

# SITE CHARACTERIZATION REPORT

## HEATING OIL SPILL AT THE TRAVELODGE 9200 GLACIER HIGHWAY JUNEAU, ALASKA

SEPTEMBER 1, 2010

Prepared For:

Travelodge Hotel  
9200 Glacier Highway  
Juneau, Alaska 99801

Prepared By:



*Environmental Engineering & Industrial Hygiene Consultants*

2400 College Road  
Fairbanks, Alaska 99709  
p. 907.452.5688  
f. 907.452.5694

3105 Lakeshore Dr, Suite A106  
Anchorage, Alaska 99503  
p. 907.222.2445  
f. 907.222.0915

**Managing Office:**  
4402 Thane Rd  
Juneau, Alaska 99801  
p: 907.586.6813  
f: 907.586.6819

[www.nortechengr.com](http://www.nortechengr.com)



## TABLE OF CONTENTS

<b>1.0</b>	<b>EXECUTIVE SUMMARY .....</b>	<b>1</b>
<b>2.0</b>	<b>PROJECT BACKGROUND .....</b>	<b>1</b>
2.1	General Site Setting and Description .....	1
2.2	Previous Investigations .....	1
2.3	Project Objectives and Scope of Work .....	3
<b>3.0</b>	<b>METHODOLOGY .....</b>	<b>4</b>
3.1	Field screening Protocol .....	4
<b>4.0</b>	<b>FIELD ACTIVITIES .....</b>	<b>5</b>
<b>5.0</b>	<b>RESULTS WITH DISCUSSION .....</b>	<b>5</b>
<b>6.0</b>	<b>CONCLUSIONS AND RECOMMENDATIONS .....</b>	<b>6</b>
<b>7.0</b>	<b>LIMITATIONS AND NOTIFICATIONS .....</b>	<b>7</b>
<b>8.0</b>	<b>SIGNATURES OF ENVIRONMENTAL PROFESSIONALS .....</b>	<b>7</b>

## APPENDICES

- Appendix A: Figures
- Appendix B: Site Photographs
- Appendix C: Laboratory Report
- Appendix D: Laboratory Data Review Checklist





## 1.0 EXECUTIVE SUMMARY

**NORTECH** Environmental Engineering and Industrial Hygiene (**NORTECH**) has performed Site Characterization activities at the Travelodge located at 9200 Glacier Highway in Juneau, Alaska. The Travelodge is undertaking these activities to address petroleum contamination at this Site stemming from a historic leaky underground storage tank found prior to the tanks removal in 2001.

## 2.0 PROJECT BACKGROUND

### 2.1 General Site Setting and Description

The Travelodge is located in Mendenhall Valley on the west end of Juneau, Alaska. The surrounding properties are commercial and the Juneau International Airport is immediately south of the site.

### 2.2 Previous Investigations

A Site Assessment was performed by **NORTECH** prior to removal of the 600 gallon underground storage tank (UST) by Channel Construction on September 15<sup>th</sup>, 2000. Eleven soil samples total were collected from the property, contaminated soil stockpile and from the crawlspace of the Travelodge. Excavation and stockpiling of 160 cubic yards of contaminated soil from the site occurred on September 15<sup>th</sup> and 16<sup>th</sup>. On September 23<sup>rd</sup>, Channel Construction installed an oil/water separator to clean water from the Travelodge to the storm sewer culvert. Within the crawlspace, beneath the Travelodge, approximately 60 gallons of heating oil was floating on water. Sorbent pads were used to collect this heating oil in the crawlspace. The contaminated soil was hauled to Juneau's United Soil Recycling (USR) facility on December 1<sup>st</sup>, 2000.

An HNU Systems Model PI-101 photoionization detector (PID) and hot water sheen test were used for the field screening process during delineation of the crawlspace area, tank excavation and removal.

Field samples were sent to Analytical Resources, Inc in Seattle, WA for diesel range organics (DRO) analysis by method AK102. Laboratory results are listed in the following table:





**September 2000, Soil Sampling Results**

Sample ID	Sample Depth (feet)	Diesel Range Organics (DRO)
TL-CL01	7	72
TL-CL02	7	<b>18,000</b>
TL-CL03	5	<b>8,400</b>
TL-CL04	4	37
TL-CL05	5	14
TL-CL06	4.5	92
TL-CL07	4.5	50
TL-CL08	4.5	37
TL-CZ01*	from removed soils	<b>20,000</b>
TL-CS01**	1.5 (from crawlspace)	<b>5,800</b>
TL-CS02**	1.5 (from crawlspace)	<b>6,900</b>

Results in **boldface** exceed ADEC matrix cleanup level of 200 ppm.

\* This sample characterizes removed soils.

\*\* These samples were taken from the crawlspace beneath the Travelodge.

All quality control indicators are within range and all sample results are deemed valid.

**June 2001**

A Site Assessment was performed by Smith Bayliss LeResche (SBL) prior to removal of a 1,000-gallon UST by Channel Construction on June 7th, 2001. The single-walled tank was found whole and in good condition. Contaminated soil was found near the vent pipe connection. Free product or product in groundwater was not found during the tank excavation process. Also on June 7<sup>th</sup>, 50 cubic yards of contaminated soil were removed, stockpiled on site and then hauled to Juneau's USR facility on June 21<sup>st</sup>, 2001 by Channel Construction.

An HNU Systems Model PI-101 photoionization detector (PID) and hot water sheen test were used for the field screening process during delineation of the crawlspace area, tank excavation and removal.

Field samples were sent to Analytical Resources, Inc. in Seattle, Washinton for diesel range organics (DRO) analysis by method AK102. Laboratory results are listed in the following table:



### June 2001, Soil Sampling Results

Sample ID	Sample Depth (feet)	Diesel Range Organics (DRO)
TL2-01*	10.5	<5.0
TL2-02*	10.5	<5.0
TL2-03	10.5	<b>680</b>
TL2-04	12	56
TL2-05	11	<5.0
TL2-06	8	10
TL2-CZ**	Removed soils	<b>1700</b>

Results in **boldface** exceed the ADEC matrix cleanup levels of 200 ppm.

\* Field duplicate samples

\*\* This sample characterizes removed soils

All quality control indicators are within range and all sample results are deemed valid.

A small quantity (<five cubic yards) of contaminated soil remains from tank excavation at the Travelodge Hotel. The contamination lies within the uppermost section of the silty, dense, blue till (glacial-derived sediments) layer, which is impermeable upon saturation. This contaminated area is localized and is not connected to the contamination located at the north side of the Travelodge. A new 2,000-gallon STiP3 UST was installed in the same location by Channel Construction. The soil field screening and laboratory sample locations from each of the site features are shown in the figures in Appendix 1.

### August 2009

The characterization work at this site was conducted on August 12<sup>th</sup>, 2009. Jason Ginter and Ashley Bruce of **NORTECH** were present during these activities. Temperatures were ranged between 50°F to 60°F. They collected samples from the previously identified contaminated soil area within the crawlspace. Travelodge personnel have been treating the material *in-situ* using high nitrogen fertilizer and ammonium hydroxide.

They collected six samples for field screening and collected two samples and one field duplicate from area that showed the highest field screening readings for laboratory analysis, per ADEC requirements. Sampling locations are shown in Figure 4. Site photos are shown in Appendix B.

## 2.3 Project Objectives and Scope of Work

The Travelodge is responsible for addressing the environmental concerns observed at this site. The Travelodge has contracted **NORTECH** to conduct a Site Assessment at

the 9200 Glacier Highway in accordance with 18 AAC 75 to document the effectiveness of in-situ treatment efforts undertaken at the site in the last two years to address the diesel contaminated soil left in place in the crawlspace.

This report summarizes the most recent soil sampling efforts completed during July 2010. The report summarizes the characterization activities that have been performed at the site, recaps the field screening results, describes specific laboratory sampling and analytical results, and recommends additional actions necessary to complete the scope of work.

### 3.0 METHODOLOGY

#### 3.1 Field screening Protocol

A PhotoVac 2020 Hand Held Air Monitor/Photoionization Detector (PID) was used to field screen the soils for POL contamination. At least two field screening samples were collected from every characterization soil boring. **NORTECH** used the headspace method of field screening in general accordance with Section 4 of the ADEC SSP and the approved project documents. Headspace screening consists of partially (33%-50%) filling a clean reseal able bag with freshly uncovered soils to be field screened. The reseal able bag was closed and headspace vapors were allowed to develop for at least 10 minutes and not more than one hour. The bag was agitated at the beginning and end of the headspace development period. In accordance with the SSP, the highest PID reading from each sample was recorded.

#### 3.2 Laboratory Sampling and Analysis Procedures

The number and type of laboratory samples were determined by previous site work. The following list indicates the soil analysis methods that have been used for the purposes of this site investigation:

- DRO by AK102, characterization.
- BTEX by method 8260.

The analytical methods listed above apply to soil samples collected from this site. Surface and subsurface soil samples were collected using a combination of hand equipment, such as post-hole diggers, shovels, trowels, and spoons and disposable sampling equipment such as gloves and re-sealable bags. Sampling equipment that contacted environmental media was decontaminated both before initial use and between sampling locations to avoid cross contamination. Samples were placed in the appropriate sampling container, sealed, and placed promptly on ice in a cooler in the custody of **NORTECH** personnel.

### 3.3 Soil Cleanup Levels

The initial site cleanup goals for this project have been determined using the State of Alaska Department of Environmental Conservation's (ADEC) Method 2 for soil (over 40-inch zone, migration to groundwater) as outlined in ADEC regulations (18 AAC 75.341, Table B2). Method 2 cleanup levels are shown in Table 1, following.

**Table 1**  
**Soil Cleanup Standards for Common Contaminants at Site**

	<b>ADEC Method 2 Soil (mg/kg)</b>
<b>Diesel Range Organics (DRO)</b>	230
<b>Benzene</b>	0.02
<b>Ethylbenzene</b>	5
<b>Total Xylenes</b>	69
<b>Toluene</b>	4.8

### 4.0 FIELD ACTIVITIES

The annual characterization work at this site was conducted on July 22<sup>nd</sup>, 2010. Amy Dieffenbacher and Ashley Bruce of **NORTECH**, were present during these activities. Temperatures were ranged between 41°F to 81°F. Samples were collected from the previously identified contaminated soil area within the crawlspace. Travelodge personnel have been treating the material *in-situ* using high nitrogen fertilizer and ammonium hydroxide.

**NORTECH** collected three soil samples for field screening and collected three samples and one field duplicate from an area that showed the highest field screening readings for laboratory analysis, per ADEC requirements.

### 5.0 RESULTS WITH DISCUSSION

The soil field screening and laboratory sample locations from each of the site features are shown in the figures in Appendix 1. Three soil samples were collected for laboratory analysis. These samples were sent to SGS Environmental Laboratories in Anchorage, Alaska. SGS analyzed all samples for DRO by AK102 and BTEX by 8260. Laboratory results are listed in the following table. Sample locations are shown in Figure 1.

**Table 2**  
**2010 Laboratory Results in ppm, Former AST Location**

Sample ID	Sample Depth	DRO	Benzene	Ethylbenzene	Xylenes	Toluene
<b>CM101*</b>	24"	<b>6560</b>	ND	ND	.1747	ND
<b>CM102*</b>	24"	<b>7190</b>	ND	ND	.725	ND
<b>CM103</b>	24"	<b>2490</b>	ND	ND	ND	ND
<b>CM104</b>	24"	<b>2480</b>	ND	ND	ND	ND

Sample results in **boldface** exceed ADEC cleanup levels for this project.

\*denotes field duplicate samples

All quality control indicators are within range.

## 6.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the activities completed at the site, **NORTECH** has developed the following conclusions:

- While the treatment performed to date by the Travelodge has been successful in treating the surface materials (within the top six inches of the surface) material deeper than one foot is still slightly contaminated. We noted that the material within the crawlspace is quite dry. The in-situ treatment would be better affected if the nutrients added to the site are assisted in migration through the soil via water flushing.
- The Travelodge should continue in-situ treatment using high nitrogen fertilizer and flush the treated area with water after each addition.



## 7.0 LIMITATIONS AND NOTIFICATIONS

**NORTECH** provides a level of service that is performed within the standards of care and competence of the environmental engineering profession. However, it must be recognized that limitations exist within any site investigation. This report provides results based on a restricted work scope and from the analysis and observation of a limited number of samples. Therefore, while it is our opinion that these limitations are reasonable and adequate for the purposes of this report, actual site conditions may differ. Specifically, the unknown nature of exact subsurface physical conditions, sampling locations, the analytical procedures' inherent limitations, as well as financial and time constraints are limiting factors.

The report is a record of observations and measurements made on the subject site as described. The data should be considered representative only of the time the site investigation was completed. No other warranty or presentation, either expressed or implied, is included or intended. This report is prepared for the exclusive use of the Travelodge. If it is made available to others, it should be for information on factual data only, and not as a warranty of conditions, such as those interpreted from the results presented or discussed in the report. We certify that except as specifically noted in this report, all statements and data appearing in this report are in conformance with ADEC's Standard Sampling Procedures. **NORTECH** has performed the work, made the findings, and proposed the recommendations described in this report in accordance with generally accepted environmental engineering practices.

## 8.0 SIGNATURES OF ENVIRONMENTAL PROFESSIONALS

**Jason Ginter**, Juneau Technical Manager for **NORTECH**, has a B.S. in Chemistry and extensive experience conducting hazardous materials investigations, property assessments, and other environmental fieldwork throughout Alaska.



Jason Ginter  
**NORTECH**  
Principal, Juneau Technical Manager  
September 1, 2010

# SITE CHARACTERIZATION REPORT

## HEATING OIL SPILL AT THE TRAVELODGE 9200 GLACIER HIGHWAY JUNEAU, ALASKA

SEPTEMBER 1, 2009

Prepared For:

Travelodge Hotel  
9200 Glacier Highway  
Juneau, Alaska 99801

Prepared By:



*Environmental Engineering & Industrial Hygiene Consultants*

2400 College Road  
Fairbanks, Alaska 99709  
p. 907.452.5688  
f. 907.452.5694

3105 Lakeshore Dr, Suite A106  
Anchorage, Alaska 99503  
p. 907.222.2445  
f. 907.222.0915

**Managing Office:**  
4402 Thane Rd  
Juneau, Alaska 99801  
p: 907.586.6813  
f: 907.586.6819

[www.nortechengr.com](http://www.nortechengr.com)



## TABLE OF CONTENTS

<b>1.0</b>	<b>EXECUTIVE SUMMARY .....</b>	<b>1</b>
<b>2.0</b>	<b>PROJECT BACKGROUND .....</b>	<b>1</b>
2.1	General Site Setting and Description .....	1
2.2	Previous Investigations .....	1
2.3	Project Objectives and Scope of Work .....	3
<b>3.0</b>	<b>METHODOLOGY .....</b>	<b>4</b>
3.1	Field screening Protocol .....	4
<b>4.0</b>	<b>FIELD ACTIVITIES .....</b>	<b>5</b>
<b>5.0</b>	<b>RESULTS WITH DISCUSSION .....</b>	<b>5</b>
<b>6.0</b>	<b>CONCLUSIONS AND RECOMMENDATIONS .....</b>	<b>6</b>
<b>7.0</b>	<b>LIMITATIONS AND NOTIFICATIONS .....</b>	<b>7</b>
<b>8.0</b>	<b>SIGNATURES OF ENVIRONMENTAL PROFESSIONALS .....</b>	<b>7</b>

## APPENDICES

- Appendix A: Figures
- Appendix B: Site Photographs
- Appendix C: Laboratory Report
- Appendix D: Laboratory Data Review Checklist





## 1.0 EXECUTIVE SUMMARY

**NORTECH** Environmental Engineering and Industrial Hygiene (**NORTECH**) has performed Site Characterization activities at the Travelodge located at 9200 Glacier Highway in Juneau, Alaska. The Travelodge is undertaking these activities to address petroleum contamination at this Site stemming from a historic leaky underground storage tank found prior to the tanks removal in 2001.

## 2.0 PROJECT BACKGROUND

### 2.1 General Site Setting and Description

The Travelodge is located in Mendenhall Valley on the west end of Juneau, Alaska. The surrounding properties are commercial and the Juneau International Airport is immediately south of the site.

### 2.2 Previous Investigations

A Site Assessment was performed by **NORTECH** prior to removal of the 600 gallon underground storage tank (UST) by Channel Construction on September 15<sup>th</sup>, 2000. Eleven soil samples total were collected from the property, contaminated soil stockpile and from the crawlspace of the Travelodge. Excavation and stockpiling of 160 cubic yards of contaminated soil from the site occurred on September 15<sup>th</sup> and 16<sup>th</sup>. On September 23<sup>rd</sup>, Channel Construction installed an oil/water separator to clean water from the Travelodge to the storm sewer culvert. Within the crawlspace, beneath the Travelodge, approximately 60 gallons of heating oil was floating on water. Sorbent pads were used to collect this heating oil in the crawlspace. The contaminated soil was hauled to Juneau's United Soil Recycling (USR) facility on December 1<sup>st</sup>, 2000.

An HNU Systems Model PI-101 photoionization detector (PID) and hot water sheen test were used for the field screening process during delineation of the crawlspace area, tank excavation and removal.

Field samples were sent to Analytical Resources, Inc in Seattle, WA for diesel range organics (DRO) analysis by method AK102. Laboratory results are listed in the following table:





**September 2000, Soil Sampling Results**

Sample ID	Sample Depth (feet)	Diesel Range Organics (DRO)
TL-CL01	7	72
TL-CL02	7	<b>18,000</b>
TL-CL03	5	<b>8,400</b>
TL-CL04	4	37
TL-CL05	5	14
TL-CL06	4.5	92
TL-CL07	4.5	50
TL-CL08	4.5	37
TL-CZ01*	from removed soils	<b>20,000</b>
TL-CS01**	1.5 (from crawlspace)	<b>5,800</b>
TL-CS02**	1.5 (from crawlspace)	<b>6,900</b>

Results in **boldface** exceed ADEC matrix cleanup level of 200 ppm.

\* This sample characterizes removed soils.

\*\* These samples were taken from the crawlspace beneath the Travelodge.

All quality control indicators are within range and all sample results are deemed valid.

**June 2001**

A Site Assessment was performed by Smith Bayliss LeResche (SBL) prior to removal of a 1,000-gallon UST by Channel Construction on June 7th, 2001. The single-walled tank was found whole and in good condition. Contaminated soil was found near the vent pipe connection. Free product or product in groundwater was not found during the tank excavation process. Also on June 7<sup>th</sup>, 50 cubic yards of contaminated soil were removed, stockpiled on site and then hauled to Juneau's USR facility on June 21<sup>st</sup>, 2001 by Channel Construction.

An HNU Systems Model PI-101 photoionization detector (PID) and hot water sheen test were used for the field screening process during delineation of the crawlspace area, tank excavation and removal.

Field samples were sent to Analytical Resources, Inc. in Seattle, Washinton for diesel range organics (DRO) analysis by method AK102. Laboratory results are listed in the following table:



### June 2001, Soil Sampling Results

Sample ID	Sample Depth (feet)	Diesel Range Organics (DRO)
TL2-01*	10.5	<5.0
TL2-02*	10.5	<5.0
TL2-03	10.5	<b>680</b>
TL2-04	12	56
TL2-05	11	<5.0
TL2-06	8	10
TL2-CZ**	Removed soils	<b>1700</b>

Results in **boldface** exceed the ADEC matrix cleanup levels of 200 ppm.

\* Field duplicate samples

\*\* This sample characterizes removed soils

All quality control indicators are within range and all sample results are deemed valid.

A small quantity (<five cubic yards) of contaminated soil remains from tank excavation at the Travelodge Hotel. The contamination lies within the uppermost section of the silty, dense, blue till (glacial-derived sediments) layer, which is impermeable upon saturation. This contaminated area is localized and is not connected to the contamination located at the north side of the Travelodge. A new 2,000-gallon STiP3 UST was installed in the same location by Channel Construction. The soil field screening and laboratory sample locations from each of the site features are shown in the figures in Appendix 1.

### August 2009

The characterization work at this site was conducted on August 12<sup>th</sup>, 2009. Jason Ginter and Ashley Bruce of **NORTECH** were present during these activities. Temperatures were ranged between 50°F to 60°F. They collected samples from the previously identified contaminated soil area within the crawlspace. Travelodge personnel have been treating the material *in-situ* using high nitrogen fertilizer and ammonium hydroxide.

They collected six samples for field screening and collected two samples and one field duplicate from area that showed the highest field screening readings for laboratory analysis, per ADEC requirements. Sampling locations are shown in Figure 4. Site photos are shown in Appendix B.

### 2.3 Project Objectives and Scope of Work

The Travelodge is responsible for addressing the environmental concerns observed at this site. The Travelodge has contracted **NORTECH** to conduct a Site Assessment at

the 9200 Glacier Highway in accordance with 18 AAC 75 to document the effectiveness of in-situ treatment efforts undertaken at the site in the last two years to address the diesel contaminated soil left in place in the crawlspace.

This report summarizes the most recent soil sampling efforts completed during July 2010. The report summarizes the characterization activities that have been performed at the site, recaps the field screening results, describes specific laboratory sampling and analytical results, and recommends additional actions necessary to complete the scope of work.

### 3.0 METHODOLOGY

#### 3.1 Field screening Protocol

A PhotoVac 2020 Hand Held Air Monitor/Photoionization Detector (PID) was used to field screen the soils for POL contamination. At least two field screening samples were collected from every characterization soil boring. **NORTECH** used the headspace method of field screening in general accordance with Section 4 of the ADEC SSP and the approved project documents. Headspace screening consists of partially (33%-50%) filling a clean reseal able bag with freshly uncovered soils to be field screened. The reseal able bag was closed and headspace vapors were allowed to develop for at least 10 minutes and not more than one hour. The bag was agitated at the beginning and end of the headspace development period. In accordance with the SSP, the highest PID reading from each sample was recorded.

#### 3.2 Laboratory Sampling and Analysis Procedures

The number and type of laboratory samples were determined by previous site work. The following list indicates the soil analysis methods that have been used for the purposes of this site investigation:

- DRO by AK102, characterization.
- BTEX by method 8260.

The analytical methods listed above apply to soil samples collected from this site. Surface and subsurface soil samples were collected using a combination of hand equipment, such as post-hole diggers, shovels, trowels, and spoons and disposable sampling equipment such as gloves and re-sealable bags. Sampling equipment that contacted environmental media was decontaminated both before initial use and between sampling locations to avoid cross contamination. Samples were placed in the appropriate sampling container, sealed, and placed promptly on ice in a cooler in the custody of **NORTECH** personnel.



### 3.3 Soil Cleanup Levels

The initial site cleanup goals for this project have been determined using the State of Alaska Department of Environmental Conservation's (ADEC) Method 2 for soil (over 40-inch zone, migration to groundwater) as outlined in ADEC regulations (18 AAC 75.341, Table B2). Method 2 cleanup levels are shown in Table 1, following.

**Table 1**  
**Soil Cleanup Standards for Common Contaminants at Site**

	<b>ADEC Method 2 Soil (mg/kg)</b>
<b>Diesel Range Organics (DRO)</b>	230
<b>Benzene</b>	0.02
<b>Ethylbenzene</b>	5
<b>Total Xylenes</b>	69
<b>Toluene</b>	4.8

### 4.0 FIELD ACTIVITIES

The annual characterization work at this site was conducted on July 22<sup>nd</sup>, 2010. Amy Dieffenbacher and Ashley Bruce of **NORTECH**, were present during these activities. Temperatures were ranged between 41°F to 81°F. Samples were collected from the previously identified contaminated soil area within the crawlspace. Travelodge personnel have been treating the material *in-situ* using high nitrogen fertilizer and ammonium hydroxide.

**NORTECH** collected three soil samples for field screening and collected three samples and one field duplicate from an area that showed the highest field screening readings for laboratory analysis, per ADEC requirements.

### 5.0 RESULTS WITH DISCUSSION

The soil field screening and laboratory sample locations from each of the site features are shown in the figures in Appendix 1. Three soil samples were collected for laboratory analysis. These samples were sent to SGS Environmental Laboratories in Anchorage, Alaska. SGS analyzed all samples for DRO by AK102 and BTEX by 8260. Laboratory results are listed in the following table. Sample locations are shown in Figure 1.



**Table 2**  
**2010 Laboratory Results in ppm, Former AST Location**

Sample ID	Sample Depth	DRO	Benzene	Ethylbenzene	Xylenes	Toluene
<b>CM101*</b>	24"	<b>6560</b>	ND	ND	.1747	ND
<b>CM102*</b>	24"	<b>7190</b>	ND	ND	.725	ND
<b>CM103</b>	24"	<b>2490</b>	ND	ND	ND	ND
<b>CM104</b>	24"	<b>2480</b>	ND	ND	ND	ND

Sample results in **boldface** exceed ADEC cleanup levels for this project.

\*denotes field duplicate samples

All quality control indicators are within range.

## 6.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the activities completed at the site, **NORTECH** has developed the following conclusions:

- While the treatment performed to date by the Travelodge has been successful in treating the surface materials (within the top six inches of the surface) material deeper than one foot is still slightly contaminated. We noted that the material within the crawlspace is quite dry. The in-situ treatment would be better affected if the nutrients added to the site are assisted in migration through the soil via water flushing.
- The Travelodge should continue in-situ treatment using high nitrogen fertilizer and flush the treated area with water after each addition.

## 7.0 LIMITATIONS AND NOTIFICATIONS

**NORTECH** provides a level of service that is performed within the standards of care and competence of the environmental engineering profession. However, it must be recognized that limitations exist within any site investigation. This report provides results based on a restricted work scope and from the analysis and observation of a limited number of samples. Therefore, while it is our opinion that these limitations are reasonable and adequate for the purposes of this report, actual site conditions may differ. Specifically, the unknown nature of exact subsurface physical conditions, sampling locations, the analytical procedures' inherent limitations, as well as financial and time constraints are limiting factors.

The report is a record of observations and measurements made on the subject site as described. The data should be considered representative only of the time the site investigation was completed. No other warranty or presentation, either expressed or implied, is included or intended. This report is prepared for the exclusive use of the Travelodge. If it is made available to others, it should be for information on factual data only, and not as a warranty of conditions, such as those interpreted from the results presented or discussed in the report. We certify that except as specifically noted in this report, all statements and data appearing in this report are in conformance with ADEC's Standard Sampling Procedures. **NORTECH** has performed the work, made the findings, and proposed the recommendations described in this report in accordance with generally accepted environmental engineering practices.

## 8.0 SIGNATURES OF ENVIRONMENTAL PROFESSIONALS

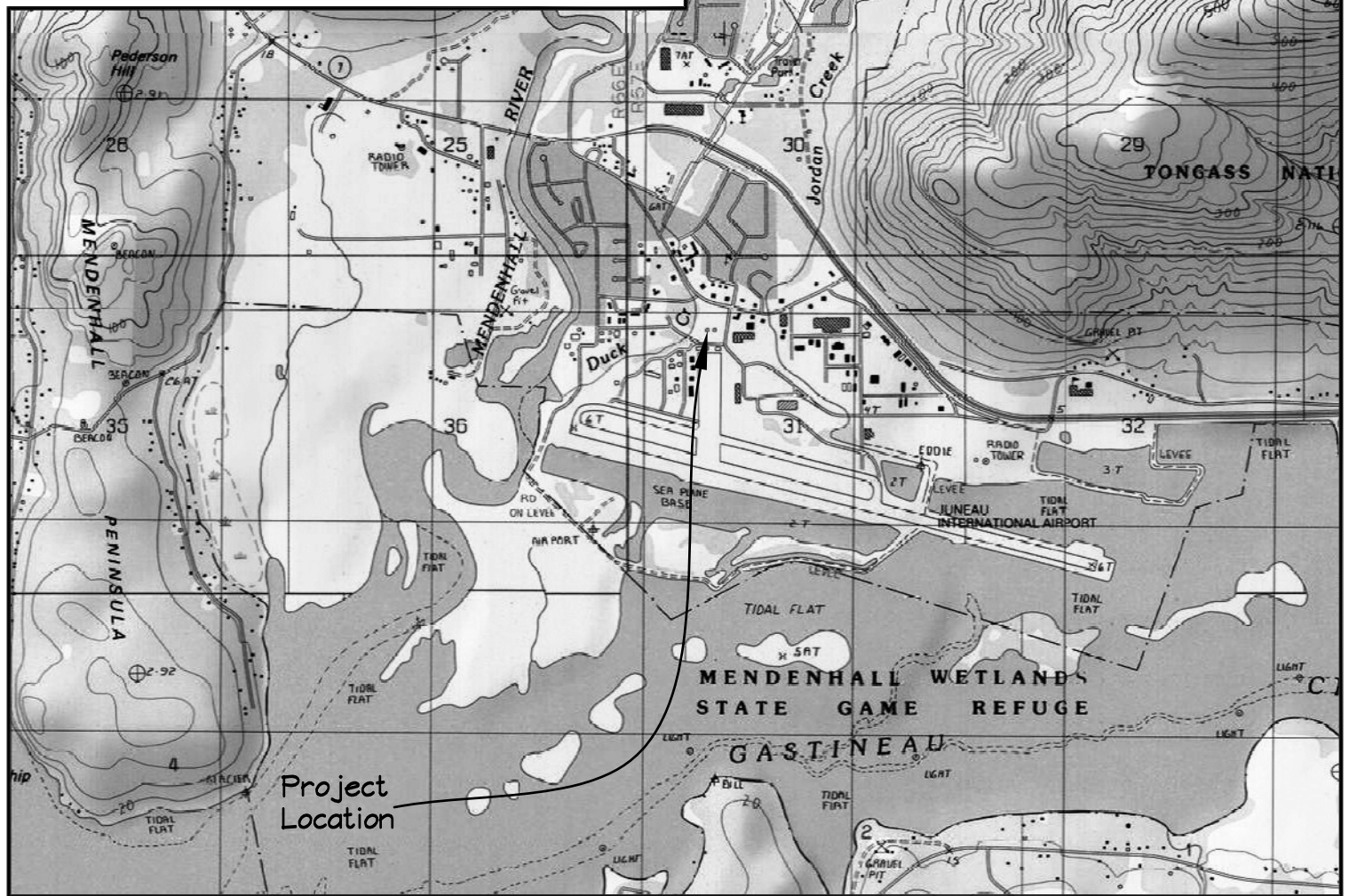
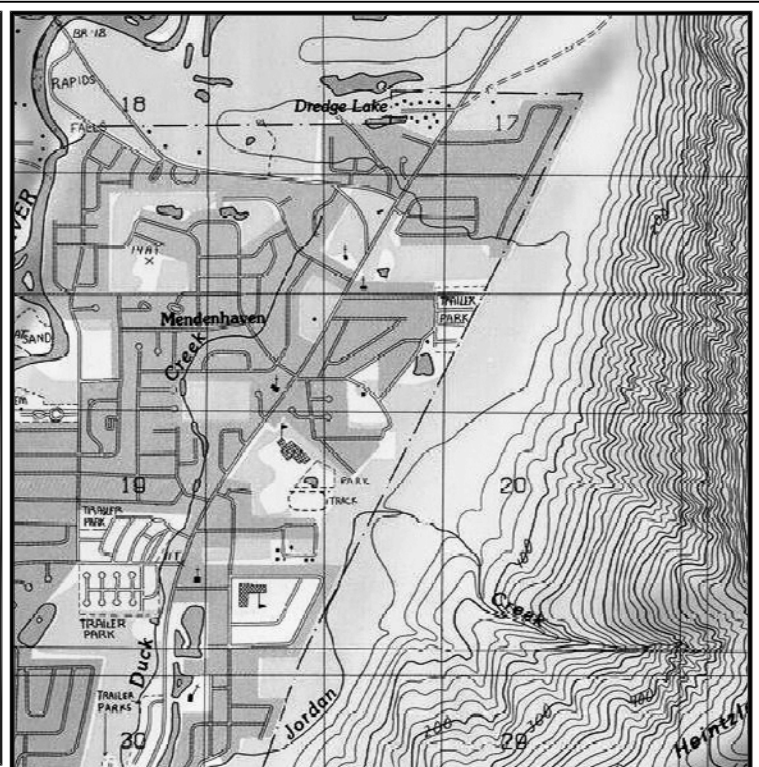
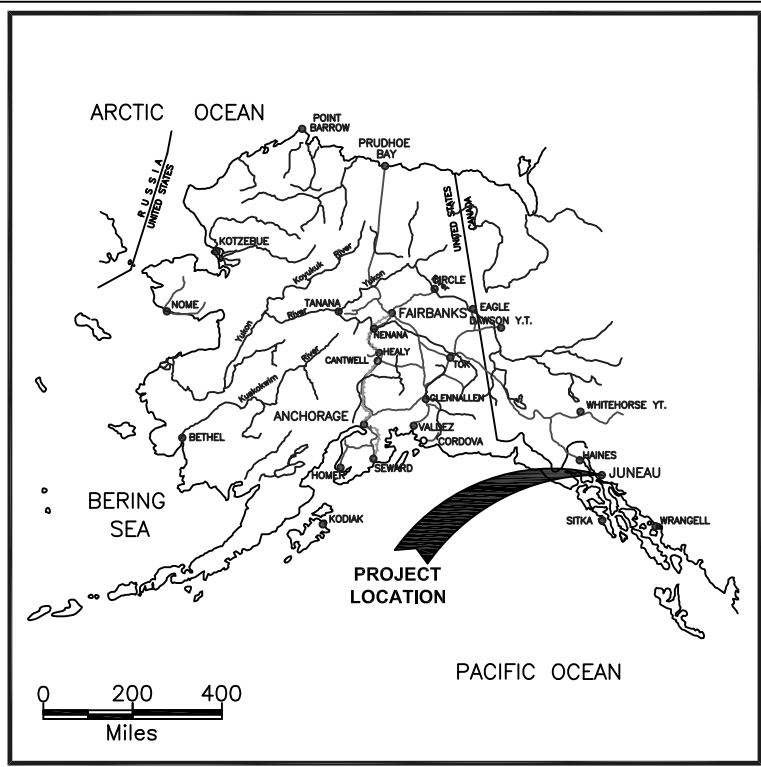
**Jason Ginter**, Juneau Technical Manager for **NORTECH**, has a B.S. in Chemistry and extensive experience conducting hazardous materials investigations, property assessments, and other environmental fieldwork throughout Alaska.



Jason Ginter  
**NORTECH**  
Principal, Juneau Technical Manager  
September 1, 2010

# Appendix A

## Figures



ENVIRONMENTAL ENGINEERING HEALTH & SAFETY  
 2400 College Road, Fairbanks, Alaska 99709 Ph: 907-452-5688  
 3105 Lakeshore Dr. Anch, Alaska 99517, Ph: 907-222-2445  
 119 Seward St. #10, Juneau, Alaska 99801 Ph: 907-586-6813

Location Map  
 9200 Glacier Highway  
 Juneau, Alaska

SCALE: 1"=1/2 mi	FIGURE:
DESIGN: AD	1
DRAWN: CET	
PROJECT NO: 10-1084	
DWG: 101084A(01)	
DATE: 09/01/2010	



Site  
Location

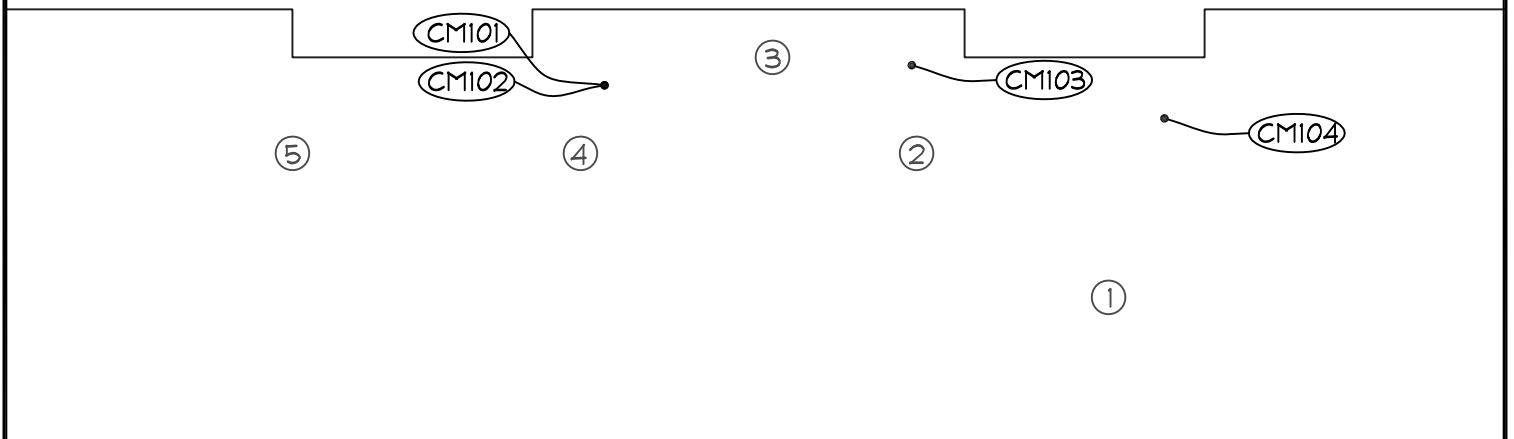


ENVIRONMENTAL ENGINEERING HEALTH & SAFETY  
 2400 College Road, Fairbanks, Alaska 99709 Ph: 907-452-5688  
 3105 Lakeshore Dr. Anch, Alaska 99517, Ph: 907-222-2445  
 119 Seward St. #10, Juneau, Alaska 99801 Ph: 907-586-6813

Vicinity Map  
 9200 Glacier Highway  
 Juneau, Alaska

SCALE: 1"=100'	FIGURE:
DESIGN: AD	2
DRAWN: CET	
PROJECT NO: 10-1084	
DWG: 101084A(02)	
DATE: 09/01/2010	

EXTERIOR FOUNDATION WALL



FOUNDATION STEM WALL

KEY:

- ⊕ NUTRIENT ADDITION PORTS
- TLXX SAMPLE LOCATIONS

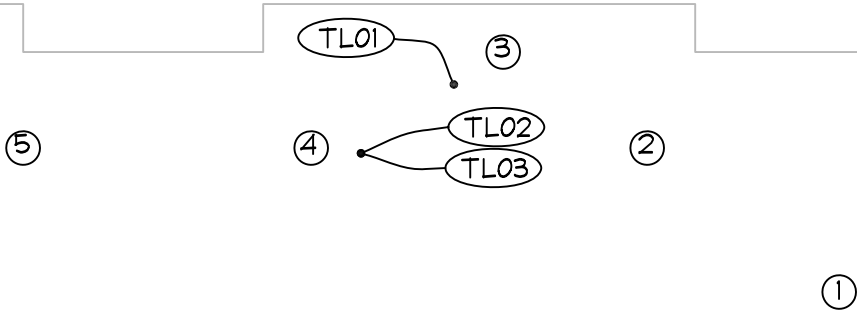


ENVIRONMENTAL ENGINEERING HEALTH & SAFETY  
 2400 College Road, Fairbanks, Alaska 99709 Ph: 907-452-5688  
 3105 Lakeshore Dr. Anch, Alaska 99517, Ph: 907-222-2445  
 119 Seward St. #10, Juneau, Alaska 99801 Ph: 907-586-6813

2010 Sample Locations  
 9200 Glacier Highway  
 Juneau, Alaska

SCALE: 1" = 4'	FIGURE:
DESIGN: AD	3
DRAWN: CET	
PROJECT NO: 10-1084	
DWG: 101084A(03)	
DATE: 09/01/2010	

exterior foundation wall

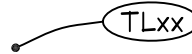


foundation stem wall

Key:



Nutrient Addition Ports



Sample Locations

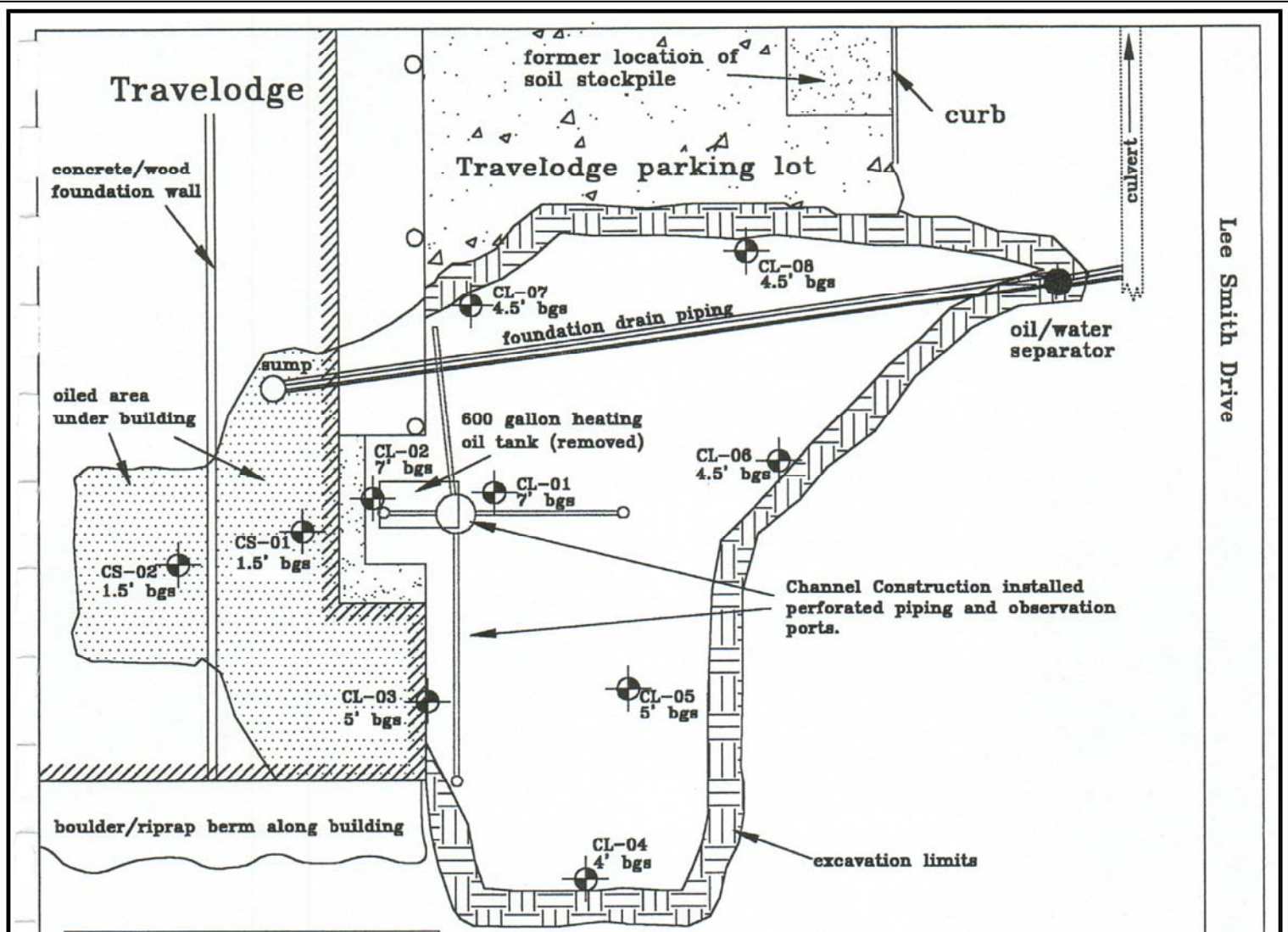


ENVIRONMENTAL ENGINEERING HEALTH & SAFETY  
2400 College Road, Fairbanks, Alaska 99709 Ph: 907-452-5688  
3105 Lakeshore Dr. Anch, Alaska 99517, Ph: 907-222-2445  
119 Seward St. #10, Juneau, Alaska 99801 Ph: 907-586-6813

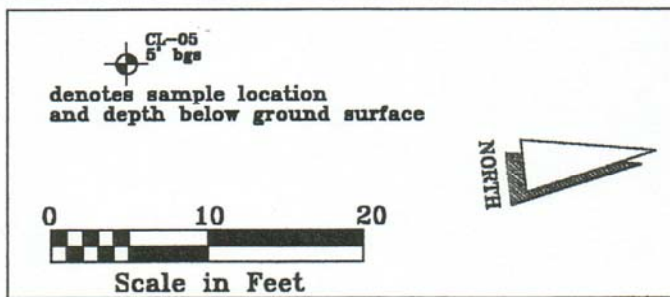
2009 Sample Locations  
9200 Glacier Highway  
Juneau, Alaska

SCALE: 1" = 4'	FIGURE:
DESIGN: AD	4
DRAWN: CET	
PROJECT NO: 10-1084	
DWG: 101084A(04)	
DATE: 09/01/2010	





Sample results in ppm		
sample ID	DRO	sample depth
CL01	72	7 feet
CL02	18,000	7 feet
CL03	8,400	5 feet
CL04	37	4 feet
CL05	14	5 feet
CL06	92	4.5 feet
CL07	50	4.5 feet
CL08	37	4.5 feet
CS01	22,000	1.5 feet
CS02	5,800	1.5 feet
CZ01	6,900	N/A



Site sketch, spill response and UST removal.  
9/15 - 9/16 2000

Smith Bayliss LeResche Inc  
119 Seward Street #10  
Juneau, Alaska 99801  
907 586 6813

Client: Travelodge  
Project: Spill Response

**NORTECH**  
ENVIRONMENTAL ENGINEERING HEALTH & SAFETY  
2400 College Road, Fairbanks, Alaska 99709 Ph: 907-452-5688  
3105 Lakeshore Dr. Anch, Alaska 99517, Ph: 907-222-2445  
119 Seward St. #10, Juneau, Alaska 99801 Ph: 907-586-6813

2000 Area of Contamination  
9200 Glacier Highway  
Juneau, Alaska

SCALE: 1" = 4'	FIGURE: 5
DESIGN: AD	
DRAWN: CET	
PROJECT NO: 10-1084	
DWG: 101084A(04)	
DATE: 09/01/2010	



# Appendix B

## Site Photographs



**Photo 1:** Nutrient Addition Ports



**Photo 2:** Sample Location for CM103

# Appendix C

## Laboratory Reports



**SGS North America Inc.**  
**Alaska Division**  
**Level II Laboratory Data Report**

Project: 10-1084  
Client: Nortech  
SGS Work Order: 1103601

Released by:

**Contents (Bookmarked in PDF):**

Cover Page  
Case Narrative  
Sample Results Forms  
Quality Control Summary Forms  
Chain of Custody/Sample Receipt Forms  
Attachments (if applicable)



Case Narrative

Client NORTECH Nortech  
Workorder 1103601 10-1084

Printed Date/Time 8/5/2010 13:40

Sample ID Client Sample ID

---

Refer to the sample receipt form for information on sample condition.

---

**1103601001 PS CM101**

AK102 - The pattern is consistent with a weathered middle distillate.  
8260B - Sample recovery for field surrogate BFB does not meet QC criteria (biased low). Sample was analyzed twice for confirmation and result was confirmed.

**1103601002 PS CM102**

AK102 - The pattern is consistent with a weathered middle distillate.

**1103601003 PS CM103**

AK102 - The pattern is consistent with a weathered middle distillate.

**1103601004 PS CM104**

AK102 - The pattern is consistent with a weathered middle distillate.

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

Jason Ginter  
Nortech  
4402 Thane Rd  
Juneau, AK 99801

---

**Work Order:** 1103601  
10-1084  
**Client:** Nortech  
**Report Date:** August 05, 2010

---

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](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 AK100001 for NELAP (RCRA methods: 1020A, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035B, 6010B, 6020, 7470A, 7471B, 8021B, 8081B, 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, the National Environmental Laboratory Accreditation Program and 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
- 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.



## Detectable Results Summary

Print Date: 8/5/2010 1:40 pm

Client Sample ID: **CM101**

SGS Ref. #: 1103601001

### Semivolatile Organic Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	6560	mg/Kg

### Volatile Gas Chromatography/Mass Spectroscopy

P & M -Xylene	68.7	ug/Kg
o-Xylene	106	ug/Kg

Client Sample ID: **CM102**

SGS Ref. #: 1103601002

### Semivolatile Organic Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	7190	mg/Kg

### Volatile Gas Chromatography/Mass Spectroscopy

P & M -Xylene	280	ug/Kg
o-Xylene	445	ug/Kg

Client Sample ID: **CM103**

SGS Ref. #: 1103601003

### Semivolatile Organic Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	2490	mg/Kg

Client Sample ID: **CM104**

SGS Ref. #: 1103601004

### Semivolatile Organic Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	2480	mg/Kg



SGS Ref.# 1103601001  
Client Name Nortech  
Project Name/# 10-1084  
Client Sample ID CM101  
Matrix Soil/Solid (dry weight)

Printed Date/Time 08/05/2010 13:40  
Collected Date/Time 07/22/2010 8:55  
Received Date/Time 07/23/2010 8:30  
Technical Director Stephen C. Ede

Sample Remarks:

AK102 - The pattern is consistent with a weathered middle distillate.

8260B - Sample recovery for field surrogate BFB does not meet QC criteria (biased low). Sample was analyzed twice for confirmation and result was confirmed.

Parameter	Results	LOQ	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
<b><u>Semivolatile Organic Fuels Department</u></b>									
Diesel Range Organics	6560	462	mg/Kg	AK102	A		07/26/10	07/28/10	LCE
<b><u>Surrogates</u></b>									
5a Androstane <surr>	95.7		%	AK102	A	50-150	07/26/10	07/28/10	LCE
<b><u>Volatile Gas Chromatography/Mass Spectroscopy</u></b>									
Benzene	ND	8.34	ug/Kg	SW8260B	B			07/30/10	JDB
Ethylbenzene	ND	16.7	ug/Kg	SW8260B	B			07/30/10	JDB
o-Xylene	106	16.7	ug/Kg	SW8260B	B			07/30/10	JDB
P & M -Xylene	68.7	33.3	ug/Kg	SW8260B	B			07/30/10	JDB
Toluene	ND	16.7	ug/Kg	SW8260B	B			07/30/10	JDB
<b><u>Surrogates</u></b>									
1,2-Dichloroethane-D4 <surr>	96.8		%	SW8260B	B	69-132		07/30/10	JDB
Toluene-d8 <surr>	91.4		%	SW8260B	B	84-124		07/30/10	JDB
<b><u>Solids</u></b>									
Total Solids	2160		%	SM20 2540G	A			07/23/10	LP





SGS Ref.# 1103601002  
Client Name Nortech  
Project Name/# 10-1084  
Client Sample ID CM102  
Matrix Soil/Solid (dry weight)

Printed Date/Time 08/05/2010 13:40  
Collected Date/Time 07/22/2010 8:56  
Received Date/Time 07/23/2010 8:30  
Technical Director Stephen C. Ede

Sample Remarks:

AK102 - The pattern is consistent with a weathered middle distillate.

Parameter	Results	LOQ	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
<b><u>Semivolatile Organic Fuels Department</u></b>									
Diesel Range Organics	7190	460	mg/Kg	AK102	A		07/26/10	07/28/10	LCE
<b><u>Surrogates</u></b>									
5a Androstane <surr>	87.3		%	AK102	A	50-150	07/26/10	07/28/10	LCE
<b><u>Volatile Gas Chromatography/Mass Spectroscopy</u></b>									
Benzene	ND	7.96	ug/Kg	SW8260B	B			07/30/10	JDB
Ethylbenzene	ND	15.9	ug/Kg	SW8260B	B			07/30/10	JDB
o-Xylene	445	15.9	ug/Kg	SW8260B	B			07/30/10	JDB
P & M -Xylene	280	31.9	ug/Kg	SW8260B	B			07/30/10	JDB
Toluene	ND	15.9	ug/Kg	SW8260B	B			07/30/10	JDB
<b><u>Surrogates</u></b>									
1,2-Dichloroethane-D4 <surr>	97.5		%	SW8260B	B	69-132		07/30/10	JDB
4-Bromofluorobenzene <surr>	81.7		%	SW8260B	B	65-144		07/30/10	JDB
Toluene-d8 <surr>	98.6		%	SW8260B	B	84-124		07/30/10	JDB
<b><u>Solids</u></b>									
Total Solids	86.0		%	SM20 2540G	A			07/23/10	LP



SGS Ref.# 1103601003  
Client Name Nortech  
Project Name/# 10-1084  
Client Sample ID CM103  
Matrix Soil/Solid (dry weight)

Printed Date/Time 08/05/2010 13:40  
Collected Date/Time 07/22/2010 9:09  
Received Date/Time 07/23/2010 8:30  
Technical Director Stephen C. Ede

Sample Remarks:

AK102 - The pattern is consistent with a weathered middle distillate.

Parameter	Results	LOQ	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
<b><u>Semivolatile Organic Fuels Department</u></b>									
Diesel Range Organics	2490	89.2	mg/Kg	AK102	A		07/26/10	07/27/10	HM
<b><u>Surrogates</u></b>									
5a Androstane <surr>	104		%	AK102	A	50-150	07/26/10	07/27/10	HM
<b><u>Volatile Gas Chromatography/Mass Spectroscopy</u></b>									
Benzene	ND	6.76	ug/Kg	SW8260B	B			07/30/10	JDB
Ethylbenzene	ND	13.5	ug/Kg	SW8260B	B			07/30/10	JDB
o-Xylene	ND	13.5	ug/Kg	SW8260B	B			07/30/10	JDB
P & M -Xylene	ND	27.0	ug/Kg	SW8260B	B			07/30/10	JDB
Toluene	ND	13.5	ug/Kg	SW8260B	B			07/30/10	JDB
<b><u>Surrogates</u></b>									
1,2-Dichloroethane-D4 <surr>	103		%	SW8260B	B	69-132		07/30/10	JDB
4-Bromofluorobenzene <surr>	102		%	SW8260B	B	65-144		07/30/10	JDB
Toluene-d8 <surr>	102		%	SW8260B	B	84-124		07/30/10	JDB
<b><u>Solids</u></b>									
Total Solids	89.2		%	SM20 2540G	A			07/23/10	LP



SGS Ref.# 1103601004  
Client Name Nortech  
Project Name/# 10-1084  
Client Sample ID CM104  
Matrix Soil/Solid (dry weight)

Printed Date/Time 08/05/2010 13:40  
Collected Date/Time 07/22/2010 9:23  
Received Date/Time 07/23/2010 8:30  
Technical Director Stephen C. Ede

Sample Remarks:

AK102 - The pattern is consistent with a weathered middle distillate.

Parameter	Results	LOQ	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
<b><u>Semivolatile Organic Fuels Department</u></b>									
Diesel Range Organics	2480	90.1	mg/Kg	AK102	A		07/26/10	07/28/10	LCE
<b><u>Surrogates</u></b>									
5a Androstane <surr>	77.2		%	AK102	A	50-150	07/26/10	07/28/10	LCE
<b><u>Volatile Gas Chromatography/Mass Spectroscopy</u></b>									
Benzene	ND	7.12	ug/Kg	SW8260B	B			07/30/10	JDB
Ethylbenzene	ND	14.2	ug/Kg	SW8260B	B			07/30/10	JDB
o-Xylene	ND	14.2	ug/Kg	SW8260B	B			07/30/10	JDB
P & M -Xylene	ND	28.5	ug/Kg	SW8260B	B			07/30/10	JDB
Toluene	ND	14.2	ug/Kg	SW8260B	B			07/30/10	JDB
<b><u>Surrogates</u></b>									
1,2-Dichloroethane-D4 <surr>	99.5		%	SW8260B	B	69-132		07/30/10	JDB
Toluene-d8 <surr>	92.1		%	SW8260B	B	84-124		07/30/10	JDB
<b><u>Solids</u></b>									
Total Solids	88.0		%	SM20 2540G	A			07/23/10	LP



SGS Ref.# 975991 Method Blank  
Client Name Nortech  
Project Name/# 10-1084  
Matrix Soil/Solid (dry weight)

Printed Date/Time 08/05/2010 13:40  
Prep Batch  
Method  
Date

QC results affect the following production samples:  
1103601001, 1103601002, 1103601003, 1103601004

Parameter	Results	LOQ/CL	DL	Units	Analysis Date
-----------	---------	--------	----	-------	---------------

**Solids**

Total Solids	100			%	07/23/10
Batch	SPT8189				
Method	SM20 2540G				
Instrument					



SGS Ref.# 976032 Method Blank  
Client Name Nortech  
Project Name/# 10-1084  
Matrix Soil/Solid (dry weight)

Printed Date/Time 08/05/2010 13:40  
Prep Batch XXX23144  
Method SW3550C  
Date 07/26/2010

QC results affect the following production samples:  
1103601001, 1103601002, 1103601003, 1103601004

Parameter	Results	LOQ/CL	DL	Units	Analysis Date
<b><u>Semivolatile Organic Fuels Department</u></b>					
Diesel Range Organics	ND	20.0	6.20	mg/Kg	07/27/10
<b>Surrogates</b>					
5a Androstane <surr>	74	60-120		%	07/27/10
Batch	XFC9373				
Method	AK102				
Instrument	HP 7890A	FID SV E R			



SGS Ref.# 977420 Method Blank  
Client Name Nortech  
Project Name/# 10-1084  
Matrix Soil/Solid (dry weight)

Printed Date/Time 08/05/2010 13:40  
Prep Batch  
Method  
Date

QC results affect the following production samples:  
1103601001, 1103601002, 1103601003, 1103601004

Parameter	Results	LOQ/CL	DL	Units	Analysis Date
<b><u>Volatile Gas Chromatography/Mass Spectroscopy</u></b>					
Benzene	ND	12.5	3.90	ug/Kg	07/30/10
Ethylbenzene	ND	25.0	7.80	ug/Kg	07/30/10
o-Xylene	ND	25.0	7.80	ug/Kg	07/30/10
P & M -Xylene	ND	50.0	15.0	ug/Kg	07/30/10
Toluene	ND	25.0	7.80	ug/Kg	07/30/10
<b>Surrogates</b>					
1,2-Dichloroethane-D4 <surr>	101	69-132		%	07/30/10
4-Bromofluorobenzene <surr>	100	65-144		%	07/30/10
Toluene-d8 <surr>	102	84-124		%	07/30/10
Batch	VMS11432				
Method	SW8260B				
Instrument	HP 5890 Series II MS5 VLA				



SGS Ref.# 975992 Duplicate  
Client Name Nortech  
Project Name/# 10-1084  
Original 1103604001  
Matrix Soil/Solid (dry weight)

Printed Date/Time 08/05/2010 13:40  
Prep Batch  
Method  
Date

QC results affect the following production samples:  
1103601001, 1103601002, 1103601003, 1103601004

Parameter	Original Result	QC Result	Units	RPD	RPD Limits	Analysis Date
-----------	-----------------	-----------	-------	-----	------------	---------------

**Solids**

Total Solids	48.8	48.5	%	1	(< 15)	07/23/2010
Batch	SPT8189					
Method	SM20 2540G					
Instrument						



SGS Ref.# 976033 Lab Control Sample  
976034 Lab Control Sample Duplicate  
Client Name Nortech  
Project Name/# 10-1084  
Matrix Soil/Solid (dry weight)

Printed Date/Time 08/05/2010 13:40  
Prep Batch XXX23144  
Method SW3550C  
Date 07/26/2010

QC results affect the following production samples:

1103601001, 1103601002, 1103601003, 1103601004

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
-----------	------------	-----------	-----------------	-----	------------	---------------	---------------

**Semivolatile Organic Fuels Department**

Diesel Range Organics	LCS	149	89	( 75-125 )		167 mg/Kg	07/27/2010
	LCSD	151	91		1	(< 20 )	167 mg/Kg 07/27/2010

**Surrogates**

5a Androstane <surr>	LCS		83	( 60-120 )			07/27/2010
	LCSD		86		4		07/27/2010

Batch XFC9373  
Method AK102  
Instrument HP 7890A FID SV E R





SGS Ref.# 977421 Lab Control Sample

Printed Date/Time 08/05/2010 13:40  
Prep Batch

Client Name Nortech  
Project Name/# 10-1084  
Matrix Soil/Solid (dry weight)

Method  
Date

QC results affect the following production samples:  
1103601001, 1103601002, 1103601003, 1103601004

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
-----------	------------	-----------	-----------------	-----	------------	---------------	---------------

**Volatile Gas Chromatography/Mass Spectroscopy**

Benzene	LCS	776	103	( 81-124 )		750 ug/Kg	07/30/2010
Ethylbenzene	LCS	803	107	( 87-119 )		750 ug/Kg	07/30/2010
o-Xylene	LCS	776	104	( 89-120 )		750 ug/Kg	07/30/2010
P & M -Xylene	LCS	1500	100	( 88-121 )		1500 ug/Kg	07/30/2010
Toluene	LCS	782	104	( 87-119 )		750 ug/Kg	07/30/2010

**Surrogates**

1,2-Dichloroethane-D4 <surr>	LCS		102	( 69-132 )			07/30/2010
4-Bromofluorobenzene <surr>	LCS		102	( 65-144 )			07/30/2010
Toluene-d8 <surr>	LCS		104	( 84-124 )			07/30/2010

Batch VMS11432  
Method SW8260B  
Instrument HP 5890 Series II MS5 VLA



SGS Ref.# 977422 Matrix Spike  
 977423 Matrix Spike Duplicate

Printed Date/Time 08/05/2010 13:40  
 Prep Batch  
 Method  
 Date

Original 1103987001  
 Matrix Soil/Solid (dry weight)

QC results affect the following production samples:  
 1103601001, 1103601002, 1103601003, 1103601004

Parameter	Qualifiers	Original Result	QC Result	Pet Recov	MS/MSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
<b>Volatile Gas Chromatography/Mass Spectroscopy</b>									
Benzene	MS	ND	1986	98	( 81-124 )			2041 ug/Kg	07/30/2010
	MSD		2095	103		5	(< 20 )	2041 ug/Kg	07/30/2010
Ethylbenzene	MS	ND	1946	96	( 87-119 )			2041 ug/Kg	07/30/2010
	MSD		2190	108		12	(< 20 )	2041 ug/Kg	07/30/2010
o-Xylene	MS	ND	2000	98	( 89-120 )			2041 ug/Kg	07/30/2010
	MSD		2095	103		4	(< 20 )	2041 ug/Kg	07/30/2010
P & M -Xylene	MS	ND	3918	96	( 88-121 )			4068 ug/Kg	07/30/2010
	MSD		4259	105		9	(< 20 )	4068 ug/Kg	07/30/2010
Toluene	MS	ND	1878	92	( 87-119 )			2041 ug/Kg	07/30/2010
	MSD		2027	100		7	(< 20 )	2041 ug/Kg	07/30/2010
<b>Surrogates</b>									
1,2-Dichloroethane-D4 <surr>	MS		2122	104	( 69-132 )				07/30/2010
	MSD		2122	104		0			07/30/2010
4-Bromofluorobenzene <surr>	MS		4340	96	( 65-144 )				07/30/2010
	MSD		4041	89		7			07/30/2010
Toluene-d8 <surr>	MS		2000	98	( 84-124 )				07/30/2010
	MSD		2095	103		5			07/30/2010

Batch VMS11432  
 Method SW8260B  
 Instrument HP 5890 Series II MS5 VLA



SGS Environmental Services Inc. CHAIN OF CUSTODY RECORD

1103601



Maryland New York Ohio

CLIENT: Nortech  
 CONTACT: Jason  
 PROJECT: 10-1084  
 REPORTS TO: Jason  
 PHONE NO: 907586 6613  
 SITE/PWSID#:   
 EMAIL: Jginter@nortechengr.com  
 INVOICE TO: 2400 College Rd QUOTE # 8884  
 Fairbanks AK 99709 P.O. #:

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX/MATRIX CODE	# CONTAINERS	SAMPLE TYPE C= COMP G= GRAB MI= Multi Incremental Samples	Preservatives Used Analysis Required	Method	REMARKS/LOC ID
① A→B	Cm101	7/22/10	0855	S	2	G		MDH	
②	Cm102	↓	0856	S	2	G		BTEX/Ba60	
③	Cm103	↓	0909	S	2	G		Drolio2	
④	Cm104	↓	0923	S	2	G			

SGS Reference #: \_\_\_\_\_ page \_\_\_\_\_ of \_\_\_\_\_

Collected/Relinquished By: (1) *Andrew B...* Date: 7/22/10 Time: 1630 Received By: \_\_\_\_\_  
 Relinquished By: (2) \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Received By: \_\_\_\_\_  
 Relinquished By: (3) \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Received By: \_\_\_\_\_  
 Relinquished By: (4) \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Received By: *JG* 7/22/10

DOD Project? YES NO Cooler ID \_\_\_\_\_ Special Deliverable Requirements: \_\_\_\_\_  
 Requested Turnaround Time and/or Special Instructions: \_\_\_\_\_

Samples Received Cold? YES NO Cooler Temperature °C: 2.9  
 Chain of Custody Seal: (Circle) INTACT BROKEN **ABSENT**

**SAMPLE RECEIPT FORM**

1103601



Review Criteria:	Condition:	Comments/Action Taken:
Were custody seals intact? Note # & location if applicable. COC accompanied samples?	Yes No <u>N/A</u>	
Temperature blank compliant (i.e., 0-6°C after correction factor)? Cooler ID: _____ @ <u>2.0</u> w/ Therm.ID: <u>2013B 130</u> Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ <i>Note: If non-compliant, use form FS-0029 to document affected samples/analyses.</i> 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?	<u>Yes</u> No N/A <u>Yes</u> No N/A           Yes No <u>N/A</u>	
Delivery method (specify all that apply): Client      USPS <u>Alert Courier</u> Road Runner <u>AK Air</u> Lynden      Carlile      ERA FedEx      UPS      NAC      PenAir Other:	Note airbill/tracking #  <u>See Attached</u>  or N/A	
* For samples received with payment, note amount (\$) and cash / check / CC (circle one). * For samples received in FBKS, ANCH staff will verify all criteria are reviewed. SRF Initiated by: <u>N/A</u>		
Do samples match COC (i.e., sample IDs, dates/times collected)? Are analyses requested unambiguous?	<u>Yes</u> No N/A <u>Yes</u> No N/A	
Were samples in good condition (no leaks/cracks/breakage)? Packing material used (specify all that apply): <u>Bubble wrap</u> Separate plastic bags      Vermiculite Other:	<u>Yes</u> 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 <u>N/A</u> <u>Yes</u> No N/A	
Were proper containers (type/mass/volume/preservative) used? Were the bottles provided by SGS? (Note apparent exceptions.) Were Trip Blanks (VOAs, LL-Hg) in cooler with samples? <u>proceed</u>	Yes <u>No</u> N/A <u>Yes</u> No N/A Yes <u>No</u> N/A	BTEX jars overfilled, but client confirmed
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)? <i>Refer to attached bottle sheet (form F066) for documentation.</i>	Yes No <u>N/A</u> Yes No <u>N/A</u>	25ml MeOH was added, OK to proceed. AHH 7/23/10
For RUSH or SHORT HOLD TIME samples, were the COC & this SRF flagged, bottles flagged (e.g., stickers) and lab notified?	Yes No <u>N/A</u>	
For client requested, site-specific QC (e.g., MS/MSD/DUP), were bottles flagged (e.g., stickers) and numbered accordingly?	Yes No <u>N/A</u>	
For special handling (e.g., "MI" or foreign soils, lab filter, limited volume, Ref Lab), were bottles/paperwork flagged (e.g., sticker)?	Yes No <u>N/A</u>	
Was PEER REVIEW of sample numbering completed (i.e., compare WO# on containers to COC, container ID on containers to COC, each container had a unique container ID)?	Yes No N/A	SRF Completed by: <u>KMB</u> Bottle Sheet by: <u>KMB</u>
Was the WO# recorded in Front Counter/Sample Receiving log?	<u>Yes</u> No N/A	Peer Reviewed by: <u>[Signature]</u>
For any questions answered "NO," was the PM notified?	<u>Yes</u> No N/A	PM = <u>[Signature]</u> N/A
Additional notes (if applicable):		

WO# (7 digits)	Sample #	Sample #	Container ID	Container ID	Matrix	QC	Preservative (CHECKED)	TEST GROUP	PRINT LABELS	Notes:
										<b>ANOMALIES -</b> e.g., preservative added <b>or SPECIAL HANDLING -</b> e.g., Multi-Incremental (MI), Field Filter (FF), Lab Filter (LF), use "same jar as" (SJA) for QC, 2xMeOH, bubbles, etc.
SAMPLE ID			TYPE		CONTAINERS		ANALYSIS	Type comments below:		
1103601	001	004	A	A	2 Soil		N/A	S_Weigh_Out		
1103601	001	004	B	B	2 Soil		MeOH+BFB *	S_GRO/VOC		

1103601




027 JNU 7784 5353

*cooler*

027-7784 5353

7-23

Shipper's Name and Address <b>NORTECH</b> 2400 COLLEGE RD FAIRBANKS, AK 99709 USA  Tel: 9074525688		Shipper's Account Number <b>27442126076</b> Customer's ID Number <b>10588</b>		Not Negotiable <b>Air Waybill</b> Issued By  <i>Alaska Air Cargo</i> ALASKA AIRLINES & HORIZON AIR P.O. BOX 68900 SEATTLE, WA 98168 800-225-2752 ALASKACARGO.COM					
Consignee's Name and Address <b>SGS North America Inc</b> 200 W Potter Drive Anchorage, AK 99518 USA  Tel: 9075622343		Consignee's Account Number <b>27400215947</b>		Also notify   Tel:					
Issuing Carrier's Agent and City  <b>Juneau</b>		Accounting Information <b>NORTECH</b> 2400 COLLEGE RD FAIRBANKS, AK 99709 USA  10588  <b>1103601</b> 		GoldStreak					
Agent's IATA Code		Account No.							
Airport of Departure (Addr. of First Carrier) and Requested Routing <b>Juneau</b>		Airport of Destination <b>Anchorage</b>		Amount of Insurance <b>XXX</b>					
To By First Carrier <b>ANC Alaska Airlines</b>		To / By	To / By	Currency <b>USD PX</b>	WT/VAL <b>X</b>				
Flight/Date <b>AS 077/22</b>		Flight/Date		Other <b>X</b>	Declared Value For Carriage <b>NVD</b>				
Handling Information				Declared Value For Customs <b>NCV</b>					
No of Pieces	Gross Weight	kg	lb	Commodity Item No.	Chargeable Weight	Rate / Charge	Total	Nature and Quantity of Goods (Incl. Dimensions or Volume)	
1	12.0				12.0		AS AGREED	SOIL SAMPLES	
1	12.0						AS AGREED	GSX Volume:0.000	
Prepaid		Weight Charge		Collect		Other Charges			
AS AGREED						MYC 1.44 SCC 2.00			
Valuation Charge									
Tax									
Total Other Charges Due Agent						Shipper certifies that the particulars on the face hereof are correct and that insofar as any part of the consignment contains dangerous goods, such part is properly described by name and is in proper condition for carriage by air according to the applicable Dangerous Goods Regulations. I consent to the inspection of this cargo.			
Total Other Charges Due Carrier						For: NORTECH Signature of Shipper or his Agent <i>Ashley Davis</i>			
Total Prepaid		Total Collect				<input checked="" type="checkbox"/> THIS SHIPMENT DOES NOT CONTAIN DANGEROUS GOODS <input type="checkbox"/> THIS SHIPMENT DOES CONTAIN DANGEROUS GOODS			
AS AGREED						22 Jul 2010 16:12 Juneau Alaska Airlines Executed On (Date) at (Place) Signature of Issuing Carrier or its Agent			
						027-7784 5353			

**Alert Expeditors Inc.**  
**DBA/Petroleum Courier Service**

**312323**

Citywide Delivery  
272-0349 • 440-3351  
8421 Flamingo Drive • Anchorage, Alaska 99502

Date 7/23/10

From Norfolk

To OSGS

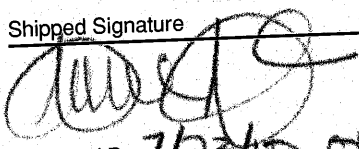
Collect <input type="checkbox"/>	Prepay <input type="checkbox"/> Account <input type="checkbox"/>	Advance Charges <input type="checkbox"/>
Job #	PO#	

1 PC

OSX# 7784-5353

**1103601**



Shipped Signature  


Total Charge

Received By: 7/23/10 0830

# Appendix D

## Laboratory Data Review Checklists



## Laboratory Data Review Checklist

Completed by:

Title:

Date:

CS Report Name:

Report Date:

Consultant Firm:

Laboratory Name:

Laboratory Report Number:

ADEC File Number:

ADEC RecKey Number:

1. Laboratory

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

Yes     No                      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                      Comments:

2. Chain of Custody (COC)

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

Yes     No                      Comments:

b. Correct analyses requested?

Yes  No

Comments:

3. Laboratory Sample Receipt Documentation

a. Sample/cooler temperature documented and within range at receipt ( $4^{\circ} \pm 2^{\circ} \text{C}$ )?

Yes  No

Comments:

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

Yes  No

Comments:

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

Yes  No

Comments:

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

Yes  No

Comments:

e. Data quality or usability affected? Explain.

Comments:

4. Case Narrative

a. Present and understandable?

Yes  No

Comments:

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

Yes  No

Comments:

c. Were all corrective actions documented?

Yes  No

Comments:

N/A

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

Comments:

Data Useable

5. Samples Results

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

Yes  No

Comments:

b. All applicable holding times met?

Yes  No

Comments:

c. All soils reported on a dry weight basis?

Yes  No

Comments:

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

Yes  No

Comments:

e. Data quality or usability affected? Explain.

Comments:

Data Useable

6. QC Samples

a. Method Blank

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

Yes  No

Comments:

ii. All method blank results less than PQL?

Yes  No

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

Comments:

v. Data quality or usability affected? Explain.

Comments:

Data Useable

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

i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples?

Yes  No

Comments:

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

Yes  No

Comments:

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

Yes  No

Comments:

iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits? And project specified DQOs, if applicable. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

Yes  No

Comments:

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

Comments:

N/A

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

Yes  No

Comments:

N/A

vii. Data quality or usability affected? Explain.

Comments:

Data Useable

c. Surrogates – Organics Only

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

Yes  No

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

Comments:

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

Yes  No

Comments:

N/A

iv. Data quality or usability affected? Explain.

Comments:

Data Useable

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

i. One trip blank reported per matrix, analysis and cooler?

Yes  No

Comments:

ii. All results less than PQL?

Yes  No

Comments:

iii. If above PQL, what samples are affected?

Comments:

N/A

iv. Data quality or usability affected? Explain.

Comments:

Data Useable

e. Field Duplicate

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

Yes  No

Comments:

ii. Submitted blind to lab?

Yes  No

Comments:

N/A

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

Comments:

N/A

iv. Data quality or usability affected? Explain.

Comments:

Data Useable

f. Decontamination or Equipment Blank (if applicable)

Yes     No     Not Applicable

i. All results less than PQL?

Yes     No    Comments:

ii. If above PQL, what samples are affected?

Comments:

iii. Data quality or usability affected? Explain.

Comments:

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

a. Defined and appropriate?

Yes     No    Comments: