ATTACHMENT C

QAR and ADEC Checklists

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1. QUALITY ASSURANCE REVIEW

Laboratory Quality Assurance/ Quality Control (QA/QC) data associated with the analysis of project samples has been reviewed to evaluate the precision, accuracy, representativeness, completeness, comparability, and sensitivity (PARCCS) of the analytical data generated during June 2013 groundwater, surface water, and sediment sampling activities associated with the Flint Hills Resources North Pole Refinery in North Pole, Alaska. Samples were collected in accordance with the Final *Gravel Pits, Ponds, and Badger Slough Surface Water, Groundwater, and Sediment Sampling Work Plan (*ERM 2013).

All sample analysis was performed by SGS North America, Inc. (SGS) in Anchorage, Alaska.

Groundwater and surface water was analyzed for the following:

- Sulfolane (SW8270D-M)

Sediment samples were analyzed for the following:

- Sulfolane (EPA 1625B)

SGS reported data within four sample delivery groups (SDG): 1137932, 1137945, 1137949, and 1137979.

Samples were collected, reported, and shipped to in general accordance with the work plan (ERM 2013).

All data were reviewed in accordance with EPA National Functional Guidelines for Organic Methods (EPA 2008), *Laboratory Key Elements Document for Sulfolane Analysis in Water and Soil* (FHR Chemistry Sub-group (2013), and Alaska Department of Environmental Conservations (ADEC) regulatory guidance documents (ADEC 2009; 2010a; 2010b). This data review focused on the following QC parameters and their effect on the quality of data and usability: sample handling and chain-of-custody (CoC) documentation; holding time compliance; field QC (field duplicates); laboratory QC (method blanks, laboratory control samples [LCS]/LCS duplicates [LCSD], matrix spikes [MS] / MS duplicates [MSD], and surrogates); detection limits; and completeness.

1.1. Data Quality Assessment

In general, the overall quality of the data was acceptable for the objectives established for this project. The details of this review and qualification of the data are summarized in the following sections. Sample results are considered usable for project objectives. The overall project completeness is 100%. The details of this review and qualification of the data are summarized in the following sections.

1.2. Data Qualification

Based on the data assessment results, laboratory analytical results are flagged with data qualifiers to indicate potential problems with the qualified results. Flagged data is presented in the table attached to this report. A total of one (1) sample result was qualified.

1.3. Sample Handling and Chain of Custody

The sample coolers were delivered with custody seals in place, unbroken and intact. All sample containers in the sample coolers were received at the laboratory intact, with proper documentation. Samples were received at the laboratory within the specified temperature range of 0°C to 6°C.

1.4. Holding Time Compliance

All samples were extracted, digested and analyzed within the holding time criteria for the applicable analytical methods and in accordance with work plan specifications.

1.5. Field Elements of Quality Control

Field QA/QC protocols are designed to measure for potential sample bias as a result of sampling procedures and possible contamination during collection and transport of samples. Collection and analysis of field duplicates facilitates an evaluation of precision that takes into account potential variables associated with sampling procedures, site heterogeneity and laboratory analyses. For this project field duplicates and equipment blanks were collected during field sampling.

1.5.1. Field Duplicates

Collection and analysis of field duplicates facilitates an evaluation of precision that takes into account potential variables associated with sampling procedures and laboratory analyses. Relative percent differences (RPDs) between primary and field duplicates were calculated. RPD is used to calculate the precision from duplicate measurements.

The formula for calculating the relative percent difference is:

$$RPD = \text{Absolute Value of: } \frac{(R1-R2)}{((R1+R2)/2)} \times 100$$

Where R1 is the primary sample concentration and R2 is the field duplicate concentration.

The frequency of field duplicate collection met the 10% frequency requirements specified in the work plan. The RPD values between primary and duplicate results were within acceptance criteria of ADEC recommended acceptance criteria of <30% for water, with exceptions noted in Table QA-1.

No results were qualified due to field duplicate RPDs exceeding the limits and no results were rejected due to field duplicate precision. Overall, there was adequate comparability of field duplicate results to meet project data quality objectives.

1.5.2. Equipment Blanks

Collection and analysis of equipment blanks facilitates an evaluation of potential total field and laboratory sources of contamination. The equipment blank was below the detection limit (DL) for all analytes.

1.6. Laboratory Elements of Quality Control

1.6.1. Laboratory/Method Blanks

Laboratory/Method blanks were analyzed concurrent with a batch of 20 or fewer primary samples for each of the analytical procedures performed for this project. Method blanks were analyzed at the required frequency and target analyses were not detected (U) in the blanks at concentrations above the analytical detection limit (DL

1.6.2. Laboratory Control Samples

Analysis of laboratory control samples (LCS) and LCS duplicates (LCSD) for target analytes met laboratory and project QC goals for target analytes.

LCS/LCSD RPDs and percent recoveries were within limits for all samples. No results were rejected.

1.6.3. Matrix Spike/Matrix Spike Duplicates

Analysis of matrix spike (MS) and MS duplicates (MSD) for target analytes met laboratory and project QC goals for target analytes, with one (1) exception.

The MS/MSD percent recovery and RPD was above limits in SDG 1137945. All associated results were reported non-detect by the laboratory with one exception. NPR-13-SO-8W was detected above the laboratory LOD and therefore has been qualified as estimated (J-M). No results were rejected.

1.6.4. Surrogates

Surrogate recovery indicates overall method performance. Surrogate recoveries were within prescribed control limits for all primary samples and LCS/LCSD

1.6.5. Detection Limits (Sensitivity)

Detection Limits (DL) met or were below established criteria specified for all analyses in the project work plans. The detection limits were also below the ADEC established target clean-up levels.

Results not detected above the DL, were reported as U at twice the DL, also known as the limit of detection (LOD). Positive results between the DL and the LOQ were qualified as estimated (J). Positive results above the LOQ are reportable results.

1.7. Completeness

Data completeness is defined as the percentage of usable data (usable data divided by the total possible data). The overall project completeness goal is 90%:

$$\% \text{ completeness} = \frac{\text{number of valid (i.e., non-R flagged) results}}{\text{number of possible results}}$$

No results were qualified as unusable (i.e., "R"). The completeness for this project is 100%.

2. REFERENCES

Alaksa Department of Environmental Conservation (ADEC). 2009. Technical Memorandum: Environmental Laboratory Data and Quality Assurance Requirements. March.

ADEC. 2010a. Laboratory Data Review Checklist for Air Samples. January.

ADEC. 2010b. Laboratory Data Review Checklist. January.

United States Environmental Protection Agency (EPA). 2008. Contract Laboratory Program National Functional Guidelines for Organic Data Review (EPA 540/R-94/012). June.

EPA. 2010. Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (EPA 540-R-10-011). January.

ERM Alaska, Inc. (ERM). 2013. *Gravel Pits, Ponds, and Badger Slough Surface Water, Groundwater, and Sediment Sampling Work Plan*. Prepared for ADEC by ERM. June

Laboratory Data Review Checklist

Completed by:	Robert Beckman		
Title:	Project Scientist	Date:	Jul 15, 2013
CS Report Name:	North Pole Gravel Pits	Report Date:	Jul 10, 2013
Consultant Firm:	ERM Alaska, Inc.		
Laboratory Name:	SGS North America, Inc.	Laboratory Report Number:	1137979
ADEC File Number:	100.38.090	ADEC RecKey Number:	

1. Laboratory

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

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

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

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

All samples were analyzed by SGS.

2. Chain of Custody (COC)

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

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

b. Correct analyses requested?

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

3. Laboratory Sample Receipt Documentation

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

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

All samples received within the approved temperature.

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

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

Sulfolane preservation method is to chill only.

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

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

Samples were received intact.

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

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

No discrepancies to document.

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

Comments:

Data quality and usability not 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:

No discrepancies, errors, or QC failures to identify.

c. Were all corrective actions documented?

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

See above.

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

Comments:

Case narrative does not imply there is an effect to data quality/usability.

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:

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

Comments:

Data quality and usability not affected.

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:

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

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

No affected samples to flag.

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

Data quality and usability not affected.

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

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

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

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

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

Metals/Inorganics not submitted with this SDG.

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

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

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

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

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

Comments:

%R and RPD within acceptable limits.

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

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

No samples were affected.

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

c. Surrogates - Organics Only

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

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

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

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

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

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

No samples have failed surrogate recoveries.

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

Comments:

Data quality and usability not affected.

d. Trip Blank - Volatile analyses only (GRO, BTEX, Volatile Chlorinated Solvents, etc.): Water and Soil

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

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

No trip blanks submitted with this SDG.

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:

See above.

iii. All results less than PQL?

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

See above.

iv. If above PQL, what samples are affected?

Comments:

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

Comments:

Data quality and usability not affected.

e. Field Duplicate

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

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

ii. Submitted blind to lab?

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

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

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

Where R_1 = Sample Concentration

R_2 = Field Duplicate Concentration

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

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

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

f. Decontamination or Equipment Blank (if applicable)

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

i. All results less than PQL?

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

ii. If above PQL, what samples are affected?

Comments:

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

Comments:

Data quality/usability not affected.

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

a. Defined and appropriate?

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

No other data flags/qualifiers were used.

Reset Form

Laboratory Data Review Checklist

Completed by:	Robert Beckman		
Title:	Project Scientist	Date:	Jul 15, 2013
CS Report Name:	North Pole Gravel Pits	Report Date:	Jun 28, 2013
Consultant Firm:	ERM Alaska, Inc.		
Laboratory Name:	SGS North America, Inc.	Laboratory Report Number:	1137949
ADEC File Number:	100.38.090	ADEC RecKey Number:	

1. Laboratory

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

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

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

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

All samples were analyzed by SGS.

2. Chain of Custody (COC)

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

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

b. Correct analyses requested?

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

3. Laboratory Sample Receipt Documentation

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

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

All samples received within the approved temperature.

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

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

Sulfolane preservation method is to chill only.

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

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

Samples were received intact.

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

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

No discrepancies to document.

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

Comments:

Data quality and usability not 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:

No discrepancies, errors, or QC failures to identify.

c. Were all corrective actions documented?

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

See above.

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

Comments:

Case narrative does not imply there is an effect to data quality/usability.

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:

No soils were submitted with this SDG.

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:

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

Comments:

Data quality and usability not affected.

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:

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

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

No affected samples to flag.

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

Data quality and usability not affected.

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

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

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

One LCS reported.

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

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

Metals/Inorganics not submitted with this SDG.

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

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

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

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

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

Comments:

%R and RPD within acceptable limits.

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

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

No samples were affected.

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

c. Surrogates - Organics Only

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

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

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

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

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

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

No samples have failed surrogate recoveries.

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

Comments:

Data quality and usability not affected.

d. Trip Blank - Volatile analyses only (GRO, BTEX, Volatile Chlorinated Solvents, etc.): Water and Soil

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

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

No trip blanks submitted with this SDG.

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:

See above.

iii. All results less than PQL?

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

See above.

iv. If above PQL, what samples are affected?

Comments:

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

Comments:

Data quality and usability not affected.

e. Field Duplicate

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

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

ii. Submitted blind to lab?

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

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

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

Where R_1 = Sample Concentration

R_2 = Field Duplicate Concentration

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

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

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

f. Decontamination or Equipment Blank (if applicable)

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

No reusable equipment was used to collect samples.

i. All results less than PQL?

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

No equipment/decontamination blank submitted.

ii. If above PQL, what samples are affected?

Comments:

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

Comments:

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

a. Defined and appropriate?

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

No other data flags/qualifiers were used.

Reset Form

Laboratory Data Review Checklist

Completed by:	Robert Beckman		
Title:	Project Scientist	Date:	Jul 12, 2013
CS Report Name:	North Pole Gravel Pits	Report Date:	
Consultant Firm:	ERM Alaska, Inc.		
Laboratory Name:	SGS North America, Inc.	Laboratory Report Number:	1137945
ADEC File Number:	100.38.090	ADEC RecKey Number:	

1. Laboratory

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

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

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

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

All samples were analyzed by SGS.

2. Chain of Custody (COC)

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

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

b. Correct analyses requested?

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

3. Laboratory Sample Receipt Documentation

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

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

All samples received within the approved temperature.

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

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

Sulfolane preservation method is to chill only.

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

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

Samples were received intact.

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

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

No discrepancies to document.

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

Comments:

Data quality and usability not 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:

Lab notes MS/MSD recoveries were outside criteria.

c. Were all corrective actions documented?

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

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

Comments:

Case narrative does not imply there is an effect to data quality/usability.

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:

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

Comments:

Data quality and usability not affected.

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:

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

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

No affected samples to flag.

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

Data quality and usability not affected.

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

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

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

One LCS reported.

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

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

Metals/Inorganics not submitted with this SDG.

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:

MSD %R above limits

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

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

MS/MSD RPD above laboratory limit

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

Comments:

LCS %R was within limits

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

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

Sample result for NPR-13-SO-8W will be flagged

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

Sample result for NPR-13-SO-8W will be flagged and considered estimated (biased high). No impact to non-detected results.

c. Surrogates - Organics Only

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

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

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

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

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

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

No samples have failed surrogate recoveries.

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

Comments:

Data quality and usability not affected.

d. Trip Blank - Volatile analyses only (GRO, BTEX, Volatile Chlorinated Solvents, etc.): Water and Soil

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

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

No trip blanks submitted with this SDG.

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:

See above.

iii. All results less than PQL?

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

See above.

iv. If above PQL, what samples are affected?

Comments:

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

Comments:

Data quality and usability not affected.

e. Field Duplicate

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

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

ii. Submitted blind to lab?

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

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

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

Where R_1 = Sample Concentration

R_2 = Field Duplicate Concentration

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

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

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

f. Decontamination or Equipment Blank (if applicable)

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

No reusable equipment was used to collect samples.

i. All results less than PQL?

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

No equipment/decontamination blank submitted.

ii. If above PQL, what samples are affected?

Comments:

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

Comments:

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

a. Defined and appropriate?

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

No other data flags/qualifiers were used.

Reset Form

Laboratory Data Review Checklist

Completed by:	Robert Beckman		
Title:	Project Scientist	Date:	Jul 12, 2013
CS Report Name:	North Pole Gravel Pits	Report Date:	
Consultant Firm:	ERM Alaska, Inc.		
Laboratory Name:	SGS North America, Inc.	Laboratory Report Number:	1137932
ADEC File Number:	100.38.090	ADEC RecKey Number:	

1. Laboratory

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

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

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

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

All samples were analyzed by SGS

2. Chain of Custody (COC)

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

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

b. Correct analyses requested?

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

3. Laboratory Sample Receipt Documentation

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

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

All samples received within approved temperature range.

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

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

Preservation for sulfolane samples is chill only.

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

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

Received intact.

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

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

No discrepancies to document.

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

Comments:

Data quality and usability was not 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:

No discrepancies, errors or QC failures to document.

c. Were all corrective actions documented?

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

Same as above.

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

Comments:

Data quality/usability was not effected according to the case narrative.

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:

Soil samples were not submitted with this SDG.

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:

LOD (reporting value) less than minimum required detection limit.

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

Comments:

Data quality/usability was not effected.

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:

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

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

No affected samples to flag.

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

Data quality/usability not affected.

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

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

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

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

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

Metals/inorganics not submitted with this SDG

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

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

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

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

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

Comments:

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

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

No affected samples.

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

Data quality/usability not affected.

c. Surrogates - Organics Only

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

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

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

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

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

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

No sample results reported with failed surrogate recoveries.

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

Comments:

Data quality/usability not affected.

d. Trip Blank - Volatile analyses only (GRO, BTEX, Volatile Chlorinated Solvents, etc.): Water and Soil

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

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

No volatile analysis requested with this SDG.

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:

Same as above.

iii. All results less than PQL?

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

Trip blank not required for sulfolane analysis.

iv. If above PQL, what samples are affected?

Comments:

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

Comments:

Data quality/usability not affected.

e. Field Duplicate

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

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

One duplicate submitted for surface water matrix; not all duplicates were submitted in the same SDG.

ii. Submitted blind to lab?

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

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

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

Where R_1 = Sample Concentration

R_2 = Field Duplicate Concentration

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

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

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

f. Decontamination or Equipment Blank (if applicable)

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

Equipment blank submitted in a different SDG

i. All results less than PQL?

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

See above

ii. If above PQL, what samples are affected?

Comments:

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

Comments:

Data quality and usability not affected.

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

a. Defined and appropriate?

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

No other data flags/qualifiers.

Reset Form

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ATTACHMENT D

Laboratory Reports

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Laboratory Report of Analysis

To: Oasis Env/ERM-West, Inc.
825 W. 8th Ave.
Anchorage, AK 99516
(907)246-4461

Report Number: **1137932**

Client Project: **North Pole Gravel Pits**

Dear Jane Paris,

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 Chuck at (907) 562-2343. We will be happy to answer any questions or concerns which you may have.

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

Sincerely,
SGS North America Inc.

Chuck Homestead Date
Project Manager
Charles.Homestead@sgs.com

Print Date: 06/28/2013 2:17:11PM

Case Narrative

SGS Client: **Oasis Env/ERM-West, Inc.**
SGS Project: **1137932**
Project Name/Site: **North Pole Gravel Pits**
Project Contact: **Jane Paris**

Refer to sample receipt form for information on sample condition.

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

Print Date: 06/28/2013 2:17:11PM

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., 2xDL)
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.

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

Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
NPR-13-SW-5E	1137932001	06/18/2013	06/21/2013	Water (Surface, Eff., Ground)
NPR-13-SW-5W	1137932002	06/18/2013	06/21/2013	Water (Surface, Eff., Ground)
NPR-13-GW-5M	1137932003	06/18/2013	06/21/2013	Water (Surface, Eff., Ground)
NPR-13-SW-5M	1137932004	06/18/2013	06/21/2013	Water (Surface, Eff., Ground)
NPR-13-SW-8E	1137932005	06/19/2013	06/21/2013	Water (Surface, Eff., Ground)
NPR-13-SW-4W	1137932006	06/19/2013	06/21/2013	Water (Surface, Eff., Ground)
NPR-13-GW-8M	1137932007	06/19/2013	06/21/2013	Water (Surface, Eff., Ground)
NPR-13-FD-1	1137932008	06/19/2013	06/21/2013	Water (Surface, Eff., Ground)
NPR-13-SW-8M	1137932009	06/19/2013	06/21/2013	Water (Surface, Eff., Ground)
NPR-13-SW-4E	1137932010	06/19/2013	06/21/2013	Water (Surface, Eff., Ground)
NPR-13-SW-4M	1137932011	06/19/2013	06/21/2013	Water (Surface, Eff., Ground)
NPR-13-SW-4M MS	1137932012	06/19/2013	06/21/2013	Water (Surface, Eff., Ground)
NPR-13-SW-4M MSD	1137932013	06/19/2013	06/21/2013	Water (Surface, Eff., Ground)
NPR-13-GW-4M	1137932014	06/19/2013	06/21/2013	Water (Surface, Eff., Ground)
NPR-13-SW-8W	1137932015	06/19/2013	06/21/2013	Water (Surface, Eff., Ground)
NPR-13-FD-3	1137932016	06/20/2013	06/22/2013	Water (Surface, Eff., Ground)
NPR-13-SW-6M	1137932017	06/20/2013	06/22/2013	Water (Surface, Eff., Ground)
NPR-13-SW-S-S	1137932018	06/20/2013	06/22/2013	Water (Surface, Eff., Ground)
NPR-13-SW-6E	1137932019	06/20/2013	06/22/2013	Water (Surface, Eff., Ground)
NPR-13-SW-10M	1137932020	06/20/2013	06/22/2013	Water (Surface, Eff., Ground)
NPR-13-GW-6W	1137932021	06/20/2013	06/22/2013	Water (Surface, Eff., Ground)
NPR-13-SW-6W	1137932022	06/20/2013	06/22/2013	Water (Surface, Eff., Ground)

Method	Method Description
Sulfolane-EPA1625B w/Iso Dil-V	Sulfolane-EPA 1625B w/Iso Dil (W)

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

Detectable Results Summary

Client Sample ID: **NPR-13-GW-4M**
Lab Sample ID: 1137932014
Semivolatile Organic GC/MS

Parameter	Result	Units
Sulfolane	0.0206	mg/L

Print Date: 06/28/2013 2:17:13PM

Results of **NPR-13-SW-5E**

Client Sample ID: **NPR-13-SW-5E**
Client Project ID: **North Pole Gravel Pits**
Lab Sample ID: 1137932001
Lab Project ID: 1137932

Collection Date: 06/18/13 16:15
Received Date: 06/21/13 09:00
Matrix: Water (Surface, Eff., Ground)
Solids (%):

Results by **Semivolatile Organic GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Sulfolane	0.00652	U	0.0105	0.00326	mg/L	1	06/26/13 20:29
Surrogates							
Sulfolane-d8	65.5		40-100		%	1	06/26/13 20:29

Batch Information

Analytical Batch: XMS7395
Analytical Method: Sulfolane-EPA1625B w/Iso Dil-W
Analyst: DSH
Analytical Date/Time: 06/26/13 20:29
Container ID: 1137932001-A

Prep Batch: XXX29235
Prep Method: SW3520C
Prep Date/Time: 06/24/13 10:10
Prep Initial Wt./Vol.: 950 mL
Prep Extract Vol: 1 mL

Print Date: 06/28/2013 2:17:13PM

Results of **NPR-13-SW-5W**

Client Sample ID: **NPR-13-SW-5W**
Client Project ID: **North Pole Gravel Pits**
Lab Sample ID: 1137932002
Lab Project ID: 1137932

Collection Date: 06/18/13 15:25
Received Date: 06/21/13 09:00
Matrix: Water (Surface, Eff., Ground)
Solids (%):

Results by **Semivolatile Organic GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Sulfolane	0.00652	U	0.0105	0.00326	mg/L	1	06/26/13 20:50
Surrogates							
Sulfolane-d8	64.3		40-100		%	1	06/26/13 20:50

Batch Information

Analytical Batch: XMS7395
Analytical Method: Sulfolane-EPA1625B w/Iso Dil-W
Analyst: DSH
Analytical Date/Time: 06/26/13 20:50
Container ID: 1137932002-A

Prep Batch: XXX29235
Prep Method: SW3520C
Prep Date/Time: 06/24/13 10:10
Prep Initial Wt./Vol.: 950 mL
Prep Extract Vol: 1 mL

Print Date: 06/28/2013 2:17:13PM

Results of **NPR-13-GW-5M**

Client Sample ID: **NPR-13-GW-5M**
Client Project ID: **North Pole Gravel Pits**
Lab Sample ID: 1137932003
Lab Project ID: 1137932

Collection Date: 06/18/13 14:40
Received Date: 06/21/13 09:00
Matrix: Water (Surface, Eff., Ground)
Solids (%):

Results by **Semivolatile Organic GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Sulfolane	0.00646	U	0.0104	0.00323	mg/L	1	06/26/13 21:10
Surrogates							
Sulfolane-d8	64.9		40-100		%	1	06/26/13 21:10

Batch Information

Analytical Batch: XMS7395
Analytical Method: Sulfolane-EPA1625B w/Iso Dil-W
Analyst: DSH
Analytical Date/Time: 06/26/13 21:10
Container ID: 1137932003-A

Prep Batch: XXX29235
Prep Method: SW3520C
Prep Date/Time: 06/24/13 10:10
Prep Initial Wt./Vol.: 960 mL
Prep Extract Vol: 1 mL

Print Date: 06/28/2013 2:17:13PM

Results of **NPR-13-SW-5M**

Client Sample ID: **NPR-13-SW-5M**
Client Project ID: **North Pole Gravel Pits**
Lab Sample ID: 1137932004
Lab Project ID: 1137932

Collection Date: 06/18/13 13:35
Received Date: 06/21/13 09:00
Matrix: Water (Surface, Eff., Ground)
Solids (%):

Results by **Semivolatile Organic GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Sulfolane	0.00620	U	0.0100	0.00310	mg/L	1	06/26/13 21:31
Surrogates							
Sulfolane-d8	65.7		40-100		%	1	06/26/13 21:31

Batch Information

Analytical Batch: XMS7395
Analytical Method: Sulfolane-EPA1625B w/Iso Dil-W
Analyst: DSH
Analytical Date/Time: 06/26/13 21:31
Container ID: 1137932004-A

Prep Batch: XXX29235
Prep Method: SW3520C
Prep Date/Time: 06/24/13 10:10
Prep Initial Wt./Vol.: 1000 mL
Prep Extract Vol: 1 mL

Print Date: 06/28/2013 2:17:13PM

Results of **NPR-13-SW-8E**

Client Sample ID: **NPR-13-SW-8E**
Client Project ID: **North Pole Gravel Pits**
Lab Sample ID: 1137932005
Lab Project ID: 1137932

Collection Date: 06/19/13 11:10
Received Date: 06/21/13 09:00
Matrix: Water (Surface, Eff., Ground)
Solids (%):

Results by **Semivolatile Organic GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Sulfolane	0.00660	U	0.0106	0.00330	mg/L	1	06/26/13 21:52
Surrogates							
Sulfolane-d8	57.1		40-100		%	1	06/26/13 21:52

Batch Information

Analytical Batch: XMS7395
Analytical Method: Sulfolane-EPA1625B w/Iso Dil-W
Analyst: DSH
Analytical Date/Time: 06/26/13 21:52
Container ID: 1137932005-A

Prep Batch: XXX29235
Prep Method: SW3520C
Prep Date/Time: 06/24/13 10:10
Prep Initial Wt./Vol.: 940 mL
Prep Extract Vol: 1 mL

Print Date: 06/28/2013 2:17:13PM

Results of **NPR-13-SW-4W**

Client Sample ID: **NPR-13-SW-4W**
Client Project ID: **North Pole Gravel Pits**
Lab Sample ID: 1137932006
Lab Project ID: 1137932

Collection Date: 06/19/13 16:20
Received Date: 06/21/13 09:00
Matrix: Water (Surface, Eff., Ground)
Solids (%):

Results by **Semivolatile Organic GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Sulfolane	0.00652	U	0.0105	0.00326	mg/L	1	06/26/13 22:13
Surrogates							
Sulfolane-d8	55		40-100		%	1	06/26/13 22:13

Batch Information

Analytical Batch: XMS7395
Analytical Method: Sulfolane-EPA1625B w/Iso Dil-W
Analyst: DSH
Analytical Date/Time: 06/26/13 22:13
Container ID: 1137932006-A

Prep Batch: XXX29235
Prep Method: SW3520C
Prep Date/Time: 06/24/13 10:10
Prep Initial Wt./Vol.: 950 mL
Prep Extract Vol: 1 mL

Print Date: 06/28/2013 2:17:13PM

Results of **NPR-13-GW-8M**

Client Sample ID: **NPR-13-GW-8M**
Client Project ID: **North Pole Gravel Pits**
Lab Sample ID: 1137932007
Lab Project ID: 1137932

Collection Date: 06/19/13 10:00
Received Date: 06/21/13 09:00
Matrix: Water (Surface, Eff., Ground)
Solids (%):

Results by **Semivolatile Organic GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Sulfolane	0.00646	U	0.0104	0.00323	mg/L	1	06/26/13 22:33
Surrogates							
Sulfolane-d8	75.6		40-100		%	1	06/26/13 22:33

Batch Information

Analytical Batch: XMS7395
Analytical Method: Sulfolane-EPA1625B w/Iso Dil-W
Analyst: DSH
Analytical Date/Time: 06/26/13 22:33
Container ID: 1137932007-A

Prep Batch: XXX29235
Prep Method: SW3520C
Prep Date/Time: 06/24/13 10:10
Prep Initial Wt./Vol.: 960 mL
Prep Extract Vol: 1 mL

Print Date: 06/28/2013 2:17:13PM

Results of **NPR-13-FD-1**

Client Sample ID: **NPR-13-FD-1**
Client Project ID: **North Pole Gravel Pits**
Lab Sample ID: 1137932008
Lab Project ID: 1137932

Collection Date: 06/19/13 22:00
Received Date: 06/21/13 09:00
Matrix: Water (Surface, Eff., Ground)
Solids (%):

Results by **Semivolatile Organic GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Sulfolane	0.00682	U	0.0110	0.00341	mg/L	1	06/26/13 22:54
Surrogates							
Sulfolane-d8	65.3		40-100		%	1	06/26/13 22:54

Batch Information

Analytical Batch: XMS7395
Analytical Method: Sulfolane-EPA1625B w/Iso Dil-W
Analyst: DSH
Analytical Date/Time: 06/26/13 22:54
Container ID: 1137932008-A

Prep Batch: XXX29235
Prep Method: SW3520C
Prep Date/Time: 06/24/13 10:10
Prep Initial Wt./Vol.: 910 mL
Prep Extract Vol: 1 mL

Print Date: 06/28/2013 2:17:13PM

Results of **NPR-13-SW-8M**

Client Sample ID: **NPR-13-SW-8M**
Client Project ID: **North Pole Gravel Pits**
Lab Sample ID: 1137932009
Lab Project ID: 1137932

Collection Date: 06/19/13 10:30
Received Date: 06/21/13 09:00
Matrix: Water (Surface, Eff., Ground)
Solids (%):

Results by **Semivolatile Organic GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Sulfolane	0.00640	U	0.0103	0.00320	mg/L	1	06/26/13 23:15
Surrogates							
Sulfolane-d8	64.8		40-100		%	1	06/26/13 23:15

Batch Information

Analytical Batch: XMS7395
Analytical Method: Sulfolane-EPA1625B w/Iso Dil-W
Analyst: DSH
Analytical Date/Time: 06/26/13 23:15
Container ID: 1137932009-A

Prep Batch: XXX29235
Prep Method: SW3520C
Prep Date/Time: 06/24/13 10:10
Prep Initial Wt./Vol.: 970 mL
Prep Extract Vol: 1 mL

Print Date: 06/28/2013 2:17:13PM

Results of **NPR-13-SW-4E**

Client Sample ID: **NPR-13-SW-4E**
Client Project ID: **North Pole Gravel Pits**
Lab Sample ID: 1137932010
Lab Project ID: 1137932

Collection Date: 06/19/13 17:00
Received Date: 06/21/13 09:00
Matrix: Water (Surface, Eff., Ground)
Solids (%):

Results by **Semivolatile Organic GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Sulfolane	0.00652	U	0.0105	0.00326	mg/L	1	06/26/13 23:35
Surrogates							
Sulfolane-d8	63.2		40-100		%	1	06/26/13 23:35

Batch Information

Analytical Batch: XMS7395
Analytical Method: Sulfolane-EPA1625B w/Iso Dil-W
Analyst: DSH
Analytical Date/Time: 06/26/13 23:35
Container ID: 1137932010-A

Prep Batch: XXX29235
Prep Method: SW3520C
Prep Date/Time: 06/24/13 10:10
Prep Initial Wt./Vol.: 950 mL
Prep Extract Vol: 1 mL

Print Date: 06/28/2013 2:17:13PM

Results of **NPR-13-SW-4M**

Client Sample ID: **NPR-13-SW-4M**
Client Project ID: **North Pole Gravel Pits**
Lab Sample ID: 1137932011
Lab Project ID: 1137932

Collection Date: 06/19/13 15:40
Received Date: 06/21/13 09:00
Matrix: Water (Surface, Eff., Ground)
Solids (%):

Results by **Semivolatile Organic GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Sulfolane	0.00630	U	0.0102	0.00315	mg/L	1	06/26/13 23:56
Surrogates							
Sulfolane-d8	59.8		40-100		%	1	06/26/13 23:56

Batch Information

Analytical Batch: XMS7395
Analytical Method: Sulfolane-EPA1625B w/Iso Dil-W
Analyst: DSH
Analytical Date/Time: 06/26/13 23:56
Container ID: 1137932011-A

Prep Batch: XXX29235
Prep Method: SW3520C
Prep Date/Time: 06/24/13 10:10
Prep Initial Wt./Vol.: 985 mL
Prep Extract Vol: 1 mL

Print Date: 06/28/2013 2:17:13PM

Results of **NPR-13-GW-4M**

Client Sample ID: **NPR-13-GW-4M**
Client Project ID: **North Pole Gravel Pits**
Lab Sample ID: 1137932014
Lab Project ID: 1137932

Collection Date: 06/19/13 15:15
Received Date: 06/21/13 09:00
Matrix: Water (Surface, Eff., Ground)
Solids (%):

Results by **Semivolatile Organic GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Sulfolane	0.0206		0.0104	0.00323	mg/L	1	06/27/13 00:58
Surrogates							
Sulfolane-d8	67.5		40-100		%	1	06/27/13 00:58

Batch Information

Analytical Batch: XMS7395
Analytical Method: Sulfolane-EPA1625B w/Iso Dil-W
Analyst: DSH
Analytical Date/Time: 06/27/13 00:58
Container ID: 1137932014-A

Prep Batch: XXX29235
Prep Method: SW3520C
Prep Date/Time: 06/24/13 10:10
Prep Initial Wt./Vol.: 960 mL
Prep Extract Vol: 1 mL

Print Date: 06/28/2013 2:17:13PM

Results of **NPR-13-SW-8W**

Client Sample ID: **NPR-13-SW-8W**
Client Project ID: **North Pole Gravel Pits**
Lab Sample ID: 1137932015
Lab Project ID: 1137932

Collection Date: 06/19/13 12:00
Received Date: 06/21/13 09:00
Matrix: Water (Surface, Eff., Ground)
Solids (%):

Results by **Semivolatile Organic GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Sulfolane	0.00646	U	0.0104	0.00323	mg/L	1	06/27/13 01:19
Surrogates							
Sulfolane-d8	53.5		40-100		%	1	06/27/13 01:19

Batch Information

Analytical Batch: XMS7395
Analytical Method: Sulfolane-EPA1625B w/Iso Dil-W
Analyst: DSH
Analytical Date/Time: 06/27/13 01:19
Container ID: 1137932015-A

Prep Batch: XXX29235
Prep Method: SW3520C
Prep Date/Time: 06/24/13 10:10
Prep Initial Wt./Vol.: 960 mL
Prep Extract Vol: 1 mL

Print Date: 06/28/2013 2:17:13PM

Results of **NPR-13-FD-3**

Client Sample ID: **NPR-13-FD-3**
Client Project ID: **North Pole Gravel Pits**
Lab Sample ID: 1137932016
Lab Project ID: 1137932

Collection Date: 06/20/13 22:00
Received Date: 06/22/13 10:50
Matrix: Water (Surface, Eff., Ground)
Solids (%):

Results by **Semivolatile Organic GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Sulfolane	0.00646	U	0.0104	0.00323	mg/L	1	06/27/13 03:02
Surrogates							
Sulfolane-d8	65.6		40-100		%	1	06/27/13 03:02

Batch Information

Analytical Batch: XMS7396
Analytical Method: Sulfolane-EPA1625B w/Iso Dil-W
Analyst: DSH
Analytical Date/Time: 06/27/13 03:02
Container ID: 1137932016-A

Prep Batch: XXX29235
Prep Method: SW3520C
Prep Date/Time: 06/24/13 10:10
Prep Initial Wt./Vol.: 960 mL
Prep Extract Vol: 1 mL

Print Date: 06/28/2013 2:17:13PM

Results of **NPR-13-SW-6M**

Client Sample ID: **NPR-13-SW-6M**
Client Project ID: **North Pole Gravel Pits**
Lab Sample ID: 1137932017
Lab Project ID: 1137932

Collection Date: 06/20/13 10:20
Received Date: 06/22/13 10:50
Matrix: Water (Surface, Eff., Ground)
Solids (%):

Results by **Semivolatile Organic GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Sulfolane	0.00652	U	0.0105	0.00326	mg/L	1	06/27/13 03:22
Surrogates							
Sulfolane-d8	65.7		40-100		%	1	06/27/13 03:22

Batch Information

Analytical Batch: XMS7396
Analytical Method: Sulfolane-EPA1625B w/Iso Dil-W
Analyst: DSH
Analytical Date/Time: 06/27/13 03:22
Container ID: 1137932017-A

Prep Batch: XXX29235
Prep Method: SW3520C
Prep Date/Time: 06/24/13 10:10
Prep Initial Wt./Vol.: 950 mL
Prep Extract Vol: 1 mL

Print Date: 06/28/2013 2:17:13PM

Results of **NPR-13-SW-S-S**

Client Sample ID: **NPR-13-SW-S-S**
Client Project ID: **North Pole Gravel Pits**
Lab Sample ID: 1137932018
Lab Project ID: 1137932

Collection Date: 06/20/13 16:00
Received Date: 06/22/13 10:50
Matrix: Water (Surface, Eff., Ground)
Solids (%):

Results by **Semivolatile Organic GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Sulfolane	0.00640	U	0.0103	0.00320	mg/L	1	06/27/13 03:43
Surrogates							
Sulfolane-d8	65.2		40-100		%	1	06/27/13 03:43

Batch Information

Analytical Batch: XMS7396
Analytical Method: Sulfolane-EPA1625B w/Iso Dil-W
Analyst: DSH
Analytical Date/Time: 06/27/13 03:43
Container ID: 1137932018-A

Prep Batch: XXX29235
Prep Method: SW3520C
Prep Date/Time: 06/24/13 10:10
Prep Initial Wt./Vol.: 970 mL
Prep Extract Vol: 1 mL

Print Date: 06/28/2013 2:17:13PM

Results of **NPR-13-SW-6E**

Client Sample ID: **NPR-13-SW-6E**
Client Project ID: **North Pole Gravel Pits**
Lab Sample ID: 1137932019
Lab Project ID: 1137932

Collection Date: 06/20/13 11:15
Received Date: 06/22/13 10:50
Matrix: Water (Surface, Eff., Ground)
Solids (%):

Results by **Semivolatile Organic GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Sulfolane	0.00620	U	0.0100	0.00310	mg/L	1	06/27/13 04:03
Surrogates							
Sulfolane-d8	66.6		40-100		%	1	06/27/13 04:03

Batch Information

Analytical Batch: XMS7396
Analytical Method: Sulfolane-EPA1625B w/Iso Dil-W
Analyst: DSH
Analytical Date/Time: 06/27/13 04:03
Container ID: 1137932019-A

Prep Batch: XXX29235
Prep Method: SW3520C
Prep Date/Time: 06/24/13 10:10
Prep Initial Wt./Vol.: 1000 mL
Prep Extract Vol: 1 mL

Print Date: 06/28/2013 2:17:13PM

Results of **NPR-13-SW-10M**

Client Sample ID: **NPR-13-SW-10M**
Client Project ID: **North Pole Gravel Pits**
Lab Sample ID: 1137932020
Lab Project ID: 1137932

Collection Date: 06/20/13 14:20
Received Date: 06/22/13 10:50
Matrix: Water (Surface, Eff., Ground)
Solids (%):

Results by **Semivolatile Organic GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Sulfolane	0.00642	U	0.0104	0.00321	mg/L	1	06/27/13 04:24
Surrogates							
Sulfolane-d8	58.9		40-100		%	1	06/27/13 04:24

Batch Information

Analytical Batch: XMS7396
Analytical Method: Sulfolane-EPA1625B w/Iso Dil-W
Analyst: DSH
Analytical Date/Time: 06/27/13 04:24
Container ID: 1137932020-A

Prep Batch: XXX29235
Prep Method: SW3520C
Prep Date/Time: 06/24/13 10:10
Prep Initial Wt./Vol.: 965 mL
Prep Extract Vol: 1 mL

Print Date: 06/28/2013 2:17:13PM

Results of **NPR-13-GW-6W**

Client Sample ID: **NPR-13-GW-6W**
Client Project ID: **North Pole Gravel Pits**
Lab Sample ID: 1137932021
Lab Project ID: 1137932

Collection Date: 06/20/13 12:30
Received Date: 06/22/13 10:50
Matrix: Water (Surface, Eff., Ground)
Solids (%):

Results by **Semivolatile Organic GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Sulfolane	0.00682	U	0.0110	0.00341	mg/L	1	06/27/13 04:45
Surrogates							
Sulfolane-d8	62.6		40-100		%	1	06/27/13 04:45

Batch Information

Analytical Batch: XMS7396
Analytical Method: Sulfolane-EPA1625B w/Iso Dil-W
Analyst: DSH
Analytical Date/Time: 06/27/13 04:45
Container ID: 1137932021-A

Prep Batch: XXX29235
Prep Method: SW3520C
Prep Date/Time: 06/24/13 10:10
Prep Initial Wt./Vol.: 910 mL
Prep Extract Vol: 1 mL

Print Date: 06/28/2013 2:17:13PM

Results of **NPR-13-SW-6W**

Client Sample ID: **NPR-13-SW-6W**
Client Project ID: **North Pole Gravel Pits**
Lab Sample ID: 1137932022
Lab Project ID: 1137932

Collection Date: 06/20/13 11:50
Received Date: 06/22/13 10:50
Matrix: Water (Surface, Eff., Ground)
Solids (%):

Results by **Semivolatile Organic GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Sulfolane	0.00620	U	0.0100	0.00310	mg/L	1	06/27/13 05:05
Surrogates							
Sulfolane-d8	75		40-100		%	1	06/27/13 05:05

Batch Information

Analytical Batch: XMS7396
Analytical Method: Sulfolane-EPA1625B w/Iso Dil-W
Analyst: DSH
Analytical Date/Time: 06/27/13 05:05
Container ID: 1137932022-A

Prep Batch: XXX29235
Prep Method: SW3520C
Prep Date/Time: 06/24/13 10:10
Prep Initial Wt./Vol.: 1000 mL
Prep Extract Vol: 1 mL

Print Date: 06/28/2013 2:17:13PM

Method Blank

Blank ID: MB for HBN 1456585 [XXX/29235]
Blank Lab ID: 1154633

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1137932001, 1137932002, 1137932003, 1137932004, 1137932005, 1137932006, 1137932007, 1137932008, 1137932009, 1137932010, 1137932011, 1137932014, 1137932015, 1137932016, 1137932017, 1137932018, 1137932019, 1137932020, 1137932021, 1137932022

Results by **Sulfolane-EPA1625B w/Iso Dil-W**

Parameter	Results	LOQ/CL	DL	Units
Sulfolane	0.00620U	0.0100	0.00310	mg/L
Surrogates				
Sulfolane-d8	67.1	40-100		%

Batch Information

Analytical Batch: XMS7395
Analytical Method: Sulfolane-EPA1625B w/Iso Dil-W
Instrument: HP 6890/5973 SSA
Analyst: DSH
Analytical Date/Time: 6/26/2013 7:27:00PM

Prep Batch: XXX29235
Prep Method: SW3520C
Prep Date/Time: 6/24/2013 10:10:00AM
Prep Initial Wt./Vol.: 1000 mL
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 1137932 [XXX29235]
Blank Spike Lab ID: 1154634
Date Analyzed: 06/26/2013 19:47

Spike Duplicate ID: LCSD for HBN 1137932 [XXX29235]
Spike Duplicate Lab ID: 1154635
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1137932001, 1137932002, 1137932003, 1137932004, 1137932005, 1137932006, 1137932007, 1137932008, 1137932009, 1137932010, 1137932011, 1137932014, 1137932015, 1137932016, 1137932017, 1137932018, 1137932019, 1137932020, 1137932021, 1137932022

Results by **Sulfolane-EPA1625B w/Iso Dil-W**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Sulfolane	0.015	0.0135	90	0.015	0.0138	92	(70-120)	2.70	(< 20)
Surrogates									
Sulfolane-d8	0.08	61.2	61	0.08	74.6	75	(40-100)	19.80	

Batch Information

Analytical Batch: **XMS7395**
Analytical Method: **Sulfolane-EPA1625B w/Iso Dil-W**
Instrument: **HP 6890/5973 SSA**
Analyst: **DSH**

Prep Batch: **XXX29235**
Prep Method: **SW3520C**
Prep Date/Time: **06/24/2013 10:10**
Spike Init Wt./Vol.: 0.015 mg/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 0.015 mg/L 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

Billable Matrix Spike Summary

Original Sample ID: 1137932011
MS Sample ID: 1137932012 BMS
MSD Sample ID: 1137932013 BMSD

Analysis Date: 06/26/2013 23:56
Analysis Date: 06/27/2013 0:17
Analysis Date: 06/27/2013 0:37
Matrix: Water (Surface, Eff., Ground)

QC for Samples:

Results by **Sulfolane-EPA1625B w/Iso Dil-W**

		Matrix Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Sulfolane	0.00630U	0.0152	.0141	92	0.0150	0.0155	103	60-140	9.70	(< 25)
Surrogates										
Sulfolane-d8		0.0812	.0455	56	0.0800	0.0458	57	40-100	0.68	

Batch Information

Analytical Batch: XMS7395
Analytical Method: Sulfolane-EPA1625B w/Iso Dil-W
Instrument: HP 6890/5973 SSA
Analyst: DSH
Analytical Date/Time: 6/27/2013 12:17:00AM

Prep Batch: XXX29235
Prep Method: Liq/LiqExt -Sulfolane-EPA 1625 w/IsoDil
Prep Date/Time: 6/24/2013 10:10:00AM
Prep Initial Wt./Vol.: 985.00mL
Prep Extract Vol: 1.00mL

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

SGS

CHA 1137932

Locations Nationwide

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

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

1

CLIENT: ERM Alaska

CONTACT: Sarah Christiansen PHONE NO: 907.602.4345

PROJECT NAME: North Pole Gravel Pits PROJECT/ PWSID/ PERMIT#:

REPORTS TO: Jane Paris E-MAIL: Jane.Paris@erm.com

INVOICE TO: 0149846 QUOTE #: P.O. #:

2

RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HH:MM	MATRIX/ MATRIX CODE	# CONTAINERS	Preservative Used:	TYPE C = COMP G = GRAB MI = Multi Incremental Soils	Silfolane EPA 16258	REMARKS/ LOC ID
(1)	A-B NPR-13-SW-5E	6/18/13	1615	SW	2			X	
(2)	A-B NPR-13-SW-5W	6/18/13	1525	SW	2			X	
(3)	A-B NPR-13-GW-5M	6/18/13	1440	GW	2			X	
(4)	A-B NPR-13-SW-5M	6/18/13	1335	SW	2			X	
(5)	A-B NPR-13-SW-8E	6/19/13	1110	SW	2			X	
(6)	A-B NPR-13-SW-4W	6/19/13	1620	SW	2			X	
(7)	A-B NPR-13-GW-8M	6/19/13	1000	GW	2			X	
(8)	A-B NPR-13-FD-1	6/19/13	2200	SW	2			X	
(9)	A-B NPR-13-SW-8M	6/19/13	1030	SW	2			X	
(10)	A-B NPR-13-SW-4E	6/19/13	1700	SW	2			X	

5

	Date	Time	
Relinquished By: (1) Sarah Christiansen	6/20/13	0815	Received By: 6-20-13 815
Relinquished By: (2)	6/20/13	1430	Received By:
Relinquished By: (3)	Date	Time	Received By:
Relinquished By: (4)	6/21/13	0900	Received For Laboratory By: Tatiana Downey

4

DOD Project? YES (NO)

Cooler ID:

Data Deliverable Requirements:

Requested Turnaround Time and-or Special Instructions: Standard

Temp Blank °C: 4.2, 5.5, 4.0 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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CI 1137932

Locations Nationwide
Alaska Maryland
New Jersey New York
North Carolina Indiana
West Virgina Kentucky
www.us.sgs.com

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

1

CLIENT: ERM Alaska
CONTACT: Sarah Christiansen PHONE NO: 907.602.7345
PROJECT NAME: North Pole Gravel Pits PROJECT/ PWSID/ PERMIT#:
REPORTS TO: Jane Paris E-MAIL: jane.paris@erm.com
INVOICE TO: 0149896 QUOTE #: P.O. #:

2

RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HH:MM	MATRIX/ MATRIX CODE	# CONTAINERS	Preservative Used:	TYPE C = COMP G = GRAB MI = Multi Incremental Soils	Sulfolane EPA 1625B	REMARKS/ LOC ID
(17)(18)(D) A-B	NPR-13-SW-4M	6/19/13	1540	SW	6			X	MS/MSP
(19) A-B	NPR-13-GW-4M	6/19/13	1515	GW	2			X	
(15) A-B	NPR-13-SW-8W	6/19/13	1200	SW	2			X	

5

Relinquished By: (1)	Date	Time	Received By:
Sarah Christiansen	6/20/13	0815	6/20/13 815
Relinquished By: (2)	Date	Time	Received By:
	6-20-13	1430	
Relinquished By: (3)	Date	Time	Received By:
Relinquished By: (4)	Date	Time	Received For Laboratory By:
	6/21/13	0900	Britany Jones

4

DOD Project? YES NO
Cooler ID:

Data Deliverable Requirements:

Requested Turnaround Time and-or Special Instructions:
standard

Temp Blank °C: 4.2, 5.5, 4.0
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

http://www.sgs.com/terms_and_conditions.htm

SGS

1137932

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 N/A	1 front each
Temperature blank compliant* (i.e., 0-6°C after correction factor)? * *Note: Exemption permitted for chilled samples collected less than 8 hours ago.* Cooler ID: 1 @ 4.2 w/ Therm.ID: 240 Cooler ID: 2 @ 5.5 w/ Therm.ID: 241 Cooler ID: 3 @ 4.0 w/ Therm.ID: 240 Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ *Note: If non-compliant, use form FS-0029 to document affected samples/analyses.* 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." **If temperature(s) <0°C, were all sample containers ice free?**	(Yes) No N/A	
Delivery method (specify all that apply): (Client) USPS Alert Courier C&D Delivery AK Air Lynden Carlile ERA PenAir FedEx UPS NAC Other: → *For WO# with airbills, was the WO# & airbill info recorded in the Front Counter eLog?*	Note ABN/ tracking # See Attached or N/A Yes No (N/A)	
→ For samples received with payment, note amount ($) and cash / check / CC (**circle one**) or note: → For samples **received in FBKS**, ANCH staff will verify all criteria are reviewed.	SRF Initiated by: JD (N/A) N/A	
Were samples received within hold time? *Note: Refer to form F-083 "Sample Guide" for hold time information.* Do samples **match COC*** (i.e., sample IDs, dates/times collected)? * *Note: Exemption permitted if times differ <1hr; in which case, use times on COC.* Were analyses requested unambiguous?	(Yes) No N/A (Yes) No N/A (Yes) No N/A	
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 N/A	
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)	
Were **proper containers** (type/mass/volume/preservative*) used? * *Note: Exemption permitted for waters to be analyzed for metals.* Were **Trip Blanks** (i.e., VOAs, LL-Hg) in cooler with samples?	(Yes) No N/A Yes No (N/A)	
For **special handling** (e.g., "MI" or foreign soils, lab filter, limited volume, Ref Lab), were bottles/paperwork flagged (e.g., sticker)?	Yes No (N/A)	
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 **RUSH/SHORT Hold Time**, were COC/Bottles flagged accordingly? Was Rush/Short HT email sent, if applicable?	(Yes) No N/A	Earliest Samples break: 6-25-13 10
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: HLG PM = (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.*

SGS

1137932

SAMPLE RECEIPT FORM FOR TRANSFERS

Note: This form is to be completed by Anchorage Sample Receiving staff for all shipments received at SGS-Anchorage from SGS-Fairbanks.

Were samples received numbered with all criteria on Sample Receipt Form F0004 documented by Fairbanks Sample Receiving staff? If "No," ***Anchorage Sample Receiving staff must complete the receiving process & document pH verification, sample condition, etc. on the SRF initiated by Fairbanks staff*** (attached).	Yes (No) N/A	Use space below for additional notes…

Review Criteria:	Condition:	Comments/Action Taken:
Were **custody seals** intact? Note # & location: COC accompanied samples?	(Yes) No N/A (Yes) No N/A	
Temperature blank compliant (i.e., 0-6°C after correction factor)? Cooler ID: 1 @ 2.0 w/ Therm.ID: 35 Cooler ID: 2 @ 1.7 w/ Therm.ID: 242 Cooler ID: 3 @ 2.2 w/ Therm.ID: 11 Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ ***Note: If non-compliant, use form FS-0029 to document affected samples/analyses.*** 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." **If temperature(s) <0°C, were all containers ice free?**	(Yes) No N/A Yes No (N/A)	
Delivery method: (Lynden) Other:		
Completed by: Kristy Gurney		

SGS

SGS North America Inc.
CHAIN OF CUSTODY RECORD

1137932

Locations Nationwide
Alaska Maryland
New Jersey New York
North Carolina Indiana
West Virgina Kentucky
www.us.sgs.com

(1)
CLIENT: ERM Alaska
CONTACT: Sarah Christiansen PHONE NO: 907.602.4945
PROJECT NAME: North Fork Gravel Pits PROJECT/ PWSID/ PERMIT#:
REPORTS TO: Jane Paris E-MAIL: Jane.Paris@erm.com
INVOICE TO: ERM QUOTE #:
P.O. #: 0149810

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

(2) (3)

RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HH:MM	MATRIX/ MATRIX CODE	# CONTAINERS	Preservative Used:	TYPE C = COMP G = GRAB BI = Bulk Incremental Soils	Sulfolane EPA 1625B	REMARKS/ LOC ID
(16) A-B	NPR-13-FD-3	6/20/13	2200	SW	2			X	
(17) A-B	NPR-13-SW-10M	6/20/13	1020	SW	2			X	
(18) A-B	NPR-13-SW-SS	6/20/13	1600	SW	2			X	
(19) A-B	NPR-13-SW-10E	6/20/13	1115	SW	2			X	
(20) A-B	NPR-13-SW-10M	6/20/13	1420	SW	2			X	
(21) A-B	NPR-13-SW-10W	6/20/13	1230	SW	2			X	
(22) A-B	NPR-13-SW-10W	6/20/13	1150	SW	2			X	

(5)

Relinquished By: (1)	Date	Time	Received By:
Sarah Christiansen	6/21/13	830	6/21/13 830
Relinquished By: (2)	Date	Time	Received By:
	6/21/13		
Relinquished By: (3)	Date	Time	Received By:
Relinquished By: (4)	Date	Time	Received For Laboratory By:

(4)
DOD Project? YES (NO)
Cooler ID:
Data Deliverable Requirements:
Requested Turnaround Time and-or Special Instructions:
Standard
Temp Blank °C: 4.9, 4.3
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

1137932

SGS WO#

SAMPLE RECEIPT FORM

Review Criteria:	Condition:	Comments/Action Taken:
Were **custody seals** intact? Note # & location, if applicable.	Yes No N/A	
COC accompanied samples?	Yes No N/A	
Temperature blank compliant* (i.e., 0-6°C after correction factor)?	Yes No N/A	1 front each
** Note: Exemption permitted for chilled samples collected less than 8 hours ago.*		
Cooler ID: 1 @ 4.9 w/ Therm.ID: 241		
Cooler ID: 2 @ 4.3 w/ Therm.ID: 240		
Cooler ID: ____ @ ____ w/ Therm.ID: ____		
Cooler ID: ____ @ ____ w/ Therm.ID: ____		
Cooler ID: ____ @ ____ w/ Therm.ID: ____		
Note: If non-compliant, use form FS-0029 to document affected samples/analyses.		
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."		
If temperature(s) <0°C, were all sample containers ice free?	Yes No N/A	
Delivery method (specify all that apply): USPS, Alert Courier, C&D Delivery, Client, ~~AK Air~~, Lynden, Carlile, ERA, PenAir, FedEx, UPS, NAC, Other:	Note ABN/ tracking #	
→ *For WO# with airbills, was the WO# & airbill info recorded in the Front Counter eLog?*	See Attached or N/A	
→ For samples received with payment, note amount ($) and cash / check / CC (**circle one**) or note:	Yes No N/A	
→ For samples **received in FBKS**, ANCH staff will verify all criteria are reviewed.		SRF Initiated by: ~~N/A~~ N/A
Were samples received within hold time? *Note: Refer to form F-083 "Sample Guide" for hold time information.*	Yes No N/A	
Do samples **match COC*** (i.e., sample IDs, dates/times collected)? ** Note: Exemption permitted if times differ <1hr; in which case, use times on COC.*	Yes No N/A	
Were analyses requested unambiguous?	Yes No N/A	
Were samples in **good condition** (no leaks/cracks/breakage)?	Yes No N/A	
Packing material used (specify all that apply): Bubble Wrap, Separate plastic bags, Vermiculite, Other:		
Were all VOA vials **free of headspace** (i.e., bubbles ≤6 mm)?	Yes No N/A	
Were all soil VOAs **field extracted** with MeOH+BFB?	Yes No N/A	
Were **proper containers** (type/mass/volume/preservative*) used? ** Note: Exemption permitted for waters to be analyzed for metals.*	Yes No N/A	
Were **Trip Blanks** (i.e., VOAs, LL-Hg) in cooler with samples?	Yes No N/A	
For **special handling** (e.g., "MI" or foreign soils, lab filter, limited volume, Ref Lab), were bottles/paperwork flagged (e.g., sticker)?	Yes No N/A	
For preserved waters (other than VOA vials, LL-Mercury or microbiological analyses), was **pH verified and compliant?**	Yes No N/A	
If pH was adjusted, were bottles flagged (i.e., stickers)?	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:
Was **PEER REVIEW** of *sample numbering/labeling completed?*	Yes No N/A	PM = N/A
Additional notes (if applicable):		Peer Reviewed by: N/A

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

Laboratory Report of Analysis

To: Oasis Env/ERM-West, Inc.
825 W. 8th Ave.
Anchorage, AK 99516
(907)246-4461

Report Number: **1137945**

Client Project: **North Pole Gravel Pits**

Dear Jane Paris,

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 Chuck at (907) 562-2343. We will be happy to answer any questions or concerns which you may have.

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

Sincerely,
SGS North America Inc.

_____

Chuck Homestead Date
Project Manager
Charles.Homestead@sgs.com

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

Case Narrative

SGS Client: **Oasis Env/ERM-West, Inc.**
SGS Project: **1137945**
Project Name/Site: **North Pole Gravel Pits**
Project Contact: **Jane Paris**

Refer to sample receipt form for information on sample condition.

NPR-13-SO-4W MSD (1137945004) BMSD

SULF SOIL - MSD recovery for sulfolane is outside of QC criteria (biased high). Refer to LCS for accuracy.
SULF SOIL - MS/MSD RPD for sulfolane does not meet QC criteria. Sulfolane was not detected above the LOQ in the parent sample.

*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., 2xDL)
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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t 907.562.2343 **f** 907.561.5301 www.us.sgs.com

Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
NPR-13-SO-8M	1137945001	06/19/2013	06/22/2013	Soil/Solid (dry weight)
NPR-13-SO-4W	1137945002	06/19/2013	06/22/2013	Soil/Solid (dry weight)
NPR-13-SO-4W MS	1137945003	06/19/2013	06/22/2013	Soil/Solid (dry weight)
NPR-13-SO-4W MSD	1137945004	06/19/2013	06/22/2013	Soil/Solid (dry weight)
NPR-13-SO-8W	1137945005	06/19/2013	06/22/2013	Soil/Solid (dry weight)
NPR-13-SO-4E	1137945006	06/19/2013	06/22/2013	Soil/Solid (dry weight)
NPR-13-SO-5W	1137945007	06/18/2013	06/22/2013	Soil/Solid (dry weight)
NPR-13-SO-4M	1137945008	06/19/2013	06/22/2013	Soil/Solid (dry weight)
NPR-13-FD-2	1137945009	06/19/2013	06/22/2013	Soil/Solid (dry weight)
NPR-13-SO-8E	1137945010	06/19/2013	06/22/2013	Soil/Solid (dry weight)
NPR-13-SO-5M	1137945011	06/18/2013	06/22/2013	Soil/Solid (dry weight)
NPR-13-SO-5E	1137945012	06/18/2013	06/22/2013	Soil/Solid (dry weight)
NPR-13-SO-5-S	1137945013	06/20/2013	06/22/2013	Soil/Solid (dry weight)
NPR-13-SO-6W	1137945014	06/20/2013	06/22/2013	Soil/Solid (dry weight)
NPR-13-SO-6M	1137945015	06/20/2013	06/22/2013	Soil/Solid (dry weight)
NPR-13-SO-10M	1137945016	06/20/2013	06/22/2013	Soil/Solid (dry weight)
NPR-13-SO-6E	1137945017	06/20/2013	06/22/2013	Soil/Solid (dry weight)
NPR-13-FD-4	1137945018	06/20/2013	06/22/2013	Soil/Solid (dry weight)
NPR-13-SO-S1-N	1137945019	06/21/2013	06/22/2013	Soil/Solid (dry weight)
NPR-13-SO-S-M	1137945020	06/21/2013	06/22/2013	Soil/Solid (dry weight)

Method	Method Description
SM21 2540G	Percent Solids SM2540G
Sulfolane-SW8270D M w/IsoDl S	Sulfolane SW8270D-M w/IsoDil(S)

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

Detectable Results Summary

Client Sample ID: **NPR-13-SO-8W**
Lab Sample ID: 1137945005
Semivolatile Organic GC/MS

Parameter	Result	Units
Sulfolane	0.0109J	mg/Kg

Print Date: 06/28/2013 2:18:24PM

Results of **NPR-13-SO-8M**

Client Sample ID: **NPR-13-SO-8M**
Client Project ID: **North Pole Gravel Pits**
Lab Sample ID: 1137945001
Lab Project ID: 1137945

Collection Date: 06/19/13 10:20
Received Date: 06/22/13 10:50
Matrix: Soil/Solid (dry weight)
Solids (%): 77.7

Results by **Semivolatile Organic GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Sulfolane	0.00786	U	0.0127	0.00393	mg/Kg	1	06/27/13 10:35
Surrogates							
Sulfolane-d8	90.5		50-120		%	1	06/27/13 10:35

Batch Information

Analytical Batch: XMS7397
Analytical Method: Sulfolane-SW8270D M w/IsoDl Sl
Analyst: DSH
Analytical Date/Time: 06/27/13 10:35
Container ID: 1137945001-A

Prep Batch: XXX29242
Prep Method: SW3550C
Prep Date/Time: 06/25/13 09:45
Prep Initial Wt./Vol.: 30.458 g
Prep Extract Vol: 1 mL

Print Date: 06/28/2013 2:18:25PM

Results of **NPR-13-SO-4W**

Client Sample ID: **NPR-13-SO-4W**
Client Project ID: **North Pole Gravel Pits**
Lab Sample ID: 1137945002
Lab Project ID: 1137945

Collection Date: 06/19/13 16:30
Received Date: 06/22/13 10:50
Matrix: Soil/Solid (dry weight)
Solids (%): 57.7

Results by **Semivolatile Organic GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Sulfolane	0.0107	U	0.0172	0.00535	mg/Kg	1	06/27/13 10:43
Surrogates							
Sulfolane-d8	95.9		50-120		%	1	06/27/13 10:43

Batch Information

Analytical Batch: XMS7397
Analytical Method: Sulfolane-SW8270D M w/IsoDl Sl
Analyst: DSH
Analytical Date/Time: 06/27/13 10:43
Container ID: 1137945002-A

Prep Batch: XXX29242
Prep Method: SW3550C
Prep Date/Time: 06/25/13 09:45
Prep Initial Wt./Vol.: 30.148 g
Prep Extract Vol: 1 mL

Print Date: 06/28/2013 2:18:25PM

Results of **NPR-13-SO-8W**

Client Sample ID: **NPR-13-SO-8W**
Client Project ID: **North Pole Gravel Pits**
Lab Sample ID: 1137945005
Lab Project ID: 1137945

Collection Date: 06/19/13 12:10
Received Date: 06/22/13 10:50
Matrix: Soil/Solid (dry weight)
Solids (%): 72.7

Results by **Semivolatile Organic GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Sulfolane	0.0109	J	0.0136	0.00422	mg/Kg	1	06/27/13 11:05
Surrogates							
Sulfolane-d8	89.6		50-120		%	1	06/27/13 11:05

Batch Information

Analytical Batch: XMS7397
Analytical Method: Sulfolane-SW8270D M w/IsoDl Sl
Analyst: DSH
Analytical Date/Time: 06/27/13 11:05
Container ID: 1137945005-A

Prep Batch: XXX29242
Prep Method: SW3550C
Prep Date/Time: 06/25/13 09:45
Prep Initial Wt./Vol.: 30.342 g
Prep Extract Vol: 1 mL

Print Date: 06/28/2013 2:18:25PM

Results of **NPR-13-SO-4E**

Client Sample ID: **NPR-13-SO-4E**
Client Project ID: **North Pole Gravel Pits**
Lab Sample ID: 1137945006
Lab Project ID: 1137945

Collection Date: 06/19/13 17:10
Received Date: 06/22/13 10:50
Matrix: Soil/Solid (dry weight)
Solids (%): 51.2

Results by **Semivolatile Organic GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Sulfolane	0.0120	U	0.0194	0.00602	mg/Kg	1	06/27/13 11:13
Surrogates							
Sulfolane-d8	91.7		50-120		%	1	06/27/13 11:13

Batch Information

Analytical Batch: XMS7397
Analytical Method: Sulfolane-SW8270D M w/IsoDl Sl
Analyst: DSH
Analytical Date/Time: 06/27/13 11:13
Container ID: 1137945006-A

Prep Batch: XXX29242
Prep Method: SW3550C
Prep Date/Time: 06/25/13 09:45
Prep Initial Wt./Vol.: 30.155 g
Prep Extract Vol: 1 mL

Print Date: 06/28/2013 2:18:25PM

Results of **NPR-13-SO-5W**

Client Sample ID: **NPR-13-SO-5W**
Client Project ID: **North Pole Gravel Pits**
Lab Sample ID: 1137945007
Lab Project ID: 1137945

Collection Date: 06/18/13 15:45
Received Date: 06/22/13 10:50
Matrix: Soil/Solid (dry weight)
Solids (%): 86.7

Results by **Semivolatile Organic GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Sulfolane	0.00706	U	0.0114	0.00353	mg/Kg	1	06/27/13 11:20
Surrogates							
Sulfolane-d8	94.4		50-120		%	1	06/27/13 11:20

Batch Information

Analytical Batch: XMS7397
Analytical Method: Sulfolane-SW8270D M w/IsoDl Sl
Analyst: DSH
Analytical Date/Time: 06/27/13 11:20
Container ID: 1137945007-A

Prep Batch: XXX29242
Prep Method: SW3550C
Prep Date/Time: 06/25/13 09:45
Prep Initial Wt./Vol.: 30.405 g
Prep Extract Vol: 1 mL

Print Date: 06/28/2013 2:18:25PM

Results of **NPR-13-SO-4M**

Client Sample ID: **NPR-13-SO-4M**
Client Project ID: **North Pole Gravel Pits**
Lab Sample ID: 1137945008
Lab Project ID: 1137945

Collection Date: 06/19/13 15:50
Received Date: 06/22/13 10:50
Matrix: Soil/Solid (dry weight)
Solids (%): 79.2

Results by **Semivolatile Organic GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Sulfolane	0.00772	U	0.0125	0.00386	mg/Kg	1	06/27/13 11:28
Surrogates							
Sulfolane-d8	91.9		50-120		%	1	06/27/13 11:28

Batch Information

Analytical Batch: XMS7397
Analytical Method: Sulfolane-SW8270D M w/IsoDl Sl
Analyst: DSH
Analytical Date/Time: 06/27/13 11:28
Container ID: 1137945008-A

Prep Batch: XXX29242
Prep Method: SW3550C
Prep Date/Time: 06/25/13 09:45
Prep Initial Wt./Vol.: 30.396 g
Prep Extract Vol: 1 mL

Print Date: 06/28/2013 2:18:25PM

Results of **NPR-13-FD-2**

Client Sample ID: **NPR-13-FD-2**
Client Project ID: **North Pole Gravel Pits**
Lab Sample ID: 1137945009
Lab Project ID: 1137945

Collection Date: 06/19/13 23:00
Received Date: 06/22/13 10:50
Matrix: Soil/Solid (dry weight)
Solids (%): 72.6

Results by **Semivolatile Organic GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Sulfolane	0.00842	U	0.0136	0.00421	mg/Kg	1	06/27/13 11:35
Surrogates							
Sulfolane-d8	84.3		50-120		%	1	06/27/13 11:35

Batch Information

Analytical Batch: XMS7397
Analytical Method: Sulfolane-SW8270D M w/IsoDl Sl
Analyst: DSH
Analytical Date/Time: 06/27/13 11:35
Container ID: 1137945009-A

Prep Batch: XXX29242
Prep Method: SW3550C
Prep Date/Time: 06/25/13 09:45
Prep Initial Wt./Vol.: 30.427 g
Prep Extract Vol: 1 mL

Print Date: 06/28/2013 2:18:25PM

Results of **NPR-13-SO-8E**

Client Sample ID: **NPR-13-SO-8E**
Client Project ID: **North Pole Gravel Pits**
Lab Sample ID: 1137945010
Lab Project ID: 1137945

Collection Date: 06/19/13 11:20
Received Date: 06/22/13 10:50
Matrix: Soil/Solid (dry weight)
Solids (%): 72.3

Results by **Semivolatile Organic GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Sulfolane	0.00852	U	0.0137	0.00426	mg/Kg	1	06/27/13 11:43
Surrogates							
Sulfolane-d8	92.8		50-120		%	1	06/27/13 11:43

Batch Information

Analytical Batch: XMS7397
Analytical Method: Sulfolane-SW8270D M w/IsoDl Sl
Analyst: DSH
Analytical Date/Time: 06/27/13 11:43
Container ID: 1137945010-A

Prep Batch: XXX29242
Prep Method: SW3550C
Prep Date/Time: 06/25/13 09:45
Prep Initial Wt./Vol.: 30.175 g
Prep Extract Vol: 1 mL

Print Date: 06/28/2013 2:18:25PM

Results of **NPR-13-SO-5M**

Client Sample ID: **NPR-13-SO-5M**
Client Project ID: **North Pole Gravel Pits**
Lab Sample ID: 1137945011
Lab Project ID: 1137945

Collection Date: 06/18/13 14:55
Received Date: 06/22/13 10:50
Matrix: Soil/Solid (dry weight)
Solids (%): 82.9

Results by **Semivolatile Organic GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Sulfolane	0.00746	U	0.0120	0.00373	mg/Kg	1	06/27/13 11:50
Surrogates							
Sulfolane-d8	97.2		50-120		%	1	06/27/13 11:50

Batch Information

Analytical Batch: XMS7397
Analytical Method: Sulfolane-SW8270D M w/IsoDl Sl
Analyst: DSH
Analytical Date/Time: 06/27/13 11:50
Container ID: 1137945011-A

Prep Batch: XXX29242
Prep Method: SW3550C
Prep Date/Time: 06/25/13 09:45
Prep Initial Wt./Vol.: 30.087 g
Prep Extract Vol: 1 mL

Print Date: 06/28/2013 2:18:25PM

Results of **NPR-13-SO-5E**

Client Sample ID: **NPR-13-SO-5E**
Client Project ID: **North Pole Gravel Pits**
Lab Sample ID: 1137945012
Lab Project ID: 1137945

Collection Date: 06/18/13 16:45
Received Date: 06/22/13 10:50
Matrix: Soil/Solid (dry weight)
Solids (%): 83.0

Results by **Semivolatile Organic GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Sulfolane	0.00734	U	0.0118	0.00367	mg/Kg	1	06/27/13 11:58
Surrogates							
Sulfolane-d8	87		50-120		%	1	06/27/13 11:58

Batch Information

Analytical Batch: XMS7397
Analytical Method: Sulfolane-SW8270D M w/IsoDl Sl
Analyst: DSH
Analytical Date/Time: 06/27/13 11:58
Container ID: 1137945012-A

Prep Batch: XXX29242
Prep Method: SW3550C
Prep Date/Time: 06/25/13 09:45
Prep Initial Wt./Vol.: 30.497 g
Prep Extract Vol: 1 mL

Print Date: 06/28/2013 2:18:25PM

Results of **NPR-13-SO-5-S**

Client Sample ID: **NPR-13-SO-5-S**
Client Project ID: **North Pole Gravel Pits**
Lab Sample ID: 1137945013
Lab Project ID: 1137945

Collection Date: 06/20/13 16:10
Received Date: 06/22/13 10:50
Matrix: Soil/Solid (dry weight)
Solids (%): 64.7

Results by **Semivolatile Organic GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Sulfolane	0.00956	U	0.0154	0.00478	mg/Kg	1	06/27/13 12:05
Surrogates							
Sulfolane-d8	97.1		50-120		%	1	06/27/13 12:05

Batch Information

Analytical Batch: XMS7397
Analytical Method: Sulfolane-SW8270D M w/IsoDl Sl
Analyst: DSH
Analytical Date/Time: 06/27/13 12:05
Container ID: 1137945013-A

Prep Batch: XXX29242
Prep Method: SW3550C
Prep Date/Time: 06/25/13 09:45
Prep Initial Wt./Vol.: 30.076 g
Prep Extract Vol: 1 mL

Print Date: 06/28/2013 2:18:25PM

Results of **NPR-13-SO-6W**

Client Sample ID: **NPR-13-SO-6W**
Client Project ID: **North Pole Gravel Pits**
Lab Sample ID: 1137945014
Lab Project ID: 1137945

Collection Date: 06/20/13 11:55
Received Date: 06/22/13 10:50
Matrix: Soil/Solid (dry weight)
Solids (%): 88.3

Results by **Semivolatile Organic GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Sulfolane	0.00696	U	0.0112	0.00348	mg/Kg	1	06/27/13 12:13
Surrogates							
Sulfolane-d8	93.9		50-120		%	1	06/27/13 12:13

Batch Information

Analytical Batch: XMS7397
Analytical Method: Sulfolane-SW8270D M w/IsoDl Sl
Analyst: DSH
Analytical Date/Time: 06/27/13 12:13
Container ID: 1137945014-A

Prep Batch: XXX29242
Prep Method: SW3550C
Prep Date/Time: 06/25/13 09:45
Prep Initial Wt./Vol.: 30.212 g
Prep Extract Vol: 1 mL

Print Date: 06/28/2013 2:18:25PM

Results of **NPR-13-SO-6M**

Client Sample ID: **NPR-13-SO-6M**
Client Project ID: **North Pole Gravel Pits**
Lab Sample ID: 1137945015
Lab Project ID: 1137945

Collection Date: 06/20/13 10:30
Received Date: 06/22/13 10:50
Matrix: Soil/Solid (dry weight)
Solids (%): 88.7

Results by **Semivolatile Organic GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Sulfolane	0.00694	U	0.0112	0.00347	mg/Kg	1	06/27/13 12:20
Surrogates							
Sulfolane-d8	98.4		50-120		%	1	06/27/13 12:20

Batch Information

Analytical Batch: XMS7397
Analytical Method: Sulfolane-SW8270D M w/IsoDl Sl
Analyst: DSH
Analytical Date/Time: 06/27/13 12:20
Container ID: 1137945015-A

Prep Batch: XXX29242
Prep Method: SW3550C
Prep Date/Time: 06/25/13 09:45
Prep Initial Wt./Vol.: 30.228 g
Prep Extract Vol: 1 mL

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Results of **NPR-13-SO-10M**

Client Sample ID: **NPR-13-SO-10M**
Client Project ID: **North Pole Gravel Pits**
Lab Sample ID: 1137945016
Lab Project ID: 1137945

Collection Date: 06/20/13 14:30
Received Date: 06/22/13 10:50
Matrix: Soil/Solid (dry weight)
Solids (%): 76.6

Results by **Semivolatile Organic GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Sulfolane	0.00804	U	0.0130	0.00402	mg/Kg	1	06/27/13 12:28
Surrogates							
Sulfolane-d8	96.9		50-120		%	1	06/27/13 12:28

Batch Information

Analytical Batch: XMS7397
Analytical Method: Sulfolane-SW8270D M w/IsoDl Sl
Analyst: DSH
Analytical Date/Time: 06/27/13 12:28
Container ID: 1137945016-A

Prep Batch: XXX29242
Prep Method: SW3550C
Prep Date/Time: 06/25/13 09:45
Prep Initial Wt./Vol.: 30.187 g
Prep Extract Vol: 1 mL

Print Date: 06/28/2013 2:18:25PM

Results of **NPR-13-SO-6E**

Client Sample ID: **NPR-13-SO-6E**
Client Project ID: **North Pole Gravel Pits**
Lab Sample ID: 1137945017
Lab Project ID: 1137945

Collection Date: 06/20/13 11:25
Received Date: 06/22/13 10:50
Matrix: Soil/Solid (dry weight)
Solids (%): 88.7

Results by **Semivolatile Organic GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Sulfolane	0.00698	U	0.0113	0.00349	mg/Kg	1	06/27/13 12:35
Surrogates							
Sulfolane-d8	96.1		50-120		%	1	06/27/13 12:35

Batch Information

Analytical Batch: XMS7397
Analytical Method: Sulfolane-SW8270D M w/IsoDl Sl
Analyst: DSH
Analytical Date/Time: 06/27/13 12:35
Container ID: 1137945017-A

Prep Batch: XXX29242
Prep Method: SW3550C
Prep Date/Time: 06/25/13 09:45
Prep Initial Wt./Vol.: 30.047 g
Prep Extract Vol: 1 mL

Print Date: 06/28/2013 2:18:25PM

Results of **NPR-13-FD-4**

Client Sample ID: **NPR-13-FD-4**
Client Project ID: **North Pole Gravel Pits**
Lab Sample ID: 1137945018
Lab Project ID: 1137945

Collection Date: 06/20/13 23:00
Received Date: 06/22/13 10:50
Matrix: Soil/Solid (dry weight)
Solids (%): 73.2

Results by **Semivolatile Organic GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Sulfolane	0.00842	U	0.0136	0.00421	mg/Kg	1	06/27/13 12:43
Surrogates							
Sulfolane-d8	94.1		50-120		%	1	06/27/13 12:43

Batch Information

Analytical Batch: XMS7397
Analytical Method: Sulfolane-SW8270D M w/IsoDl Sl
Analyst: DSH
Analytical Date/Time: 06/27/13 12:43
Container ID: 1137945018-A

Prep Batch: XXX29242
Prep Method: SW3550C
Prep Date/Time: 06/25/13 09:45
Prep Initial Wt./Vol.: 30.196 g
Prep Extract Vol: 1 mL

Print Date: 06/28/2013 2:18:25PM

Results of **NPR-13-SO-S1-N**

Client Sample ID: **NPR-13-SO-S1-N**
Client Project ID: **North Pole Gravel Pits**
Lab Sample ID: 1137945019
Lab Project ID: 1137945

Collection Date: 06/21/13 11:25
Received Date: 06/22/13 10:50
Matrix: Soil/Solid (dry weight)
Solids (%): 76.2

Results by **Semivolatile Organic GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Sulfolane	0.00806	U	0.0130	0.00403	mg/Kg	1	06/27/13 13:21
Surrogates							
Sulfolane-d8	87.4		50-120		%	1	06/27/13 13:21

Batch Information

Analytical Batch: XMS7398
Analytical Method: Sulfolane-SW8270D M w/IsoDl Sl
Analyst: DSH
Analytical Date/Time: 06/27/13 13:21
Container ID: 1137945019-A

Prep Batch: XXX29242
Prep Method: SW3550C
Prep Date/Time: 06/25/13 09:45
Prep Initial Wt./Vol.: 30.254 g
Prep Extract Vol: 1 mL

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Results of **NPR-13-SO-S-M**

Client Sample ID: **NPR-13-SO-S-M**
Client Project ID: **North Pole Gravel Pits**
Lab Sample ID: 1137945020
Lab Project ID: 1137945

Collection Date: 06/21/13 10:20
Received Date: 06/22/13 10:50
Matrix: Soil/Solid (dry weight)
Solids (%): 77.6

Results by **Semivolatile Organic GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Date Analyzed
Sulfolane	0.00796	U	0.0128	0.00398	mg/Kg	1	06/27/13 13:29
Surrogates							
Sulfolane-d8	96.8		50-120		%	1	06/27/13 13:29

Batch Information

Analytical Batch: XMS7398
Analytical Method: Sulfolane-SW8270D M w/IsoDl Sl
Analyst: DSH
Analytical Date/Time: 06/27/13 13:29
Container ID: 1137945020-A

Prep Batch: XXX29242
Prep Method: SW3550C
Prep Date/Time: 06/25/13 09:45
Prep Initial Wt./Vol.: 30.117 g
Prep Extract Vol: 1 mL

Print Date: 06/28/2013 2:18:25PM

Method Blank

Blank ID: MB for HBN 1456673 [SPT/9055]
Blank Lab ID: 1154879

Matrix: Soil/Solid (dry weight)

QC for Samples:
1137945001, 1137945002, 1137945005, 1137945006, 1137945007, 1137945008, 1137945009, 1137945010, 1137945011, 1137945012, 1137945013, 1137945014, 1137945015, 1137945016, 1137945017, 1137945018, 1137945019, 1137945020

Results by **SM21 2540G**

Parameter	Results	LOQ/CL	DL	Units
Total Solids	100			%

Batch Information

Analytical Batch: SPT9055
Analytical Method: SM21 2540G
Instrument:
Analyst: KRL
Analytical Date/Time: 6/24/2013 5:55:00PM

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Duplicate Sample Summary

Original Sample ID: 1137945011
Duplicate Sample ID: 1154880

Analysis Date: 06/24/2013 17:55
Matrix: Soil/Solid (dry weight)

QC for Samples:

1137945001, 1137945002, 1137945005, 1137945006, 1137945007, 1137945008, 1137945009, 1137945010, 1137945011, 1137945012, 1137945013, 1137945014, 1137945015, 1137945016, 1137945017, 1137945018, 1137945019, 1137945020

Results by **SM21 2540G**

NAME	Original (15.00)	Duplicate (15.00)	RPD (%)	RPD CL
Total Solids	82.9	82.5	0.38	15.00

Batch Information

Analytical Batch: SPT9055
Analytical Method: SM21 2540G
Instrument:
Analyst: KRL

Print Date: 06/28/2013 2:18:26PM

Method Blank

Blank ID: MB for HBN 145668[X / / 2 93949]
Blank Lab ID: 1154[39

Matrix: Soil2SoliW(Wu c eiE. tG

QC for Samples:
1178345001, 1178345009, 1178345005, 1178345006, 1178345008, 117834500[, 1178345003, 1178345010, 1178345011, 1178345019, 1178345017, 1178345014, 1178345015, 1178345016, 1178345018, 117834501[, 1178345013, 1178345090

d es) lts bu **Sulfolane-SW8270D M w/IsoDI SI**

Uarameter	d es) lts	Ly Q2CL	DL	Rnits
S) lfolane	00 0690R	00 0100	00 0710	mE2PE
Surrogates				
S) lfolaneg W[	384	50g190		-

Batch Information

%nalutiAal BatA : / MS8738
%nalutiAal Met. oW S) lfolanegSh [980D M c 2soDI SI
Instr) ment: Sw% %Eilent 8[025385 T C2MS
%nalust: DSH
%nalutiAal Date2/ime: 62982017 10:90:00%M

Urep BatA : / / / 93949
Urep Met. oW Sh 7550C
Urep Date2/ime: 62952017 3:45:00%M
Urep Initial h t2wol 70 E
Urep v xtraAt wol: 1 mL

Urint Date: 0629[2017 9:1[:98UM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1137945 [XXX29242]
Blank Spike Lab ID: 1154893
Date Analyzed: 06/27/2013 10:28

Matrix: Soil/Solid (dry weight)

QC for Samples: 1137945001, 1137945002, 1137945005, 1137945006, 1137945007, 1137945008, 1137945009, 1137945010, 1137945011, 1137945012, 1137945013, 1137945014, 1137945015, 1137945016, 1137945017, 1137945018, 1137945019, 1137945020

Results by **Sulfolane-SW8270D M w/IsoDI SI**

Blank Spike (mg/Kg)

Parameter	Spike	Result	Rec (%)	CL
Sulfolane	0.05	0.0483	97	(70-120)
Surrogates				
Sulfolane-d8	0.833	91.8	92	(50-120)

Batch Information

Analytical Batch: **XMS7397**
Analytical Method: **Sulfolane-SW8270D M w/IsoDI SI**
Instrument: **SVA Agilent 780/5975 GC/MS**
Analyst: **DSH**

Prep Batch: **XXX29242**
Prep Method: **SW3550C**
Prep Date/Time: **06/25/2013 09:45**
Spike Init Wt./Vol.: 0.05 mg/Kg Extract Vol: 1 mL
Dupe Init Wt./Vol.: Extract Vol:

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Billable Matrix Spike Summary

Original Sample ID: 1137945002
MS Sample ID: 1137945003 BMS
MSD Sample ID: 1137945004 BMSD

Analysis Date: 06/27/2013 10:43
Analysis Date: 06/27/2013 10:50
Analysis Date: 06/27/2013 10:58
Matrix: Soil/Solid (dry weight)

QC for Samples:

Results by **Sulfolane-SW8270D M w/IsoDl Sl**

		Matrix Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Sulfolane	0.0107U	0.0861	0.0901	105	0.0854	0.123	144 *	60-140	30.90	* (< 25)
Surrogates										
Sulfolane-d8		1.44	1.31	91	1.42	1.33	93	50-120	1.40	

Batch Information

Analytical Batch: XMS7397
Analytical Method: Sulfolane-SW8270D M w/IsoDl Sl
Instrument: SVA Agilent 780/5975 GC/MS
Analyst: DSH
Analytical Date/Time: 6/27/2013 10:50:00AM

Prep Batch: XXX29242
Prep Method: Sonic Ext Soil SW8270D-M IsoDl-Sulfolane
Prep Date/Time: 6/25/2013 9:45:00AM
Prep Initial Wt./Vol.: 30.19g
Prep Extract Vol: 1.00mL

Print Date: 06/28/2013 2:18:28PM

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Locations Nationwide
Alaska Maryland
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West Virgina Kentucky
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Instructions: Sections 1 - 5 must be filled out. Omissions may delay the onset of analysis. Page 1 of 2

1

CLIENT: ERM Alaska

CONTACT: Sarah Christiansen PHONE NO: 907.602.4345

PROJECT NAME: North Pole Gravel Pits PROJECT/ PWSID/ PERMIT#:

REPORTS TO: Jane Paris E-MAIL: Jane.Paris@erm.com

INVOICE TO: ERM - 0148946 QUOTE #: P.O. #:

2

RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HH:MM	MATRIX/ MATRIX CODE	# CONTAINERS	Preservative Used:	TYPE C = COMP G = GRAB MI = Multi Incremental Soils	Sulfolane EPA 1625B	REMARKS/ LOC ID
1A	NPR-13-SO-8M	6/19/13	1020	SO	1			X	
2A 4A	NPR-13-SO-4W	6/19/13	1630	SO	3			X	MS/MSD
5A	NPR-13-SO-8W	6/19/13	1210	SO	1			X	
6A	NPR-13-SO-4E	6/19/13	1710	SO	1			X	
7A	NPR-13-SO-5W	6/18/13	1545	SO	1			X	
8A	NPR-13-SO-4M	6/19/13	1550	SO	1			X	
9A	NPR-13-FD-2	6/19/13	2300	SO	1			X	
10A	NPR-13-SO-8E	6/19/13	1120	SO	1			X	
11A	NPR-13-SO-5M	6/18/13	1455	SO	1			X	
13A	NPR-13-SO-5E	6/18/13	1645	SO	1			X	

5

Relinquished By: (1)	Date	Time	Received By:
Sarah Christiansen	6/20/13	830	6-21-13 830
Relinquished By: (2)	Date	Time	Received By:
	6/21/13	1530	
Relinquished By: (3)	Date	Time	Received By:
Relinquished By: (4)	Date	Time	Received For Laboratory By:
	6/22/13	1050	

4

DOD Project? YES (NO)

Cooler ID:

Data Deliverable Requirements:

Requested Turnaround Time and-or Special Instructions:

Standard

Temp Blank °C: 4.9

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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SC CHAIN 1137945

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

Page 2 of 2

1

CLIENT: ERM Alaska

CONTACT: Sarah Christiansen PHONE NO: 907.602.4345

PROJECT NAME: North Pole Gravel Pits PROJECT/ PWSID/ PERMIT#:

REPORTS TO: Jane Paris E-MAIL: jane.paris@erm.com

INVOICE TO: ERM QUOTE #: P.O. #: 0140896

2

RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HH:MM	MATRIX/ MATRIX CODE	# CONTAINERS	3 Preservative Used:	TYPE C = COMP G = GRAB MI = Multi Incremental Soils	Silfolane EPA 1625B	REMARKS/ LOC ID
(13)A	NPR-13-SO-5-S	6/20/13	1610	SO	1			X	
(14)A	NPR-13-SO-6W	6/20/13	1155	SO	1			X	
(15)A	NPR-13-SO-6M	6/20/13	1030	SO	1			X	
(16)A	NPR-13-SO-10M	6/20/13	1430	SO	1			X	
(17)A	NPR-13-SO-6E	6/20/13	1125	SO	1			X	
(18)A	NPR-13-FD-4	6/20/13	2300	SO	1			X	

5

Relinquished By: (1)	Date	Time	Received By:
Sarah Christiansen	6/20/13	830	6-21-13 830
Relinquished By: (2)	Date	Time	Received By:
	6-21-13	1530	
Relinquished By: (3)	Date	Time	Received By:
Relinquished By: (4)	Date	Time	Received For Laboratory By:
	6/22/13	1050	

4

DOD Project? YES (NO)

Cooler ID:

Data Deliverable Requirements:

Requested Turnaround Time and-or Special Instructions: Standard

Temp Blank °C: 4.9 or Ambient [ ] (See attached Sample Receipt Form)

Chain of Custody Seal: (Circle) (INTACT) BROKEN ABSENT (See attached Sample Receipt Form)

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[ ] 5500 Business Drive Wilmington, NC 28405 Tel: (910) 350-1903 Fax: (910) 350-1557

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CHAIN OF CUSTODY RECORD

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Locations Nationwide

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

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

Page 1 of 1

1

CLIENT: ERM Alaska

CONTACT: Sarah Christiansen PHONE NO: 907.602.4345

PROJECT NAME: Gravel Pits North Pole PROJECT/ PWSID/ PERMIT#:

REPORTS TO: Jane Paris E-MAIL: Jane.Paris@erm.com

INVOICE TO: ERM QUOTE #:

P.O. #: 0149896

2

RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HH:MM	MATRIX/ MATRIX CODE	# CONTAINERS	3 Preservative Used: TYPE C = COMP G = GRAB MI = Multi Incremental Soils		SW8260 EPA 1625B									REMARKS/ LOC ID
(19) A	NPR-13-SD-S-N	6/21/13	1125	SD	1			X									
(20) A	NPR-13-SD-S-M	6/21/13	1020	SD	1			X									

5

	Date	Time	
Relinquished By: (1) Sarah Christiansen	6/21/13	1430	Received By: 6/21/13 1430
Relinquished By: (2)	6/21/13	1625	Received By:
Relinquished By: (3)			Received By:
Relinquished By: (4)	6/22/13	1050	Received For Laboratory By:

4

DOD Project? YES (NO)

Cooler ID:

Data Deliverable Requirements:

Requested Turnaround Time and-or Special Instructions:

Standard

Temp Blank °C: 5.6 ID240

or Ambient [ ]

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(INTACT) BROKEN ABSENT

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[ ] 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 N/A	front
Temperature blank compliant* (i.e., 0-6°C after correction factor)? * *Note: Exemption permitted for chilled samples collected less than 8 hours ago.* Cooler ID: 1 @ 4.9 w/ Therm.ID: 241 Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ *Note: If non-compliant, use form FS-0029 to document affected samples/analyses.* 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." **If temperature(s) <0°C, were all sample containers ice free?**	Yes No N/A Yes No N/A	
Delivery method (specify all that apply): Client USPS Alert Courier C&D Delivery AK Air Lynden Carlile ERA PenAir FedEx UPS NAC Other: → *For WO# with airbills, was the WO# & airbill info recorded in the Front Counter eLog?*	Note ABN/ tracking # See Attached or N/A Yes No N/A	
→ For samples received with payment, note amount ($) and cash / check / CC **(circle one)** or note: → For samples **received in FBKS**, ANCH staff will verify all criteria are reviewed.		SRF Initiated by: JD N/A N/A
Were samples received within hold time? *Note: Refer to form F-083 "Sample Guide" for hold time information.* Do samples **match COC*** (i.e., sample IDs, dates/times collected)? * *Note: Exemption permitted if times differ <1hr; in which case, use times on COC.* Were analyses requested unambiguous?	Yes No N/A Yes No N/A Yes No N/A	
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 N/A	
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	
Were **proper containers** (type/mass/volume/preservative*) used? * *Note: Exemption permitted for waters to be analyzed for metals.* Were **Trip Blanks** (i.e., VOAs, LL-Hg) in cooler with samples?	Yes No N/A Yes No N/A	
For **special handling** (e.g., "MI" or foreign soils, lab filter, limited volume, Ref Lab), were bottles/paperwork flagged (e.g., sticker)?	Yes No N/A	
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 **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: JAO PM = 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.*

SGS

1137945

SAMPLE RECEIPT FORM FOR TRANSFERS

Note: This form is to be completed by Anchorage Sample Receiving staff for all shipments received at SGS-Anchorage from SGS-Fairbanks.

Were samples received numbered with all criteria on Sample Receipt Form F0004 documented by Fairbanks Sample Receiving staff? If "No," ***Anchorage Sample Receiving staff must complete the receiving process & document pH verification, sample condition, etc. on the SRF initiated by Fairbanks staff*** (attached).	Yes (No) N/A	Use space below for additional notes…

Review Criteria:	Condition:	Comments/Action Taken:
Were **custody seals** intact? Note # & location:	(Yes) No N/A	
COC accompanied samples?	(Yes) No N/A	
Temperature blank compliant (i.e., 0-6°C after correction factor)?	(Yes) No N/A	
Cooler ID: 1 @ 1.0 w/ Therm.ID: 242		
Cooler ID: 2 @ 0.5 w/ Therm.ID: 242		
Cooler ID: _____ @ _____ w/ Therm.ID: _____		
Cooler ID: _____ @ _____ w/ Therm.ID: _____		
Cooler ID: _____ @ _____ w/ Therm.ID: _____		
Note: If non-compliant, use form FS-0029 to document affected samples/analyses. 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." **If temperature(s) <0°C, were all containers ice free?**	Yes No (N/A)	
Delivery method: (Lynden) Other: 10-0		
Completed by: [signature]		

Laboratory Report of Analysis

To: Oasis Env/ERM-West, Inc.
825 W. 8th Ave.
Anchorage, AK 99516
(907)246-4461

Report Number: **1137949**

Client Project: **North Pole Gravel Pits**

Dear Jane Paris,

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 Chuck at (907) 562-2343. We will be happy to answer any questions or concerns which you may have.

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

Sincerely,
SGS North America Inc.

Chuck Homestead Date
Project Manager
Charles.Homestead@sgs.com

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

Case Narrative

SGS Client: **Oasis Env/ERM-West, Inc.**
SGS Project: **1137949**
Project Name/Site: **North Pole Gravel Pits**
Project Contact: **Jane Paris**

Refer to sample receipt form for information on sample condition.

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

Print Date: 06/28/2013 11:17:16MA

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., 2xDL)
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.

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

Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
NPR-13-SW-S-M	1135E7E991	920610 6913	920660 6913	Water /S8r(aceuf ((,u. ro8ndG
NPR-13-) D-S	1135E7E996	920610 6913	920660 6913	Water /S8r(aceuf ((,u. ro8ndG
NPR-13-. W-S-M	1135E7E993	920610 6913	920660 6913	Water /S8r(aceuf ((,u. ro8ndG
NPR-13-SW-S-N	1135E7E997	920610 6913	920660 6913	Water /S8r(aceuf ((,u. ro8ndG
NPR-13-. W-19M	1135E7E994	920610 6913	920660 6913	Water /S8r(aceuf ((,u. ro8ndG
NPR-13-. W-S-S	1135E7E992	920610 6913	920660 6913	Water /S8r(aceuf ((,u. ro8ndG
NPR-13-. W-S-N	1135E7E995	920610 6913	920660 6913	Water /S8r(aceuf ((,u. ro8ndG

MetFod	MetFod Dehcription
S8l(olane-f Ps 1264A B01ho Dil-V	S8l(olane-f Ps 1264A B01ho Dil /WG

S. S NortF s merica Inc, 699 Weht Potter Driveus ncForageus K EE41:
t E95,426,6373 f E95,421,4391 BBB,8h,hgh,com

5esults of **NPR-13-SW-S-M**

Client Sample ID: **NPR-13-SW-S-M**
Client Project ID: **North Pole Gravel Pits**
Lab Sample ID: 1137929001
Lab Project ID: 1137929

Collection Date: 06/81/13 10:10
5eceiRev Date: 06/88/13 10:d0
Matrix: Water (Surface, Eff., Grounv)
Solivs (%):

5esults by **Semivolatile Organic GC/MS**

Parameter	5esult	Qual	LOQ/CL	DL	Units	DF	Date Analyzev
Sulfolane	0.00620	U	0.0103	0.00380	mg/L	1	06/8d/13 0- :3-
Surrogates							
Sulfolane4v-	78.d		204100		%	1	06/8d/13 0- :3-

Batch Information

Analytical Batch: XMS7398
Analytical Methov: Sulfolane4EPA168dB w/Iso Dil4W
Analyst: DSH
Analytical Date/Time: 06/8d/13 0- :3-
Container ID: 11379290014A

Prep Batch: XXX89832
Prep Methov: SW3d80C
Prep Date/Time: 06/82/13 10:0d
Prep Initial Wt./Vol.: 970 mL
Prep Extract Vol: 1 mL

Print Date: 06/8- /8013 11:17:1- AM

5esults of **NPR-13-FD-S**

Client Sample ID: **NPR-13-FD-S**
Client Project ID: **North Pole Gravel Pits**
Lab Sample ID: 1137929008
Lab Project ID: 1137929

Collection Date: 06/81/13 00:00
5eceiRev Date: 06/88/13 10:d0
Matrix: Water (Surface, Eff., Grounv)
Solivs (%):

5esults by **Semivolatile Organic GC/MS**

Parameter	5esult	Qual	LOQ/CL	DL	Units	DF	Date Analyzev
Sulfolane	0.006d8	U	0.010d	0.00386	mg/L	1	06/8d/13 0- :d-
Surrogates							
Sulfolane4v-	72.d		204100		%	1	06/8d/13 0- :d-

Batch Information

Analytical Batch: XMS7398
Analytical Methov: Sulfolane4EPA168dB w/Iso Dil4W
Analyst: DSH
Analytical Date/Time: 06/8d/13 0- :d-
Container ID: 11379290084A

Prep Batch: XXX89832
Prep Methov: SW3d80C
Prep Date/Time: 06/82/13 10:0d
Prep Initial Wt./Vol.: 9d0 mL
Prep Extract Vol: 1 mL

Print Date: 06/8- /8013 11:17:1- AM

5esults of **NPR-13-GW-S-M**

Client Sample ID: **NPR-13-GW-S-M**
Client Project ID: **North Pole Gravel Pits**
Lab Sample ID: 1137929003
Lab Project ID: 1137929

Collection Date: 06/81/13 10:20
5eceiRev Date: 06/88/13 10:d0
Matrix: Water (Surface, Eff., Grounv)
Solivs (%):

5esults by **Semivolatile Organic GC/MS**

Parameter	5esult	Qual	LOQ/CL	DL	Units	DF	Date Analyzev
Sulfolane	0.006d8	U	0.010d	0.00386	mg/L	1	06/8d/13 09:19
Surrogates							
Sulfolane4v-	63.3		204100		%	1	06/8d/13 09:19

Batch Information

Analytical Batch: XMS7398
Analytical Methov: Sulfolane4EPA168dB w/Iso Dil4W
Analyst: DSH
Analytical Date/Time: 06/8d/13 09:19
Container ID: 11379290034A

Prep Batch: XXX89832
Prep Methov: SW3d80C
Prep Date/Time: 06/82/13 10:0d
Prep Initial Wt./Vol.: 9d0 mL
Prep Extract Vol: 1 mL

Print Date: 06/8- /8013 11:17:1- AM

5esults of **NPR-13-SW-S-N**

Client Sample ID: **NPR-13-SW-S-N**
Client Project ID: **North Pole Gravel Pits**
Lab Sample ID: 1137929002
Lab Project ID: 1137929

Collection Date: 06/81/13 11:1d
5eceiRev Date: 06/88/13 10:d0
Matrix: Water (Surface, Eff., Grounv)
Solivs (%):

5esults by **Semivolatile Organic GC/MS**

Parameter	5esult	Qual	LOQ/CL	DL	Units	DF	Date Analyzev
Sulfolane	0.00660	U	0.0106	0.00330	mg/L	1	06/8d/13 09:20
Surrogates							
Sulfolane4v-	70.3		204100		%	1	06/8d/13 09:20

Batch Information

Analytical Batch: XMS7398
Analytical Methov: Sulfolane4EPA168dB w/Iso Dil4W
Analyst: DSH
Analytical Date/Time: 06/8d/13 09:20
Container ID: 11379290024A

Prep Batch: XXX89832
Prep Methov: SW3d80C
Prep Date/Time: 06/82/13 10:0d
Prep Initial Wt./Vol.: 920 mL
Prep Extract Vol: 1 mL

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5esults of **NPR-13-GW-10M**

Client Sample ID: **NPR-13-GW-10M**
Client Project ID: **North Pole Gravel Pits**
Lab Sample ID: 113792900d
Lab Project ID: 1137929

Collection Date: 06/81/13 13:2d
5eceiRev Date: 06/88/13 10:d0
Matrix: Water (Surface, Eff., Grounv)
Solivs (%):

5esults by **Semivolatile Organic GC/MS**

Parameter	5esult	Qual	LOQ/CL	DL	Units	DF	Date Analyzev
Sulfolane	0.00660	U	0.0106	0.00330	mg/L	1	06/8d/13 10:01
Surrogates							
Sulfolane4v-	66.d		204100		%	1	06/8d/13 10:01

Batch Information

Analytical Batch: XMS7398
Analytical Methov: Sulfolane4EPA168dB w/Iso Dil4W
Analyst: DSH
Analytical Date/Time: 06/8d/13 10:01
Container ID: 113792900d4A

Prep Batch: XXX89832
Prep Methov: SW3d80C
Prep Date/Time: 06/82/13 10:0d
Prep Initial Wt./Vol.: 920 mL
Prep Extract Vol: 1 mL

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5esults of **NPR-13-GW-S-S**

Client Sample ID: **NPR-13-GW-S-S**
Client Project ID: **North Pole Gravel Pits**
Lab Sample ID: 1137929006
Lab Project ID: 1137929

Collection Date: 06/81/13 13:00
5eceiRev Date: 06/88/13 10:d0
Matrix: Water (Surface, Eff., Grounv)
Solivs (%):

5esults by **Semivolatile Organic GC/MS**

Parameter	5esult	Qual	LOQ/CL	DL	Units	DF	Date Analyzev
Sulfolane	0.00660	U	0.0106	0.00330	mg/L	1	06/86/13 1- :2d
Surrogates							
Sulfolane4v-	72.9		204100		%	1	06/86/13 1- :2d

Batch Information

Analytical Batch: XMS739d
Analytical Methov: Sulfolane4EPA168dB w/Iso Dil4W
Analyst: DSH
Analytical Date/Time: 06/86/13 1- :2d
Container ID: 11379290064A

Prep Batch: XXX89832
Prep Methov: SW3d80C
Prep Date/Time: 06/82/13 10:0d
Prep Initial Wt./Vol.: 920 mL
Prep Extract Vol: 1 mL

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5esults of **NPR-13-GW-S-N**

Client Sample ID: **NPR-13-GW-S-N**
Client Project ID: **North Pole Gravel Pits**
Lab Sample ID: 1137929007
Lab Project ID: 1137929

Collection Date: 06/81/13 18:00
5eceiRev Date: 06/88/13 10:d0
Matrix: Water (Surface, Eff., Grounv)
Solivs (%):

5esults by **Semivolatile Organic GC/MS**

Parameter	5esult	Qual	LOQ/CL	DL	Units	DF	Date Analyzev
Sulfolane	0.00620	U	0.0103	0.00380	mg/L	1	06/86/13 19:06
Surrogates							
Sulfolane4v-	7- .7		204100		%	1	06/86/13 19:06

Batch Information

Analytical Batch: XMS739d
Analytical Methov: Sulfolane4EPA168dB w/Iso Dil4W
Analyst: DSH
Analytical Date/Time: 06/86/13 19:06
Container ID: 11379290074A

Prep Batch: XXX89832
Prep Methov: SW3d80C
Prep Date/Time: 06/82/13 10:0d
Prep Initial Wt./Vol.: 970 mL
Prep Extract Vol: 1 mL

SGS North America Inc.
800 West Potter DriRe Anchorage, AK 9dd1-
t 907.d68.8323 f 907.d61.d301 www.us.sgs.com

Method Blank

Blank ID: MB for HBN 1456584 [XXX/29234]
Blank Lab ID: 115463Q

Matrix: Watsr (murfacs, Eff., Ground)

CS for map els7:
1130949QQ1, 1130949QQ2, 1130949QQ3, 1130949QQ4, 1130949QQ5, 1130949QQ6, 1130949QQ0

Rs7ult7 by **Sulfolane-EPA1625B w/Iso Dil-W**

Parap stsr	Rs7ult7	LOC/SL	DL	Unit7
mulfolans	QQQ62QU	QQ1QQ	QQQ31Q	p g/L
Surrogates				
mulfolans-d8	09.3	4Q-1QQ		%

Batch Information

Analytical Batch: XMm0392
Analytical Msthod: mulfolans-EPA1625B w/I7o Dil-W
In7trup snt: HP 689Q/5903 mmA
Analy7t: DmH
Analytical Dats/Tip s: 6/25/2Q13 3:25:QQAM

Prse Batch: XXX29234
Prse Msthod: mW352QS
Prse Dats/Tip s: 6/24/2Q13 1Q:Q5:QQAM
Prse Initial Wt./Vol.: 1QQQ p L
Prse Extract Vol: 1 p L

mGm North Ap srica Inc.
2QQ Ws7t Pottsr Drivs Anchorags, AK 95518
t 9Q0.562.2343 **f** 9Q0.561.53Q1 www.u7.7g7.cop

Blank Spike Summary

Blank Spike ID: LCS for HBN 1137929 [XXX59532]
Blank Spike Lab ID: 1142631
Date Analyzed: 06/54/5013 03:24

Spike Duplicate ID: LCSD for HBN 1137929 [XXX59532]
Spike Duplicate Lab ID: 1142635
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1137929001, 1137929005, 1137929003, 1137929002, 1137929004, 1137929006, 1137929007

Results by **Sulfolane-EPA1625B w/Iso Dil-W**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Sulfolane	0.014	0.0127	98	0.014	0.0129	99	(70-150)	1.60	(< 50)
Surrogates									
Sulfolane-d8	0.08	81.6	85	0.08	78.6	79	(20-100)	3.70	

Batch Information

Analytical Batch: **XMS7392**
Analytical Method: **Sulfolane-EPA1625B w/Iso Dil-W**
Instrument: **HP 6890/5973 SSA**
Analyst: **DSH**

Prep Batch: **XXX2923C**
Prep Method: **SW35204**
Prep Date/Time: **06/2C/2013 10:05**
Spike Init Wt./Vol.: 0.014 mg/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 0.014 mg/L Extract Vol: 1 mL

SGS North America Inc.
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CHAIN OF CUSTODY

1137949

Locations Nationwide
Alaska Maryland
New Jersey New York
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West Virgina Kentucky
www.us.sgs.com

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

Page 1 of 1

1

CLIENT: ERM Alaska
CONTACT: Sarah Christiansen PHONE NO: 907.602.4345
PROJECT NAME: North Pole Gravel Pits PROJECT/ PWSID/ PERMIT#:
REPORTS TO: Jane Parks E-MAIL: Jane.Parks@erm.com
INVOICE TO: ERM QUOTE #: P.O. #: 0114089416

2

RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HH:MM	MATRIX/ MATRIX CODE	# CONTAINERS	3 Preservative Used: TYPE C = COMP G = GRAB MI = Multi Incremental Soils		Sulfolane EPA 8025B									REMARKS/ LOC ID
(1) AB	NPR-13-SW-S-M	6/21/13	1010	SW	2			X									
(2) AB	NPR-13 FD-S	6/21/13	2100	SW	2			X									
(3) AB	NPR-13-GW-S-M	6/21/13	1040	GW	2			X									
(4) AB	NPR-13-SW-S-N	6/21/13	1115	SW	2			X									
(5) AB	NPR-13-GW-DM	6/21/13	1345	GW	2			X									
(6) AB	NPR-13-GW-S-S	6/21/13	1300	GW	2			X									
(7) AB	NPR-13-GW-S-N	6/21/13	1200	GW	2			X									

5

Relinquished By: (1)	Date	Time	Received By:
Sarah Christiansen	6/21/13	1430	6/21/13 1430
Relinquished By: (2)	Date	Time	Received By:
	6/21/13	1625	
Relinquished By: (3)	Date	Time	Received By:
Relinquished By: (4)	Date	Time	Received For Laboratory By:
	6/22/13	1050	

4

DOD Project? YES NO
Cooler ID:

Data Deliverable Requirements:

Requested Turnaround Time and-or Special Instructions:
Standard

Temp Blank °C: 5.6 ID 240 cooler temp (2) 3.4 ID 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

http://www.sgs.com/terms_and_conditions.htm

SGS

1137949

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 N/A	1 on front
Temperature blank compliant* (i.e., 0-6°C after correction factor)? ** Note: Exemption permitted for chilled samples collected less than 8 hours ago.* Cooler ID: 1 @ 5.6°C w/ Therm.ID: 240 Cooler ID: 2 @ 3.4°C w/ Therm.ID: 241 Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ ***Note: If non-compliant, use form FS-0029 to document affected samples/analyses.*** 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." **If temperature(s) <0°C, were all sample containers ice free?**	(Yes) No N/A Yes No N/A	cooler 2 : cooler temp
Delivery method (specify all that apply): (Client) USPS Alert Courier C&D Delivery AK Air Lynden Carlile ERA PenAir FedEx UPS NAC Other: → *For WO# with airbills, was the WO# & airbill info recorded in the Front Counter eLog?*	Note ABN/ tracking # See Attached or N/A Yes No (N/A)	
→ For samples received with payment, note amount ($) and cash / check / CC **(circle one)** or note: (N/A) → For samples **received in FBKS**, ANCH staff will verify all criteria are reviewed. SRF Initiated by: KF N/A		
Were samples received within hold time? ***Note: Refer to form F-083 "Sample Guide" for hold time information.*** Do samples **match COC*** (i.e., sample IDs, dates/times collected)? **** Note: Exemption permitted if times differ <1hr; in which case, use times on COC.*** Were analyses requested unambiguous?	(Yes) No N/A (Yes) No N/A (Yes) No N/A	
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 N/A	
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)	
Were **proper containers** (type/mass/volume/preservative*) used? **** Note: Exemption permitted for waters to be analyzed for metals.*** Were **Trip Blanks** (i.e., VOAs, LL-Hg) in cooler with samples?	(Yes) No N/A Yes No (N/A)	
For **special handling** (e.g., "MI" or foreign soils, lab filter, limited volume, Ref Lab), were bottles/paperwork flagged (e.g., sticker)?	Yes No (N/A)	
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 **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: PM = 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.*

SGS

1137949

SAMPLE RECEIPT FORM FOR TRANSFERS

Note: This form is to be completed by Anchorage Sample Receiving staff for all shipments received at SGS-Anchorage from SGS-Fairbanks.

Were samples received numbered with all criteria on Sample Receipt Form F0004 documented by Fairbanks Sample Receiving staff? If "No," ***Anchorage Sample Receiving staff must complete the receiving process & document pH verification, sample condition, etc. on the SRF initiated by Fairbanks staff*** (attached).	Yes (No) N/A	Use space below for additional notes…

Review Criteria:	Condition:	Comments/Action Taken:
Were **custody seals** intact? Note # & location:	(Yes) No N/A	IF, +B
COC accompanied samples?	(Yes) No N/A	
Temperature blank compliant (i.e., 0-6°C after correction factor)?	(Yes) No N/A	
Cooler ID: 1 @ 1.0 w/ Therm.ID: 242		
Cooler ID: 2 @ 1.9 w/ Therm.ID: 242		
Cooler ID: _____ @ _____ w/ Therm.ID: _____		
Cooler ID: _____ @ _____ w/ Therm.ID: _____		
Cooler ID: _____ @ _____ w/ Therm.ID: _____		
Note: If non-compliant, use form FS-0029 to document affected samples/analyses. 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."		
If temperature(s) <0°C, were all containers ice free?	Yes No (N/A)	
Delivery method: (Lynden) Other: 1050		
Completed by:		

Laboratory Report of Analysis

To: Oasis Env/ERM-West, Inc.
825 W. 8th Ave.
Anchorage, AK 99516
(907)246-4461

Report Number: **1137979**

Client Project: **0149896 North Pole Gravel Pits**

Dear Jane Paris,

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 Chuck at (907) 562-2343. We will be happy to answer any questions or concerns which you may have.

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

Sincerely,
SGS North America Inc.

_____

Chuck Homestead Date
Project Manager
Charles.Homestead@sgs.com

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

Case Narrative

SGS Client: **Oasis Env/ERM-West, Inc.**
SGS Project: **1137979**
Project Name/Site: **0149896 North Pole Gravel Pits**
Project Contact: **Jane Paris**

Refer to sample receipt form for information on sample condition.

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

Print Date: 07/09/2013 4:10:55PM

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., 2xDL)
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.

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

Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
NPR-13-SO-3M Dup	1137979006	06/26/2013	06/29/2013	Soil/Solid (dry weight)

Method	Method Description
SM21 2540G	Percent Solids SM2540G
Sulfolane-SW8270D M w/IsoDl S	Sulfolane SW8270D-M w/IsoDil(S)
Sulfolane-EPA1625B w/Iso Dil-V	Sulfolane-EPA 1625B w/Iso Dil (W)

NPR-13-SW-3N	1137979001	06/26/2013	06/29/2013	Water (Surface, Eff., Ground)
NPR-13-SO-3N	1137979002	06/26/2013	06/29/2013	Soil/Solid (dry weight)
NPR-13-SW-3M	1137979003	06/26/2013	06/29/2013	Water (Surface, Eff., Ground)
NPR-13-FD-6	1137979004	06/26/2013	06/29/2013	Water (Surface, Eff., Ground)
NPR-13-SO-3M	1137979005	06/26/2013	06/29/2013	Soil/Solid (dry weight)
NPR-13-SO-3M Dup	1137979006	06/26/2013	06/29/2013	Soil/Solid (dry weight)
NA	1137979007	06/26/2013	06/29/2013	Soil/Solid (dry weight)
NPR-13-GW-3M	1137979008	06/26/2013	06/29/2013	Water (Surface, Eff., Ground)
NPR-13-GW-3M MS	1137979009	06/26/2013	06/29/2013	Water (Surface, Eff., Ground)
NPR-13-GW-3M MSD	1137979010	06/26/2013	06/29/2013	Water (Surface, Eff., Ground)
NPR-13-SW-3S	1137979011	06/26/2013	06/29/2013	Water (Surface, Eff., Ground)
NPR-13-SO-3S	1137979012	06/26/2013	06/29/2013	Soil/Solid (dry weight)
NPR-13-EB-1	1137979013	06/26/2013	06/29/2013	Water (Surface, Eff., Ground)

Method	Method Description
SM21 2540G	Percent Solids SM2540G
Sulfolane-SW8270D M w/IsoDl S	Sulfolane SW8270D-M w/IsoDil(S)
Sulfolane-EPA1625B w/Iso Dil-V	Sulfolane-EPA 1625B w/Iso Dil (W)

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

8e)(lt) ou **NPR-13-SW-3N**

Client Sample ID: **NPR-13-SW-3N**
Client Project ID: **0149896 North Pole Gravel Pits**
Lab Sample ID: 1137979221
Lab Project ID: 1137979

Collection Date: 206/06/13 1/:29
8ecei5eR Date: 206/96/13 29:v7
d atriM x ater WS(ruacef, uEE. ro(nRG
SoliR) W/G

8e)(lt) b%**Semivolatile Organic GC/MS**

Parameter	8e)(lt	U(al	LQU6CL	DL	Fnit)	Dz	Date ynal%AeR
S(luolane	2E220CO	F	2E2111	2E223--	mg6L	1	276236/13 / 1:1O
Surrogates							
S(luolane4RO	07E9		-24122		s	1	276236/13 / 1:1O

Batch Information

ynal%tical Batch: Xd S7-2v
ynal%tical d ethoR: S(luolane4, Py 10/vB w6)o Dil4x
ynal%)t: DSH
ynal%tical Date6Time: 276236/13 / 1:1O
Container ID: 11379792214y

Prep Batch: XXX/9/9/
Prep d ethoR: Sx 3v/2C
Prep Date6Time: 276216/13 29:-2
Prep Initial x tE3VolE 922 mL
Prep, Mract Vol: 1 mL

Print Date: 276296/213 -:12:v0Pd

8e)(lt) ou **NPR-13-SO-3N**

Client Sample ID: **NPR-13-SO-3N**
Client Project ID: **0149896 North Pole Gravel Pits**
Lab Sample ID: 113797922/
Lab Project ID: 1137979

Collection Date: 206/06/13 1/:/2
8ecei5eR Date: 206/96/13 29:v7
d atriM Soil6SoliR WR-%weightG
SoliR) W G 79E9

8e)(lt) b% **Semivolatile Organic GC/MS**

Parameter	8e)(lt	U(al	LQU6CL	DL	Fnit)	Dz	Date ynal%AeR
S(luolane	2E2270O	F	2E21/-	2E223O-	mg6Kg	1	276206/13 1v:27
Surrogates							
S(luolane4RO	70E		v241/2		s	1	276206/13 1v:27

Batch Information

ynal%tical Batch: Xd S7-11
ynal%tical dethoR: S(luolane4Sx O/72D d w6)oDl Sl
ynal%)t: DSH
ynal%tical Date6Time: 276206/13 1v:27
Container ID: 113797922/4y

Prep Batch: XXX/93/1
Prep dethoR: Sx 3vv2C
Prep Date6Time: 276v6/13 13:22
Prep Initial x tE3VolE 32E9v g
Prep , Mract Vol: 1 mL

Print Date: 276296/213 -:12:v0Pd

8e)(lt) ou **NPR-13-SW-3M**

Client Sample ID: **NPR-13-SW-3M**
Client Project ID: **0149896 North Pole Gravel Pits**
Lab Sample ID: 1137979223
Lab Project ID: 1137979

Collection Date: 206/06/13 13:12
8ecei5eR Date: 206/96/13 29:v7
d atriM x ater WS(ruacef, uEE. ro(nRG
SoliR) W/G

8e)(lt) b%**Semivolatile Organic GC/MS**

Parameter	8e)(lt	U(al	LQU6CL	DL	Fnit)	Dz	Date ynal%AeR
S(luolane	2E2207-	F	2E2129	2E22337	mg6L	1	276236/13 / 1:39
Surrogates							
S(luolane4RO	01		-24122		s	1	276236/13 / 1:39

Batch Information

ynal%tical Batch: Xd S7-2v
ynal%tical d ethoR: S(luolane4, Py 10/vB w6)o Dil4x
ynal%)t: DSH
ynal%tical Date6Time: 276236/13 / 1:39
Container ID: 11379792234y

Prep Batch: XXX/9/9/
Prep d ethoR: Sx 3v/2C
Prep Date6Time: 276216/13 29:-2
Prep Initial x tEBVolE 9/2 mL
Prep, Mract Vol: 1 mL

Print Date: 276296/213 -:12:v0Pd

8e)(lt) ou **NPR-13-FD-6**

Client Sample ID: **NPR-13-FD-6**
Client Project ID: **0149896 North Pole Gravel Pits**
Lab Sample ID: 113797922-
Lab Project ID: 1137979

Collection Date: 206/06/13 13:1v
8ecei5eR Date: 206/96/13 29:v7
d atriM x ater WS(ruacef, uEE. ro(nRG
SoliR) W/G

8e)(lt) b%**Semivolatile Organic GC/MS**

Parameter	8e)(lt	U(al	LQU6CL	DL	Fnit)	Dz	Date ynal%AeR
S(luolane	2E220CO	F	2E2111	2E223--	mg6L	1	276236/13 / / :22
Surrogates							
S(luolane4RO	73E7		-24122		s	1	276236/13 / / :22

Batch Information

ynal%tical Batch: Xd S7-2v
ynal%tical d ethoR: S(luolane4, Py 10/ vB w6)o Dil4x
ynal%)t: DSH
ynal%tical Date6Time: 276236/13 / / :22
Container ID: 113797922-4y

Prep Batch: XXX/9/9/
Prep d ethoR: Sx 3v/2C
Prep Date6Time: 276216/13 29:-2
Prep Initial x tE3VolE 922 mL
Prep, Mract Vol: 1 mL

Print Date: 276296/213 -:12:v0Pd

8e)(lt) ou **NPR-13-SO-3M**

Client Sample ID: **NPR-13-SO-3M**
Client Project ID: **0149896 North Pole Gravel Pits**
Lab Sample ID: 113797922v
Lab Project ID: 1137979

Collection Date: 206/06/13 13:/2
8ecei5eR Date: 206/96/13 29:v7
d atriM Soil6SoliR WR-%weightG
SoliR) W G 79E7

8e)(lt) b% **Semivolatile Organic GC/MS**

Parameter	8e)(lt	U(al	LQU6CL	DL	Fnit)	Dz	Date ynal%AeR
S(luolane	2E22772	F	2E21/-	2E223Ov	mg6Kg	1	276206/13 1v:1v
Surrogates							
S(luolane4RO	79E3		v241/2		s	1	276206/13 1v:1v

Batch Information

ynal%tical Batch: Xd S7-11
ynal%tical d ethoR: S(luolane4Sx O/72D d w6)oDl Sl
ynal%)t: DSH
ynal%tical Date6Time: 276206/13 1v:1v
Container ID: 113797922v4y

Prep Batch: XXX/93/1
Prep d ethoR: Sx 3vv2C
Prep Date6Time: 276v6/13 13:22
Prep Initial x tE3VolE 32E3-g
Prep ,Mract Vol: 1 mL

Print Date: 276296/213 -:12:v0Pd

8e)(lt) ou **NPR-13-GW-3M**

Client Sample ID: **NPR-13-GW-3M**
Client Project ID: **0149896 North Pole Gravel Pits**
Lab Sample ID: 113797922O
Lab Project ID: 1137979

Collection Date: 206/06/13 1-:1O
8ecei5eR Date: 206/96/13 29:v7
d atriM x ater WS(ruacef, uEE. ro(nRG
SoliR) W/G

8e)(lt) b% **Semivolatile Organic GC/MS**

Parameter	8e)(lt	U(al	LQU6CL	DL	Fnit)	Dz	Date y nal%AeR
S(luolane	2E22207O	F	2E2129	2E22339	mg6L	1	276236/13 / / :/ 1
Surrogates							
S(luolane4RO	07EO		-24122		s	1	276236/13 / / :/ 1

Batch Information

y nal%tical Batch: Xd S7-2v
y nal%tical d ethoR: S(luolane4, Py 10/vB w6)o Dil4x
y nal%)t: DSH
y nal%tical Date6Time: 276236/13 / / :/ 1
Container ID: 113797922O4y

Prep Batch: XXX/9/9/
Prep d ethoR: Sx 3v/2C
Prep Date6Time: 276216/13 29:-2
Prep Initial x tEBVolE: 91v mL
Prep, Mract Vol: 1 mL

Print Date: 276296/213 -:12:v0Pd

8e)(lt) ou **NPR-13-SW-3S**

Client Sample ID: **NPR-13-SW-3S**
Client Project ID: **0149896 North Pole Gravel Pits**
Lab Sample ID: 1137979211
Lab Project ID: 1137979

Collection Date: 206/06/13 1v:12
8ecei5eR Date: 206/96/13 29:v7
d atriM x ater WS(ruacef , uEE . ro(nRG
SoliR) W/ G

8e)(lt) b% **Semivolatile Organic GC/MS**

Parameter	8e)(lt	U(al	LQU6CL	DL	Fnit)	Dz	Date y nal%AeR
S(luolane	2E22000	F	2E212O	2E22333	mg6L	1	2762-613 21:27
Surrogates							
S(luolane4RO	02Ev		-24122		s	1	2762-613 21:27

Batch Information

y nal%tical Batch: Xd S7-20
y nal%tical d ethoR: S(luolane4, Py 10/ vB w6)o Dil4x
y nal%)t: DSH
y nal%tical Date6Time: 2762-613 21:27
Container ID: 11379792114y

Prep Batch: XXX/9/9/
Prep d ethoR: Sx 3v/2C
Prep Date6Time: 276216/13 29:-2
Prep Initial x tE3VolE 932 mL
Prep , Mract Vol: 1 mL

Print Date: 276296/213 -:12:v0Pd

8e)(lt) ou **NPR-13-SO-3S**

Client Sample ID: **NPR-13-SO-3S**
Client Project ID: **0149896 North Pole Gravel Pits**
Lab Sample ID: 113797921/
Lab Project ID: 1137979

Collection Date: 206/06/13 1v:/ 2
8ecei5eR Date: 206/96/13 29:v7
d atriM Soil6SoliR WR-%weightG
SoliR) W G 77E

8e)(lt) b% **Semivolatile Organic GC/MS**

Parameter	8e)(lt	U(al	LQU6CL	DL	Fnit)	Dz	Date ynal%AeR
S(luolane	2E2279-	F	2E21/O	2E22397	mg6Kg	1	276206/13 1v:--
Surrogates							
S(luolane4RO	73E3		v241/2		s	1	276206/13 1v:--

Batch Information

ynal%tical Batch: Xd S7-11
ynal%tical dethoR: S(luolane4Sx O/72D d w6)oDl Sl
ynal%)t: DSH
ynal%tical Date6Time: 276206/13 1v:--
Container ID: 113797921/4y

Prep Batch: XXX/93/1
Prep dethoR: Sx 3vv2C
Prep Date6Time: 276v6/13 13:22
Prep Initial x tE3VolE 32E33 g
Prep ,Mract Vol: 1 mL

Print Date: 276296/213 -:12:v0Pd

8e)(lt) ou **NPR-13-EB-1**

Client Sample ID: **NPR-13-EB-1**
Client Project ID: **0149896 North Pole Gravel Pits**
Lab Sample ID: 1137979213
Lab Project ID: 1137979

Collection Date: 206/06/13 1v:-2
8ecei5eR Date: 206/96/13 29:v7
d atriM x ater WS(ruacef, uEE. ro(nRG
SoliR) W/G

8e)(lt) b%**Semivolatile Organic GC/MS**

Parameter	8e)(lt	U(al	LQU6CL	DL	Fnit)	Dz	Date ynal%AeR
S(luolane	2E22072	F	2E212O	2E2233v	mg6L	1	2762-613 21:/O
Surrogates							
S(luolane4RO	09E7		-24122		s	1	2762-613 21:/O

Batch Information

ynal%tical Batch: Xd S7-20
ynal%tical d ethoR: S(luolane4, Py 10/vB w6)o Dil4x
ynal%)t: DSH
ynal%tical Date6Time: 2762-613 21:/O
Container ID: 11379792134y

Prep Batch: XXX/9/9/
Prep d ethoR: Sx 3v/2C
Prep Date6Time: 276216/13 29:-2
Prep Initial x tE3VolE 9/v mL
Prep, Mract Vol: 1 mL

Print Date: 276296/213 -:12:v0Pd

Method Blank

Blank ID: MB for HBN 1456736 [SPT/903] L
Blank ba8 ID: 1153337

Matrix: Soil/Solid (dry weight)

QC for Samples:
11] , 9, 9007211] , 9, 9005211] , 9, 9017

Results 8y **SM21 2540G**

Parameter	Results	bOQ/Cb	Db	Units
Total Solids	100			%

Batch Information

Analytical Batch: SPT903]
Analytical Method: SM71 7540G
Instrument:
Analyst: KRb
Analytical Date/Time: , /1/701] 5:45:00PM

Print Date: 0, /09/701] 4:10:5, PM

Duplicate Sample Summary

Original Sample ID: 1137979445
D0pliuace Sample ID: 115t t t 3

. Q Qcr Sampley:

1137979446L1137979445L1137979416

8nalAyiy Dace: 47s41s6413 17:/ 5
2 acriM SxilsSxlio cbrA(eiqwch

) ey0loy RA **SM21 2540G**

b82 N	Original d15E44h	D0pliuace d15E44h	) f D d_ h	) f D QP
%xcal Sxlioy	79E7	T1E7	6E54	15E44

Batch Information

8nalAcual Bacuw: Sf %94t 3
8nalAcual 2 ecwxo: S2 61 65/ 4G
Inycr0menc
8nalAyc K) P

SGS b xrcw8meriua InuE
644 Weycf xcer Drive 8nuwxrageL8K 9551T
t 947E5t 6E63/ 3 f 947E5t 1E5341 (((EDyEygyEuxm

Duplicate Sample Summary

Original Sample ID: 1137979445
D0pliuace Sample ID: 113797944t

8nalAyiy Dace: 47s41s6413 17:/ 5
2 acriM SxilsSxlio cbrA(eiqwch

. Q Qcr Sampley:

) ey0loy RA **SM21 2540G**

b82 N	Original d15E44h	D0pliuace d15E44h	) f D d_ h	) f D QP
%xcal Sxlioy	79E7	T1E7	6E54	15E44

Batch Information

8nalAcual Bacuw: Sf %94t 3
8nalAcual 2 ecwxo: S2 61 65/ 4G
Inycr0menc
8nalAyc K) P

f rincDace: 47s49s6413 / :14:5Tf 2

Method Blank

Blank ID: MB for HBN 1456184 [XXX/292923
Blank] aL ID: 1158bQb

Matrix: Watsr (murfacs, Eff., Ground)

CS for map els7:
11bQ9Q9001, 11bQ9Q900b, 11bQ9Q9004, 11bQ9Q9006, 11bQ9Q9011, 11bQ9Q901b

Rs7ult7 Ly **Sulfolane-EPA1625B w/lso Dil-W**

Parap stsr	Rs7ult7	] OC/S]	D]	Unit7
mulfolans	0.00820U	0.0100	0.00b10	p g/]
Surrogates				
mulfolans-d6	Q0.9	40-100		%

Batch Information

Analytical Batch: XMmQ405
Analytical Msthod: mulfolans-EPA1825B w/I7o Dil-W
In7trup snt: HP 8690/59Qb mmA
Analy7t: DmH
Analytical Dats/Tip s: Q/b/201b 4:46:00PM

Prse Batch: XXX29292
Prse Msthod: mWb520S
Prse Dats/Tip s: Q/1/201b 9:40:00AM
Prse Initial Wt./Vol.: 1000 p]
Prse Extract Vol: 1 p]

Print Dats: 0Q/09/201b 4:10:59PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1137979 2[[X9X9X5
Blank Spike La] ID: 11b4376
Date Analyzed: 07/03/X013 17:09

Spike Duplicate ID: LCSD for HBN 1137979 2[[X9X9X5
Spike Duplicate La] ID: 11b437b
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1137979001, 1137979003, 1137979006, 1137979008, 1137979011, 1137979013

Results] y **Sulfolane-EPA1625B w/Iso Dil-W**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Sulfolane	0.01b	0.0164	97	0.01b	0.0168	99	(70-1X0)	1.80	(< X0)
Surrogates									
Sulfolane-d8	0.08	80.6	80	0.08	78.7	79	(60-100)	X.10	

Batch Information

Analytical Batch: **XMS7395**
Analytical Method: **Sulfolane-EPA1625B w/Iso Dil-W**
Instrument: **HP 6809/507C SSA**
Analyst: **DSH**

Prep Batch: **XXX20202**
Prep Method: **SWC5294**
Prep Date/Time: **97/91/291C 90:39**
Spike Init Wt./Vol.: 0.01b mg/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 0.01b mg/L Extract Vol: 1 mL

SGS North America Inc.
X00 West Potter Drive Anchorage, AK 9bb18
t 907.b4X.X363 **f** 907.b41.b301 www.us.sgs.com

Billable Matrix Spike Summary

Original Sample ID: 1137979220
MS Sample ID: 1137979229 BMS
MSD Sample ID: 1137979212 BMSD

Analysis Date: 276236 213 / / :/ 1
Analysis Date: 276236 213 / / :5/
Analysis Date: 276236 213 / 3:23
Matrix: Water (Surface, Eff., Ground)

QC for Samples:

Results by **Sulfolane-EPA1625B w/Iso Dil-W**

		Matrix Spike (mg6L)			Spike Duplicate (mg6L)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Sulfolane	2.22U704	2.21U1	.21-9	99	2.21U2	2.21U-	125	U2<152	3.92	(8 / -)
Surrogates										
Sulfolane<d0		2.20U2	.2-97	U9	2.20-1	2.2-5U	U5	52<122	0.02	

Batch Information

Analytical Batch: XMS752-
Analytical Method: Sulfolane<EPA1U/ - B w6so Dil<W
Instrument: HP U0926-973 SSA
Analyst: DSH
Analytical Date6Time: 7636 213 12:5/ :22PM

Prep Batch: XXX/ 9/ 9/
Prep Method: Liq6LiqExt <Sulfolane<EPA 1U/ - w6soDil
Prep Date6Time: 7616 213 9:52:22AM
Prep Initial Wt.6Vol.: 932.22mL
Prep Extract Vol: 1.22mL

Print Date: 276296 213 5:11:22PM

Method Blank

Blank ID: MB for HBN 145686[X / / 2[93[1]
Blank Lab ID: 115849Q

Matrix: moil2moliW(Wu c siE. tG

CS for map els7:
113898900[, 1138989005, 113898901[

d s7) lt7 bu **Sulfolane-SW8270D M w/IsoDI SI**

Uarap stsr	d s7) lt7	Ly C2SL	DL	Rnit7
m) lfolans	0000Q[0R	0000100	0000310	p E2PE
Surrogates				
m) lfolansgW6	69	50g1[0		-

Batch Information

%nalutiAal BatA : / Mm8411
%nalutiAal Mst. oW m) lfolansgmh 6[80D M c27oDl ml
In7tr) p snt: mw%%Eilsnt 8602S985 T S2Mm
%nalu7t: DmH
%nalutiAal Dats2/ip s: 8202[013 [:5[:00UM

Urse BatA : / / / [93[1
Urse Mst. oW mh 3550S
Urse Dats2/ip s: 8252[013 1:00:00UM
Urse Initial h t02wolO 30 E
Urse v xtraAt wol: 1 p L

Urint Dats: 0820920[013 4:11:00UM

Duplicate Sample Summary

Original Sample ID: 1137979005
Duplicate Sample ID: 1137979006
QC for Samples:

Analysis Date: 07/06/2013 15:22
Matrix: Soil/Solid (dry weight)

Results by **Sulfolane-SW8270D M w/IsoDI SI**

NAME	Original (25.00)	Duplicate (25.00)	RPD (%)	RPD CL
Sulfolane	0.00770U	0.00744U	0.00	25.00

Batch Information

Analytical Batch: XMS7411
Analytical Method: Sulfolane-SW8270D M w/IsoDI SI
Instrument: SVA Agilent 780/5975 GC/MS
Analyst: DSH

Prep Batch: Soil/Solid (dry weight)
Prep Method: XMS7411
Prep Date/Time: XXX29321

Print Date: 07/09/2013 4:11:01PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1137979 4555[93[1X
Blank Spike La2 ID: 11] 7b97
Da8e t nalAyez: d70d60[d13 1] :dd

u a8iM SoilCSoliz xzrA(eiwg8h

KC for SaP pleR 1137979dd[Q1137979dd] Q1137979d1[

/ eRsl8R2A Sulfolane-SW8270D M w/IsoDI SI

Blank Spike xP w0%wh

) araP e8er	Spike	/ eRsl8	/ emxc h	CL
Sslfolane	d,d]	d,db76	9]	x7d.1[d h
Surrogates				
Sslfolane.z-	d,-33	-d,b	-d	x] d.1[d h

Batch Information

t nalA8mal Ba8mg: **XMS7411**
t nalA8mal u e8goz: **Sulfolane-SW8270D M w/IsoDI SI**
InR8sP en8 **SVA Agilent 780/5975 GC/MS**
t nalAR8 **DSH**

) rep Ba8mg: **XXX29321**
) rep u e8goz: **SW3550C**
) rep Da8e0TiP e: **07/05/2013 13:00**
Spike Ini8W80Vol,: d,d] P w0%w EM8ram8Vol: 1 P L
Dspe Ini8W80Vol,: EM8ram8Vol:

) rin8Da8e: d70d90[d13 b:11:d1) u

Matrix Spike Summary

Original Sample ID: 1137979445
0 S Sample ID: 1127M9B 0 S
0 SD Sample ID: 1127M99 0 SD

Analysis Date: 476456f 413 12:/ /
Analysis Date: 476456f 413 12:34
Analysis Date: 476456f 413 12:37
0 atri8: Sxil6Sxlio dbry (eigwth

c Q Qxr Samples: 113797944/ L1137979442L113797941/

) esRlts uy **Sulfolane-SW8270D M w/IsoDl Sl**

		0 atri8 Spibe dmg6k gh			Spibe DRpliKate dmg6k gh					
f arameter	Sample	Spibe	) esRlt	) eKdPh	Spibe	) esRlt	) eKdPh	Q%	) f DdPh	) f D Q%
SRlQxlane	4.447MMU	4.4542	4.42B9	97	4.4511	4.427B	92	54-1M4	1.B4	d< / 2 h

Batch Information

AnalytiKal XatKw: E0 S7M11
AnalytiKal 0 etwxo: SRlQxlane-ST B/ 74D 0 (6sxDl Sl
InstrRment: SGA Agilent 7B462972 HQ60 S
Analyst: DSN
AnalytiKal Date6/ime: 7656f 413 3:34:44f 0

f rep XatKw: EEE/ 93/ 1
f rep 0 etwxo: SxniKW8t Sxil ST B/ 74D-0 IsxDl-SRlQxlane
f rep Date6/ime: 7626f 413 1:44:44f 0
f rep Initial T t.6Gxl.: 34.3Mg
f rep W8trakt Gxl: 1.44m%

SHS v xrtw AmeriKa InK
/ 44 T est f xtter Dri, e AnKwxrageLAk 9221B
t 947.25/ ./ 3M8 f 947.251.2341 (((.Rs.sgs.Kxm

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Task:

Lab Information:		Project Information:		Other Information:			
Lab:	SGS	Projects:	0149896 North Pole Gravel Pits	Send Invoice to:	jane.paris@erm.com; ERMWestAccountsPayable@erm.com	TAT	Rush
		Consultant:	ERM Alaska	Address:	*Please invoice by June 30.	Notes: F= Field Filtered, H= Hold	
Address:		Address:	825 W 8 Ave	City/State:		Lab Notes	
Lab PM:		City/State:	Anchorage, AK 99501	Cost Code:	0149896-4-1		
Phone/Fax:		PM Name:	Jane Paris	Send EDD & Hardcopy to:		Preservative	None
PM Email:		Phone/Fax:					
Lab Quote #:		PM Email:	jane.paris@erm.com	Email Hardcopy to:	jane.paris@erm.com		

ITEM #	Field Sample No. /Identification	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE/ TIME	#OF CONTAINERS	Comment	Analysis: Sulfolane EPA 1625B
	NPR-13-SW-3N (1) A+B	SW	G	6/26/2013 1209	2	cooler 1 of 2	X
	NPR-13-SO-3N (2) A	SO	G	6/26/2013 1220	1	cooler 2 of 2	X
	NPR-13-SW-3M (3) A + B	SW	G	6/26/2013 1310	2	cooler 1 of 2	X
	NPR-13-FD-6 (4) A+B	SW	G	6/26/2013 1315	2	cooler 1 of 2	X
	NPR-13-SO-3M ~~(5)A(6)A-B(7)B(8)(9)(10)A~~ SLC 6/29/13	SO	G	6/26/2013 1320	1	MS/MSD cooler 2 of 2	X
	NPR-13-GW-3M (8)(9)(10) A+B	GW	G	6/26/2013 1416	2	MS/MSD cooler 2 of 2	X
	NPR-13-SW-3S (11) A+B	SW	G	6/26/2013 1510	2	cooler 1 of 2	X
	NPR-13-SO-3S (12) ~~A+B~~ SLC 6/29/13	SO	G	6/26/2013 1520	1	cooler 2 of 2	X
	NPR-13-EB-1 (13) A+B	GW	G	6/26/2013 1540	2	cooler 1 of 2	X

Additional Comments/Special Instructions:
*Please invoice by June 30.

1137979

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Rena Flint/ ERM Alaska RF	~~6/26/2013~~	1000		6-27-13	1020
Rena Flint	6/27/13				

Sample Receipt Conditions			
3.1	Y/N	Y/N	Y/N
5.4	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
Temp in 0C	Samples on Ice?	Sample intact?	Trip Blank?

SAMPLER NAME:	Rena Flint	DATE/TIME:	6/26/2013 0930
SAMPLER SIGNATURE:	Rena Flint		

6/29/13 9:57

SGS

1137979

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 N/A	1 front 1 side
Temperature blank compliant* (i.e., 0-6°C after correction factor)? * *Note: Exemption permitted for chilled samples collected less than 8 hours ago.* Cooler ID: 1 @ 3.1 w/ Therm.ID: 240 Cooler ID: 2 @ 5.8 w/ Therm.ID: 241 Cooler ID: ____ @ ____ w/ Therm.ID: ____ Cooler ID: ____ @ ____ w/ Therm.ID: ____ Cooler ID: ____ @ ____ w/ Therm.ID: ____ *Note: If non-compliant, use form FS-0029 to document affected samples/analyses.* 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." **If temperature(s) <0°C, were all sample containers ice free?**	Yes' No (N/A) Cooler temps. Yes No (N/A)	
Delivery method (specify all that apply): (Client) USPS Alert Courier C&D Delivery AK Air Lynden Carlile ERA PenAir FedEx UPS NAC Other: → *For WO# with airbills, was the WO# & airbill info recorded in the Front Counter eLog?*	Note ABN/ tracking # See Attached or N/A Yes No (N/A)	
→ For samples received with payment, note amount ($) and cash / check / CC (**circle one**) or note: (N/A) → For samples **received in FBKS**, ANCH staff will verify all criteria are reviewed.	SRF Initiated by: JD N/A	
Were samples received within hold time? *Note: Refer to form F-083 "Sample Guide" for hold time information.* Do samples **match COC*** (i.e., sample IDs, dates/times collected)? * *Note: Exemption permitted if times differ <1hr; in which case, use times on COC.* Were analyses requested unambiguous?	(Yes) No N/A (Yes) No N/A (Yes) No N/A	
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 N/A	
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)	
Were **proper containers** (type/mass/volume/preservative*) used? * *Note: Exemption permitted for waters to be analyzed for metals.* Were **Trip Blanks** (i.e., VOAs, LL-Hg) in cooler with samples?	(Yes) No N/A Yes No (N/A)	
For **special handling** (e.g., "MI" or foreign soils, lab filter, limited volume, Ref Lab), were bottles/paperwork flagged (e.g., sticker)?	Yes No (N/A)	
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 **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: SLC 6/29/15 PM = N/A
Was **PEER REVIEW** of ***sample numbering/labeling completed?***	Yes No (N/A)	Peer Reviewed by: N/A

Additional notes (if applicable):

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

SGS

1137979

SAMPLE RECEIPT FORM FOR TRANSFERS

Note: This form is to be completed by Anchorage Sample Receiving staff for all shipments received at SGS-Anchorage from SGS-Fairbanks.

Were samples received numbered with all criteria on Sample Receipt Form F0004 documented by Fairbanks Sample Receiving staff? If "No," ***Anchorage Sample Receiving staff must complete the receiving process & document pH verification, sample condition, etc. on the SRF initiated by Fairbanks staff*** (attached).	Yes (No) N/A	Use space below for additional notes…

Review Criteria:	Condition:	Comments/Action Taken:
Were **custody seals** intact? Note # & location: COC accompanied samples?	(Yes) No N/A (Yes) No N/A	1 F and 1 B
Temperature blank compliant (i.e., 0-6°C after correction factor)? Cooler ID: 1 @ 3.5 w/ Therm.ID: 35 Cooler ID: 2 @ 5.0 w/ Therm.ID: 242 Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ ***Note: If non-compliant, use form FS-0029 to document affected samples/analyses.*** 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." **If temperature(s) <0°C, were all containers ice free?**	(Yes) No N/A Yes No (N/A)	
Delivery method: (Lynden) Other:		
Completed by:		

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