyst: SP
Analytical Date/Time: 09/03/14 21:55
Container ID: 1144174002-B

Prep Batch: VXX26383
Prep Method: SW5035A
Prep Date/Time: 08/27/14 13:40
Prep Initial Wt./Vol.: 24.663 g
Prep Extract Vol: 26.5747 mL

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Results of **EX04**

Client Sample ID: **EX04**
Client Project ID: **Nome Harbor Improvements**
Lab Sample ID: 1144174003
Lab Project ID: 1144174

Collection Date: 08/27/14 13:44
Received Date: 08/29/14 13:11
Matrix: Soil/Solid (dry weight)
Solids (%): 89.0
Location:

Results by **Polychlorinated Biphenyls**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Aroclor-1016	245	U	490	147	ug/Kg	1		09/06/14 02:29
Aroclor-1221	245	U	490	147	ug/Kg	1		09/06/14 02:29
Aroclor-1232	245	U	490	147	ug/Kg	1		09/06/14 02:29
Aroclor-1242	245	U	490	147	ug/Kg	1		09/06/14 02:29
Aroclor-1248	245	U	490	147	ug/Kg	1		09/06/14 02:29
Aroclor-1254	245	U	490	147	ug/Kg	1		09/06/14 02:29
Aroclor-1260	196	J	490	147	ug/Kg	1		09/06/14 02:29
Surrogates								
Decachlorobiphenyl	101		60-125		%	1		09/06/14 02:29

Batch Information

Analytical Batch: XGC8874
Analytical Method: SW8082A
Analyst: SCL
Analytical Date/Time: 09/06/14 02:29
Container ID:

Prep Batch: XXX31903
Prep Method: SW3550C
Prep Date/Time: 09/05/14 10:10
Prep Initial Wt./Vol.: 2.58 g
Prep Extract Vol: 5 mL

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Results of **EX04**

Client Sample ID: **EX04**
Client Project ID: **Nome Harbor Improvements**
Lab Sample ID: 1144174003
Lab Project ID: 1144174

Collection Date: 08/27/14 13:44
Received Date: 08/29/14 13:11
Matrix: Soil/Solid (dry weight)
Solids (%): 89.0
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	131		27.8	8.33	ug/Kg	5		09/03/14 19:36
2-Methylnaphthalene	144		27.8	8.33	ug/Kg	5		09/03/14 19:36
Acenaphthene	36.5		27.8	8.33	ug/Kg	5		09/03/14 19:36
Acenaphthylene	13.9	U	27.8	8.33	ug/Kg	5		09/03/14 19:36
Anthracene	16.7	J	27.8	8.33	ug/Kg	5		09/03/14 19:36
Benzo(a)Anthracene	33.1		27.8	8.33	ug/Kg	5		09/03/14 19:36
Benzo[a]pyrene	26.2	J	27.8	8.33	ug/Kg	5		09/03/14 19:36
Benzo[b]Fluoranthene	13.9	U	27.8	8.33	ug/Kg	5		09/03/14 19:36
Benzo[g,h,i]perylene	18.0	J	27.8	8.33	ug/Kg	5		09/03/14 19:36
Benzo[k]fluoranthene	13.9	U	27.8	8.33	ug/Kg	5		09/03/14 19:36
Chrysene	41.3		27.8	8.33	ug/Kg	5		09/03/14 19:36
Dibenzo[a,h]anthracene	13.9	U	27.8	8.33	ug/Kg	5		09/03/14 19:36
Fluoranthene	110		27.8	8.33	ug/Kg	5		09/03/14 19:36
Fluorene	83.7		27.8	8.33	ug/Kg	5		09/03/14 19:36
Indeno[1,2,3-c,d] pyrene	13.9	U	27.8	8.33	ug/Kg	5		09/03/14 19:36
Naphthalene	36.5		27.8	8.33	ug/Kg	5		09/03/14 19:36
Phenanthrene	156		27.8	8.33	ug/Kg	5		09/03/14 19:36
Pyrene	115		27.8	8.33	ug/Kg	5		09/03/14 19:36
Surrogates								
2-Fluorobiphenyl	136	*	45-105		%	5		09/03/14 19:36
Terphenyl-d14	105		30-125		%	5		09/03/14 19:36

Batch Information

Analytical Batch: XMS8268
Analytical Method: 8270D SIMS (PAH)
Analyst: RTS
Analytical Date/Time: 09/03/14 19:36
Container ID: 1144174003-A

Prep Batch: XXX31875
Prep Method: SW3550C
Prep Date/Time: 09/02/14 08:54
Prep Initial Wt./Vol.: 22.776 g
Prep Extract Vol: 1 mL

Print Date: 09/11/2014 2:51:12PM

Results of **EX04**

Client Sample ID: **EX04**
Client Project ID: **Nome Harbor Improvements**
Lab Sample ID: 1144174003
Lab Project ID: 1144174

Collection Date: 08/27/14 13:44
Received Date: 08/29/14 13:11
Matrix: Soil/Solid (dry weight)
Solids (%): 89.0
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	479		88.9	27.6	mg/Kg	4		09/03/14 08:02
Surrogates								
5a Androstane	133		50-150		%	4		09/03/14 08:02

Batch Information

Analytical Batch: XFC11545
Analytical Method: AK102
Analyst: AYC
Analytical Date/Time: 09/03/14 08:02
Container ID: 1144174003-A

Prep Batch: XXX31880
Prep Method: SW3550C
Prep Date/Time: 09/02/14 12:30
Prep Initial Wt./Vol.: 30.327 g
Prep Extract Vol: 1 mL

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Results of **EX04**

Client Sample ID: **EX04**
Client Project ID: **Nome Harbor Improvements**
Lab Sample ID: 1144174003
Lab Project ID: 1144174

Collection Date: 08/27/14 13:44
Received Date: 08/29/14 13:11
Matrix: Soil/Solid (dry weight)
Solids (%): 89.0
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	5.92	J	6.20	1.86	mg/Kg	1		09/04/14 02:08
Surrogates								
4-Bromofluorobenzene	96.5		50-150		%	1		09/04/14 02:08

Batch Information

Analytical Batch: VFC12085
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/04/14 02:08
Container ID: 1144174003-B

Prep Batch: VXX26385
Prep Method: SW5035A
Prep Date/Time: 08/27/14 13:44
Prep Initial Wt./Vol.: 25.157 g
Prep Extract Vol: 27.7751 mL

Print Date: 09/11/2014 2:51:12PM

Results of **EX04**

Client Sample ID: **EX04**
Client Project ID: **Nome Harbor Improvements**
Lab Sample ID: 1144174003
Lab Project ID: 1144174

Collection Date: 08/27/14 13:44
Received Date: 08/29/14 13:11
Matrix: Soil/Solid (dry weight)
Solids (%): 89.0
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	12.4	J	31.0	9.68	ug/Kg	1		09/03/14 22:11
Ethylbenzene	31.0	U	62.0	19.4	ug/Kg	1		09/03/14 22:11
o-Xylene	31.0	U	62.0	19.4	ug/Kg	1		09/03/14 22:11
P & M -Xylene	62.0	U	124	37.2	ug/Kg	1		09/03/14 22:11
Toluene	20.5	J	62.0	19.4	ug/Kg	1		09/03/14 22:11
Surrogates								
1,2-Dichloroethane-D4	117		79-118		%	1		09/03/14 22:11
4-Bromofluorobenzene	119		67-138		%	1		09/03/14 22:11
Toluene-d8	112		85-115		%	1		09/03/14 22:11

Batch Information

Analytical Batch: VMS14423
Analytical Method: SW8260B
Analyst: SP
Analytical Date/Time: 09/03/14 22:11
Container ID: 1144174003-B

Prep Batch: VXX26383
Prep Method: SW5035A
Prep Date/Time: 08/27/14 13:44
Prep Initial Wt./Vol.: 25.157 g
Prep Extract Vol: 27.7751 mL

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Results of **ST06**

Client Sample ID: **ST06**
Client Project ID: **Nome Harbor Improvements**
Lab Sample ID: 1144174004
Lab Project ID: 1144174

Collection Date: 08/27/14 14:20
Received Date: 08/29/14 13:11
Matrix: Soil/Solid (dry weight)
Solids (%): 90.4
Location:

Results by **Polychlorinated Biphenyls**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Aroclor-1016	249	U	497	149	ug/Kg	1		09/06/14 03:18
Aroclor-1221	249	U	497	149	ug/Kg	1		09/06/14 03:18
Aroclor-1232	249	U	497	149	ug/Kg	1		09/06/14 03:18
Aroclor-1242	249	U	497	149	ug/Kg	1		09/06/14 03:18
Aroclor-1248	249	U	497	149	ug/Kg	1		09/06/14 03:18
Aroclor-1254	249	U	497	149	ug/Kg	1		09/06/14 03:18
Aroclor-1260	249	U	497	149	ug/Kg	1		09/06/14 03:18
Surrogates								
Decachlorobiphenyl	105		60-125		%	1		09/06/14 03:18

Batch Information

Analytical Batch: XGC8874
Analytical Method: SW8082A
Analyst: SCL
Analytical Date/Time: 09/06/14 03:18
Container ID:

Prep Batch: XXX31903
Prep Method: SW3550C
Prep Date/Time: 09/05/14 10:10
Prep Initial Wt./Vol.: 2.503 g
Prep Extract Vol: 5 mL

Print Date: 09/11/2014 2:51:12PM

Results of **ST06**

Client Sample ID: **ST06**
Client Project ID: **Nome Harbor Improvements**
Lab Sample ID: 1144174004
Lab Project ID: 1144174

Collection Date: 08/27/14 14:20
Received Date: 08/29/14 13:11
Matrix: Soil/Solid (dry weight)
Solids (%): 90.4
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	319		27.5	8.26	ug/Kg	5		09/03/14 19:50
2-Methylnaphthalene	243		27.5	8.26	ug/Kg	5		09/03/14 19:50
Acenaphthene	37.9		27.5	8.26	ug/Kg	5		09/03/14 19:50
Acenaphthylene	13.8	U	27.5	8.26	ug/Kg	5		09/03/14 19:50
Anthracene	16.7	J	27.5	8.26	ug/Kg	5		09/03/14 19:50
Benzo(a)Anthracene	35.8		27.5	8.26	ug/Kg	5		09/03/14 19:50
Benzo[a]pyrene	32.5		27.5	8.26	ug/Kg	5		09/03/14 19:50
Benzo[b]Fluoranthene	13.8	U	27.5	8.26	ug/Kg	5		09/03/14 19:50
Benzo[g,h,i]perylene	20.1	J	27.5	8.26	ug/Kg	5		09/03/14 19:50
Benzo[k]fluoranthene	13.8	U	27.5	8.26	ug/Kg	5		09/03/14 19:50
Chrysene	51.1		27.5	8.26	ug/Kg	5		09/03/14 19:50
Dibenzo[a,h]anthracene	13.8	U	27.5	8.26	ug/Kg	5		09/03/14 19:50
Fluoranthene	121		27.5	8.26	ug/Kg	5		09/03/14 19:50
Fluorene	96.6		27.5	8.26	ug/Kg	5		09/03/14 19:50
Indeno[1,2,3-c,d] pyrene	13.8	U	27.5	8.26	ug/Kg	5		09/03/14 19:50
Naphthalene	48.4		27.5	8.26	ug/Kg	5		09/03/14 19:50
Phenanthrene	203		27.5	8.26	ug/Kg	5		09/03/14 19:50
Pyrene	121		27.5	8.26	ug/Kg	5		09/03/14 19:50
Surrogates								
2-Fluorobiphenyl	125	*	45-105		%	5		09/03/14 19:50
Terphenyl-d14	97.6		30-125		%	5		09/03/14 19:50

Batch Information

Analytical Batch: XMS8268
Analytical Method: 8270D SIMS (PAH)
Analyst: RTS
Analytical Date/Time: 09/03/14 19:50
Container ID: 1144174004-A

Prep Batch: XXX31875
Prep Method: SW3550C
Prep Date/Time: 09/02/14 08:54
Prep Initial Wt./Vol.: 22.623 g
Prep Extract Vol: 1 mL

Print Date: 09/11/2014 2:51:12PM

Results of **ST06**

Client Sample ID: **ST06**
Client Project ID: **Nome Harbor Improvements**
Lab Sample ID: 1144174004
Lab Project ID: 1144174

Collection Date: 08/27/14 14:20
Received Date: 08/29/14 13:11
Matrix: Soil/Solid (dry weight)
Solids (%): 90.4
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	492		88.2	27.3	mg/Kg	4		09/03/14 08:11
Surrogates								
5a Androstane	107		50-150		%	4		09/03/14 08:11

Batch Information

Analytical Batch: XFC11545
Analytical Method: AK102
Analyst: AYC
Analytical Date/Time: 09/03/14 08:11
Container ID: 1144174004-A

Prep Batch: XXX31880
Prep Method: SW3550C
Prep Date/Time: 09/02/14 12:30
Prep Initial Wt./Vol.: 30.125 g
Prep Extract Vol: 1 mL

Print Date: 09/11/2014 2:51:12PM

Results of **ST06**

Client Sample ID: **ST06**
Client Project ID: **Nome Harbor Improvements**
Lab Sample ID: 1144174004
Lab Project ID: 1144174

Collection Date: 08/27/14 14:20
Received Date: 08/29/14 13:11
Matrix: Soil/Solid (dry weight)
Solids (%): 90.4
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	7.80		6.05	1.81	mg/Kg	1		09/04/14 02:27
Surrogates								
4-Bromofluorobenzene	92.2		50-150		%	1		09/04/14 02:27

Batch Information

Analytical Batch: VFC12085
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/04/14 02:27
Container ID: 1144174004-B

Prep Batch: VXX26385
Prep Method: SW5035A
Prep Date/Time: 08/27/14 14:20
Prep Initial Wt./Vol.: 25.085 g
Prep Extract Vol: 27.4197 mL

Print Date: 09/11/2014 2:51:12PM

Results of **ST06**

Client Sample ID: **ST06**
Client Project ID: **Nome Harbor Improvements**
Lab Sample ID: 1144174004
Lab Project ID: 1144174

Collection Date: 08/27/14 14:20
Received Date: 08/29/14 13:11
Matrix: Soil/Solid (dry weight)
Solids (%): 90.4
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	35.7		30.2	9.44	ug/Kg	1		09/04/14 13:03
Ethylbenzene	58.7	J	60.5	18.9	ug/Kg	1		09/04/14 13:03
o-Xylene	84.7		60.5	18.9	ug/Kg	1		09/04/14 13:03
P & M -Xylene	114	J	121	36.3	ug/Kg	1		09/04/14 13:03
Toluene	67.7		60.5	18.9	ug/Kg	1		09/04/14 13:03
Surrogates								
1,2-Dichloroethane-D4	114		79-118		%	1		09/04/14 13:03
4-Bromofluorobenzene	102		67-138		%	1		09/04/14 13:03
Toluene-d8	96.1		85-115		%	1		09/04/14 13:03

Batch Information

Analytical Batch: VMS14428
Analytical Method: SW8260B
Analyst: SP
Analytical Date/Time: 09/04/14 13:03
Container ID: 1144174004-B

Prep Batch: VXX26390
Prep Method: SW5035A
Prep Date/Time: 08/27/14 14:20
Prep Initial Wt./Vol.: 25.085 g
Prep Extract Vol: 27.4197 mL

Print Date: 09/11/2014 2:51:12PM

Results of **ST10**

Client Sample ID: **ST10**
Client Project ID: **Nome Harbor Improvements**
Lab Sample ID: 1144174005
Lab Project ID: 1144174

Collection Date: 08/27/14 15:00
Received Date: 08/29/14 13:11
Matrix: Soil/Solid (dry weight)
Solids (%): 85.9
Location:

Results by **Polychlorinated Biphenyls**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Aroclor-1016	259	U	518	156	ug/Kg	1		09/06/14 03:30
Aroclor-1221	259	U	518	156	ug/Kg	1		09/06/14 03:30
Aroclor-1232	259	U	518	156	ug/Kg	1		09/06/14 03:30
Aroclor-1242	259	U	518	156	ug/Kg	1		09/06/14 03:30
Aroclor-1248	259	U	518	156	ug/Kg	1		09/06/14 03:30
Aroclor-1254	259	U	518	156	ug/Kg	1		09/06/14 03:30
Aroclor-1260	259	U	518	156	ug/Kg	1		09/06/14 03:30
Surrogates								
Decachlorobiphenyl	103		60-125		%	1		09/06/14 03:30

Batch Information

Analytical Batch: XGC8874
Analytical Method: SW8082A
Analyst: SCL
Analytical Date/Time: 09/06/14 03:30
Container ID:

Prep Batch: XXX31903
Prep Method: SW3550C
Prep Date/Time: 09/05/14 10:10
Prep Initial Wt./Vol.: 2.526 g
Prep Extract Vol: 5 mL

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Results of **ST10**

Client Sample ID: **ST10**
Client Project ID: **Nome Harbor Improvements**
Lab Sample ID: 1144174005
Lab Project ID: 1144174

Collection Date: 08/27/14 15:00
Received Date: 08/29/14 13:11
Matrix: Soil/Solid (dry weight)
Solids (%): 85.9
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	166		28.9	8.67	ug/Kg	5		09/03/14 20:05
2-Methylnaphthalene	120		28.9	8.67	ug/Kg	5		09/03/14 20:05
Acenaphthene	14.4	U	28.9	8.67	ug/Kg	5		09/03/14 20:05
Acenaphthylene	14.4	U	28.9	8.67	ug/Kg	5		09/03/14 20:05
Anthracene	14.4	U	28.9	8.67	ug/Kg	5		09/03/14 20:05
Benzo(a)Anthracene	47.3		28.9	8.67	ug/Kg	5		09/03/14 20:05
Benzo[a]pyrene	42.6		28.9	8.67	ug/Kg	5		09/03/14 20:05
Benzo[b]Fluoranthene	85.8		28.9	8.67	ug/Kg	5		09/03/14 20:05
Benzo[g,h,i]perylene	32.3		28.9	8.67	ug/Kg	5		09/03/14 20:05
Benzo[k]fluoranthene	14.4	U	28.9	8.67	ug/Kg	5		09/03/14 20:05
Chrysene	63.7		28.9	8.67	ug/Kg	5		09/03/14 20:05
Dibenzo[a,h]anthracene	14.4	U	28.9	8.67	ug/Kg	5		09/03/14 20:05
Fluoranthene	128		28.9	8.67	ug/Kg	5		09/03/14 20:05
Fluorene	112		28.9	8.67	ug/Kg	5		09/03/14 20:05
Indeno[1,2,3-c,d] pyrene	14.4	U	28.9	8.67	ug/Kg	5		09/03/14 20:05
Naphthalene	53.7		28.9	8.67	ug/Kg	5		09/03/14 20:05
Phenanthrene	199		28.9	8.67	ug/Kg	5		09/03/14 20:05
Pyrene	153		28.9	8.67	ug/Kg	5		09/03/14 20:05
Surrogates								
2-Fluorobiphenyl	85.8		45-105		%	5		09/03/14 20:05
Terphenyl-d14	105		30-125		%	5		09/03/14 20:05

Batch Information

Analytical Batch: XMS8268
Analytical Method: 8270D SIMS (PAH)
Analyst: RTS
Analytical Date/Time: 09/03/14 20:05
Container ID: 1144174005-A

Prep Batch: XXX31875
Prep Method: SW3550C
Prep Date/Time: 09/02/14 08:54
Prep Initial Wt./Vol.: 22.645 g
Prep Extract Vol: 1 mL

Results of **ST10**

Client Sample ID: **ST10**
Client Project ID: **Nome Harbor Improvements**
Lab Sample ID: 1144174005
Lab Project ID: 1144174

Collection Date: 08/27/14 15:00
Received Date: 08/29/14 13:11
Matrix: Soil/Solid (dry weight)
Solids (%): 85.9
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	745		92.9	28.8	mg/Kg	4		09/03/14 08:21
Surrogates								
5a Androstane	111		50-150		%	4		09/03/14 08:21

Batch Information

Analytical Batch: XFC11545
Analytical Method: AK102
Analyst: AYC
Analytical Date/Time: 09/03/14 08:21
Container ID: 1144174005-A

Prep Batch: XXX31880
Prep Method: SW3550C
Prep Date/Time: 09/02/14 12:30
Prep Initial Wt./Vol.: 30.056 g
Prep Extract Vol: 1 mL

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Results of **ST10**

Client Sample ID: **ST10**
Client Project ID: **Nome Harbor Improvements**
Lab Sample ID: 1144174005
Lab Project ID: 1144174

Collection Date: 08/27/14 15:00
Received Date: 08/29/14 13:11
Matrix: Soil/Solid (dry weight)
Solids (%): 85.9
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	8.17		6.49	1.95	mg/Kg	1		09/04/14 02:46
Surrogates								
4-Bromofluorobenzene	93.8		50-150		%	1		09/04/14 02:46

Batch Information

Analytical Batch: VFC12085
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/04/14 02:46
Container ID: 1144174005-B

Prep Batch: VXX26385
Prep Method: SW5035A
Prep Date/Time: 08/27/14 15:00
Prep Initial Wt./Vol.: 25.672 g
Prep Extract Vol: 28.6169 mL

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Results of **ST10**

Client Sample ID: **ST10**
Client Project ID: **Nome Harbor Improvements**
Lab Sample ID: 1144174005
Lab Project ID: 1144174

Collection Date: 08/27/14 15:00
Received Date: 08/29/14 13:11
Matrix: Soil/Solid (dry weight)
Solids (%): 85.9
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	11.0	J	32.4	10.1	ug/Kg	1		09/03/14 22:43
Ethylbenzene	32.5	U	64.9	20.2	ug/Kg	1		09/03/14 22:43
o-Xylene	32.5	U	64.9	20.2	ug/Kg	1		09/03/14 22:43
P & M -Xylene	65.0	U	130	38.9	ug/Kg	1		09/03/14 22:43
Toluene	32.5	U	64.9	20.2	ug/Kg	1		09/03/14 22:43
Surrogates								
1,2-Dichloroethane-D4	119	*	79-118		%	1		09/03/14 22:43
4-Bromofluorobenzene	120		67-138		%	1		09/03/14 22:43
Toluene-d8	111		85-115		%	1		09/03/14 22:43

Batch Information

Analytical Batch: VMS14423
Analytical Method: SW8260B
Analyst: SP
Analytical Date/Time: 09/03/14 22:43
Container ID: 1144174005-B

Prep Batch: VXX26383
Prep Method: SW5035A
Prep Date/Time: 08/27/14 15:00
Prep Initial Wt./Vol.: 25.672 g
Prep Extract Vol: 28.6169 mL

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Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **Nome Harbor Improvements**
Lab Sample ID: 1144174006
Lab Project ID: 1144174

Collection Date: 08/27/14 13:40
Received Date: 08/29/14 13:11
Matrix: Soil/Solid (dry weight)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	2.50	U	2.50	0.750	mg/Kg	1		09/04/14 17:30
Surrogates								
4-Bromofluorobenzene	102		50-150		%	1		09/04/14 17:30

Batch Information

Analytical Batch: VFC12089
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/04/14 17:30
Container ID: 1144174006-A

Prep Batch: VXX26394
Prep Method: SW5035A
Prep Date/Time: 08/27/14 13:40
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

Print Date: 09/11/2014 2:51:12PM

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **Nome Harbor Improvements**
Lab Sample ID: 1144174006
Lab Project ID: 1144174

Collection Date: 08/27/14 13:40
Received Date: 08/29/14 13:11
Matrix: Soil/Solid (dry weight)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	12.5	U	12.5	3.90	ug/Kg	1		09/03/14 21:39
Ethylbenzene	25.0	U	25.0	7.80	ug/Kg	1		09/03/14 21:39
o-Xylene	25.0	U	25.0	7.80	ug/Kg	1		09/03/14 21:39
P & M -Xylene	50.0	U	50.0	15.0	ug/Kg	1		09/03/14 21:39
Toluene	25.0	U	25.0	7.80	ug/Kg	1		09/03/14 21:39
Surrogates								
1,2-Dichloroethane-D4	117		79-118		%	1		09/03/14 21:39
4-Bromofluorobenzene	119		67-138		%	1		09/03/14 21:39
Toluene-d8	113		85-115		%	1		09/03/14 21:39

Batch Information

Analytical Batch: VMS14423
Analytical Method: SW8260B
Analyst: SP
Analytical Date/Time: 09/03/14 21:39
Container ID: 1144174006-A

Prep Batch: VXX26383
Prep Method: SW5035A
Prep Date/Time: 08/27/14 13:40
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

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Method Blank

Blank ID: MB for HBN 1630261 [SPT/9437]
Blank Lab ID: 1230764

Matrix: Soil/Solid (dry weight)

QC for Samples:
1144174001, 1144174002, 1144174003, 1144174004, 1144174005

Results by **SM21 2540G**

Parameter	Results	LOQ/CL	DL	Units
Total Solids	100			%

Batch Information

Analytical Batch: SPT9437
Analytical Method: SM21 2540G
Instrument:
Analyst: MJN
Analytical Date/Time: 8/29/2014 6:20:00PM

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Duplicate Sample Summary

Original Sample ID: 1144159001
Duplicate Sample ID: 1230765
Analysis Date: 08/29/2014 18:20
Matrix: Soil/Solid (dry weight)

QC for Samples:

1144174001, 1144174002, 1144174003, 1144174004, 1144174005

Results by **SM21 2540G**

NAME	Original ()	Duplicate ()	RPD (%)	RPD CL
Total Solids	94.1	94.3	0.25	15.00

Batch Information

Analytical Batch: SPT9437
Analytical Method: SM21 2540G
Instrument:
Analyst: MJN

Print Date: 09/11/2014 2:51:17PM

Duplicate Sample Summary

Original Sample ID: 1148436001
Duplicate Sample ID: 1230766
Analysis Date: 08/29/2014 18:20
Matrix: Soil/Solid (dry weight)

QC for Samples:

1144174001, 1144174002, 1144174003, 1144174004, 1144174005

Results by **SM21 2540G**

NAME	Original ()	Duplicate ()	RPD (%)	RPD CL
Total Solids	96.4	97.0	0.67	15.00

Batch Information

Analytical Batch: SPT9437
Analytical Method: SM21 2540G
Instrument:
Analyst: MJN

Print Date: 09/11/2014 2:51:17PM

Method Blank

Blank ID: MB for HBN 1633267 [VXX/26375]
Blank Lab ID: 1231105

Matrix: Soil/Solid (dry weight)

QC for Samples:
1144174002

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	0.844J	2.50	0.750	mg/Kg
Surrogates				
4-Bromofluorobenzene	108	50-150		%

Batch Information

Analytical Batch: VFC12081
Analytical Method: AK101
Instrument: Agilent 7890 PID/FID
Analyst: ST
Analytical Date/Time: 9/2/2014 10:39:00PM

Prep Batch: VXX26375
Prep Method: SW5035A
Prep Date/Time: 9/2/2014 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1144174 [VXX26375]
Blank Spike Lab ID: 1231108
Date Analyzed: 09/02/2014 23:36

Spike Duplicate ID: LCSD for HBN 1144174 [VXX26375]
Spike Duplicate Lab ID: 1231109
Matrix: Soil/Solid (dry weight)

QC for Samples: 1144174002

Results by **AK101**

	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Gasoline Range Organics	10.0	10.7	107	10.0	10.4	104	(60-120)	3.40	(< 20)
Surrogates									
4-Bromofluorobenzene	1.25		105	1.25		107	(50-150)	1.20	

Batch Information

Analytical Batch: **VFC12081**
Analytical Method: **AK101**
Instrument: **Agilent 7890 PID/FID**
Analyst: **ST**

Prep Batch: **VXX26375**
Prep Method: **SW5035A**
Prep Date/Time: **09/02/2014 08:00**
Spike Init Wt./Vol.: 10.0 mg/Kg Extract Vol: 25 mL
Dup Init Wt./Vol.: 10.0 mg/Kg Extract Vol: 25 mL

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Method Blank

Blank ID: MB for HBN 1633273 [VXX/26377]
Blank Lab ID: 1231124

Matrix: Soil/Solid (dry weight)

QC for Samples:
1144174001

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	0.967J	2.50	0.750	mg/Kg
Surrogates				
4-Bromofluorobenzene	97.7	50-150		%

Batch Information

Analytical Batch: VFC12082
Analytical Method: AK101
Instrument: Agilent 7890A PID/FID
Analyst: ST
Analytical Date/Time: 9/2/2014 10:18:00PM

Prep Batch: VXX26377
Prep Method: SW5035A
Prep Date/Time: 9/2/2014 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1144174 [VXX26377]
Blank Spike Lab ID: 1231125
Date Analyzed: 09/02/2014 22:37

Spike Duplicate ID: LCSD for HBN 1144174 [VXX26377]
Spike Duplicate Lab ID: 1231126
Matrix: Soil/Solid (dry weight)

QC for Samples: 1144174001

Results by **AK101**

	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Gasoline Range Organics	10.0	9.58	96	10.0	10.3	103	(60-120)	7.70	(< 20)
Surrogates									
4-Bromofluorobenzene	1.25		136	1.25		106	(50-150)	24.80	

Batch Information

Analytical Batch: **VFC12082**
Analytical Method: **AK101**
Instrument: **Agilent 7890A PID/FID**
Analyst: **ST**

Prep Batch: **VXX26377**
Prep Method: **SW5035A**
Prep Date/Time: **09/02/2014 08:00**
Spike Init Wt./Vol.: 10.0 mg/Kg Extract Vol: 25 mL
Dup Init Wt./Vol.: 10.0 mg/Kg Extract Vol: 25 mL

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Method Blank

Blank ID: MB for HBN 1634162 [VXX/26382]
Blank Lab ID: 1231327

Matrix: Soil/Solid (dry weight)

QC for Samples:
1144174001

Results by **SW8260B**

Parameter	Results	LOQ/CL	DL	Units
Benzene	6.25U	12.5	3.90	ug/Kg
Ethylbenzene	12.5U	25.0	7.80	ug/Kg
o-Xylene	12.5U	25.0	7.80	ug/Kg
P & M -Xylene	25.0U	50.0	15.0	ug/Kg
Toluene	12.5U	25.0	7.80	ug/Kg
Surrogates				
1,2-Dichloroethane-D4	105	79-118		%
4-Bromofluorobenzene	99.8	67-138		%
Toluene-d8	98.3	85-115		%

Batch Information

Analytical Batch: VMS14422
Analytical Method: SW8260B
Instrument: Agilent 7890-75MS
Analyst: KCT
Analytical Date/Time: 9/2/2014 9:50:00AM

Prep Batch: VXX26382
Prep Method: SW5035A
Prep Date/Time: 9/2/2014 12:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1144174 [VXX26382]
Blank Spike Lab ID: 1231328
Date Analyzed: 09/02/2014 10:23

Matrix: Soil/Solid (dry weight)

QC for Samples: 1144174001

Results by **SW8260B**

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
Benzene	750	788	105	(75-125)
Ethylbenzene	750	745	99	(75-125)
o-Xylene	750	721	96	(75-125)
P & M -Xylene	1500	1460	97	(80-125)
Toluene	750	717	96	(70-125)
Surrogates				
1,2-Dichloroethane-D4	750		100	(79-118)
4-Bromofluorobenzene	750		94	(67-138)
Toluene-d8	750		100	(85-115)

Batch Information

Analytical Batch: **VMS14422**
Analytical Method: **SW8260B**
Instrument: **Agilent 7890-75MS**
Analyst: **KCT**

Prep Batch: **VXX26382**
Prep Method: **SW5035A**
Prep Date/Time: **09/02/2014 00:00**
Spike Init Wt./Vol.: 750 ug/Kg Extract Vol: 25 mL
Dup Init Wt./Vol.: Extract Vol:

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Matrix Spike Summary

Original Sample ID: 1231329
MS Sample ID: 1231330 MS
MSD Sample ID: 1231331 MSD

QC for Samples: 1144174001

Analysis Date: 09/02/2014 12:10
Analysis Date: 09/02/2014 11:06
Analysis Date: 09/02/2014 11:22
Matrix: Solid/Soil (Wet Weight)

Results by **SW8260B**

		Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Benzene	4.39U	527	540	103	527	567	108	75-125	4.70	(< 20)
Ethylbenzene	8.80U	527	534	101	527	578	110	75-125	8.00	(< 20)
o-Xylene	8.80U	527	526	100	527	561	107	75-125	6.60	(< 20)
P & M -Xylene	16.7J	1050	1090	102	1050	1150	107	80-125	4.90	(< 20)
Toluene	8.80U	527	505	96	527	558	106	70-125	10.00	(< 20)
Surrogates										
1,2-Dichloroethane-D4		527	533	101	527	536	102	79-118	0.49	
4-Bromofluorobenzene		1410	1090	77	1410	1130	80	67-138	3.80	
Toluene-d8		527	510	97	527	581	110	85-115	13.00	

Batch Information

Analytical Batch: VMS14422
Analytical Method: SW8260B
Instrument: Agilent 7890-75MS
Analyst: KCT
Analytical Date/Time: 9/2/2014 11:06:00AM

Prep Batch: VXX26382
Prep Method: Vol. Extraction SW8260 Field Extracted L
Prep Date/Time: 9/2/2014 12:00:00AM
Prep Initial Wt./Vol.: 71.14g
Prep Extract Vol: 25.00mL

Print Date: 09/11/2014 2:51:26PM

Method Blank

Blank ID: MB for HBN 1634763 [VXX/26383]
Blank Lab ID: 1231429

Matrix: Soil/Solid (dry weight)

QC for Samples:
1144174002, 1144174003, 1144174005, 1144174006

Results by **SW8260B**

Parameter	Results	LOQ/CL	DL	Units
Benzene	6.25U	12.5	3.90	ug/Kg
Ethylbenzene	12.5U	25.0	7.80	ug/Kg
o-Xylene	12.5U	25.0	7.80	ug/Kg
P & M -Xylene	25.0U	50.0	15.0	ug/Kg
Toluene	12.5U	25.0	7.80	ug/Kg
Surrogates				
1,2-Dichloroethane-D4	113	79-118		%
4-Bromofluorobenzene	114	67-138		%
Toluene-d8	117*	85-115		%

Batch Information

Analytical Batch: VMS14423
Analytical Method: SW8260B
Instrument: VQA 7890/5975 GC/MS
Analyst: SP
Analytical Date/Time: 9/3/2014 3:26:00PM

Prep Batch: VXX26383
Prep Method: SW5035A
Prep Date/Time: 9/3/2014 12:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1144174 [VXX26383]
Blank Spike Lab ID: 1231430
Date Analyzed: 09/03/2014 19:10

Matrix: Soil/Solid (dry weight)

QC for Samples: 1144174002, 1144174003, 1144174005, 1144174006

Results by **SW8260B**

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
Benzene	750	824	110	(75-125)
Ethylbenzene	750	826	110	(75-125)
o-Xylene	750	805	107	(75-125)
P & M -Xylene	1500	1610	107	(80-125)
Toluene	750	825	110	(70-125)
Surrogates				
1,2-Dichloroethane-D4	750		106	(79-118)
4-Bromofluorobenzene	750		112	(67-138)
Toluene-d8	750		114	(85-115)

Batch Information

Analytical Batch: **VMS14423**
Analytical Method: **SW8260B**
Instrument: **VQA 7890/5975 GC/MS**
Analyst: **SP**

Prep Batch: **VXX26383**
Prep Method: **SW5035A**
Prep Date/Time: **09/03/2014 00:00**
Spike Init Wt./Vol.: 750 ug/Kg Extract Vol: 25 mL
Dup Init Wt./Vol.: Extract Vol:

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Matrix Spike Summary

Original Sample ID: 1144174002
MS Sample ID: 1231431 MS
MSD Sample ID: 1231432 MSD

Analysis Date: 09/03/2014 21:55
Analysis Date: 09/03/2014 19:48
Analysis Date: 09/03/2014 20:04
Matrix: Soil/Solid (dry weight)

QC for Samples: 1144174002, 1144174003, 1144174005, 1144174006

Results by **SW8260B**

		Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Benzene	14.4U	1624	1752	108	1624	1709	105	75-125	2.40	(< 20)
Ethylbenzene	28.8U	1624	1912	118	1624	1859	115	75-125	2.80	(< 20)
o-Xylene	28.8U	1624	1848	114	1624	1806	111	75-125	2.60	(< 20)
P & M -Xylene	57.5U	3248	3803	117	3248	3611	111	80-125	5.20	(< 20)
Toluene	28.8U	1624	1934	119	1624	1859	115	70-125	3.70	(< 20)
Surrogates										
1,2-Dichloroethane-D4		1624	1816	112	1624	1806	111	79-118	0.69	
4-Bromofluorobenzene		4327	4915	113	4327	4904	113	67-138	0.10	
Toluene-d8		1624	2009	124 *	1624	1934	119 *	85-115	3.70	

Batch Information

Analytical Batch: VMS14423
Analytical Method: SW8260B
Instrument: VQA 7890/5975 GC/MS
Analyst: SP
Analytical Date/Time: 9/3/2014 7:48:00PM

Prep Batch: VXX26383
Prep Method: Vol. Extraction SW8260 Field Extracted L
Prep Date/Time: 9/3/2014 12:00:00AM
Prep Initial Wt./Vol.: 24.66g
Prep Extract Vol: 25.00mL

Print Date: 09/11/2014 2:51:30PM

Method Blank

Blank ID: MB for HBN 1634863 [VXX/26385]
Blank Lab ID: 1231476

Matrix: Soil/Solid (dry weight)

QC for Samples:
1144174003, 1144174004, 1144174005

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	1.25U	2.50	0.750	mg/Kg
Surrogates				
4-Bromofluorobenzene	102	50-150		%

Batch Information

Analytical Batch: VFC12085
Analytical Method: AK101
Instrument: Agilent 7890A PID/FID
Analyst: ST
Analytical Date/Time: 9/3/2014 6:14:00PM

Prep Batch: VXX26385
Prep Method: SW5035A
Prep Date/Time: 9/3/2014 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1144174 [VXX26385]
Blank Spike Lab ID: 1231477
Date Analyzed: 09/03/2014 18:33

Spike Duplicate ID: LCSD for HBN 1144174 [VXX26385]
Spike Duplicate Lab ID: 1231478
Matrix: Soil/Solid (dry weight)

QC for Samples: 1144174003, 1144174004, 1144174005

Results by **AK101**

	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Gasoline Range Organics	10.0	9.76	98	10.0	9.85	99	(60-120)	0.96	(< 20)
Surrogates									
4-Bromofluorobenzene	1.25		99	1.25		100	(50-150)	1.50	

Batch Information

Analytical Batch: **VFC12085**
Analytical Method: **AK101**
Instrument: **Agilent 7890A PID/FID**
Analyst: **ST**

Prep Batch: **VXX26385**
Prep Method: **SW5035A**
Prep Date/Time: **09/03/2014 08:00**
Spike Init Wt./Vol.: 10.0 mg/Kg Extract Vol: 25 mL
Dup Init Wt./Vol.: 10.0 mg/Kg Extract Vol: 25 mL

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Method Blank

Blank ID: MB for HBN 1635177 [VXX/26390]
Blank Lab ID: 1231601

Matrix: Soil/Solid (dry weight)

QC for Samples:
1144174004

Results by **SW8260B**

Parameter	Results	LOQ/CL	DL	Units
Benzene	6.25U	12.5	3.90	ug/Kg
Ethylbenzene	12.5U	25.0	7.80	ug/Kg
o-Xylene	12.5U	25.0	7.80	ug/Kg
P & M -Xylene	25.0U	50.0	15.0	ug/Kg
Toluene	12.5U	25.0	7.80	ug/Kg
Surrogates				
1,2-Dichloroethane-D4	101	79-118		%
4-Bromofluorobenzene	102	67-138		%
Toluene-d8	103	85-115		%

Batch Information

Analytical Batch: VMS14428
Analytical Method: SW8260B
Instrument: Agilent 7890-75MS
Analyst: SP
Analytical Date/Time: 9/4/2014 7:36:00AM

Prep Batch: VXX26390
Prep Method: SW5035A
Prep Date/Time: 9/4/2014 12:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1144174 [VXX26390]
Blank Spike Lab ID: 1231602
Date Analyzed: 09/04/2014 11:35

Matrix: Soil/Solid (dry weight)

QC for Samples: 1144174004

Results by **SW8260B**

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
Benzene	750	734	98	(75-125)
Ethylbenzene	750	748	100	(75-125)
o-Xylene	750	767	102	(75-125)
P & M -Xylene	1500	1510	101	(80-125)
Toluene	750	726	97	(70-125)
Surrogates				
1,2-Dichloroethane-D4	750		93	(79-118)
4-Bromofluorobenzene	750		95	(67-138)
Toluene-d8	750		97	(85-115)

Batch Information

Analytical Batch: **VMS14428**
Analytical Method: **SW8260B**
Instrument: **Agilent 7890-75MS**
Analyst: **SP**

Prep Batch: **VXX26390**
Prep Method: **SW5035A**
Prep Date/Time: **09/04/2014 00:00**
Spike Init Wt./Vol.: 750 ug/Kg Extract Vol: 25 mL
Dup Init Wt./Vol.: Extract Vol:

Print Date: 09/11/2014 2:51:35PM

Matrix Spike Summary

Original Sample ID: 1231605
MS Sample ID: 1231603 MS
MSD Sample ID: 1231604 MSD

QC for Samples: 1144174004

Analysis Date: 09/04/2014 13:03
Analysis Date: 09/04/2014 11:59
Analysis Date: 09/04/2014 12:15
Matrix: Soil/Solid (dry weight)

Results by **SW8260B**

		Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Benzene	29.4	1490	1560	103	1490	1550	102	75-125	0.77	(< 20)
Ethylbenzene	48.3J	1490	1590	103	1490	1560	101	75-125	2.40	(< 20)
o-Xylene	69.8	1490	1630	104	1490	1580	101	75-125	3.30	(< 20)
P & M -Xylene	94.2J	2990	3170	103	2990	3100	100	80-125	2.40	(< 20)
Toluene	55.8	1490	1540	100	1490	1500	97	70-125	2.50	(< 20)
Surrogates										
1,2-Dichloroethane-D4		1490	1460	98	1490	1440	96	79-118	1.30	
4-Bromofluorobenzene		3990	3660	92	3990	3670	92	67-138	0.35	
Toluene-d8		1490	1530	102	1490	1480	99	85-115	3.30	

Batch Information

Analytical Batch: VMS14428
Analytical Method: SW8260B
Instrument: Agilent 7890-75MS
Analyst: SP
Analytical Date/Time: 9/4/2014 11:59:00AM

Prep Batch: VXX26390
Prep Method: Vol. Extraction SW8260 Field Extracted L
Prep Date/Time: 9/4/2014 12:00:00AM
Prep Initial Wt./Vol.: 25.09g
Prep Extract Vol: 25.00mL

Print Date: 09/11/2014 2:51:35PM

Method Blank

Blank ID: MB for HBN 1635217 [VXX/26394]
Blank Lab ID: 1231814

Matrix: Soil/Solid (dry weight)

QC for Samples:
1144174006

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	1.25U	2.50	0.750	mg/Kg
Surrogates				
4-Bromofluorobenzene	113	50-150		%

Batch Information

Analytical Batch: VFC12089
Analytical Method: AK101
Instrument: Agilent 7890 PID/FID
Analyst: ST
Analytical Date/Time: 9/4/2014 12:08:00PM

Prep Batch: VXX26394
Prep Method: SW5035A
Prep Date/Time: 9/4/2014 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1144174 [VXX26394]
Blank Spike Lab ID: 1231817
Date Analyzed: 09/04/2014 13:05

Spike Duplicate ID: LCSD for HBN 1144174 [VXX26394]
Spike Duplicate Lab ID: 1231818
Matrix: Soil/Solid (dry weight)

QC for Samples: 1144174006

Results by **AK101**

	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Gasoline Range Organics	10.0	10.1	101	10.0	10.2	102	(60-120)	1.10	(< 20)
Surrogates									
4-Bromofluorobenzene	1.25		107	1.25		105	(50-150)	2.20	

Batch Information

Analytical Batch: **VFC12089**
Analytical Method: **AK101**
Instrument: **Agilent 7890 PID/FID**
Analyst: **ST**

Prep Batch: **VXX26394**
Prep Method: **SW5035A**
Prep Date/Time: **09/04/2014 08:00**
Spike Init Wt./Vol.: 10.0 mg/Kg Extract Vol: 25 mL
Dup Init Wt./Vol.: 10.0 mg/Kg Extract Vol: 25 mL

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Method Blank

Blank ID: MB for HBN 1630361 [XXX/31875]
Blank Lab ID: 1230790

Matrix: Soil/Solid (dry weight)

QC for Samples:
1144174001, 1144174002, 1144174003, 1144174004, 1144174005

Results by **8270D SIMS (PAH)**

Parameter	Results	LOQ/CL	DL	Units
1-Methylnaphthalene	2.50U	5.00	1.50	ug/Kg
2-Methylnaphthalene	2.50U	5.00	1.50	ug/Kg
Acenaphthene	2.50U	5.00	1.50	ug/Kg
Acenaphthylene	2.50U	5.00	1.50	ug/Kg
Anthracene	2.50U	5.00	1.50	ug/Kg
Benzo(a)Anthracene	2.50U	5.00	1.50	ug/Kg
Benzo[a]pyrene	2.50U	5.00	1.50	ug/Kg
Benzo[b]Fluoranthene	2.50U	5.00	1.50	ug/Kg
Benzo[g,h,i]perylene	2.50U	5.00	1.50	ug/Kg
Benzo[k]fluoranthene	2.50U	5.00	1.50	ug/Kg
Chrysene	2.50U	5.00	1.50	ug/Kg
Dibenzo[a,h]anthracene	2.50U	5.00	1.50	ug/Kg
Fluoranthene	2.50U	5.00	1.50	ug/Kg
Fluorene	2.50U	5.00	1.50	ug/Kg
Indeno[1,2,3-c,d] pyrene	2.50U	5.00	1.50	ug/Kg
Naphthalene	2.50U	5.00	1.50	ug/Kg
Phenanthrene	2.50U	5.00	1.50	ug/Kg
Pyrene	2.50U	5.00	1.50	ug/Kg
Surrogates				
2-Fluorobiphenyl	65.4	45-105		%
Terphenyl-d14	89.7	30-125		%

Batch Information

Analytical Batch: XMS8268
Analytical Method: 8270D SIMS (PAH)
Instrument: HP 6890/5973 MS SVQA
Analyst: RTS
Analytical Date/Time: 9/3/2014 2:50:00PM

Prep Batch: XXX31875
Prep Method: SW3550C
Prep Date/Time: 9/2/2014 8:54:44AM
Prep Initial Wt./Vol.: 22.5 g
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1144174 [XXX31875]
Blank Spike Lab ID: 1230791
Date Analyzed: 09/03/2014 15:04

Matrix: Soil/Solid (dry weight)

QC for Samples: 1144174001, 1144174002, 1144174003, 1144174004, 1144174005

Results by **8270D SIMS (PAH)**

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
1-Methylnaphthalene	22.2	12.5	56	(44-107)
2-Methylnaphthalene	22.2	11.8	53	(45-105)
Acenaphthene	22.2	13.4	60	(45-110)
Acenaphthylene	22.2	12.2	55	(45-105)
Anthracene	22.2	14.9	67	(55-105)
Benzo(a)Anthracene	22.2	18.5	83	(50-110)
Benzo[a]pyrene	22.2	13.8	62	(50-110)
Benzo[b]Fluoranthene	22.2	19.5	88	(45-115)
Benzo[g,h,i]perylene	22.2	17.8	80	(40-125)
Benzo[k]fluoranthene	22.2	19.5	88	(45-125)
Chrysene	22.2	19.7	88	(55-110)
Dibenzo[a,h]anthracene	22.2	18.5	83	(40-125)
Fluoranthene	22.2	19.3	87	(55-115)
Fluorene	22.2	15.3	69	(50-110)
Indeno[1,2,3-c,d] pyrene	22.2	18.0	81	(40-120)
Naphthalene	22.2	11.8	53	(40-105)
Phenanthrene	22.2	17.8	80	(50-110)
Pyrene	22.2	18.5	83	(45-125)
Surrogates				
2-Fluorobiphenyl	22.2		61	(45-105)
Terphenyl-d14	22.2		88	(30-125)

Batch Information

Analytical Batch: **XMS8268**
Analytical Method: **8270D SIMS (PAH)**
Instrument: **HP 6890/5973 MS SVQA**
Analyst: **RTS**

Prep Batch: **XXX31875**
Prep Method: **SW3550C**
Prep Date/Time: **09/02/2014 08:54**
Spike Init Wt./Vol.: 22.2 ug/Kg Extract Vol: 1 mL
Dup Init Wt./Vol.: Extract Vol:

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Matrix Spike Summary

Original Sample ID: 1144133001
MS Sample ID: 1230792 MS
MSD Sample ID: 1230793 MSD

Analysis Date: 09/03/2014 17:56
Analysis Date: 09/03/2014 18:10
Analysis Date: 09/03/2014 18:24
Matrix: Soil/Solid (dry weight)

QC for Samples: 1144174001, 1144174002, 1144174003, 1144174004, 1144174005

Results by **8270D SIMS (PAH)**

		Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)		CL	RPD (%)	RPD CL
1-Methylnaphthalene	3.29J	24.0	22.5	80	23.9	27.4	101		44-107	19.90	(< 30)
2-Methylnaphthalene	3.86J	24.0	21.6	74	23.9	27.2	98		45-105	23.00	(< 30)
Acenaphthene	2.69U	24.0	20.4	85	23.9	21.9	92		45-110	6.90	(< 30)
Acenaphthylene	2.69U	24.0	20.2	84	23.9	22.9	96		45-105	12.50	(< 30)
Anthracene	2.69U	24.0	21.4	89	23.9	21.6	90		55-105	0.79	(< 30)
Benzo(a)Anthracene	2.69U	24.0	23.5	98	23.9	24.2	101		50-110	2.70	(< 30)
Benzo[a]pyrene	2.69U	24.0	21.0	88	23.9	21.8	91		50-110	3.80	(< 30)
Benzo[b]Fluoranthene	2.69U	24.0	24.0	100	23.9	24.7	104		45-115	3.30	(< 30)
Benzo[g,h,i]perylene	2.69U	24.0	20.4	85	23.9	22.7	95		40-125	10.50	(< 30)
Benzo[k]fluoranthene	2.69U	24.0	21.5	90	23.9	22.1	93		45-125	3.20	(< 30)
Chrysene	2.69U	24.0	24.2	101	23.9	28.3	118	*	55-110	15.70	(< 30)
Dibenzo[a,h]anthracene	2.69U	24.0	20.4	85	23.9	22.2	93		40-125	8.30	(< 30)
Fluoranthene	2.69U	24.0	24.2	101	23.9	27.8	116	*	55-115	13.90	(< 30)
Fluorene	2.69U	24.0	21.9	91	23.9	21.9	92		50-110	0.44	(< 30)
Indeno[1,2,3-c,d] pyrene	2.69U	24.0	20.7	87	23.9	22.9	96		40-120	9.60	(< 30)
Naphthalene	1.76J	24.0	19.4	74	23.9	22.8	88		40-105	15.60	(< 30)
Phenanthrene	2.69U	24.0	22.2	93	23.9	26.3	111	*	50-110	17.10	(< 30)
Pyrene	2.69U	24.0	23.4	98	23.9	29.5	124		45-125	22.90	(< 30)
Surrogates											
2-Fluorobiphenyl		24.0	20.8	87	23.9	21.9	92		45-105	4.80	
Terphenyl-d14		24.0	24.7	103	23.9	25.3	106		30-125	2.20	

Batch Information

Analytical Batch: XMS8268
Analytical Method: 8270D SIMS (PAH)
Instrument: HP 6890/5973 MS SVQA
Analyst: RTS
Analytical Date/Time: 9/3/2014 6:10:00PM

Prep Batch: XXX31875
Prep Method: Sonication Extraction Soil 8270 PAH SIM
Prep Date/Time: 9/2/2014 8:54:44AM
Prep Initial Wt./Vol.: 22.51g
Prep Extract Vol: 1.00mL

Print Date: 09/11/2014 2:51:41PM

Method Blank

Blank ID: MB for HBN 1632362 [XXX/31880]
Blank Lab ID: 1230963

Matrix: Soil/Solid (dry weight)

QC for Samples:
1144174001, 1144174002, 1144174003, 1144174004, 1144174005

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	10.0U	20.0	6.20	mg/Kg
Surrogates				
5a Androstane	81.9	60-120		%

Batch Information

Analytical Batch: XFC11545
Analytical Method: AK102
Instrument: HP 6890 Series II FID SV D R
Analyst: AYC
Analytical Date/Time: 9/3/2014 4:16:00AM

Prep Batch: XXX31880
Prep Method: SW3550C
Prep Date/Time: 9/2/2014 12:30:44PM
Prep Initial Wt./Vol.: 30 g
Prep 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

Blank Spike Summary

Blank Spike ID: LCS for HBN 1144174 [XXX31880]
Blank Spike Lab ID: 1230964
Date Analyzed: 09/03/2014 04:26

Spike Duplicate ID: LCSD for HBN 1144174 [XXX31880]
Spike Duplicate Lab ID: 1230965
Matrix: Soil/Solid (dry weight)

QC for Samples: 1144174001, 1144174002, 1144174003, 1144174004, 1144174005

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	144	87	167	146	88	(75-125)	1.30	(< 20)
Surrogates									
5a Androstane	3.33		97	3.33		96	(60-120)	0.71	

Batch Information

Analytical Batch: **XFC11545**
Analytical Method: **AK102**
Instrument: **HP 6890 Series II FID SV D R**
Analyst: **AYC**

Prep Batch: **XXX31880**
Prep Method: **SW3550C**
Prep Date/Time: **09/02/2014 12:30**
Spike Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL
Dup Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL

Method Blank

Blank ID: MB for HBN 1635215 [XXX/31903]
Blank Lab ID: 1231809

Matrix: Soil/Solid (dry weight)

QC for Samples:
1144174001, 1144174002, 1144174003, 1144174004, 1144174005

Results by **SW8082A**

Parameter	Results	LOQ/CL	DL	Units
Aroclor-1016	25.0U	50.0	15.0	ug/Kg
Aroclor-1221	25.0U	50.0	15.0	ug/Kg
Aroclor-1232	25.0U	50.0	15.0	ug/Kg
Aroclor-1242	25.0U	50.0	15.0	ug/Kg
Aroclor-1248	25.0U	50.0	15.0	ug/Kg
Aroclor-1254	25.0U	50.0	15.0	ug/Kg
Aroclor-1260	25.0U	50.0	15.0	ug/Kg
Surrogates				
Decachlorobiphenyl	113	60-125		%

Batch Information

Analytical Batch: XGC8874
Analytical Method: SW8082A
Instrument: HP 6890 Series II ECD SV H F
Analyst: SCL
Analytical Date/Time: 9/6/2014 1:28:00AM

Prep Batch: XXX31903
Prep Method: SW3550C
Prep Date/Time: 9/5/2014 10:10:44AM
Prep Initial Wt./Vol.: 22.5 g
Prep Extract Vol: 5 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 1144174 [XXX31903]
Blank Spike Lab ID: 1231810
Date Analyzed: 09/06/2014 01:40

Matrix: Soil/Solid (dry weight)

QC for Samples: 1144174001, 1144174002, 1144174003, 1144174004, 1144174005

Results by **SW8082A**

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
Aroclor-1016	222	204	92	(40-140)
Aroclor-1260	222	207	93	(60-130)
Surrogates				
Decachlorobiphenyl	222		110	(60-125)

Batch Information

Analytical Batch: **XGC8874**
Analytical Method: **SW8082A**
Instrument: **HP 6890 Series II ECD SV H F**
Analyst: **SCL**

Prep Batch: **XXX31903**
Prep Method: **SW3550C**
Prep Date/Time: **09/05/2014 10:10**
Spike Init Wt./Vol.: 222 ug/Kg Extract Vol: 5 mL
Dup Init Wt./Vol.: Extract Vol:

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SGS North America Inc.
CHAIN OF CUSTODY RECORD

1144174

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

Page 1 of 1

Section 1

CLIENT: Nome Utilities cc TCTKA LLC

CONTACT: Amie Sommer PHONE NO: 907-242-3524

PROJECT NAME: Nome Harbor Improvements PROJECT/ PWSID/ PERMIT#:

REPORTS TO: Amie Sommer E-MAIL: Amie@tctka LLC.com

INVOICE TO: Amie Sommer QUOTE #:

P.O. #: Nome Utilities

Section 3

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	Preservative: MeOH	None	None	None						REMARKS/ LOC ID
							GRO/BTEX AK101/8260B	DRO AK102	PAH 8270D-SIM	PCB 8082A						
1 AB	ST01	08/27/14	1410	SO	2	G										
2 AB	EX01	08/27/14	1340	SO	2	G										
3 AB	EX04	08/27/14	1344	SO	2	G										
4 AB	ST06	08/27/14	1420	SO	2	G										
5 AB	ST10	08/27/14	1500	SO	2	G										
6 AB	TRIP BLANK				3											

Section 5

Relinquished By: (1) Chris Locke	Date 8-28-14	Time 1510hrs	Received By:
Relinquished By: (2)	Date	Time	Received By:
Relinquished By: (3)	Date	Time	Received By:
Relinquished By: (4)	Date 8/29/14	Time 13:11	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: 1.4 #23 1F, 1B

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

1144174

SAMPLE RECEIPT FORM

Review Criteria:	Condition:	Comments/Action Taken:
Were **custody seals** intact? Note # & location, if applicable. COC accompanied samples?	Yes No N/A Yes No	☐ *Exemption permitted if sampler hand carries/delivers.* 1F, 1B
Temperature blank compliant* (i.e., 0-6°C after CF)? *If >6°C, were samples collected <8 hours ago?* *If <0°C, were all sample containers ice free?* Cooler ID: 1 @ 1.4 w/ Therm.ID: 238 Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ If samples are 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."	Yes No Yes No N/A Yes No N/A	☐ *Exemption permitted if chilled & collected <8 hrs ago.* *Note: Identify containers received at non-compliant temperature. Use form FS-0029 if more space is needed.*
Delivery method (specify all that apply): Client (hand carried) USPS Lynden AK Air Alert Courier UPS FedEx RAVN C&D Delivery Carlile Pen Air Warp Speed Other: _____ → *For WO# with airbills, was the WO# & airbill info recorded in the Front Counter eLog?*	Tracking/AB # or see attached or N/A Yes No N/A	
→ For samples received with payment, note amount ($) and whether cash / check / CC (**circle one**) was received. → For samples **received in FBKS**, ANCH staff will verify all criteria are reviewed. SRF initiated in FBKS by:		
Were samples received within hold time? Do samples **match COC*** (i.e., sample IDs, dates/times collected)? Were analyses requested unambiguous?	Yes No N/A Yes No N/A Yes No N/A	*Note: Refer to form F-083 "Sample Guide" for hold times.* *Note: If times differ <1hr, record details and login per COC.* Analyses not checked on COC.
Were samples in **good condition** (no leaks/cracks/breakage)? Packing material used (specify all that apply): Bubble Wrap Separate plastic bags Vermiculite Other:	Yes No	
Were **proper containers** (type/mass/volume/preservative*) used? Were **Trip Blanks** (i.e., VOAs, LL-Hg) in cooler with samples? Were all VOA vials **free of headspace** (i.e., bubbles ≤6 mm)? Were all soil VOAs **field extracted** with MeOH+BFB?	Yes No N/A Yes No N/A Yes No N/A Yes No N/A	☐ *Exemption permitted for metals (e.g., 200.8/6020A).* 3 BFB containers received for TB
For preserved waters (other than VOA vials, LL-Mercury or microbiological analyses), was **pH verified and compliant**? If pH was adjusted, were bottles flagged (i.e., stickers)?	Yes No N/A Yes No N/A	
For **special handling** (e.g., "MI" soils, foreign soils, lab filter for dissolved…, lab extract for volatiles, Ref Lab, limited volume), were bottles/paperwork flagged (e.g., sticker)?	Yes No N/A	
For **RUSH/SHORT Hold Time**, were COC/Bottles flagged accordingly? Was Rush/Short HT email sent, if applicable?	Yes No N/A	
For **SITE-SPECIFIC QC, e.g. BMS/BMSD/BDUP**, were containers / paperwork flagged accordingly?	Yes No N/A	
For any question answered "No," has the PM been notified and the problem resolved (or paperwork put in their bin)?	Yes No N/A	SRF Completed by: RAM PM notified: VLP N/A
Was **PEER REVIEW** of ***sample numbering/labeling completed?***	Yes No N/A	Peer Reviewed by: N/A

Additional notes (if applicable):

All analyses on all samples per C. Locke 8/29/14 VLP 4:59pm

Sample mass in GRO/BTEX bottles appears to be light (<50gm) VLP.

Note to Client: *Any "no" circled above indicates non-compliance with standard procedures and may impact data quality.*

Sample Containers and Preservatives

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition
1144174001-A	No Preservative Required	OK			
1144174001-B	Methanol field pres. 4 C	OK			
1144174002-A	No Preservative Required	OK			
1144174002-B	Methanol field pres. 4 C	OK			
1144174003-A	No Preservative Required	OK			
1144174003-B	Methanol field pres. 4 C	OK			
1144174004-A	No Preservative Required	OK			
1144174004-B	Methanol field pres. 4 C	OK			
1144174005-A	No Preservative Required	OK			
1144174005-B	Methanol field pres. 4 C	OK			
1144174006-A	Methanol field pres. 4 C	OK			
1144174006-B	Methanol field pres. 4 C	OK			
1144174006-C	Methanol field pres. 4 C	OK			

MeOH vials

Container Condition Glossary

OK - The container was received at an acceptable pH for the analysis requested.

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.

BU - The container was received with headspace greater than 6mm.

027 OME 8806 4535 C 8/29 027-8806 4535

Shipper's Name and Address Tutka LLC 5825 E Mayflower Ct Ste B Wasilla, AK 99654 USA Tel: 9073572238	Shipper's Account Number 27442326023 Customer's ID Number 9695
Not Negotiable **Air Waybill** Issued By Alaska Air Cargo ALASKA AIRLINES & HORIZON AIR P.O. BOX 68900 SEATTLE, WA 98168 800-225-2752 ALASKACARGO.COM	
Consignee's Name and Address Tutka LLC 5825 E Mayflower Ct Ste B Wasilla, AK 99654 USA SGS Tel: 9073572238	Consignee's Account Number 27442326023
Also notify 8-29 adw Tel:	
Issuing Carrier's Agent and City	Accounting Information 9695 Tutka LLC 5825 E Mayflower Ct Ste B Wasilla, AK 99654 USA 1144174 GoldStreak
Agent's IATA Code / Account No.	
Airport of Departure (Addr. of First Carrier) and Requested Routing Nome	

To	By First Carrier	To / By	To / By	Currency	WT/VAL	Other	Declared Value For Carriage	Declared Value For Customs
ANC	Alaska Airlines			USD PX	X	X	NVD	NCV

Airport of Destination	Flight/Date	Flight/Date	Amount of Insurance
Anchorage	AS 153/28		XXX

Handling Information
NOA AMY SUMMER 907-243-3524

SCI

No of Pieces	Gross Weight	kg lb	Commodity Item No.	Chargeable Weight	Rate / Charge	Total	Nature and Quantity of Goods (Incl. Dimensions or Volume)
1	21.0	L		21.0		AS AGREED	SAMPLES Dims: 18 x 13 x17 x 1 GSX
1	21.0					AS AGREED	Volume: 2.302

Prepaid	Weight Charge	Collect
AS AGREED		
Valuation Charge		
Tax		
Total Other Charges Due Agent		
Total Other Charges Due Carrier		
Total Prepaid	Total Collect	
AS AGREED		

Other Charges
MYC 3.78
SCC 2.00
XBC 0.00

Shipper certifies that the particulars on the face hereof are correct and that **insofar as any part of the consignment contains dangerous goods, such part is properly described by name and is in proper condition for carriage by air according to the applicable Dangerous Goods Regulations. I consent to the inspection of this cargo.**

For: Tutka LLC

Signature of Shipper or his Agent

☐ THIS SHIPMENT DOES NOT CONTAIN DANGEROUS GOODS

CIFN ☐ THIS SHIPMENT DOES CONTAIN DANGEROUS GOODS

28 Aug 2014 15:05 — Executed On (Date)
Nome — at (Place)
Alaska Airlines — Signature of Issuing Carrier or its Agent

027-8806 4535

Alert Expeditors Inc.
DBA/Petroleum Courier Service
Citywide Delivery • 440-3351
8421 Flamingo Drive • Anchorage, Alaska 99502

#348747

Date 8 29 14

From Tot LLC

To SGS

Collect ☐	Prepay ☐ Account ☐	Advance Charges ☐
Job #	PO#	

1 Cooler

GSX

8806 4535

1144174

Shipped Signature

Total Charge

Received By: 8/29/14 13:11

Laboratory Report of Analysis

To: Tutka, LLC
620 E Whitney Rd, Suite B
Anchorage, AK 99501
(907)272-8010

Report Number: **1144270**

Client Project: **Nome Harbor Improvements**

Dear Amie Sommer,

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 five 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.

SGS North America Inc.
Environmental Services – Alaska Division
Project Manager

Victoria Pennick
2014.09.15
11:29:36 -08'00'

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

Print Date: 09/15/2014 11:18:11AM

Case Narrative

SGS Client: **Tutka, LLC**
SGS Project: **1144270**
Project Name/Site: **Nome Harbor Improvements**
Project Contact: **Amie Sommer**

Refer to sample receipt form for information on sample condition.

EX06 (1144270001) PS

AK102 - The pattern is consistent with a weathered middle distillate.
8270D SIM - LOQs are elevated due to sample dilution. Sample analyzed at a dilution due to matrix interference with internal standards.

ST09 (1144270002) PS

AK102 - The pattern is consistent with a weathered middle distillate.
8270D SIM - LOQs are elevated due to sample dilution. Sample analyzed at a dilution due to matrix interference with internal standards.

ST06(1144174004MS) (1231603) MS

8260B - MS recovery for hexachlorobutadiene does not meet QC criteria (biased high). This analyte was not detected above the LOQ in the original sample.

1144270001MS (1232040) MS

8270D SIM - MS recovery for multiple analytes is outside of QC criteria. Refer to LCS for accuracy.
8270D SIM - LOQs are elevated due to sample dilution. Sample analyzed at a dilution due to matrix interference with internal standards.

ST06(1144174004MSD) (1231604) MSD

8260B - MSD recovery for hexachlorobutadiene does not meet QC criteria (biased high). This analyte was not detected above the LOQ in the original sample.

1144270001MSD (1232041) MSD

8270D SIM - MSD recovery for multiple analytes is outside of QC criteria. Refer to LCS for accuracy.
8270D SIM - MS/MSD RPD for benzo(a)pyrene does not meet QC criteria.
8270D SIM - LOQs are elevated due to sample dilution. Sample analyzed at a dilution due to matrix interference with internal standards.

Note: Sample -2 (ST09) results contains J flags. Low sample volume and elevated moisture content caused the Benzene LOQ to be above ADEC cleanup criteria. Results for this sample only are evaluated down to the LOD (1/2 the LOQ).

*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

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. If you have any questions regarding this report, or if we can be of any other assistance, please contact your SGS Project Manager at 907-562-2343. All work is provided under SGS general terms and conditions (<http://www.sgs.com/terms_and_conditions.htm>), unless other written agreements have been accepted by both parties.

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) & UST-005 (CS) for ADEC and 2944.01 for DOD ELAP/ISO17025 (RCRA methods: 1020A, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035B, 6020, 7470A, 7471B, 8021B, 8082A, 8260B, 8270D, 8270D-SIM, 9040B, 9045C, 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	Continuing Calibration Verification
CL	Control Limit
D	The analyte concentration is the result of a dilution.
DF	Dilution Factor
DL	Detection Limit (i.e., maximum method detection limit)
E	The analyte result is above the calibrated range.
F	Indicates value that is greater than or equal to the DL
GT	Greater Than
IB	Instrument Blank
ICV	Initial Calibration Verification
J	The quantitation is an estimation.
JL	The analyte was positively identified, but the quantitation is a low estimation.
LCS(D)	Laboratory Control Spike (Duplicate)
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
M	A matrix effect was present.
MB	Method Blank
MS(D)	Matrix Spike (Duplicate)
ND	Indicates the analyte is not detected.
Q	QC parameter out of acceptance range.
R	Rejected
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.

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Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
EX06	1144270001	08/29/2014	09/04/2014	Soil/Solid (dry weight)
ST09	1144270002	09/02/2014	09/04/2014	Soil/Solid (dry weight)
Trip Blank	1144270003	08/29/2014	09/04/2014	Soil/Solid (dry weight)

Method	Method Description
8270D SIMS (PAH)	8270 PAH SIM Semi-Volatiles GC/MS
AK102	Diesel Range Organics (S)
AK101	Gasoline Range Organics (S)
SM21 2540G	Percent Solids SM2540G
SW8082A	SW8082 PCB's
SW8260B	Volatile Organic Compounds (S) FIELD EXT

SGS North America Inc.
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t 907.562.2343 f 907.561.5301 www.us.sgs.com

Detectable Results Summary

Client Sample ID: **EX06**
Lab Sample ID: 1144270001

	Parameter	Result	Units
Polynuclear Aromatics GC/MS	2-Methylnaphthalene	28.7	ug/Kg
	Anthracene	28.7	ug/Kg
	Benzo(a)Anthracene	31.0	ug/Kg
	Chrysene	61.3	ug/Kg
	Fluoranthene	57.3	ug/Kg
	Phenanthrene	46.2	ug/Kg
	Pyrene	177	ug/Kg
Semivolatile Organic Fuels	Diesel Range Organics	442	mg/Kg
Volatile GC/MS	Benzene	55.1	ug/Kg
	Ethylbenzene	38.5	ug/Kg

Client Sample ID: **ST09**
Lab Sample ID: 1144270002

	Parameter	Result	Units
Polynuclear Aromatics GC/MS	2-Methylnaphthalene	13.7J	ug/Kg
	Acenaphthylene	13.0J	ug/Kg
	Benzo(a)Anthracene	9.07J	ug/Kg
	Benzo[a]pyrene	17.1J	ug/Kg
	Benzo[g,h,i]perylene	18.7J	ug/Kg
	Chrysene	13.6J	ug/Kg
	Fluoranthene	18.2J	ug/Kg
	Indeno[1,2,3-c,d] pyrene	12.8J	ug/Kg
	Phenanthrene	15.2J	ug/Kg
	Pyrene	22.0J	ug/Kg
Semivolatile Organic Fuels	Diesel Range Organics	102	mg/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 **EX06**

Client Sample ID: **EX06**
Client Project ID: **Nome Harbor Improvements**
Lab Sample ID: 1144270001
Lab Project ID: 1144270

Collection Date: 08/29/14 16:50
Received Date: 09/04/14 08:05
Matrix: Soil/Solid (dry weight)
Solids (%): 87.2
Location:

Results by **Polychlorinated Biphenyls**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Aroclor-1016	56.9	U	56.9	17.1	ug/Kg	1		09/06/14 03:42
Aroclor-1221	56.9	U	56.9	17.1	ug/Kg	1		09/06/14 03:42
Aroclor-1232	56.9	U	56.9	17.1	ug/Kg	1		09/06/14 03:42
Aroclor-1242	56.9	U	56.9	17.1	ug/Kg	1		09/06/14 03:42
Aroclor-1248	56.9	U	56.9	17.1	ug/Kg	1		09/06/14 03:42
Aroclor-1254	56.9	U	56.9	17.1	ug/Kg	1		09/06/14 03:42
Aroclor-1260	56.9	U	56.9	17.1	ug/Kg	1		09/06/14 03:42
Surrogates								
Decachlorobiphenyl	95		60-125		%	1		09/06/14 03:42

Batch Information

Analytical Batch: XGC8874
Analytical Method: SW8082A
Analyst: SCL
Analytical Date/Time: 09/06/14 03:42
Container ID: 1144270001-A

Prep Batch: XXX31903
Prep Method: SW3550C
Prep Date/Time: 09/05/14 10:10
Prep Initial Wt./Vol.: 22.681 g
Prep Extract Vol: 5 mL

Print Date: 09/15/2014 11:18:16AM

Results of **EX06**

Client Sample ID: **EX06**
Client Project ID: **Nome Harbor Improvements**
Lab Sample ID: 1144270001
Lab Project ID: 1144270

Collection Date: 08/29/14 16:50
Received Date: 09/04/14 08:05
Matrix: Soil/Solid (dry weight)
Solids (%): 87.2
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	28.6	U	28.6	8.59	ug/Kg	5		09/11/14 21:22
2-Methylnaphthalene	28.7		28.6	8.59	ug/Kg	5		09/11/14 21:22
Acenaphthene	28.6	U	28.6	8.59	ug/Kg	5		09/11/14 21:22
Acenaphthylene	28.6	U	28.6	8.59	ug/Kg	5		09/11/14 21:22
Anthracene	28.7		28.6	8.59	ug/Kg	5		09/11/14 21:22
Benzo(a)Anthracene	31.0		28.6	8.59	ug/Kg	5		09/11/14 21:22
Benzo[a]pyrene	28.6	U	28.6	8.59	ug/Kg	5		09/11/14 21:22
Benzo[b]Fluoranthene	28.6	U	28.6	8.59	ug/Kg	5		09/11/14 21:22
Benzo[g,h,i]perylene	28.6	U	28.6	8.59	ug/Kg	5		09/11/14 21:22
Benzo[k]fluoranthene	28.6	U	28.6	8.59	ug/Kg	5		09/11/14 21:22
Chrysene	61.3		28.6	8.59	ug/Kg	5		09/11/14 21:22
Dibenzo[a,h]anthracene	28.6	U	28.6	8.59	ug/Kg	5		09/11/14 21:22
Fluoranthene	57.3		28.6	8.59	ug/Kg	5		09/11/14 21:22
Fluorene	28.6	U	28.6	8.59	ug/Kg	5		09/11/14 21:22
Indeno[1,2,3-c,d] pyrene	28.6	U	28.6	8.59	ug/Kg	5		09/11/14 21:22
Naphthalene	28.6	U	28.6	8.59	ug/Kg	5		09/11/14 21:22
Phenanthrene	46.2		28.6	8.59	ug/Kg	5		09/11/14 21:22
Pyrene	177		28.6	8.59	ug/Kg	5		09/11/14 21:22
Surrogates								
2-Fluorobiphenyl	93.8		45-105		%	5		09/11/14 21:22
Terphenyl-d14	107		30-125		%	5		09/11/14 21:22

Batch Information

Analytical Batch: XMS8280
Analytical Method: 8270D SIMS (PAH)
Analyst: RTS
Analytical Date/Time: 09/11/14 21:22
Container ID: 1144270001-A

Prep Batch: XXX31917
Prep Method: SW3550C
Prep Date/Time: 09/05/14 20:29
Prep Initial Wt./Vol.: 22.523 g
Prep Extract Vol: 1 mL

Print Date: 09/15/2014 11:18:16AM

Results of **EX06**

Client Sample ID: **EX06**
Client Project ID: **Nome Harbor Improvements**
Lab Sample ID: 1144270001
Lab Project ID: 1144270

Collection Date: 08/29/14 16:50
Received Date: 09/04/14 08:05
Matrix: Soil/Solid (dry weight)
Solids (%): 87.2
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	442		22.9	7.10	mg/Kg	1		09/08/14 14:34
Surrogates								
5a Androstane	113		50-150		%	1		09/08/14 14:34

Batch Information

Analytical Batch: XFC11553
Analytical Method: AK102
Analyst: AYC
Analytical Date/Time: 09/08/14 14:34
Container ID: 1144270001-A

Prep Batch: XXX31900
Prep Method: SW3550C
Prep Date/Time: 09/04/14 17:18
Prep Initial Wt./Vol.: 30.021 g
Prep Extract Vol: 1 mL

Print Date: 09/15/2014 11:18:16AM

Results of **EX06**

Client Sample ID: **EX06**
Client Project ID: **Nome Harbor Improvements**
Lab Sample ID: 1144270001
Lab Project ID: 1144270

Collection Date: 08/29/14 16:50
Received Date: 09/04/14 08:05
Matrix: Soil/Solid (dry weight)
Solids (%): 87.2
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	3.85	U	3.85	1.16	mg/Kg	1		09/04/14 20:37
Surrogates								
4-Bromofluorobenzene	98.2		50-150		%	1		09/04/14 20:37

Batch Information

Analytical Batch: VFC12088
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/04/14 20:37
Container ID: 1144270001-B

Prep Batch: VXX26393
Prep Method: SW5035A
Prep Date/Time: 08/29/14 16:50
Prep Initial Wt./Vol.: 45.974 g
Prep Extract Vol: 30.8768 mL

Print Date: 09/15/2014 11:18:16AM

Results of **EX06**

Client Sample ID: **EX06**
Client Project ID: **Nome Harbor Improvements**
Lab Sample ID: 1144270001
Lab Project ID: 1144270

Collection Date: 08/29/14 16:50
Received Date: 09/04/14 08:05
Matrix: Soil/Solid (dry weight)
Solids (%): 87.2
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	55.1		19.3	6.01	ug/Kg	1		09/04/14 15:12
Ethylbenzene	38.5		38.5	12.0	ug/Kg	1		09/04/14 15:12
o-Xylene	38.5	U	38.5	12.0	ug/Kg	1		09/04/14 15:12
P & M -Xylene	77.0	U	77.0	23.1	ug/Kg	1		09/04/14 15:12
Toluene	38.5	U	38.5	12.0	ug/Kg	1		09/04/14 15:12
Surrogates								
1,2-Dichloroethane-D4	100		79-118		%	1		09/04/14 15:12
4-Bromofluorobenzene	101		67-138		%	1		09/04/14 15:12
Toluene-d8	103		85-115		%	1		09/04/14 15:12

Batch Information

Analytical Batch: VMS14428
Analytical Method: SW8260B
Analyst: SP
Analytical Date/Time: 09/04/14 15:12
Container ID: 1144270001-B

Prep Batch: VXX26390
Prep Method: SW5035A
Prep Date/Time: 08/29/14 16:50
Prep Initial Wt./Vol.: 45.974 g
Prep Extract Vol: 30.8768 mL

Print Date: 09/15/2014 11:18:16AM

Results of **ST09**

Client Sample ID: **ST09**
Client Project ID: **Nome Harbor Improvements**
Lab Sample ID: 1144270002
Lab Project ID: 1144270

Collection Date: 09/02/14 10:35
Received Date: 09/04/14 08:05
Matrix: Soil/Solid (dry weight)
Solids (%): 89.1
Location:

Results by **Polychlorinated Biphenyls**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Aroclor-1016	27.4	U	54.7	16.4	ug/Kg	1		09/06/14 03:54
Aroclor-1221	27.4	U	54.7	16.4	ug/Kg	1		09/06/14 03:54
Aroclor-1232	27.4	U	54.7	16.4	ug/Kg	1		09/06/14 03:54
Aroclor-1242	27.4	U	54.7	16.4	ug/Kg	1		09/06/14 03:54
Aroclor-1248	27.4	U	54.7	16.4	ug/Kg	1		09/06/14 03:54
Aroclor-1254	27.4	U	54.7	16.4	ug/Kg	1		09/06/14 03:54
Aroclor-1260	27.4	U	54.7	16.4	ug/Kg	1		09/06/14 03:54
Surrogates								
Decachlorobiphenyl	94		60-125		%	1		09/06/14 03:54

Batch Information

Analytical Batch: XGC8874
Analytical Method: SW8082A
Analyst: SCL
Analytical Date/Time: 09/06/14 03:54
Container ID: 1144270002-A

Prep Batch: XXX31903
Prep Method: SW3550C
Prep Date/Time: 09/05/14 10:10
Prep Initial Wt./Vol.: 23.075 g
Prep Extract Vol: 5 mL

Print Date: 09/15/2014 11:18:16AM

Results of **ST09**

Client Sample ID: **ST09**
Client Project ID: **Nome Harbor Improvements**
Lab Sample ID: 1144270002
Lab Project ID: 1144270

Collection Date: 09/02/14 10:35
Received Date: 09/04/14 08:05
Matrix: Soil/Solid (dry weight)
Solids (%): 89.1
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	14.0	U	28.0	8.39	ug/Kg	5		09/11/14 22:12
2-Methylnaphthalene	13.7	J	28.0	8.39	ug/Kg	5		09/11/14 22:12
Acenaphthene	14.0	U	28.0	8.39	ug/Kg	5		09/11/14 22:12
Acenaphthylene	13.0	J	28.0	8.39	ug/Kg	5		09/11/14 22:12
Anthracene	14.0	U	28.0	8.39	ug/Kg	5		09/11/14 22:12
Benzo(a)Anthracene	9.07	J	28.0	8.39	ug/Kg	5		09/11/14 22:12
Benzo[a]pyrene	17.1	J	28.0	8.39	ug/Kg	5		09/11/14 22:12
Benzo[b]Fluoranthene	14.0	U	28.0	8.39	ug/Kg	5		09/11/14 22:12
Benzo[g,h,i]perylene	18.7	J	28.0	8.39	ug/Kg	5		09/11/14 22:12
Benzo[k]fluoranthene	14.0	U	28.0	8.39	ug/Kg	5		09/11/14 22:12
Chrysene	13.6	J	28.0	8.39	ug/Kg	5		09/11/14 22:12
Dibenzo[a,h]anthracene	14.0	U	28.0	8.39	ug/Kg	5		09/11/14 22:12
Fluoranthene	18.2	J	28.0	8.39	ug/Kg	5		09/11/14 22:12
Fluorene	14.0	U	28.0	8.39	ug/Kg	5		09/11/14 22:12
Indeno[1,2,3-c,d] pyrene	12.8	J	28.0	8.39	ug/Kg	5		09/11/14 22:12
Naphthalene	14.0	U	28.0	8.39	ug/Kg	5		09/11/14 22:12
Phenanthrene	15.2	J	28.0	8.39	ug/Kg	5		09/11/14 22:12
Pyrene	22.0	J	28.0	8.39	ug/Kg	5		09/11/14 22:12
Surrogates								
2-Fluorobiphenyl	75.4		45-105		%	5		09/11/14 22:12
Terphenyl-d14	97.8		30-125		%	5		09/11/14 22:12

Batch Information

Analytical Batch: XMS8280
Analytical Method: 8270D SIMS (PAH)
Analyst: RTS
Analytical Date/Time: 09/11/14 22:12
Container ID: 1144270002-A

Prep Batch: XXX31917
Prep Method: SW3550C
Prep Date/Time: 09/05/14 20:29
Prep Initial Wt./Vol.: 22.573 g
Prep Extract Vol: 1 mL

Print Date: 09/15/2014 11:18:16AM

Results of **ST09**

Client Sample ID: **ST09**
Client Project ID: **Nome Harbor Improvements**
Lab Sample ID: 1144270002
Lab Project ID: 1144270

Collection Date: 09/02/14 10:35
Received Date: 09/04/14 08:05
Matrix: Soil/Solid (dry weight)
Solids (%): 89.1
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	102		22.3	6.90	mg/Kg	1		09/08/14 14:44
Surrogates								
5a Androstane	106		50-150		%	1		09/08/14 14:44

Batch Information

Analytical Batch: XFC11553
Analytical Method: AK102
Analyst: AYC
Analytical Date/Time: 09/08/14 14:44
Container ID: 1144270002-A

Prep Batch: XXX31900
Prep Method: SW3550C
Prep Date/Time: 09/04/14 17:18
Prep Initial Wt./Vol.: 30.252 g
Prep Extract Vol: 1 mL

Print Date: 09/15/2014 11:18:16AM

Results of **ST09**

Client Sample ID: **ST09**
Client Project ID: **Nome Harbor Improvements**
Lab Sample ID: 1144270002
Lab Project ID: 1144270

Collection Date: 09/02/14 10:35
Received Date: 09/04/14 08:05
Matrix: Soil/Solid (dry weight)
Solids (%): 89.1
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	2.87	U	5.74	1.72	mg/Kg	1		09/04/14 20:56
Surrogates								
4-Bromofluorobenzene	109		50-150		%	1		09/04/14 20:56

Batch Information

Analytical Batch: VFC12088
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/04/14 20:56
Container ID: 1144270002-B

Prep Batch: VXX26393
Prep Method: SW5035A
Prep Date/Time: 09/02/14 10:35
Prep Initial Wt./Vol.: 27.342 g
Prep Extract Vol: 27.9835 mL

Print Date: 09/15/2014 11:18:16AM

Results of **ST09**

Client Sample ID: **ST09**
Client Project ID: **Nome Harbor Improvements**
Lab Sample ID: 1144270002
Lab Project ID: 1144270

Collection Date: 09/02/14 10:35
Received Date: 09/04/14 08:05
Matrix: Soil/Solid (dry weight)
Solids (%): 89.1
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	14.4	U	28.7	8.96	ug/Kg	1		09/04/14 15:28
Ethylbenzene	28.7	U	57.4	17.9	ug/Kg	1		09/04/14 15:28
o-Xylene	28.7	U	57.4	17.9	ug/Kg	1		09/04/14 15:28
P & M -Xylene	57.5	U	115	34.5	ug/Kg	1		09/04/14 15:28
Toluene	28.7	U	57.4	17.9	ug/Kg	1		09/04/14 15:28
Surrogates								
1,2-Dichloroethane-D4	99.4		79-118		%	1		09/04/14 15:28
4-Bromofluorobenzene	103		67-138		%	1		09/04/14 15:28
Toluene-d8	98.9		85-115		%	1		09/04/14 15:28

Batch Information

Analytical Batch: VMS14428
Analytical Method: SW8260B
Analyst: SP
Analytical Date/Time: 09/04/14 15:28
Container ID: 1144270002-B

Prep Batch: VXX26390
Prep Method: SW5035A
Prep Date/Time: 09/02/14 10:35
Prep Initial Wt./Vol.: 27.342 g
Prep Extract Vol: 27.9835 mL

Print Date: 09/15/2014 11:18:16AM

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **Nome Harbor Improvements**
Lab Sample ID: 1144270003
Lab Project ID: 1144270

Collection Date: 08/29/14 16:50
Received Date: 09/04/14 08:05
Matrix: Soil/Solid (dry weight)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	2.52	U	2.52	0.756	mg/Kg	1		09/04/14 21:34
Surrogates								
4-Bromofluorobenzene	96.4		50-150		%	1		09/04/14 21:34

Batch Information

Analytical Batch: VFC12088
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/04/14 21:34
Container ID: 1144270003-A

Prep Batch: VXX26393
Prep Method: SW5035A
Prep Date/Time: 08/29/14 16:50
Prep Initial Wt./Vol.: 49.588 g
Prep Extract Vol: 25 mL

Print Date: 09/15/2014 11:18:16AM

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **Nome Harbor Improvements**
Lab Sample ID: 1144270003
Lab Project ID: 1144270

Collection Date: 08/29/14 16:50
Received Date: 09/04/14 08:05
Matrix: Soil/Solid (dry weight)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	12.6	U	12.6	3.93	ug/Kg	1		09/04/14 14:55
Ethylbenzene	25.2	U	25.2	7.86	ug/Kg	1		09/04/14 14:55
o-Xylene	25.2	U	25.2	7.86	ug/Kg	1		09/04/14 14:55
P & M -Xylene	50.4	U	50.4	15.1	ug/Kg	1		09/04/14 14:55
Toluene	25.2	U	25.2	7.86	ug/Kg	1		09/04/14 14:55
Surrogates								
1,2-Dichloroethane-D4	102		79-118		%	1		09/04/14 14:55
4-Bromofluorobenzene	102		67-138		%	1		09/04/14 14:55
Toluene-d8	101		85-115		%	1		09/04/14 14:55

Batch Information

Analytical Batch: VMS14428
Analytical Method: SW8260B
Analyst: SP
Analytical Date/Time: 09/04/14 14:55
Container ID: 1144270003-A

Prep Batch: VXX26390
Prep Method: SW5035A
Prep Date/Time: 08/29/14 16:50
Prep Initial Wt./Vol.: 49.588 g
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 1635199 [SPT/9441]
Blank Lab ID: 1231725

Matrix: Soil/Solid (dry weight)

QC for Samples:
1144270001, 1144270002

Results by **SM21 2540G**

Parameter	Results	LOQ/CL	DL	Units
Total Solids	100			%

Batch Information

Analytical Batch: SPT9441
Analytical Method: SM21 2540G
Instrument:
Analyst: MJN
Analytical Date/Time: 9/4/2014 6:05:00PM

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

Duplicate Sample Summary

Original Sample ID: 1144239008
Duplicate Sample ID: 1231726
QC for Samples:
1144270001, 1144270002

Analysis Date: 09/04/2014 18:05
Matrix: Soil/Solid (dry weight)

Results by **SM21 2540G**

NAME	Original ()	Duplicate ()	RPD (%)	RPD CL
Total Solids	99.8	97.7	2.10	15.00

Batch Information

Analytical Batch: SPT9441
Analytical Method: SM21 2540G
Instrument:
Analyst: MJN

Print Date: 09/15/2014 11:18:19AM

Duplicate Sample Summary

Original Sample ID: 1144275001
Duplicate Sample ID: 1231727
QC for Samples:
1144270001, 1144270002

Analysis Date: 09/04/2014 18:05
Matrix: Soil/Solid (dry weight)

Results by **SM21 2540G**

NAME	Original ()	Duplicate ()	RPD (%)	RPD CL
Total Solids	94.2	94.3	0.17	15.00

Batch Information

Analytical Batch: SPT9441
Analytical Method: SM21 2540G
Instrument:
Analyst: MJN

Print Date: 09/15/2014 11:18:19AM

Method Blank

Blank ID: MB for HBN 1635177 [VXX/26390]
Blank Lab ID: 1231601

Matrix: Soil/Solid (dry weight)

QC for Samples:
1144270001, 1144270002, 1144270003

Results by **SW8260B**

Parameter	Results	LOQ/CL	DL	Units
Benzene	6.25U	12.5	3.90	ug/Kg
Ethylbenzene	12.5U	25.0	7.80	ug/Kg
o-Xylene	12.5U	25.0	7.80	ug/Kg
P & M -Xylene	25.0U	50.0	15.0	ug/Kg
Toluene	12.5U	25.0	7.80	ug/Kg
Surrogates				
1,2-Dichloroethane-D4	101	79-118		%
4-Bromofluorobenzene	102	67-138		%
Toluene-d8	103	85-115		%

Batch Information

Analytical Batch: VMS14428
Analytical Method: SW8260B
Instrument: Agilent 7890-75MS
Analyst: SP
Analytical Date/Time: 9/4/2014 7:36:00AM

Prep Batch: VXX26390
Prep Method: SW5035A
Prep Date/Time: 9/4/2014 12:00:00AM
Prep Initial Wt./Vol.: 50 g
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 1144270 [VXX26390]
Blank Spike Lab ID: 1231602
Date Analyzed: 09/04/2014 11:35

Matrix: Soil/Solid (dry weight)

QC for Samples: 1144270001, 1144270002, 1144270003

Results by **SW8260B**

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
Benzene	750	734	98	(75-125)
Ethylbenzene	750	748	100	(75-125)
o-Xylene	750	767	102	(75-125)
P & M -Xylene	1500	1510	101	(80-125)
Toluene	750	726	97	(70-125)
Surrogates				
1,2-Dichloroethane-D4	750		93	(79-118)
4-Bromofluorobenzene	750		95	(67-138)
Toluene-d8	750		97	(85-115)

Batch Information

Analytical Batch: **VMS14428**
Analytical Method: **SW8260B**
Instrument: **Agilent 7890-75MS**
Analyst: **SP**

Prep Batch: **VXX26390**
Prep Method: **SW5035A**
Prep Date/Time: **09/04/2014 00:00**
Spike Init Wt./Vol.: 750 ug/Kg Extract Vol: 25 mL
Dup Init Wt./Vol.: Extract Vol:

Print Date: 09/15/2014 11:18:23AM

Matrix Spike Summary

Original Sample ID: 1231605
MS Sample ID: 1231603 MS
MSD Sample ID: 1231604 MSD

Analysis Date: 09/04/2014 13:03
Analysis Date: 09/04/2014 11:59
Analysis Date: 09/04/2014 12:15
Matrix: Soil/Solid (dry weight)

QC for Samples: 1144270001, 1144270002, 1144270003

Results by **SW8260B**

		Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Benzene	29.4	1490	1560	103	1490	1550	102	75-125	0.77	(< 20)
Ethylbenzene	48.3J	1490	1590	103	1490	1560	101	75-125	2.40	(< 20)
o-Xylene	69.8	1490	1630	104	1490	1580	101	75-125	3.30	(< 20)
P & M -Xylene	94.2J	2990	3170	103	2990	3100	100	80-125	2.40	(< 20)
Toluene	55.8	1490	1540	100	1490	1500	97	70-125	2.50	(< 20)
Surrogates										
1,2-Dichloroethane-D4		1490	1460	98	1490	1440	96	79-118	1.30	
4-Bromofluorobenzene		3990	3660	92	3990	3670	92	67-138	0.35	
Toluene-d8		1490	1530	102	1490	1480	99	85-115	3.30	

Batch Information

Analytical Batch: VMS14428
Analytical Method: SW8260B
Instrument: Agilent 7890-75MS
Analyst: SP
Analytical Date/Time: 9/4/2014 11:59:00AM

Prep Batch: VXX26390
Prep Method: Vol. Extraction SW8260 Field Extracted L
Prep Date/Time: 9/4/2014 12:00:00AM
Prep Initial Wt./Vol.: 25.09g
Prep Extract Vol: 25.00mL

Print Date: 09/15/2014 11:18:23AM

Method Blank

Blank ID: MB for HBN 1635207 [VXX/26393]
Blank Lab ID: 1231774

Matrix: Soil/Solid (dry weight)

QC for Samples:
1144270001, 1144270002, 1144270003

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	1.25U	2.50	0.750	mg/Kg
Surrogates				
4-Bromofluorobenzene	97.6	50-150		%

Batch Information

Analytical Batch: VFC12088
Analytical Method: AK101
Instrument: Agilent 7890A PID/FID
Analyst: ST
Analytical Date/Time: 9/4/2014 12:06:00PM

Prep Batch: VXX26393
Prep Method: SW5035A
Prep Date/Time: 9/4/2014 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1144270 [VXX26393]
Blank Spike Lab ID: 1231777
Date Analyzed: 09/04/2014 22:12

Spike Duplicate ID: LCSD for HBN 1144270 [VXX26393]
Spike Duplicate Lab ID: 1231778
Matrix: Soil/Solid (dry weight)

QC for Samples: 1144270001, 1144270002, 1144270003

Results by **AK101**

	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Gasoline Range Organics	10.0	9.40	94	10.0	9.51	95	(60-120)	1.20	(< 20)
Surrogates									
4-Bromofluorobenzene	1.25		97	1.25		101	(50-150)	3.90	

Batch Information

Analytical Batch: **VFC12088**
Analytical Method: **AK101**
Instrument: **Agilent 7890A PID/FID**
Analyst: **ST**

Prep Batch: **VXX26393**
Prep Method: **SW5035A**
Prep Date/Time: **09/04/2014 08:00**
Spike Init Wt./Vol.: 10.0 mg/Kg Extract Vol: 25 mL
Dup Init Wt./Vol.: 10.0 mg/Kg Extract Vol: 25 mL

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Method Blank

Blank ID: MB for HBN 1635192 [XXX/31900]
Blank Lab ID: 1231697

Matrix: Soil/Solid (dry weight)

QC for Samples:
1144270001, 1144270002

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	10.0U	20.0	6.20	mg/Kg
Surrogates				
5a Androstane	89	60-120		%

Batch Information

Analytical Batch: XFC11553
Analytical Method: AK102
Instrument: HP 6890 Series II FID SV D R
Analyst: AYC
Analytical Date/Time: 9/8/2014 2:05:00PM

Prep Batch: XXX31900
Prep Method: SW3550C
Prep Date/Time: 9/4/2014 5:18:44PM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 1 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1144270 [XXX31900]
Blank Spike Lab ID: 1231698
Date Analyzed: 09/08/2014 14:14

Spike Duplicate ID: LCSD for HBN 1144270 [XXX31900]
Spike Duplicate Lab ID: 1231699
Matrix: Soil/Solid (dry weight)

QC for Samples: 1144270001, 1144270002

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	145	87	167	153	92	(75-125)	5.70	(< 20)
Surrogates									
5a Androstane	3.33		98	3.33		104	(60-120)	5.50	

Batch Information

Analytical Batch: **XFC11553**
Analytical Method: **AK102**
Instrument: **HP 6890 Series II FID SV D R**
Analyst: **AYC**

Prep Batch: **XXX31900**
Prep Method: **SW3550C**
Prep Date/Time: **09/04/2014 17:18**
Spike Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL
Dup Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL

Method Blank

Blank ID: MB for HBN 1635215 [XXX/31903]
Blank Lab ID: 1231809

Matrix: Soil/Solid (dry weight)

QC for Samples:
1144270001, 1144270002

Results by **SW8082A**

Parameter	Results	LOQ/CL	DL	Units
Aroclor-1016	25.0U	50.0	15.0	ug/Kg
Aroclor-1221	25.0U	50.0	15.0	ug/Kg
Aroclor-1232	25.0U	50.0	15.0	ug/Kg
Aroclor-1242	25.0U	50.0	15.0	ug/Kg
Aroclor-1248	25.0U	50.0	15.0	ug/Kg
Aroclor-1254	25.0U	50.0	15.0	ug/Kg
Aroclor-1260	25.0U	50.0	15.0	ug/Kg
Surrogates				
Decachlorobiphenyl	113	60-125		%

Batch Information

Analytical Batch: XGC8874
Analytical Method: SW8082A
Instrument: HP 6890 Series II ECD SV H F
Analyst: SCL
Analytical Date/Time: 9/6/2014 1:28:00AM

Prep Batch: XXX31903
Prep Method: SW3550C
Prep Date/Time: 9/5/2014 10:10:44AM
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 1144270 [XXX31903]
Blank Spike Lab ID: 1231810
Date Analyzed: 09/06/2014 01:40

Matrix: Soil/Solid (dry weight)

QC for Samples: 1144270001, 1144270002

Results by **SW8082A**

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
Aroclor-1016	222	204	92	(40-140)
Aroclor-1260	222	207	93	(60-130)
Surrogates				
Decachlorobiphenyl	222		110	(60-125)

Batch Information

Analytical Batch: **XGC8874**
Analytical Method: **SW8082A**
Instrument: **HP 6890 Series II ECD SV H F**
Analyst: **SCL**

Prep Batch: **XXX31903**
Prep Method: **SW3550C**
Prep Date/Time: **09/05/2014 10:10**
Spike Init Wt./Vol.: 222 ug/Kg Extract Vol: 5 mL
Dup Init Wt./Vol.: Extract Vol:

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Method Blank

Blank ID: MB for HBN 1635267 [XXX/31917]
Blank Lab ID: 1232038

Matrix: Soil/Solid (dry weight)

QC for Samples:
1144270001, 1144270002

Results by **8270D SIMS (PAH)**

Parameter	Results	LOQ/CL	DL	Units
1-Methylnaphthalene	2.50U	5.00	1.50	ug/Kg
2-Methylnaphthalene	2.50U	5.00	1.50	ug/Kg
Acenaphthene	2.50U	5.00	1.50	ug/Kg
Acenaphthylene	2.50U	5.00	1.50	ug/Kg
Anthracene	2.50U	5.00	1.50	ug/Kg
Benzo(a)Anthracene	2.50U	5.00	1.50	ug/Kg
Benzo[a]pyrene	2.50U	5.00	1.50	ug/Kg
Benzo[b]Fluoranthene	2.50U	5.00	1.50	ug/Kg
Benzo[g,h,i]perylene	2.50U	5.00	1.50	ug/Kg
Benzo[k]fluoranthene	2.50U	5.00	1.50	ug/Kg
Chrysene	2.50U	5.00	1.50	ug/Kg
Dibenzo[a,h]anthracene	2.50U	5.00	1.50	ug/Kg
Fluoranthene	2.50U	5.00	1.50	ug/Kg
Fluorene	2.50U	5.00	1.50	ug/Kg
Indeno[1,2,3-c,d] pyrene	2.50U	5.00	1.50	ug/Kg
Naphthalene	2.50U	5.00	1.50	ug/Kg
Phenanthrene	2.50U	5.00	1.50	ug/Kg
Pyrene	2.50U	5.00	1.50	ug/Kg
Surrogates				
2-Fluorobiphenyl	45.8	45-105		%
Terphenyl-d14	95	30-125		%

Batch Information

Analytical Batch: XMS8280
Analytical Method: 8270D SIMS (PAH)
Instrument: HP 6890/5973 MS SVQA
Analyst: RTS
Analytical Date/Time: 9/11/2014 7:25:00PM

Prep Batch: XXX31917
Prep Method: SW3550C
Prep Date/Time: 9/5/2014 8:29:44PM
Prep Initial Wt./Vol.: 22.5 g
Prep Extract Vol: 1 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1144270 [XXX31917]
Blank Spike Lab ID: 1232039
Date Analyzed: 09/11/2014 19:41

Matrix: Soil/Solid (dry weight)

QC for Samples: 1144270001, 1144270002

Results by **8270D SIMS (PAH)**

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
1-Methylnaphthalene	22.2	14.0	63	(44-107)
2-Methylnaphthalene	22.2	12.6	57	(45-105)
Acenaphthene	22.2	14.5	66	(45-110)
Acenaphthylene	22.2	14.8	66	(45-105)
Anthracene	22.2	17.3	78	(55-105)
Benzo(a)Anthracene	22.2	21.7	98	(50-110)
Benzo[a]pyrene	22.2	18.2	82	(50-110)
Benzo[b]Fluoranthene	22.2	21.7	98	(45-115)
Benzo[g,h,i]perylene	22.2	20.3	91	(40-125)
Benzo[k]fluoranthene	22.2	20.7	93	(45-125)
Chrysene	22.2	22.5	101	(55-110)
Dibenzo[a,h]anthracene	22.2	20.4	92	(40-125)
Fluoranthene	22.2	21.3	96	(55-115)
Fluorene	22.2	15.6	70	(50-110)
Indeno[1,2,3-c,d] pyrene	22.2	20.2	91	(40-120)
Naphthalene	22.2	13.0	58	(40-105)
Phenanthrene	22.2	18.0	81	(50-110)
Pyrene	22.2	20.8	94	(45-125)
Surrogates				
2-Fluorobiphenyl	22.2		64	(45-105)
Terphenyl-d14	22.2		99	(30-125)

Batch Information

Analytical Batch: **XMS8280**
Analytical Method: **8270D SIMS (PAH)**
Instrument: **HP 6890/5973 MS SVQA**
Analyst: **RTS**

Prep Batch: **XXX31917**
Prep Method: **SW3550C**
Prep Date/Time: **09/05/2014 20:29**
Spike Init Wt./Vol.: 22.2 ug/Kg Extract Vol: 1 mL
Dup Init Wt./Vol.: Extract Vol:

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Matrix Spike Summary

Original Sample ID: 1144270001
MS Sample ID: 1232040 MS
MSD Sample ID: 1232041 MSD

Analysis Date: 09/11/2014 21:22
Analysis Date: 09/11/2014 21:39
Analysis Date: 09/11/2014 21:55
Matrix: Soil/Solid (dry weight)

QC for Samples: 1144270001, 1144270002

Results by **8270D SIMS (PAH)**

		Matrix Spike (ug/Kg)				Spike Duplicate (ug/Kg)						
Parameter	Sample	Spike	Result	Rec (%)		Spike	Result	Rec (%)		CL	RPD (%)	RPD CL
1-Methylnaphthalene	28.6U	25.5	35.0	137	*	25.0	36.7	146	*	44-107	4.70	(< 30)
2-Methylnaphthalene	28.7	25.5	49.7	82		25.0	48.7	80		45-105	1.90	(< 30)
Acenaphthene	28.6U	25.5	43.2	170	*	25.0	52.4	209	*	45-110	19.20	(< 30)
Acenaphthylene	28.6U	25.5	26.7J	105		25.0	29.7	119	*	45-105	10.60	(< 30)
Anthracene	28.7	25.5	51.5	89		25.0	56.0	109	*	55-105	8.40	(< 30)
Benzo(a)Anthracene	31.0	25.5	62.0	122	*	25.0	63.6	130	*	50-110	2.60	(< 30)
Benzo[a]pyrene	28.6U	25.5	14.3U	0	*	25.0	57.0	228	*	50-110	0.00 *	(< 30)
Benzo[b]Fluoranthene	28.6U	25.5	14.3U	0	*	25.0	14.3U	0	*	45-115	0.00	(< 30)
Benzo[g,h,i]perylene	28.6U	25.5	44.3	174	*	25.0	48.5	194	*	40-125	9.00	(< 30)
Benzo[k]fluoranthene	28.6U	25.5	14.3U	0	*	25.0	14.3U	0	*	45-125	0.00	(< 30)
Chrysene	61.3	25.5	97.8	143	*	25.0	100	156	*	55-110	2.60	(< 30)
Dibenzo[a,h]anthracene	28.6U	25.5	25.1J	99		25.0	26.1J	104		40-125	4.00	(< 30)
Fluoranthene	57.3	25.5	93.2	141	*	25.0	97.2	159	*	55-115	4.20	(< 30)
Fluorene	28.6U	25.5	55.4	217	*	25.0	55.7	222	*	50-110	0.57	(< 30)
Indeno[1,2,3-c,d] pyrene	28.6U	25.5	38.9	153	*	25.0	44.6	178	*	40-120	13.50	(< 30)
Naphthalene	28.6U	25.5	31.2	122	*	25.0	30.8	123	*	40-105	0.92	(< 30)
Phenanthrene	46.2	25.5	77.2	122	*	25.0	81.2	140	*	50-110	5.10	(< 30)
Pyrene	177	25.5	232	214	*	25.0	231	210	*	45-125	0.85	(< 30)
Surrogates												
2-Fluorobiphenyl		25.5	20.6	81		25.0	21.2	85		45-105	2.80	
Terphenyl-d14		25.5	28.6	112		25.0	27.8	111		30-125	3.00	

Batch Information

Analytical Batch: XMS8280
Analytical Method: 8270D SIMS (PAH)
Instrument: HP 6890/5973 MS SVQA
Analyst: RTS
Analytical Date/Time: 9/11/2014 9:39:00PM

Prep Batch: XXX31917
Prep Method: Sonication Extraction Soil 8270 PAH SIM
Prep Date/Time: 9/5/2014 8:29:44PM
Prep Initial Wt./Vol.: 22.52g
Prep Extract Vol: 1.00mL

Print Date: 09/15/2014 11:18:35AM

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CHAIN OF CUSTODY RECORD

1144270

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

Page 1 of ___

Section 1

CLIENT: Nome Harbor Improvement AND Tutka LLC

CONTACT: Amie Sommer — PHONE NO: 907-242-3524

PROJECT NAME: — PROJECT/ PWSID/ PERMIT#:

REPORTS TO: Amie Sommer — E-MAIL: Amie@tutkallc.com

INVOICE TO: Amie Sommer — QUOTE #: — P.O. #:

Section 3

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 Incremental Soils	Preservative: Me OH	None	Me OH	None	None	REMARKS/ LOC ID
							GRO AK101	DRO AK102	BTEX SW8021B/8260C	PAH SW8270C SIM	PCB 8082	
1 1-B	EX06	08/29/14	1650hrs	SO	2	G	X	X	X	X	X	
2 A-B	ST09	09/2/14	1035hrs	SO	2	G	X	X	X	X	X	
3 1-B	TB				2		X		X			

Section 5

	Date	Time	Received By:
Relinquished By: (1) Chris Locke	9-3-2014	1635	
Relinquished By: (2)	Date	Time	Received By:
Relinquished By: (3)	Date	Time	Received By:
Relinquished By: (4)	9/4/14	0805	Received For Laboratory By:

Section 4

DOD Project? Yes No

Cooler ID: ___

Data Deliverable Requirements:

Requested Turnaround Time and/or Special Instructions:

Temp Blank °C: 3.8 #241 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

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SAMPLE RECEIPT FORM

Review Criteria:	Condition:	Comments/Action Taken:
Were **custody seals** intact? Note # & location, if applicable. COC accompanied samples?	Yes No N/A Yes No	☐ *Exemption permitted if sampler hand carries/delivers.* 1F/113
Temperature blank compliant* (i.e., 0-6°C after CF)? *If >6°C, were samples collected <8 hours ago?* *If <0°C, were all sample containers ice free?* Cooler ID: 1 @ 3.8 w/ Therm.ID: 241 Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ If samples are 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."	Yes No Yes No N/A Yes No N/A	☐ *Exemption permitted if chilled & collected <8 hrs ago.* *Note: Identify containers received at non-compliant temperature. Use form FS-0029 if more space is needed.*
Delivery method (specify all that apply): Client (hand carried) USPS Lynden AK Air Alert Courier UPS FedEx RAVN C&D Delivery Carlile Pen Air Warp Speed Other: _____ → *For WO# with airbills, was the WO# & airbill info recorded in the Front Counter eLog?* Gold Streak	Tracking/AB # or see attached or N/A Yes No N/A	
→ For samples received with payment, note amount ($) and whether cash / check / CC **(circle one)** was received.		
→ For samples **received in FBKS**, ANCH staff will verify all criteria are reviewed. SRF initiated in FBKS by:		
Were samples received within hold time? Do samples **match COC*** (i.e., sample IDs, dates/times collected)? Were analyses requested unambiguous?	Yes No N/A Yes No N/A Yes No N/A	*Note: Refer to form F-083 "Sample Guide" for hold times.* *Note: If times differ <1hr, record details and login per COC.*
Were samples in **good condition** (no leaks/cracks/breakage)? Packing material used (specify all that apply): Bubble Wrap Separate plastic bags Vermiculite Other:	Yes No	
Were **proper containers** (type/mass/volume/preservative*) used? Were **Trip Blanks** (i.e., VOAs, LL-Hg) in cooler with samples? Were all VOA vials **free of headspace** (i.e., bubbles ≤6 mm)? Were all soil VOAs **field extracted** with MeOH+BFB?	Yes No N/A Yes No N/A Yes No N/A Yes No N/A	☐ *Exemption permitted for metals (e.g., 200.8/6020A).*
For preserved waters (other than VOA vials, LL-Mercury or microbiological analyses), was **pH verified and compliant**? If pH was adjusted, were bottles flagged (i.e., stickers)?	Yes No N/A Yes No N/A	
For **special handling** (e.g., "MI" soils, foreign soils, lab filter for dissolved…, lab extract for volatiles, Ref Lab, limited volume), were bottles/paperwork flagged (e.g., sticker)?	Yes No N/A	
For **RUSH/SHORT Hold Time**, were COC/Bottles flagged accordingly? Was Rush/Short HT email sent, if applicable?	Yes No N/A	
For **SITE-SPECIFIC QC, e.g. BMS/BMSD/BDUP**, were containers / paperwork flagged accordingly?	Yes No N/A	
For any question answered "No," has the PM been notified and the problem resolved (or paperwork put in their bin)?	Yes No N/A	SRF Completed by: EMF PM notified: N/A
Was **PEER REVIEW** of ***sample numbering/labeling completed?***	Yes No N/A	Peer Reviewed by: N/A
Additional notes (if applicable):		

Note to Client: *Any "no" circled above indicates non-compliance with standard procedures and may impact data quality.*

Sample Containers and Preservatives

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition
1144270001-A	No Preservative Required	OK			
1144270001-B	Methanol field pres. 4 C	OK			
1144270002-A	No Preservative Required	OK			
1144270002-B	Methanol field pres. 4 C	OK			
1144270003-A	Methanol field pres. 4 C	OK			
1144270003-B	Methanol field pres. 4 C	OK			

Container Condition Glossary

OK - The container was received at an acceptable pH for the analysis requested.

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.

BU - The container was received with headspace greater than 6mm.

027 ANC 52110085 | Contract on the Back of the Airbill | AVAILABLE | 027 ANC 52110085

SHIPPER'S NAME AND ADDRESS

SGS North America Inc 9069
200 W Potter Dr
Anchorage, AK 99518 US
19075822343

SHIPPER'S ACCOUNT NUMBER
27400215947

NOT NEGOTIABLE
AIR WAYBILL
(AIR CONSIGNMENT NOTE)

Alaska Air Cargo
ALASKA AIRLINES & HORIZON AIR
P.O. BOX 68900 SEATTLE, WA 98168
800-225-2752 ALASKACARGO.COM

Copies 1, 2 and 3 of this Air Waybill are originals and have the same validity.

It is agreed that the goods described herein are accepted for carriage in apparent good order and condition (except as noted) and SUBJECT TO THE CONDITIONS OF CONTRACT ON THE AVAILABLE HANDOUT. THE SHIPPER'S ATTENTION IS DRAWN TO THE NOTICE CONCERNING CARRIER'S LIMITATION OF LIABILITY AND SHIPPER'S SECURITY NOTIFICATION. Cargo items tendered for air transportation are subject to aviation security controls by air carriers and when appropriate, other government regulations. Copies of all relevant shipping documents showing the cargo's consignee, consignor, description, and other relevant data will be retained on file until the cargo completes air transportation. I consent to inspection of this cargo. Subject to Rate Audit.

CONSIGNEE'S NAME AND ADDRESS

CHRIS LOCKE
NOME AIRPORT FOR P/U
907-351-6280

CONSIGNEE'S ACCOUNT NUMBER

DOMESTIC ONLY

☒ GOLDSTREAK (PREPAID ONLY) ☐ PRIORITY
☐ ANIMAL EXPRESS ☐ GENERAL

ISSUING CARRIER'S AGENT NAME AND CITY

ALSO NOTIFY NAME AND ADDRESS *(OPTIONAL ACCOUNTING INFORMATION)*

1144270

AGENTS IATA CODE | ACCOUNT NO.

AIRPORT OF DEPARTURE (ADDR OF FIRST CARRIER) AND REQUESTED ROUTING
ANC

ROUTING AND DESTINATION

TO	BY FIRST CARRIER	TO	BY	TO	BY
	AS				

CURRENCY	CHGS CODE	W.T./VAL. PPD	W.T./VAL. COLL	OTHER PPD	OTHER COLL	DECLARED VALUE FOR CARRIAGE	DECLARED VALUE FOR CUSTOMS

AIRPORT OF DESTINATION
Nome

FLIGHT/DATE (For Carrier use only) FLIGHT/DATE

AMOUNT OF INSURANCE | INSURANCE - If shipper requests insurance in accordance with conditions on reverse hereof, indicate amount to be insured in figures in box marked amount of insurance. | INSURANCE DECLINED INITIALS

HANDLING INFORMATION These commodities licensed by U.S. for ultimate destination. Diversion contrary to U.S. law is prohibited.

NO. of PIECES RCP	GROSS WEIGHT	kg lb	RATE CLASS / COMMODITY ITEM NO.	CHARGEABLE WEIGHT	RATE / CHARGE	TOTAL	NATURE AND QUANTITY OF GOODS (INCL. DIMENSIONS OR VOLUME)
1						~50$	MEOH out to Site.

PREPAID	WEIGHT CHARGE	COLLECT	PICKUP CHARGES	ORIGIN ADVANCE CHARGES	DESCRIPTION OF ORIGIN ADVANCE
VALUATION CHARGE			DELIVERY CHARGES	DEST. ADVANCE CHARGES	DESCRIPTION OF DEST. ADVANCE
TAX			OTHER CHARGES AND DESCRIPTION		ITEM PREPAID / ITEM COLLECT
TOTAL OTHER CHARGES DUE AGENT					
TOTAL OTHER CHARGES DUE CARRIER					
TOTAL PREPAID	TOTAL COLLECT				
CURRENCY CONVERSION RATES	TOTAL COLLECT IN DESTINATION CURRENCY				
FOR CARRIERS USE ONLY AT DESTINATION (ALL COLLECT CHARGES IN DESTINATION CURRENCY)	CHARGES AT DESTINATION		TOTAL COLLECT CHARGES		

The shipper certifies 1.) the particulars on the face hereof are correct and insofar as any part of the consignment contains restricted articles, such part is properly described by name and is in proper condition for carriage by air according to applicable national governmental regulations and for international shipments the current international Air Transport Association as Restricted Articles Regulation 2.) The shipment herein does not contain any unauthorized explosive or destructive devices. I am aware that this shipment is subject to appropriate aviation security controls and other relevant government regulations and this endorsement original signature, along with other shipping documents will be retained on file until shipment is delivered.

PRINTED NAME | SIGNATURE OF SHIPPER OR HIS AGENT AND INITIAL APPLICABLE BOXES BELOW

RE-WEIGH/DIMENSIONAL WEIGHT AND SHIPPER GUARANTEES ALL CHARGES SUBJECT TO RATE AUDIT

☒ THIS SHIPMENT DOES NOT CONTAIN DANGEROUS GOODS.
☐ THIS SHIPMENT DOES CONTAIN DANGEROUS GOODS.

EXECUTED ON 9/2/14 (Date) (Time) at (Place) Alaska Airlines SIGNATURE OF ISSUING CARRIER OR ITS AGENT.

027 ANC 52110085

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APPENDIX D – ADEC LABORATORY DATA REVIEW CHECKLISTS

Laboratory Data Review Checklist

Completed by: Amber Huckaba

Title: Environmental Scientist Date: 10/13/2014

CS Report Name: Nome Harbor Repairs and Upgrades Report Date: October 2014

Consultant Firm: Tutka, LLC

Laboratory Name: SGS North America Inc Laboratory Report Number: 1144174

ADEC File Number: 400.38.034 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:

      N/A – SGS Anchorage performed all analyses and are ADEC approved.

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:

      Sampler did forget to check the analyses on CoC but lab ran all of the required analyses.

3. Laboratory Sample Receipt Documentation
   a. Sample/cooler temperature documented and within range at receipt (4° ± 2° C)?
      Yes No NA (Please explain.) Comments:

      The cooler temperature was slightly below 2°C at 1.4°C.

   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 acceptable range, insufficient or missing samples, etc.?
Yes No NA (Please explain.) Comments:

The sampler was not provided enough trip blanks so they sent in vials of methanol to be used as a Trip Blank for this shipment.

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

No data quality or usability is affected.

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:

c. Were all corrective actions documented?
Yes No NA (Please explain.) Comments:

N/A – There were no corrective actions noted.

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

Various items were narrated however the data reported is usable.

5. Samples Results
a. Correct analyses performed/reported as requested on COC?
Yes No NA (Please explain.) Comments:

The sampler did not mark the analyses on the CoC however the correct analyses were requested on the CoC and the laboratory ran all of the required analyses.

b. All applicable holding times met?
Yes No NA (Please explain.) Comments:

The MS/MSD for 8270D SIM was ran out of holding time.

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:

The LOQs for 8270D SIM are elevated due to sample dilution.

e. Data quality or usability affected?
Comments:

There is no data usability issues.

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:

N/A – method blank results were below limit of detection.

iv. Do the affected sample(s) have data flags and if so, are the data flags clearly defined?
Yes No NA (Please explain.) Comments:

N/A – there are no QC issues to note in regards to the method blank results.

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

There are no data quality or usability issues.

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:

N/A – no metals or inorganics related to this data group.

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/MSD, 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:

N/A

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

Yes No NA (Please explain.) Comments:

N/A – there are no QC issues related to LCS.

vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

No data quality or usability issues.

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:

Surrogate recoveries for project samples EX04 and ST06 for (2-fluorobiphenyl) in 8270D SIM were outside of QC criteria. 1, 2-Dichloroethance-D4 for 8260B was also outside of QC criteria in project sample ST10. Toluene-d8 for 8260B was also outside of QC criteria for the Method Blank and Matrix Spike and Matrix Spike Duplicate as well as phenanthrene, fluoranthene, and chrysene was outside of QC criteria for the Matrix Spike and Matrix Spike Duplicate sample.

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:

The data is not flagged.

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

Comments:

No data usability issues.

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:

The sampler was not provided enough trip blanks for sample deliveries by the laboratory and used vials of methanol as a trip blank for this sample delivery.

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:

iii. All results less than PQL?

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

iv. If above PQL, what samples are affected?

N/A

Comments:

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

Comments:

N/A

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:

The field duplicate was labeled ST10, the primary sample was labeled ST01.

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:

RPD was only calculated for Diesel Range Organics. The remaining detected analytes were all well below ADEC cleanup levels are not detected above the limit of quantitation.

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

Comments:

N/A

f. Decontamination or Equipment Blank (If not used explain why).

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

N/A – Project did not require equipment blank.

i. All results less than PQL?

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

N/A – Project did not require equipment blank.

ii. If above PQL, what samples are affected?

Comments:

N/A

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

Comments:

N/A

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)
   a. Defined and appropriate?
      Yes (No) NA (Please explain.) Comments:

Laboratory Data Review Checklist

Completed by: Amber Huckaba

Title: Environmental Scientist Date: 10/13/2014

CS Report Name: Nome Harbor Repairs and Upgrades Report Date: October 2014

Consultant Firm: Tutka, LLC

Laboratory Name: SGS North America Inc Laboratory Report Number: 1144270

ADEC File Number: 400.38.034 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:
      N/A – SGS Anchorage performed all analyses and are ADEC approved.

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:

   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 acceptable range, insufficient or missing samples, etc.?
Yes No NA (Please explain.) Comments:

N/A – No discrepancies to note.

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

N/A

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:

c. Were all corrective actions documented?
Yes No NA (Please explain.) Comments:

N/A – There were no corrective actions noted.

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

Sample results for ST09 contains J Flags, low sample volume and elevated moisture content caused the Benzene LOQ to be above ADEC cleanup criteria.

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:

Sample results for ST09 contains J Flags, low sample volume and elevated moisture content caused the Benzene LOQ to be above ADEC cleanup criteria.

e. Data quality or usability affected?
Comments:

Data usability will not affect the project. An additional sample collected from the stockpile contains benzene and therefore the whole stockpile will be treated as containing benzene above ADEC cleanup levels.

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:

N/A – method blank results were below limit of detection.

iv. Do the affected sample(s) have data flags and if so, are the data flags clearly defined?
Yes No NA (Please explain.) Comments:

N/A – there are no QC issues to note in regards to the method blank results.

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

There are no data quality or usability issues.

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:

N/A – no metals or inorganics related to this data group.

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/MSD, 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:

N/A

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

Yes No NA (Please explain.) Comments:

N/A – there are no QC issues related to LCS/MS.

vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

No data quality or usability issues.

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:

MS/MSD recovery for multiple analytes is outside of QC criteria.

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:

The data is not flagged, the LCS can be used for accuracy.

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

Comments:

No data quality or usability issues, the LCS can be used for accuracy.

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:

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:

Noted as TB on the CoC.

iii. All results less than PQL?

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

iv. If above PQL, what samples are affected?

Comments:

N/A

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

Comments:

N/A

e. Field Duplicate

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

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

A field duplicate was not sent in with this sample delivery. A field duplicate was collected and submitted in a later sample delivery group. One field duplicate was collected for 6 project samples that were sent in two separate deliveries.

ii. Submitted blind to lab?

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

A field duplicate was not sent in with this delivery of samples.

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:

A field duplicate was not sent in with this delivery of samples.

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

Comments:

N/A

f. Decontamination or Equipment Blank (If not used explain why).

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

N/A – Project did not require equipment blank.

i. All results less than PQL?

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

N/A – Project did not require equipment blank.

ii. If above PQL, what samples are affected?

Comments:

N/A

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

Comments:

N/A

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)
   a. Defined and appropriate?
      Yes (No) NA (Please explain.) Comments:
