



Alaska Department of Environmental Conservation

Reuse & Redevelopment Initiative

Brownfield Assessment



**FINAL
PROPERTY ASSESSMENT
AND CLEANUP PLAN**

*Village of Beaver Old BIA School Tank Farm
and Burned Generator Building
Beaver, Alaska*



Submitted to:
Department of Environmental Conservation
Brownfield Program

By:
SLR International Corp
May 2010

**FINAL
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VILLAGE OF BEAVER OLD BIA SCHOOL TANK FARM
AND BURNED GENERATOR BUILDING
BEAVER, ALASKA**

Prepared for

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May 2010

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This document has been prepared by SLR International Corp. The material and data in this report were prepared under the supervision and direction of the undersigned.



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CONTENTS

ACRONYMS.....	iv
EXECUTIVE SUMMARY	1
1. INTRODUCTION.....	1-1
1.1 Purpose of Project.....	1-1
1.2 Scope of Services Summary	1-2
1.2.1 Task 1 – Stakeholder Scoping and Planning Meeting	1-2
1.2.2 Task 2 – PACP Preparation.....	1-2
1.3 Objectives.....	1-2
2. COMMUNITY OVERVIEW AND INFORMATION.....	2-1
2.1 Community General Information.....	2-1
2.1.1 Location and Climate	2-1
2.1.2 Community Resources and Infrastructure	2-1
2.2 Community Involvement.....	2-2
2.2.1 Community Concerns	2-3
2.2.2 Stakeholder Meeting Summary.....	2-3
2.2.3 Proposed Community Development and Land Use	2-4
2.2.4 Interviews and Community Input.....	2-4
3. OVERVIEW OF SITE PROPERTY	3-1
3.1 Old BIA School Site	3-1
3.2 Burned Generator Building Site	3-1
3.3 Geologic Setting	3-2
3.4 Property Use	3-2
3.4.1 Historical Use.....	3-2
3.4.2 Current Use	3-2
3.5 Ownership Information	3-3
3.6 Records Review	3-3
4. SITE RECONNAISSANCE	4-1
4.1 Methodology.....	4-1
4.2 Observations	4-2
4.3 Site Sampling	4-3
4.3.1 Sampling Methodology	4-3
4.4 Sampling and Field Screening Results.....	4-4
4.5 Quality Assurance Summary	4-6

CONTENTS (CONTINUED)

5.	ENVIRONMENTAL REVIEW AND SUMMARY OF FINDINGS.....	5-1
5.1	Historical Environmental Review	5-1
5.1.1	Old BIA School Site	5-1
5.1.2	Burned Generator Building Site	5-2
5.2	Potential Source Areas.....	5-2
5.3	Known or Perceived Data Gaps	5-3
5.4	Conceptual Site Model	5-3
5.4.1	Potentially Complete Exposure Pathways	5-3
5.4.2	Incomplete Exposure Pathways.....	5-4
5.4.3	Current and Future Receptors	5-5
5.5	Cleanup Criteria	5-5
5.5.1	Soil Cleanup Levels	5-5
5.5.2	Ground Water cleanup Levels	5-6
5.5.3	Other Regulated Cleanup Criteria.....	5-6
5.5.4	Non-Regulated Cleanup Criteria.....	5-7
5.6	General Environmental Overview	5-7
6.	RECOMMENDED ACTIONS	6-1
6.1	Environmental Actions.....	6-1
6.2	Debris Removal	6-1
6.3	Contaminated Soil Excavation.....	6-3
6.4	Soil Management Alternatives	6-4
6.5	Preferred Alternative.....	6-5
6.6	Institutional Controls	6-5
6.7	Long-Term Soil Treatment Locations In Beaver	6-6
6.8	Source of Backfill Material	6-6
6.9	Water Management Options.....	6-7
6.10	Equipment and Labor Requirements	6-7
6.11	Available Resources in Beaver.....	6-7
6.11.1	Equipment.....	6-7
6.11.2	Labor	6-8
6.11.3	Resource Leveraging Opportunities	6-8
6.11.4	Personnel Qualifications	6-8
7.	CONCLUSIONS.....	7-1
8.	REFERENCES.....	8-1

CONTENTS (CONTINUED)

FIGURES

Figure 1	Site Location Map
Figure 2	Old BIA School Site
Figure 3	Washeteria Leaking Fuel Line Area Apron Area Detail
Figure 4	Burned Generator Building Site 2006

TABLES

Table 1	Soil Sample Analytical Results Old BIA School Tank Farm
Table 2	Soil Sample Analytical Results Burned Generator Building
Table 3	Ground Water Analytical Results Drinking Water Well
Table 4	Soil Volume Calculations Village of Beaver
Table 5	Evaluation of Remedial Alternatives for Soil

APPENDICES

Appendix A-1	Old BIA School DEC Brownfield Assessment Request Form – 2009
Appendix A-2	Burned Generator Building DEC Brownfield Assessment Request Form – 2009
Appendix B	Beaver plat and USFWS Lease to State of Alaska
Appendix C	Stakeholder Meeting Minutes
Appendix D	1968 Well Construction Log
Appendix E-1	Photographic Log – Old BIA School
Appendix E-2	Photographic Log – Burned Generator Building
Appendix F-1	Field Notes – Old BIA School
Appendix F-2	Field Notes – Burned Generator Building
Appendix G-1	Old BIA School Laboratory Analytical Results, QAR & DEC Checklist
Appendix G-2	Burned Generator Building Laboratory Analytical Results, QAR & DEC Checklist
Appendix G-3	Village of Beaver – Drinking Water Sample Analytical Results
appendix H-1	Old BIA School Conceptual Site Model
appendix H-2	Burned Generator Building Conceptual Site Model
Appendix I-1	Old Bia School DEC Exposure Tracking Model
Appendix I-2	Burned Generator Building DEC Exposure Tracking Model
Appendix J	Heavy Equipment Rental Rates
Appendix K	Cost Estimate Spreadsheets

ACRONYMS

AAC	Alaska Administrative Code
ADF&G	Alaska Department of Fish and Game
AST	aboveground storage tank
bgs	below ground surface
BIA	Bureau of Indian Affairs
BJU	Beaver Joint Utilities
BTC	Beaver Tribal Council
BTEX	benzene, toluene, ethylbenzene, and xylenes
CFR	Code of Federal Regulations
CSM	conceptual site model
cy	cubic yards
DBA	DEC Brownfield Assessment
DCCED	Alaska Department of Commerce, Community, and Economic Development
DCRA	Division of Community and Regional Affairs
DEC	Alaska Department of Environmental Conservation
DNR	Alaska Department of Natural Resources
DOE	Alaska Department of Education
DRO	diesel range organics
EPA	U.S. Environmental Protection Agency
ETM	exposure tracking model
GRO	gasoline range organics
HAZWOPER	hazardous waste operation and response
IGAP	Indian General Assistance Program
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
NEC	notice of environmental conditions
OASIS	Oasis Environmental
OIT	Organic Incineration Technology
PACP	Property Assessment and Cleanup Plan
PAH	polynuclear aromatic hydrocarbon
PCB	polychlorinated biphenyl
PID	photoionization detector
ppm	parts per million
RACM	regulated asbestos containing material

ACRONYMS (CONTINUED)

RRO	residual range organics
RSE	Restoration Science and Engineering
SGS	SGS Environmental Services, Inc.
SHPO	State Historic Preservation Offices
SIM	selective ion monitoring
SLR	SLR International Corp
STRP	State Tribal Response Program
µg/L	micrograms per liter
USACE	United States Army Corps of Engineers
USF&WS	United States Fish and Wildlife Service
VOC	volatile organic compound
YFSD	Yukon Flats School District
YRITWC	Yukon River Inter-Tribal Watershed Council

EXECUTIVE SUMMARY

SLR International Corp (SLR) is pleased to submit this Property Assessment and Cleanup Plan (PACP) to the Alaska Department of Environmental Conservation (DEC) for the Old Bureau of Indian Affairs (BIA) School tank farm and the Beaver Joint Utilities (BJU) Burned Generator Building sites in Beaver, Alaska. The Village of Beaver is located on the north bank of the Yukon River, approximately 105 miles north of Fairbanks (DEC, 2009a). The objective of this PACP is to assist in beneficial redevelopment of the subject properties.

The Old BIA School property is owned by the U.S. Fish and Wildlife Service and is leased to the Alaska Department of Education. Contaminated surface soil and subsurface soil were identified in two main areas to the west/northwest and east of the Old BIA School tank farm in 2001 (Oasis, 2002).

As part of the Village of Beaver Project Assessment conducted by OASIS Environmental in 2001, environmental soil sampling was also conducted at the BJU tank farm, which was adjacent to the generator building, and has since burned (Oasis, 2002). Soil contamination was observed near the generator building during this assessment.

The findings of the 2001 investigation work indicated the presence of 1,650 cubic yards of soils impacted above DEC Method Two migration to ground water cleanup levels for the Under 40-inch Precipitation Zone on the two properties. This volume estimate was based on data from test pits advanced to a depth of 9 feet below ground surface using a local backhoe. The area of impact noted in 2001 was approximately 5,000 square feet. The findings of this assessment work indicated an impacted volume of approximately 2,048 cubic yards based on a five foot excavation depth. The area of excavation is approximately 11,000 square feet. The change in excavation area is largely driven by the area of impact defined at the Burned Generator Building and the increased area of impact noted at the leaking fuel line to the washeteria building. The increase in impacted area delineated at the leaking washeteria fuel line since 2001 suggests a potential leak exists in this area. A pit approximately 2 feet wide by 3 feet long by 1.5 feet deep has been excavated beneath a fuel line coupling. Although no leak was noted during the SLR site visit, a bucket was noted hanging under the pipe coupling. The purpose of this bucket was likely to catch fuel leaking from the coupling when the coupling leaked in the past.

Landfarming is the remedial alternative recommended for contaminated soil at these properties. A cost estimate for guiding future funding requests was prepared for the preferred remedial alternative based on costs for local and imported equipment, and labor available in Beaver.

Results of the site characterization work indicate that potential impacts to drinking water resources should be investigated. Installation and sampling of ground water monitoring wells

should be performed to assess potential impact to the Village of Beaver drinking water well. The leaching of fuel constituents from contaminated soils at the Old BIA School tank farm and the leaking fuel line to the washeteria building may be close enough to impact the community well. Monitoring wells will help assess whether ground water has been impacted at these sites. A well inspection should be performed to determine the depth of the well screen and assess the well's vulnerability to site contamination. The well was drilled to approximately 42 feet bgs in 1968. A sample collected from the drinking water well for the DEC Drinking Water Program identified xylenes at 2.33 micrograms per liter [$\mu\text{g/L}$] in 2007. The well is sampled annually for VOCs (DEC, 2009d). Subsequent sampling by DEC's Drinking Water Program and by SLR during the 2009 site visit did not detect VOCs in water samples from the Village of Beaver well.

The Village of Beaver intends to reuse the Old BIA School site property for housing and/or a multipurpose building following remediation. The intended reuse of the Burned Generator Building site property is for a potential expansion of the BJU tank farm.

1. INTRODUCTION

The Beaver Tribal Council (BTC) submitted two Alaska Department of Environmental Conservation (DEC) Brownfield Assessment (DBA) requests to DEC during the spring 2009 DBA request period. The requests targeted assessment of sources on the Old Bureau of Indian Affairs (BIA) School property, and a generator facility that burned in 2007 and associated tank farm operated by Beaver Joint Utilities (BJU). Property boundaries for both sites are provided on Figure 1. The DBA request forms are included as Appendices A-1 and A-2.

The legal description of the Old BIA School property is Lot 8, Block 7, U.S. Survey 4895, and the property is 2.77 acres in size. The Old BIA School property is owned by the U.S. Fish and Wildlife Service (USF&WS) and is leased to the State of Alaska Department of Education (DOE). A plat map of Beaver and the USF&WS lease to the DOE are provided as Appendix B. The Old BIA School area is presented in Figure 2. The fuel line extending from the Old BIA School tank farm to the washeteria was investigated in 2001 and is shown in Figure 2. The area assessed along the above ground fuel line to the washeteria is presented in Figure 3; and the location of the assessment area in relation to the washeteria is presented in Figure 1. The legal description of the Burned Generator Building site is Lot 1, Block 8 of U.S. Survey 4895 and the property size is 0.47 acres. The Burned Generator Building area is presented in Figure 4.

This Property Assessment and Cleanup Plan (PACP) was written by SLR International Corp (SLR) on behalf of DEC in response to the DBA requests to recommend property assessment and cleanup actions with general cost estimates to enable sufficient and productive reuse of the properties.

Funding for work associated with the Old BIA School was provided by State of Alaska Capital Improvement Project funding. Funding for work associated with the Burned Generator Building site was provided by the U.S. Environmental Protection Agency (EPA) through DEC using the State Tribal Response Program (STRP) grant program.

1.1 PURPOSE OF PROJECT

The purpose of this PCAP is to provide background, regulatory, and remedial option information appropriate for advancing the Sites through the Brownfield process to help the state and community redevelop and reuse the property. The environmental investigation conducted in 2009 in conjunction with this PCAP was performed to further identify potential environmental hindrances that could limit the beneficial reuse of these Sites.

1.2 SCOPE OF SERVICES SUMMARY

SLR completed the following tasks to develop this PACP.

1.2.1 TASK 1 – STAKEHOLDER SCOPING AND PLANNING MEETING

In August 2009, SLR participated in a stakeholder and planning teleconference with stakeholders in the project. Attendees included representatives from The Native Village of Beaver, USF&WS and the Yukon Flats Wildlife Refuge, EPA, Yukon River Inter-Tribal Watershed Council (YRITWC), DEC, and SLR. The purpose of the meeting was to define the project objectives and also identify the path through the Brownfield process to reuse the Site. SLR prepared a summary record of the meeting and provided it to the stakeholders and DEC. A copy of this summary is included in Appendix C.

1.2.2 TASK 2 – PACP PREPARATION

The PACP, developed following SLR's field investigation, is based on review of information gathered from the stakeholder meeting, DEC site files, previous investigations conducted at the Site, communication with individuals familiar with the community and the Site, and observations made during the SLR field investigation. This plan includes a comprehensive summary of the existing site conditions and recommendations for property assessment and corrective actions to supply interested stakeholders with a guideline document suitable for progression of sites through the remediation process.

1.3 OBJECTIVES

The objective of this project is to provide a PACP that recommends cleanup actions with general cost estimates to enable sufficient and productive reuse of the property. This plan will provide readers with an understanding of the following:

- An accurate historical summary for the Old BIA School site and Burned Generator Building site properties, including historical land use, environmental incidents, and assessment/response activities to date;
- An understanding of the proposed reuse of the properties;
- A qualitative assessment of risk to human receptors from potential contamination at the sites;
- Knowledge of specific data gaps necessary to fill in order to fully evaluate cleanup requirements;
- A clear understanding of the steps necessary to make the properties suitable to meet the community reuse objectives; and
- Knowledge of practical remediation strategies including cost estimates.

2. COMMUNITY OVERVIEW AND INFORMATION

This section provides information about the community of Beaver. It provides pertinent information on the stakeholders and summarizes the community involvement for the property.

2.1 COMMUNITY GENERAL INFORMATION

2.1.1 LOCATION AND CLIMATE

The Village of Beaver is located on the north bank of the Yukon River, approximately 105 miles north of Fairbanks. The Village of Beaver has a continental subarctic climate characterized by seasonal extreme temperatures. The average high temperature during July ranges from 65 to 72 degrees Fahrenheit (°F). The average low temperature during January is well below zero. Extended periods of -50°F to -60°F are common. Extreme temperatures ranging from a low of -70°F to a high of 90°F have been measured. Precipitation averages 6.5 inches. The average annual snowfall is 43.4 inches. The Yukon River is ice-free from mid-June to mid-October (DCRA, 2009).

2.1.2 COMMUNITY RESOURCES AND INFRASTRUCTURE

A well was constructed 1967, however the well was abandoned immediately due to problems with well placement. A new well and pump house were constructed in 1968. The well was drilled to approximately 42 feet bgs. A driller log of the well is provided as Appendix D. A sample collected from the drinking water well for the DEC Drinking Water Program identified low level xylenes (2.33 micrograms per liter [µg/L]) in 2007. The well is sampled annually for VOCs (DEC, 2009d). The water sample collected from the drinking water well in 2009 by SLR personnel did not contain detectable concentrations of targeted analytes (Table 3). Laboratory analytical results for ground water sampling at the Village of Beaver community well are provided as Appendix G-3 and includes results from this work and a summary of sampling performed by DEC's Drinking Water Program.

Ground water from the pump house is sent to the washeteria where it is pumped through a green sand filter, treated with chlorine and permanganate, and then run twice through a final sand filter. Residents haul the treated water from this point. Honey buckets are used for sewage disposal in all homes and a village-operated vehicle is used to haul wastes to a sewage lagoon located near the village landfill approximately 2.5 miles from the village. Villagers rely on the washeteria for bathing and laundry. The washeteria and school use individual septic systems. Electricity is provided by BJU. There is one school located in the

community, attended by 10 students. Local hospitals or health clinics include Beaver Clinic. The Beaver Clinic is a Primary Health Care facility. Emergency service is provided by a health aide (DCRA, 2009).

2.2 COMMUNITY INVOLVEMENT

The following entities are considered stakeholders for the Sites: The Native Village of Beaver, USF&WS, EPA, YRITWC, and DEC. A summary of the project stakeholders and their involvement in the Brownfield process for the Sites is provided below.

The Beaver Village Council – The Beaver Village Council administers the Indian General Assistance Program (IGAP) through a grant from EPA. The IGAP provides an opportunity for tribes to build capacity and management capability to implement environmental programs administered by the Tribe. The BTC submitted two DBA requests to DEC during the spring 2009 DBA request period. The requests targeted assessment for the BIA School and associated facilities on the property located in Beaver, Alaska, and a former generator facility that burned in 2007.

Yukon Flats National Wildlife Refuge, U. S. Fish and Wildlife Service – The property is owned by the USF&WS and is leased to the DOE because the school built in 1986 is also on the USF&WS property. The DOE lease extends through 2040.

EPA – The EPA funds state and tribal Brownfield programs. The STRP plays a significant role in cleaning up Brownfields across the country and Alaska. The continued demand for Brownfield cleanup and redevelopment in communities throughout the country, coupled with increasingly limited state and tribal resources, makes access to federal funding critical. The law authorizes EPA to provide up to \$50 million in grants to states and tribes to establish or enhance their response programs. Generally, these response programs are intended to establish and enhance environmental response programs, as well as to address the assessment, cleanup, and redevelopment of Brownfields (EPA, 2009).

EPA's Brownfield Program empowers tribes, states, and communities by providing money and technical assistance to prevent, assess, safely clean up, and sustainably reuse Brownfields. EPA is proud of its partnership with the more than 60 tribes that are creating and enhancing Tribal Response Programs to address the cleanup and reuse of contaminated property in Indian country. Through these response programs, tribes are taking an active role in combating environmental issues, while creating self-sufficient organizations for environmental protection (EPA, 2009).

Yukon River Inter-Tribal Watershed Council – The YRITWC consists of 66 First Nations and Tribes and is dedicated to the protection and preservation of the Yukon River Watershed. The council provides Yukon First Nations and Alaska Tribes in the Yukon Watershed with technical assistance, such as facilitating the development and exchange of information, coordinating efforts between First Nations and Tribes, undertaking research, and providing training, education and awareness programs to promote the health of the watershed and its indigenous peoples.

Since receiving Section 128(a) Tribal Response Program funding in 2005, the YRITWC Brownfield Program has partnered with 40 tribes, working with them to identify, prioritize and assess potential Brownfield sites. In May of 2007, YRITWC completed many inventory guides for suspected contaminated sites in the village of Beaver. Among those sites are the Old BIA School, generator building, and tank farm. The Beaver Village Council has not applied for an environmental site assessment through the YRITWC Brownfield Program.

Alaska Department of Environmental Conservation – DEC's *Reuse and Redevelopment Program* conducts site assessment and cleanup work on State-liable sites that are brought to DEC's attention through other state agencies. The DBA request forms are submitted by communities that are interested in having an assessment conducted on a property where there is no State liability on the property. DEC receives limited funds from EPA to conduct assessments on these properties and therefore the forms are used to help rank and determine which projects are eligible for EPA funding.

2.2.1 COMMUNITY CONCERNS

Community concerns identified in the 2009 DBA applications included:

- Potential threats to public health and safety from contaminants inside the old school building and from fuel leaks from the tank farm, generator building and underground fuel pipes.
- The need to demolish the building (an action which USF&WS supports) so that the land may be used either for housing or for a new community building such as a multipurpose building. Demolition cannot occur without adequate characterization because it is suspected that there is lead-based paint and asbestos in the building. Soil fuel levels are high enough to cause concern for public health and safety should any demolition/construction work occur on the Site; these levels also preclude safe alternate use/occupancy of the Site. The Alaska State Historic Preservation Office (SHPO) will need to be consulted if any work is conducted on the building because the building is considered a potential National Historic Building.
- The potential threats to ground water also need to be evaluated and if ground water is contaminated, a remediation/mitigation plan developed and implemented. The village drinking water well is located between this site and the river. The depth at which the drinking water well is screened was not known to the preparer of the DBA application; whether contamination from the sites pose a threat to the village drinking water supply needs to be determined.

2.2.2 STAKEHOLDER MEETING SUMMARY

In August 2009, SLR participated in a stakeholder and planning teleconference with stakeholders in the project. The objectives of the project were explained and discussion took place regarding resources available to the community, site conditions and options for

treatment or disposal of contaminated soils. One example given was to evaluate the option of using site soil as landfill cover.

The SLR field staff for the site visit was identified and schedule and sampling activities were discussed. Information was summarized regarding contaminated sites and potential sources. The property owners were verified and the roles of the stakeholders were addressed.

Other topics discussed in the meeting were details of fuel handling and storage, the leaking washeteria fuel line, and tank farm upgrades. The Village had applied for a tank farm upgrade through the Denali Commission and was on a list, but it had not yet received an upgrade.

A copy of the stakeholder meeting summary is included in Appendix C.

2.2.3 PROPOSED COMMUNITY DEVELOPMENT AND LAND USE

The proposed use for the Old BIA School site property is housing or a new community building such as a multipurpose building. The proposed use for the Burned Generator Building site is for a potential expansion of fuel storage capacity near the BJU tank farm.

2.2.4 INTERVIEWS AND COMMUNITY INPUT

Interviews were conducted during the field investigation with individuals knowledgeable about current and historic conditions of the property and other information necessary to prepare the PACP. These interviews are summarized below to provide the pertinent information gathered.

Paul Williams – Paul Williams, the Second Chief of the Village of Beaver, grew up in Beaver. He indicated that the Old BIA School property was built in 1928 and did not receive electricity until 1986. Fuel for the Old BIA School property was previously barged in by Yutana Barge Company however, fuel is currently flown in by Everts Air 2,200 gallons at a time. He indicated the vicinity of the airport presents danger and prevents expansion of the village. He indicated that there were six heavy equipment operators in the village. There is however, land east of Beaver which is Village Council land.

Richard Williams – Richard Williams, son of Paul Williams and a resident of Beaver, said he and his wife are Hazardous Waste Operations and Emergency Response (HAZWOPER) trained. He said the village has one dump truck, one loader that needs repair, a 610 backhoe that needs repair and a Department of Transportation-owned grader. There is no excavator in the village. Mr. Williams said that operators cost 25 dollars per hour. He added that there are no known leaking lines or tanks in the village, and that only three tanks at the Old BIA School site that are being used to provide fuel to the new Cruikshank school.

Rebecca Fisher – Rebecca Fisher, a resident of Beaver and a Village Council member, said that the Old BIA School site generator building is still under lease agreement with Yukon Flats Wildlife Refuge. Her main concern is asbestos at the Old BIA School building. She

indicated the old generator building is still used for backup power for the new school. She is concerned that soil and water contamination and the direction of ground water flow may be affecting water quality in the Village well. She would prefer if contaminated soil was to be removed from the Village that it be barged out of Beaver. Her concern is subsistence hunting land near the landfill and the potential location for long-term storage of contaminated soils.

3. OVERVIEW OF SITE PROPERTY

This section provides a historical overview of the property including the historical and current use of the property and its geologic setting. It also summarizes the records review conducted for this work.

3.1 OLD BIA SCHOOL SITE

A large frame building, a tank farm with nine vertical fuel tanks, a building housing the old school generator, and a school shop are located on the Old BIA School property. The school building is abandoned and boarded up. The shop building is currently used by the adjacent Cruikshank School. The Old BIA School generator is still functional and is maintained as an emergency generator in case the village generator fails. The tank farm is still in use. Of the nine vertical tanks in the tank farm, one is not used because it purportedly leaks; five are used to store fuel for the Cruikshank School, and three supply fuel to the washeteria.

There is also an underground fuel line that runs from the airport to the Old BIA School tank farm and to the washeteria south of the Old BIA School site (Figure 3). There have reportedly been numerous leaks and spills at the Old BIA School tank farm and the Old BIA School generator building. The above-ground fuel line leading to the washeteria from the Old BIA School tank farm is known to leak; this was confirmed during the 2009 SLR investigation. Only one spill is documented at the Old BIA School tank farm in the DEC spills database (DEC, 2009b). This was for a 1,250-gallon spill on August 8, 2002. There is documented fuel contamination at the generator shed, the tank farm, and from the above ground fuel line leading to the washeteria. The maximum depth of the soil contamination has not yet been fully defined. It is assumed there is lead paint and asbestos present in the old building, as it was built at a time when these hazardous materials were common components of building materials.

3.2 BURNED GENERATOR BUILDING SITE

The Burned Generator Building site is located on the west side of C Street, just north of the post office, and across the street, west, from the Cruikshank School (Figure 4). The BJU generator building was built in the early 1990s and burned in 2007. There was at least one fuel tank (a day tank) associated with the generator building. Immediately to the northeast of the Site is the BJU tank farm that consists of three horizontal aboveground storage tanks (AST) with a total fuel storage capacity of approximately 30,000 gallons (Figure 4). The tanks are skid-mounted welded steel construction. The tank farm is in a lined and bermed secondary containment area, and is surrounded by a chain-link fence. No fuel spills at the village tank farm were identified from review of DEC contaminated sites and spill records.

3.3 GEOLOGIC SETTING

Soils in the area are alluvial deposits from the Yukon River. The parent material of the Beaver area consists of alluvium deposits from the Yukon River floodplain. Soils encountered during previous site investigations consisted of silts and sandy silts with gravel (Oasis, 2002). Driller logs for wells installed in 1967 and 1968 near the Yukon River indicate a 4-foot layer of silt overlying a clay, sand and gravel layer ranging from 19 to 37 feet thick (RSE, 2002).

3.4 PROPERTY USE

3.4.1 HISTORICAL USE

Old BIA School Site

The school was in operation from the date of construction, estimated to be 1963 based on the date of well installation for the Old BIA School, to 1986. After 1986, it was used as an office building until the late 1990s. The school building has not been occupied since the late 1990s. The BTC would like to demolish the building; an action that the USF&WS supports, so that the land may be reused by the community.

The building and associated facilities initially housed a BIA school. The school closed in 1986, after which the building largely stood empty until the BTC used it for their offices in the late 1990s. The BTC vacated the building when the new health clinic/tribal office building was completed, and the building has remained empty since.

Burned Generator Building Site

The BJU tank farm and associated, now burned, generator building were constructed in the early 1990s and were originally operated by the Beaver Tribe. Fuel was also sold to community members and was dispensed to containers from the fuel line to the generator day tank (Figure 4). This facility is owned by the Beaver Tribe. In addition to improving the community appearance through clean-up and reuse of the site, the village does not have an abundance of good land upon which to build. The village requires additional fuel storage and the area to the west of the BJU tank farm is the most suitable place to add additional tanks (Beaver Village Council 2009 DBA Request for Burned Generator Building area [Appendix A-2]).

3.4.2 CURRENT USE

Since abandonment of the Old BIA School the Site and property remains unused with the following exceptions: The generators in the Old Generator Building are used as a backup

power source, and three of the tanks in the Old BIA School tank farm are used to supply heating oil to the new school.

There is no current use of the Burned Generator Building; however, the BJU tank farm is still in use.

3.5 OWNERSHIP INFORMATION

The Old BIA School and tank farm, was leased to the DOE by the U.S. Department of the Interior, USF&WS in 1983 under a 55-year lease agreement. The leased lot (Lot 8 Block 7 of U.S. Survey No. 4895) comprises 2.74 acres and includes the BIA school facility and the adjacent tank farm which is now serving the washeteria and the Cruikshank School. The Plat Map and the attached aerial of the village both show Lot 7 of Block 8 bordered to the south by Second Avenue and to the west by C Street. The tank farm is on the lot with the BIA School and the new Cruikshank School. The plat map and lease agreement are included in Appendix B.

Under this lease, the entire lot is leased by the DOE from the U.S. Department of the Interior. The USF&WS would like to negotiate a land swap with the Village Council once cleanup is complete. The USF&WS would then establish a new cabin for refuge staff outside the village, and the village would have more centrally located land for other purposes.

The BJU tank farm and associated, now burned, generator building were constructed in the early 1990s and were originally operated by the Beaver Tribe. The tank farm facility is still owned by the Beaver Tribe.

3.6 RECORDS REVIEW

SLR reviewed several records as part of this PACP. These records included *Cruikshank School Tank Farm Diesel Spill Site Assessment Report, Beaver Alaska, 2002* (RSE, 2002). *Village of Beaver Site Assessment Project Report* (Oasis, 2002), the DEC contaminated sites database, and BIA and Alaska Lands Records.

4. SITE RECONNAISSANCE

In September 2009, SLR representatives traveled to Beaver to assess the current condition of the Old BIA School and Burned Generator Building sites, interview individuals familiar with the property, and evaluate potential remedial strategies. Interviews conducted during the field investigation are summarized in Section 2.1.5, while soil management strategies assessed for the Site are discussed in Section 6.3. Evaluation of the property's current condition is discussed below.

4.1 METHODOLOGY

SLR visited the Village of Beaver between September 8 and 11, 2009. During SLR's visit, interviews were conducted with individuals knowledgeable about current and historic site conditions, the Old BIA School and Burned Generator sites were visited and the village drinking water well was sampled. Still photographs, video with voice narrative, and field notes were used to document site conditions.

To assess the conditions of the Sites, SLR traversed the property to inspect for surface staining or other visual signs of contamination. In locations where surface staining was observed, a hand auger was used to investigate the depth of soil contamination. Visual observations and heated headspace analysis using a photoionization detector (PID) were used to field screen soil for petroleum hydrocarbons. Subsurface soil was assessed by advancing hand-auger borings; and soil samples were collected based on field screening findings, observations, and the locations of the samples.

Hand-auger soil borings were advanced until refusal was encountered. This was typically at a depth of 3-5 feet below ground surface (bgs). If soil contamination was observed at a boring, then an attempt was made to delineate the contamination vertically and horizontally. Horizontal step outs varied at each area, but overall spacing between borings averaged approximately 10 feet.

Heated headspace field screening of soils consisted of placing a representative soil sample in a re-sealable plastic bag, and situating the bag in a warm area for a sufficient time to raise the soil temperature to at least 60°F. After warming, the sealed soil sample was agitated (shaken) for 15 to 20 seconds, after which a PID probe was inserted into the bag and the highest reading recorded. Prior to headspace field screening analysis, the PID was calibrated with 100 parts per million (ppm) isobutylene calibration gas.

Village drinking water well observations and results are discussed in subsection F of Section 4.4.

4.2 OBSERVATIONS

Observations from the field investigations at the Old BIA School and Burned Generator Building sites are described by area below. The descriptions also include observations from the washeteria area and water well, which are not located on the subject properties. Photographic logs of each site are provided in Appendices E-1 and E-2. Field notes documenting observations during the Site assessments are provided in Appendices F-1 and F-2. Video with voice narrative is provided on a separate compact disc accompanying this PACP.

Leaking Washeteria Fuel Line Area – The fuel line leading to the washeteria from the tank farm is above ground. A pit approximately 2 feet wide by 3 feet long by 1.5 feet deep has been excavated beneath a leaking fuel line coupling, located as shown on Figure 2. A bucket was noted hanging under the pipe likely to catch fuel leaking from the coupling in the past. The soil in the excavated hole was fuel-stained and had a fuel odor. Due to poor photo quality, no pictures of the Leaking Washeteria Fuel Line Area are presented in the Photographic Log; however, video was taken with voice narrative.

Old BIA School Tank Farm Area – There is a wooded area east of the Old BIA School tank farm. A utilidor and fuel lines leading into and out of the tank farm passes through this wooded area (Figure 2). During the visit, a leaking elbow coupling was observed adjacent to the utilidor (north of the location of soil sample B-2, Figure 2 and Appendix E-1, Photograph 4). Beneath the coupling, stained soil was observed with a fuel odor. The locations of test pits from previous investigations were also evident in this area. North of and adjacent to the western fence of the tank farm, 15 to 20 55-gallon drums with antifreeze and unleaded gasoline labels were present (Figure 2 and Appendix E-1, Photograph 2). Some drums were bulged and contained liquid contents during the field investigation. Strong fuel odors were noted throughout the Old BIA School tank farm area.

Old BIA School Shop and Generator Building Area – Approximately 25 square feet of soil staining was observed just north of the Old BIA School generator building. No other soil staining was observed in the Old BIA School shop and generator building areas. Two large generators and an estimated 300-gallon fuel tank were located inside the Old BIA School generator building. Moderate oil odors were noted. There was motor oil, antifreeze and other common chemical products stored in the building. The generators appeared to have small leaks. The fuel filter for the fuel tank leaked however containment was observed beneath the filter. The Old BIA School shop building was well kept. The floor boards were stained with oil but no strong odors were noted during the field investigation. Access beneath the shop building was blocked by a plywood skirt along the building perimeter. The shop building is constructed on pilings. Items stored in the shop included tools, a snow machine, skis, a lawnmower, and a table saw. Chemical related items included painting supplies and a few small fuel containers.

Beaver Joint Utilities Tank Farm Area – At the BJU tank farm, several potential environmental issues were identified. Strong fuel odors were noted in the area of the tank farm. Although there was containment, leaking valves and couplings were observed. One of the fuel dispensing hoses was a common household garden hose. There were transformers

and bulging 55-gallon drums being stored west of the tank farm. Stained soil was observed adjacent to the 55-gallon drums. (Figure 4 and Appendix E-2, Photographs 3-7)

Burned Generator Building Site – The Burned Generator Building site contained an approximate one-half- to 1-foot-deep layer of burned debris on the ground surface. There were no recognizable construction materials left from the fire (Appendix E-2, Photograph 1). Strong fuel odors were noted in the area.

Village Drinking Water Well – The water sample was collected from the tap closest to the Village well in the washeteria building (Appendix E-1, Photograph 11). The water had an unidentified odor, but the odor did not resemble fuel.

4.3 SITE SAMPLING

4.3.1 SAMPLING METHODOLOGY

Soil samples were collected directly from the hand auger at each borehole. The hand auger was decontaminated between borings. The decontamination procedure consisted of a wash with potable water with Liquinox[®] detergent, followed by a deionized water rinse. One duplicate sample for every ten original samples were collected and submitted for laboratory analysis. A duplicate water sample was not collected from the village drinking water well.

Sampling Rationale

Soil samples were collected in order to delineate soil contamination at the Old BIA School, Burned Generator Building, and leaking washeteria line areas. Soil samples were collected based on field screening results and visual observations at the sites. In potential source areas, samples were collected to learn the magnitude of petroleum hydrocarbon concentrations in the soils. In areas where delineation was the objective, soil samples were collected to document concentrations of petroleum hydrocarbons in the soils vertically and laterally in an effort to delineate where petroleum hydrocarbon concentrations dropped below DEC cleanup levels.

Analytical Testing Methods

Soil samples were collected on September 10, 2009 and submitted for laboratory analysis at SGS Environmental Services, Inc. (SGS) in Anchorage, Alaska, a DEC-approved laboratory. The analytical soil samples were selectively analyzed by one or more of the following methods:

- Gasoline range organics (GRO) using Alaska Method (AK) 101
- Benzene, toluene, ethylbenzene (BTEX) using EPA Method 8021B
- Diesel range organics (DRO) using AK 102

- Residual range organics (RRO) using AK 103
- Polynuclear aromatic hydrocarbons (PAHs) using EPA Method 8270C using selective ion monitoring (SIM)
- Lead using EPA Method 6020

Locations of hand-augured borings and soil samples collected for laboratory analysis are identified in Figures 2, 3, and 4. Areas assessed were segregated as five different areas during the sampling effort and borings and soil samples are labeled accordingly (A, B C, D and E). The areas are discussed in detail in Sections 4.2 and 4.3.

The village drinking water well was sampled on September 11, 2009. The sample was collected by filling the appropriate laboratory-supplied sample container from the closest sample point to the well. The well water sample was sent to SGS Laboratories in Anchorage, Alaska and analyzed by the following methods:

- GRO using AK 101
- DRO using AK 102
- RRO using AK 103
- Volatile organic compounds (VOC) using EPA Method 524.2
- PAHs by EPA Method 8270D using SIM

4.4 SAMPLING AND FIELD SCREENING RESULTS

Soil screening and soil and drinking water sampling at the site are described below by area. The field screening and laboratory analytical results for each area are also summarized.

Laboratory analytical results for sampling activities are provided in Appendices G-1, G-2, and G-3. The DEC data review checklists and a quality assurance review are presented with the laboratory data packages in Appendix G-1 and G-2 (DEC, 2009c). Analytical results for soil samples are also provided in tabular form in Table 1 and Table 2, and presented on Figures 2-4. Analytical results for the Village of Beaver water well are provided in Table 3.

A. Leaking Washeteria Fuel Line Area – Nine hand-augured soil borings were advanced at the leaking washeteria fuel line area to assess soil contamination. These boreholes were identified as borings A-1 through A-9. PID readings from soil screening samples collected from the soil borings ranged from 1.0 ppm to 1,390 ppm at the Site. Two soil samples were collected and submitted for laboratory analysis.

The soil sample collected at Boring A-2 from a depth of 3.5 feet bgs contained detectable concentrations of GRO, DRO, RRO, toluene, ethylbenzene and total xylenes. GRO, DRO and ethylbenzene were detected at concentrations above DEC cleanup levels at 1,300 milligrams per kilogram (mg/kg), 15,100 mg/kg and 10.8 mg/kg, respectively. The soil sample collected at Boring A-8 from a depth of 4.0 feet bgs contained detectable

concentrations of GRO, DRO, benzene, toluene, ethylbenzene and total xylenes and all were above DEC cleanup levels. GRO, DRO, benzene, toluene, ethylbenzene and total xylenes were detected at concentrations of 4,620 mg/kg, 31,100 mg/kg, 0.491 mg/kg, 31.7 mg/kg, 53.9 mg/kg, and 385 mg/kg, respectively.

B. Old BIA School Tank Farm Area – Five hand-augered soil borings, B-1 through B-5, were advanced east of the Old BIA School Tank Farm Area. PID readings from soil screening samples collected from the soil borings ranged from 1.2 ppm to 94.4 ppm at the site. One soil sample was collected and submitted for laboratory analysis. The soil sample collected at Boring B-2 from a depth of 1.5 feet bgs contained detectable concentrations of GRO, DRO, RRO and total xylenes; however, the detected concentrations were below DEC cleanup levels.

C. Old BIA School Shop and Generator Building Area – Thirteen hand-augered soil borings, C-1 through C-13, were advanced at the Old BIA School Shop and Generator Building Area. PID readings from soil screening samples collected from the soil borings ranged from 1.9 ppm to 971 ppm at the Site. Seven soil samples were collected for laboratory analysis. The soil samples collected at Borings C-3, C-10, C-11 and C-13 had detections of hydrocarbon constituents, however the concentrations were less than DEC cleanup levels.

Both the duplicate and parent soil sample collected at Boring C-1 from a depth of 4.0 feet bgs contained detectable concentrations of GRO, DRO, RRO, toluene, total xylenes, lead and several PAH compounds. Only the highest analyte concentration between the two samples will be discussed. GRO, DRO and total xylenes were detected at concentrations above DEC cleanup levels at 3,230 mg/kg, 29,300 mg/kg and 108 mg/kg, respectively. Concentrations of 1-methylnaphthalene, 2- methylnaphthalene, 1,3,5-trimethylbenzene and naphthalene were also detected at concentrations above DEC cleanup levels at 132 mg/kg, 68.7 mg/kg, 103 mg/kg, and 64.5 mg/kg, respectively.

The soil sample collected at Boring C-4 from a depth of 4.5 feet bgs contained detectable concentrations of GRO, DRO, RRO, lead, 1,3,5-trimethylbenzene and naphthalene. Only GRO and DRO concentrations, of 962 mg/kg and 9,700 mg/kg, respectively, were above DEC cleanup levels.

The soil sample collected at Boring C-7 from a depth of 2.5 feet bgs contained detectable concentrations of GRO, DRO, RRO, 1, 3, 5-trimethylbenzene, 4-isopropyltoluene and total xylenes. The DRO concentration of 7,550 mg/kg is in excess of the DEC cleanup level.

D. Beaver Joint Utilities Tank Farm Area – Four hand-augered soil borings, D-1 through D4, were advanced at the BJU Tank Farm Area. PID readings from soil screening samples collected from the soil borings ranged from 1.0 ppm to 1.4 ppm at the Site. One soil sample was collected and submitted to SGS for laboratory analysis. The soil sample collected at Borings D-2 at 5.0 feet bgs had detections of DRO and RRO; however the concentrations were below DEC cleanup levels.

E. Burned Generator Building Site – Thirteen hand-augered soil borings, E-1 through E-13, were advanced at the Burned Generator Building Site. PID readings from soil screening samples collected from the soil borings ranged from 0.0 ppm to 1,483 ppm at the site. Five soil samples were collected and submitted to SGS for laboratory analysis. The soil samples collected at Borings E-1 and E-11 had detections of hydrocarbon constituents, however the concentrations were below DEC cleanup levels.

The soil sample collected at Boring E-3 from a depth of 8.0 feet bgs contained detectable concentrations of GRO, DRO, RRO, toluene, ethylbenzene and total xylenes. The results for DRO and total xylenes were above DEC cleanup levels at concentrations of 8,380 mg/kg and 89.4 mg/kg, respectively.

Both the duplicate and parent soil sample collected at Boring E-4 from a depth of 7.0 feet bgs contained detectable concentrations of GRO, DRO, RRO, BTEX and several PAH compounds. Only the highest analyte concentration between the two samples will be discussed. GRO and DRO were detected at concentrations above DEC cleanup levels in the sample at 10,100 mg/kg and 30,100 mg/kg, respectively. BTEX concentrations were detected in excess of DEC cleanup levels in the sample at 0.518 mg/kg, 6.54 mg/kg, 33.7 mg/kg and 531 mg/kg, respectively. Concentrations of 1-methylnaphthalene, 2-methylnaphthalene, and naphthalene were also detected at concentrations above DEC cleanup levels at 219 mg/kg, 223 mg/kg and 62.9 mg/kg, respectively.

The soil sample collected at Boring E-12 from a depth of 1.0 feet bgs contained detectable concentrations of GRO, DRO, RRO, toluene and lead. The results for DRO were above the DEC cleanup level at a concentration of 3,020 mg/kg.

F. Village Drinking Water Well – The analytical results from the ground water sample collected from the village drinking water well indicated no detectable concentrations of GRO, DRO, RRO, VOCs, or PAHs present in pre-system treatment water from the well.

4.5 QUALITY ASSURANCE SUMMARY

All field observations and sample collection activities were recorded in a bound field notebook. New nitrile sampling gloves were used before collection of each sample and samples were immediately placed in laboratory-supplied containers. Samples were stored in a chilled cooler as soon as possible after collection. Samples were handled and transported in a manner that maintained sample integrity under chain of custody procedures. Issues with temperatures, transcriptions on the chain of custody, and laboratory analyses were identified in the quality assurance review (QAR); however the QAR judged the data acceptable for use. The laboratory data, QAR and DEC checklists are provided in Appendix G.

5. ENVIRONMENTAL REVIEW AND SUMMARY OF FINDINGS

This section summarizes previous environmental reviews conducted at the property. It also provides a summary of the findings of this PACP.

5.1 HISTORICAL ENVIRONMENTAL REVIEW

5.1.1 OLD BIA SCHOOL SITE

In 2002, DEC commenced assessment and cleanup activities at the BIA school building as part of proposed upgrades to the school tank farm (communication with Selina Petruska). Within the Old BIA School tank farm, five tanks supply the Cruikshank School to the north, and three tanks supply the washeteria to the south via an associated piping system. The fuel line from the Old BIA School tank farm to the Cruikshank School is above ground. The fuel line from the Old BIA School tank farm to the washeteria building is above ground and then partially buried from an all-terrain vehicle trail to the washeteria building. One tank within the Old BIA School tank farm reportedly leaks and is not used. The tank farm is owned by the Yukon Flats School District (YFSD) and is jointly operated by the YFSD and the BTC. Although there is no documented spill history beyond a 1,250-gallon spill on August 8, 2002, conversations with several residents indicate that fuel has probably been spilled in the tank farm area numerous times. Residents said substantial overfills at the day tanks in the generator building and washeteria have also occurred (DEC Project Request for Proposal Information).

Contaminated surface soil and subsurface soil were identified in two main areas to the west/northwest and east of the old BIA school tank farm in 2001 (Oasis, 2002). Approximately 1,650 cubic yards (cy) of contaminated soil exceeding the most stringent Method Two cleanup level for the Under 40-inch climate zone was estimated to be in place for areas of soil impact identified near the Old BIA School generator building (Figure 2), Old BIA School tank farm (Figure 2), and fuel line from the Old BIA School tank farm to the washeteria (Figure 3) (Oasis, 2002). The depth of impact for this volume estimate was 9 feet bgs. DRO concentrations in the soil exceed Method Two inhalation and ingestion cleanup levels. Soil contamination is expected to act as a continuing source of leachate to ground water. Ground water impacts have not been investigated (Oasis, 2002).

The area west of the Old BIA School tank farm was assessed on August 15 and 16, 2002 by Restoration Science and Engineering (RSE) following an approximately 1,250-gallon diesel spill that occurred on August 8, 2002. The results of this site assessment are summarized in the report entitled *Cruikshank School Tank Farm Diesel Spill Site Assessment Report, Beaver Alaska, 2002* (RSE, 2002). The 2002 RSE report indicated that up to 280 cy of soil may have

been impacted as a result of the August 2002 overflow event, but that it appeared the spill overlapped with other impact from older spills.

The village drinking water well is located between the old school property and the Yukon River (Figure 1). The well was drilled to approximately 64 feet bgs. A sample collected from the drinking water well for the DEC Drinking Water Program identified low level xylenes (2.33 micrograms per liter [$\mu\text{g/L}$]) in 2007. The well is sampled annually for VOCs (DEC, 2009d).

5.1.2 BURNED GENERATOR BUILDING SITE

As part of the Village of Beaver Project Assessment conducted by OASIS in 2001, environmental soil sampling was conducted at the BJU tank farm, but not at the Burned Generator Building area (Oasis, 2002). The 2001 assessment indicated approximately 3 cy of soil impacted above DEC Method Two Migration to Groundwater cleanup levels were present where drums had previously been stored in the fenced area on the west side of the BJU tank farm. Another small area of contamination was noted at a fuel line leak where the fuel pipe exited the bermed tank farm (Oasis, 2002). This area is estimated to also contain approximately 3 cy of impacted soil. Visual inspection around the now Burned Generator Building located heavy fuel staining both where residents dispensed fuel from the piping to the day tank, and where piping from the tank farm entered the generator day tank (Figure 4). There had been no environmental assessment work since 2001, approximately six years before the fire destroyed the generator building in 2007.

5.2 POTENTIAL SOURCE AREAS

Based on data collected during the investigation in 2009 at the Old BIA School and Burned Generator Building sites, and the data collected from previous investigations, the following potential source areas for the subject Sites include:

- The Old BIA School Tank Farm
- The leaky washeteria fuel line coupling
- The Old BIA School Generator Building
- The Old BIA School Shop Building
- The BJU tank farm fuel lines
- The Burned Generator Building
- Drums stored at both of the properties

A map of estimated contaminant extent was prepared based on the 2009 and historical findings, estimated release volumes, and community interview findings. Maps of estimated contaminant extent with respect to 18 AAC 75 Method 2 cleanup levels for the Under 40-inch Zone are provided in Figures 2, 3 and 4. Estimates of contaminated soil requiring

excavation from each of these source areas to eliminate or reduce human exposure to contaminants via completed pathways identified in Section 5.4 are presented in Section 6.3.

5.3 KNOWN OR PERCEIVED DATA GAPS

The primary data gaps existing for characterizing the contamination at the Site include the magnitude of potential ground water impact in the vicinity of the Old BIA School and Burned Generator Building sites, and the ground water gradient at the Sites.

5.4 CONCEPTUAL SITE MODEL

SLR developed a conceptual site model (CSM) for each of the two Sites (Old BIA School and Burned Generator Building) to qualitatively assess the ways in which potential human receptors may be exposed to contamination as a result of activities at the property. The CSMs are based upon the available data for this Site collected by OASIS in 2001 (Oasis, 2002) and SLR in 2009. The following describes the potential exposure scenarios for current and future receptors. The CSMs are included as Appendix H of this report. DEC Exposure Tracking Models for the Old BIA School and Burned Generator Building sites are provided as Appendix I.

The CSMs identified the following potentially complete exposure pathways:

- Incidental soil ingestion,
- Dermal absorption of contaminants from soil,
- Ingestion of ground water,
- Inhalation of outdoor air,
- Ingestion of surface water,
- Dermal absorption of contaminants in ground water
- Dermal absorption of contaminants in surface water, and
- Inhalation of volatile compounds in tap water.

A complete discussion of these pathways is described below and the complete CSM is provided in Appendix H along with a discussion about DEC's exposure tracking models for each of the sites

5.4.1 POTENTIALLY COMPLETE EXPOSURE PATHWAYS

The direct contact exposure pathway via incidental soil ingestion is considered potentially complete because soil contamination exists between 0 foot and 15 feet bgs and although these Sites are expected to be used by human receptors.

The dermal absorption of contaminants from soil pathway is potentially complete because PAH compounds, which can permeate the skin, are present in the soil between 0 foot and 15 feet bgs.

The ingestion of ground water pathway is considered potentially complete because ground water has not been ruled out as a future drinking water source by DEC in accordance with 18 AAC 75.350. However, the potential for exposure via this pathway is considered to be low because there is already a community well. In addition, no VOCs have been detected in the well and the migration of contaminants from these Sites to ground water would be limited based on the presence of frozen soils observed to a depth of 55 feet bgs.

The inhalation of outdoor air exposure pathway is considered potentially complete because of the presence of volatile contaminants in soil between 0 foot and 15 feet bgs and the use of these Sites by human receptors.

The ingestion of surface water pathway is considered potentially complete because these Sites have the potential to flood resulting in overland migration of contaminants. In addition, nearby surface water – the Yukon River – is used for subsistence fishing and recreational activities.

The dermal exposure to contaminants in ground water and surface water pathway and the inhalation of volatile compounds in household water pathway are all considered potentially complete because although DEC water quality standards may be applied as cleanup levels at these Sites, ground water and surface water are still considered exposure media and could be used by residents in the vicinity of these Sites for household purposes in the future.

5.4.2 INCOMPLETE EXPOSURE PATHWAYS

The inhalation of indoor air pathway is not considered complete because buildings in Beaver are located on pilings with no skirting, which eliminates any preferential or direct pathways for soil contaminant vapors to migrate into indoor air. Any soil contaminant vapors would be released into outdoor air, making the inhalation of indoor pathway incomplete.

The ingestion of wild foods exposure pathway is not considered complete because although lead, which can bioaccumulate, has been detected at the Burned Generator Site, the concentrations of lead are significantly below the cleanup level and at the detected concentrations lead are below the mean background concentration for Alaska soils and as such, lead is not considered a contaminant of potential concern for this Site. No additional analytes that can bioaccumulate were detected at the Burned Generator Site and therefore, this pathway is not considered complete. No analytes that can bioaccumulate were detected at the Old School Tank Farm site.

The inhalation of fugitive dust exposure pathway is not considered complete. Normally this pathway requires further evaluation based on the presence of chromium in site soils however chromium is not considered a contaminant of potential concern in surface soil at these Sites.

The direct contact with sediment pathway is not considered complete because DEC soil ingestion cleanup levels are assumed to also be protective of this pathway and no known activities that result in direct contact with sediment are undertaken at these Sites.

5.4.3 CURRENT AND FUTURE RECEPTORS

The Sites are located in an area where current use from visitors, trespassers, recreational users, or subsistence harvesters and consumers cannot be ruled out. Based on the current development plans for the Sites, the following human receptors are considered to be potentially exposed to site contaminants:

- Commercial or industrial workers (future);
- Construction workers (future);
- Site visitors, trespassers, or recreational users (current and future); and,
- Subsistence harvesters and consumers (current and future).

In addition, since the Old School Site has been proposed for housing or a multipurpose community development, there is also the potential that future residents may be exposed to onsite contaminants.

5.5 CLEANUP CRITERIA

This section describes the cleanup criteria that currently apply to the property. The cleanup levels are the most stringent of DEC cleanup criteria. Given the reuse and/or redevelopment of this property, alternative site-specific cleanup levels may be developed as determined by the risk of exposure.

5.5.1 SOIL CLEANUP LEVELS

DEC soil cleanup levels specified in Title 18 of the Alaska Administrative Code (AAC), Chapter 75 *Oil and Other Hazardous Substances Pollution Control*, Tables B1 and B2, DEC Method Two, for the Under 40-inch Zone (DEC, 2008) are applicable for this site. The most stringent of the direct contact, outdoor inhalation, or migration-to-ground water soil cleanup levels, whichever is less, is used; the soil cleanup levels for compounds of potential interest are listed below.

- Benzene, 0.025 mg/kg (migration to ground water)
- Toluene, 6.5 mg/kg (migration to ground water)
- Ethylbenzene, 6.9 mg/kg (migration to ground water)
- Total xylenes, 63 mg/kg (migration to ground water)
- GRO, 300 mg/kg (migration to ground water)

- DRO, 250 mg/kg (migration to ground water)
- RRO, 10,000 mg/kg (ingestion exposure pathway)
- Lead, 400 mg/kg (direct contact exposure pathway)
- PAH compounds at varying concentrations listed in 18 AAC 75.

5.5.2 GROUND WATER CLEANUP LEVELS

DEC ground water cleanup levels, as specified in 18 AAC 75.345, Table C (DEC, 2008), may be applicable at the property (if ground water is encountered). The ground water cleanup levels for the compounds of potential interest are listed below.

- Benzene, 0.005 milligrams per liter (mg/L)
- Toluene, 1.0 mg/L
- Ethylbenzene, 0.7 mg/L
- Total xylenes, 10 mg/L
- GRO, 2.2 mg/L
- DRO, 1.5 mg/L
- RRO, 1.1 mg/L
- Lead, 0.015 mg/L
- VOC and PAH compounds at varying concentrations listed in 18 AAC 75, Table C

5.5.3 OTHER REGULATED CLEANUP CRITERIA

All material to be removed off site should be inventoried prior to the handling of the waste. If regulated asbestos containing material (RACM) or non-RACM asbestos waste is found, it must be removed prior to any necessary excavation. A certified asbestos removal contractor will be required to remove all asbestos containing waste. Alternatively, a one-time asbestos containing waste disposal operation may be possible through the acquisition of a General Permit from the DEC Division of Environmental Health's Solid Waste Program (DEC Solid Waste Program). General Permit No. SWG0301000 is issued for a one-time disposal of asbestos containing waste.

The DEC Solid Waste Program should also be contacted regarding the removal and disposal of lead paint and other hazardous materials. Hazardous material that does not include asbestos or scrap metal debris and does not exceed a total of 1,000 cy of waste may be disposed of by obtaining the DEC Solid Waste Program's General Permit No. SWG0303000. This permit may only be used for disposal of wastes in locations that are more than 100 miles from the nearest permitted landfill. In the event the landfill at Beaver is re-permitted prior to this removal and excavation activity, this permit may not be available.

If the transformers on the ground west of the BJU tank farm do not have a potential reuse function within the village, they should be disposed of according to state and federal regulation. PCB fluids should be sampled or otherwise characterized to be free of PCB compounds prior to disposal. If no polychlorinated biphenyls (PCBs) are in the transformer oil, it may be disposed of by thermal treatment at Organic Incineration Technology's (OIT's) Moose Creek Facility. Management of PCB containing oils should be contracted with a licensed hazardous material contractor.

5.5.4 NON-REGULATED CLEANUP CRITERIA

For non-hazardous, non-regulated waste material, cleanup criteria do not include the acquisition of a DEC Solid Waste Permit. Material including, but not limited to, cement, rebar, crushed glass, brick, and mortar are usually not regulated.

5.6 GENERAL ENVIRONMENTAL OVERVIEW

Based on the CSMs provided in Appendices H-1 and H-2 of this PACP, the documented contaminant levels in soil at this Site, and the planned land reuse objective (housing or multi-purpose building), remedial action is necessary to reduce the risk to human receptors prior to reuse. Near-surface soil contamination poses a risk to human receptors through incidental soil ingestion, dermal absorption of contaminants from soil, ingestion of ground water and surface water, dermal absorption of contaminants in ground water and surface water, and inhalation of outdoor air and volatile compounds in tap water.

Because the Site is frequently accessed by the community, and the potential reuse objective of a community building will involve the presence and congregation of children from the community, cleanup activities would significantly reduce the potential exposure of humans to contaminants.

6. RECOMMENDED ACTIONS

The following sections summarize the recommended actions prior to reuse of the land at the Old BIA School and Burned Generator Building sites for the purposes to be determined by the property owners.

6.1 ENVIRONMENTAL ACTIONS

SLR recommends excavation of contaminated soil within areas at the Old BIA School and Burned Generator Building sites as described in Section 6.3 below. Following removal of soil, the excavation should be backfilled with clean material.

The potential leak in the fuel line to the washeteria should be assessed and the line tested for tightness.

All marked and unmarked abandoned drums and transformers remaining at the Sites should be removed and disposed of according to all applicable state, federal, and local regulations. The ground beneath these storage areas should be sampled and characterized using DEC soil cleanup levels when the drums and transformers are removed.

A cost estimate spreadsheet for recommended environmental actions is provided in Appendix K.

6.2 DEBRIS REMOVAL

Any management alternative for contaminated soil at the site must be preceded by the management, reduction and removal or disposal of construction debris, fuel lines, several steel tanks, and other material. Figure 2 shows the location of this material that must be removed off site. This material includes, but is not limited to, the following items.

- **The Old BIA School Building** and all the associated contents which cannot be reused should be placed in the landfill; however, SHPO has concerns regarding the building. It has potential to be eligible for the National Registry. Before demolition of the Old BIA School Building could take place, a licensed contractor would be needed to determine the buildings eligibility. If the building is eligible, then alternatives for salvaging the building must be considered.
- **The Old BIA School Generator Building**, including the generator and the cooling system, the electrical breaker panel, potentially a dry transformer, and a cylinder of Halon fire retardant gas will require relocation since it is used as backup for the new school. Liquid wastes associated with previous operation of this generator building

such as radiator coolant or used oil in buckets should be managed under the liquid waste management section below. This structure may be skid mounted and reused if it can be moved without excessive damage. The disposal option for this structure is placement in the landfill. Preserving this structure and generator for future use as a backup generator would retain more value for the community.

- **The Old BIA School Shop Building**, This structure may be skid mounted and reused if it can be moved without excessive damage. The disposal option for this structure is placement in the landfill.
- Several **marked and unmarked abandoned drums** are located in various locations near the Old BIA School and Burned Generator Building sites. The contents of these drums should be characterized and disposed of according to all applicable state, federal, and local regulations.
- **Four transformers** stored on the ground west of BJU tank farm enclosure. These transformers may have been associated with the Burned Generator Building. The oil in these transformers should be characterized for PCB content for disposal if the transformers are not date-stamped or cannot otherwise be confirmed to be PCB free. The transformers should be disposed of in accordance with all federal, state, and local regulations. Transformers manufactured since 1979 are PCB free and the generator building was constructed in the early 1990s.
- **Nine 11,000-gallon ASTs** comprising the Old BIA School tank farm. The tanks should be purged of fuel and removed. Cleaned and cut tanks may be disposed of in the local landfill. They may be reused as storage space once they are purged, cleaned, relocated and man-way doors are cut. Beaver is on the list of communities scheduled for a tank farm upgrade through the Denali Commission. If a coordinated effort is possible, combining the equipment on site for the tank farm upgrade with the remediation project summarized in the PACP is recommended.
- There are unused **abandoned fuel lines and utilidors** that are elevated between the former school tank farm to the former school, generator building, and the washeteria (Figure 2). This pipeline should be purged of all fuel. The elevated portion of the pipeline should be disposed in the landfill.

All activities for the removal of materials off site should be conducted according to all applicable state, federal, and local regulations. Procedures for tank decommissioning should follow the DEC Underground Storage Tanks Regulation, 18 AAC 78, as amended in October 2006 (DEC, 2006). The best alternative for removal and recycling or disposal of the materials listed above would either be some form of local reuse or disposal in the landfill. Scrap metal can be shipped off site for recycling without waste characterization since processed scrap metal destined for recycling is not considered solid waste if it meets the exemption criterion under 40 Code of Federal Regulation (CFR) 261.4(a)(13) for processed scrap metal. This option would likely require barge transport to Fairbanks for rail transport to a smelter on the west coast. The vertical 11,000-gallon tanks could also be reused as cold storage units once cleaned and relocated.

6.3 CONTAMINATED SOIL EXCAVATION

All treatment options begin with removing contaminated soils from the Sites designated for reuse. The limits of excavation should be driven by risk posed by contamination levels left on site. Prior to excavation, utility clearances must be performed to avoid damaging buried utilities, if present.

Preliminary limits of excavation are depicted in Figures 2, 3, and 4. These limits are based on data summarized in Section 5.1. The total in-place volume of the proposed excavation area(s) is 2,048 cy based on a site-wide 5-foot excavation depth. During removal, field screening samples should be taken to guide the lateral extent of the excavation. Further excavation beyond the preliminary limits may be deemed necessary based on the field screening. Once field screening indicates that contaminated soil has been excavated, confirmation samples can be collected from the excavation sidewalls. Due to the absence of complete delineation data for the five presumed source areas, assumptions were used to develop the excavation limits presented on Figures 2, 3, and 4. These assumptions are presented in Table 4, and listed below, for each of the presumed release areas:

- Old BIA School Site (east of tank farm) on Lot 8 – 686 square feet of impact based on the 2009 SLR investigation and previous investigation findings. A 1,250-gallon diesel spill was documented on August 8, 2002. The in-place volume estimate is 127 cy.
- Old BIA School Site (west of tank farm) on Lot 8 – 6,011 square feet of impact based on the 2009 SLR investigation and previous investigation findings. A 1,250-gallon diesel spill was documented on August 8, 2002. Community members verbally reported past day tank overflows associated with the generator building. The in-place volume estimate is 1,113 cy.
- Potentially Leaking Washeteria Fuel Line on Lot 8 – 2,559 square feet of impact based on the 2009 SLR investigation and previous investigation findings. The area of impact assumes a pipe with threaded joints and episodic spills and slow leaks along the line. The in-place volume estimate is 474 cy.
- Burned Generator Site – 1,740 square feet of impact based on the 2009 SLR investigation findings. Visual inspection around the now Burned Generator Building located heavy fuel staining both where residents dispensed fuel from the piping to the day tank, and where piping from the tank farm entered the generator day tank. The in-place volume estimate is 322 cy.
- Burned Generator Site (Drum Storage Area) – 52 square feet of impact based on previous investigation findings. Drums had previously been stored in the fenced area on the west side of the BJU tank farm. The in-place volume estimate is 10 cy.
- Burned Generator Site (Leaking Fuel Line Area) – 12 square feet of impact based on the 2009 SLR investigation and previous investigation findings. Contamination was noted during the previous investigation at a fuel line leak where the fuel pipe exited the bermed tank farm. The in-place volume estimate is 2 cy.

In all cases, a 5-foot excavation depth is assumed to avoid extending the excavation to the depth of ground water at the site and to cost-effectively reduce the significance of completed exposure pathways identified in the CSMs. Excavation and transport of water-saturated media increases the potential for leaching of contaminants from the landfarm area to underlying soils. The excavation depth was chosen to eliminate, or reduce the significance of, the completed exposure pathways identified in Section 5.4. This excavation depth may not eliminate exposure pathways associated with outdoor or indoor air inhalation, or ground water ingestion. A 20-mil liner material should be placed at the base of each excavation area to mark the extent of excavation for future site workers and to limit the migration of vapors from the subsurface.

6.4 SOIL MANAGEMENT ALTERNATIVES

The evaluation criteria for the soil remedial actions outlined below are presented in Table 5. The following alternatives were considered for the management of contaminated soil.

- **Passive Biopile Construction** – In this option, excavated soils are mixed with clean soil, placed on a treatment area, and covered. Aeration is provided passively through perforated pipe extending into the pile. The pile is covered and a leachate collection sump is included to manage water if the cover is damaged. Fertilizer may be added to the soils during construction of the cell to promote microbial activity. The pile is left until the soils meet specified cleanup levels for land spreading or beneficial reuse.
- **Road Base Encapsulation** – This alternative method would only apply to Beaver if the material were used in the construction of a road base. The road must be located in an area that meets the requirements of 18 AAC 75.360(11)(G) and the approach must have community approval.
- **Daily or Periodic Landfill Cover** – Under this option, contaminated soils could be used for landfill cover. This option requires permission from DEC's Solid Waste Program, and typically is contingent on pre-treatment of soil prior to use as landfill cover. This alternative is a common form of beneficial reuse of contaminated soil, less expensive than many other options at remote sites, and effectively manages risks associated with contaminated soil.
- **Landfarming** – This method includes spreading the contaminated soil into a 1 foot thick layer. The soil is tilled periodically during the summer months using a roto-tiller. Tilling aerates the soils to promote aerobic degradation of contaminants in the soil. The addition of fertilizer is also used to promote biological activity. Initial landfarm characterization samples are collected to document contaminant levels at the time of placement. Characterization samples may be collected on an annual basis to determine when cleanup goals are met. The DEC Solid Waste Program will specify the cleanup requirements for this option if landfarmed soils are intended for use as periodic landfill cover.

- **Thermal Remediation** – Thermal remediation of contaminated soil is generally expensive at remote locations both to ship in treatment equipment and for the fuel required, and is most likely not a feasible option for Beaver.
- **Shipment Off-Site for Treatment or Disposal** – This option is employed if soils cannot be reasonably treated on-site and is most feasible when inexpensive transportation is available. If soils are determined to be hazardous, or no appropriate area exists for on-site treatment, it may have to be containerized and transported to a facility for treatment or disposal. In these instances, treatment typically involves incineration, and disposal typically involves placement in a permitted landfill.

6.5 PREFERRED ALTERNATIVE

The matrix for remedial option selection is presented in Table 5. The alternatives are ranked according to the five parameters of environmental protection, regulatory compliance, effectiveness, implementability, and cost. Remediation options with the best overall rating are compared for use at a particular site.

The preferred alternative for contaminated soils at the Village of Beaver is landfarming followed by use as landfill cover. Precedence exists for using contaminated soils as landfill cover, but it requires that contaminated soil be managed prior to this use. Landfarming should be implemented to reduce contaminant levels to acceptable thresholds. This process typically takes two to three years.

The Village of Beaver has operated their landfill under DEC landfill permit # 0231-BA008. The permit is currently expired, but a new permit is being applied for. Landfarming will not be allowed by DEC until the permit has been renewed.

The most suitable location for the land farming alternative is the cleared area adjacent to the landfill and sewage lagoon approximately 2.5 miles from the village of Beaver. Clearing in this area is sufficient for a square landfarm approximately 280 feet on a side. Village council members believe Doyon Limited is the owner of the proposed land farming area.

6.6 INSTITUTIONAL CONTROLS

Since this excavation and soil treatment alternative may not remove all contamination from the Site, additional controls could be required to protect future site workers or residents. These controls, also known as institutional controls, may involve deed notices if a deed exists, or notice of environmental conditions (NECs), and notices on the community plan for the affected properties. Deed notices and NECs serve to notify future land users of the presence of residual soil contamination, thus protecting excavation workers from exposure to residual contamination. In addition, institutional controls establish guidelines for future construction on a site that can eliminate the indoor air inhalation pathway. Development of institutional controls appropriate for these Sites is presented in 18 AAC 75, and are summarized in the DEC Site Closure memorandum dated July 24, 2009 (DEC, 2009e).

6.7 LONG-TERM SOIL TREATMENT LOCATIONS IN BEAVER

Landfarming is considered a long-term treatment option because it typically takes years to meet required cleanup or soil reuse objectives. Implementation of the landfarming alternative will likely require construction of a new landfarm cell adjacent to the landfill in Beaver. Furthermore, this location limits contact with village residents and reduces the potential for exposure of contaminants to surface water or ground water. Criteria for selecting the landfarming location for soils removed at the Site include the following:

- Elevation above the river to prevent erosion during future flooding events,
- Distance from the village to limit contact with residents during course of treatment, and
- Prep work of soils beneath selected area has previously been completed (i.e., leveling of area for landfarm construction).

As noted above, the location suited to landfarming near the Village of Beaver is adjacent to the current landfill site approximately 2.4 miles from the village center. The landfarming cell must be a minimum 100 feet from the nearest surface water body per 18 AAC 78.274(C).

Due to the additional cost of handling contaminated soil more than once, storage or stockpiling of soil prior to landfarming will only be required in the event of unforeseen delays to the project schedule, or if the storage is a means of staging the material for a future, currently unidentified, beneficial use. Stockpile construction is frequently a long-term or short-term intermediate step to developing soil treatment options and must be constructed in accordance with 18 AAC 78.274.

6.8 SOURCE OF BACKFILL MATERIAL

Backfill sources for the excavations described in this plan may include material from upland sources or river gravels dredged from the Yukon River.

If backfill material is sourced from a river bank or bottom, permitting conditions will apply. Use of river bank gravels requires a permit from the Alaska Department of Natural Resources (DNR). This Material Sale Contract carries a cost of \$1.50 per cy for material taken from below the normal high water line of the Yukon River and is payable to DNR. The Alaska Department of Fish and Game (ADF&G) Habitat Division requires a Fish Habitat Permit which is informational only and is not fee-based (i.e., there is no cost for this permit). The U.S. Army Corps of Engineers (USACE) also requires a permit to operate below the normal high water line of the Yukon River for the purpose of resource extraction. Contact information for these agencies follows:

- DNR – Material Sale Contracts – Frank Maxwell, (907) 451-2728
- ADF&G – Habitat Division – Mac McLean, (907) 459-7281
- USACE – USACE Permit – Mary Leykom, (907) 753-2711

Coordination with the Beaver Village Council regarding the availability of sufficient quantities of backfill material should be coordinated during the planning stage of any excavation work.

6.9 WATER MANAGEMENT OPTIONS

Ground water, if encountered, will not be removed from the excavations. Excavation will not proceed below the static water level if ground water is encountered. Landfarming is intended to manage soils with field moisture only and the incorporation of water, if encountered, would increase the possibility of leaching contaminants from the landfarm to underlying soils; therefore, excavation to below the ground water elevation is to be avoided.

Liquid wastes may be generated during final decommissioning and purging of transformers, drums, and bulk tanks. These liquids will be characterized for energy recovery, recycling, or disposal at the time of generation.

6.10 EQUIPMENT AND LABOR REQUIREMENTS

The equipment and labor requirements to implement the preferred alternative require the use of an excavator capable of reaching at least 7 feet in depth within the confines of the Old BIA School and Burned Generator Building sites, haul trucks capable of carrying up to 10 cy of material or construction debris, and a loader to spread the soil at the landfarm location. These activities can be carried out simultaneously to minimize the time required to complete the work. In this manner, the excavator will fill haul trucks that dump at the landfarm location while a loader consolidates the material to the 1 foot depth specification. A minimum of four operators would be required to operate two haul trucks, the loader, and the excavator. In addition, a minimum of two laborers would be required to support this interim removal action effort.

6.11 AVAILABLE RESOURCES IN BEAVER

This section describes the equipment currently available in the Beaver area. As a cost control, and due to local equipment limitations, site remediation should be timed with other large construction activities within the community, if possible, in order to take advantage of resource leveraging opportunities.

6.11.1 EQUIPMENT

A list of heavy equipment available to the City of Beaver and the rates for equipment rental is included in Appendix J. At the time of preparation, existing equipment was not adequate to complete the excavation and transportation work required for a project of the scope outlined in this PACP. At the time of the field investigation in 2009, the only operable piece of equipment was a single 12-yard dump truck. Due to equipment limitations, it is recommended that the remediation project be performed concurrently with the construction

of new tanks in the village when the presence of additional equipment would afford the increased capacity to excavate and manage the quantity of soil outlined in Table 4. Because new storage tanks will have to be installed, and be in operation, prior to the removal of the existing tank system at the Site, the environmental work summarized in this PACP would be best performed with the assistance of equipment required for the tank upgrade.

6.11.2 LABOR

Six or more village residents currently have 40-hour HAZWOPER training, but most require their 8-hour refresher class prior to being eligible to work on a contaminated site. It was found from inquiries made during the field investigation that several HAZWOPER trained residents are also qualified equipment operators.

6.11.3 RESOURCE LEVERAGING OPPORTUNITIES

Ongoing or upcoming projects planned for Beaver include a tank farm upgrade through the Denali Commission. There is currently no schedule for the tank farm upgrade project. If a coordinated effort is possible, combining the equipment on site for the tank farm upgrade with the remediation project summarized in the PACP is recommended. Scheduling for this opportunity would also give the community more time to seek repairs on its own equipment prior to the project. Because new tanks and fuel distribution piping will have to be in position prior to decommissioning the existing tanks, it is recommended these tasks be performed concurrently and include demolition or relocation of structures and management of soil quantities as outlined in Table 4.

6.11.4 PERSONNEL QUALIFICATIONS

Personnel working on the field component of this project must be trained to the HAZWOPER standard per the Occupational Safety and Health Administration requirement in 29 CFR 1910.120. Equipment operators must have certification with a commercial driver's license and be able to verify their training and experience to operate equipment required for this project.

7. CONCLUSIONS

The increase in the extent of soil contamination at the Old BIA School tank farm source area and washeteria fuel line source area since 2001 suggests that new releases have occurred. The 1,250-gallon spill at the Old BIA School tank farm, which was documented in August 2002, may account for much of the increased area of affected soil noted near the Old BIA School during this field effort. However, little is known about the extent of leaks from the washeteria fuel line. The increase in the extent of contamination there, along with indications of previous response or control efforts (i.e., a sump with a bucket under a pipe coupling) evident during the SLR site visit, would suggest that the priority source control effort should be placed on fixing the potentially leaking fuel line to the washeteria building. SLR recommends that the community ensure that a release is not ongoing on the washeteria fuel line, in order to prevent further impact to soil or ground water in the area.

The potential contamination identified at the Site, estimated to be a total of 2,048 cy of material in-place, can best be managed through excavation and the remedial option of landfarming. To assure the project timeline, this approach should be executed using equipment, operators, and labor located within the Village of Beaver during the tank farm upgrade project and consultant assistance with reporting and project scoping. Waste management; excavation; and landfarm preparation can be implemented in one field season. It is estimated that three successive field seasons of landfarm fertilization, tilling, and sampling may be required to meet soil use standards established by the DEC. The preliminary cost estimate for this work is \$424,615 and includes a ten percent contingency. Cost spreadsheets developed for this proposed scope of work are presented in Appendix K. The project will rely on consultant assistance for documentation and reporting to DEC.

Potential impacts to drinking water resources should be investigated. The village of beaver drinking water well located approximately 425 feet south of the Old BIA School building has a screened interval at an unknown depth. The depth of the screen on this well should be determined to more fully assess the risk to this well posed by contamination at the site and at the potential leak in the washeteria fuel line coupling. In addition, monitoring wells should be installed between the washeteria fuel line leak area and the water supply well. Collection of ground water quality information between the village water supply well and the contaminant source area will serve to assess risk to the well. Once more is known about the depth of the screen on the water supply well, decisions regarding the number and placement of monitoring wells can be made.

8. REFERENCES

- Alaska Department of Commerce, Community, and Economic Development (DCCED), Division of Community and Regional Affairs (DCRA), 2009. www.commerce.state.ak.us/deca/commdb/CIS.cfm , September.
- Alaska Department of Environmental Conservation (DEC), 2006. 18 AAC 78, Underground Storage Tanks, October.
- DEC, 2008, 18 AAC 75, Oil and Other Hazardous Substances Pollution Control, October.
- DEC, 2009a, DEC Request For Proposal, Property Assessment & Cleanup Plan, Beaver Generator Building Fire Haz ID 4612, Beaver, Alaska, Revised May 28, 2009.
- DEC, 2009b, Division of Spill Prevention and Response, Contaminated Sites Program. <http://www.dec.state.ak.us/spar/csp/search/>
- DEC, 2009c. Environmental Laboratory Data and Quality Assurance Requirements Technical Memorandum, March.
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- OASIS Environmental, 2002, Village of Beaver Site Assessment Project Report, January 4.
- Restoration Science & Engineering, 2002. Cruikshank School Tank Farm Diesel Spill, Site Assessment Report, Beaver Alaska, 2002. October.

LIMITATIONS

The services described in this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this report.

The purpose of an environmental assessment is to reasonably evaluate the potential for or actual impact of past practices on a given site area. In performing an environmental assessment, it is understood that a balance must be struck between a reasonable inquiry into the environmental issues and an exhaustive analysis of each conceivable issue of potential concern. The following paragraphs discuss the assumptions and parameters under which such an opinion is rendered.

No investigation is thorough enough to exclude the presence of hazardous materials at a given site. If hazardous conditions have not been identified during the assessment, such a finding should not therefore be construed as a guarantee of the absence of such materials on the site, but rather as the result of the services performed within the scope, limitations, and cost of the work performed.

Environmental conditions may exist at the site that cannot be identified by visual observation. Where subsurface work was performed, our professional opinions are based in part on interpretation of data from discrete sampling locations that may not represent actual conditions at unsampled locations.

Except where there is express concern of our client, or where specific environmental contaminants have been previously reported by others, naturally occurring toxic substances, potential environmental contaminants inside buildings, or contaminant concentrations that are not of current environmental concern may not be reflected in this document.

FIGURES



REFERENCED FROM : TOPOI@©2003 NATIONAL GEOGRAPHIC

BURNED GENERATOR BUILDING SITE

PLAT 8 LOT 1

PLAT 7 LOT 8

OLD BIA SCHOOL SITE

WASHETERIA

WASHETERIA LEAKING FUEL LINE AREA

DRINKING WATER WELL

ALASKA DEPARTMENT OF ENVIRONMENTAL
CONSERVATION
610 UNIVERSITY AVENUE
FAIRBANKS, AK 99709

Report
VILLAGE OF BEAVER OLD SCHOOL TANK FARM
PROPERTY ASSESSMENT AND CLEANUP REPORT

Drawing
SITE LOCATION MAP

Date November 10, 2009

Scale 1"=275'

Fig. No.

File Name BEAVER_RP_09_F1

Project No. 005.0065.09008

1

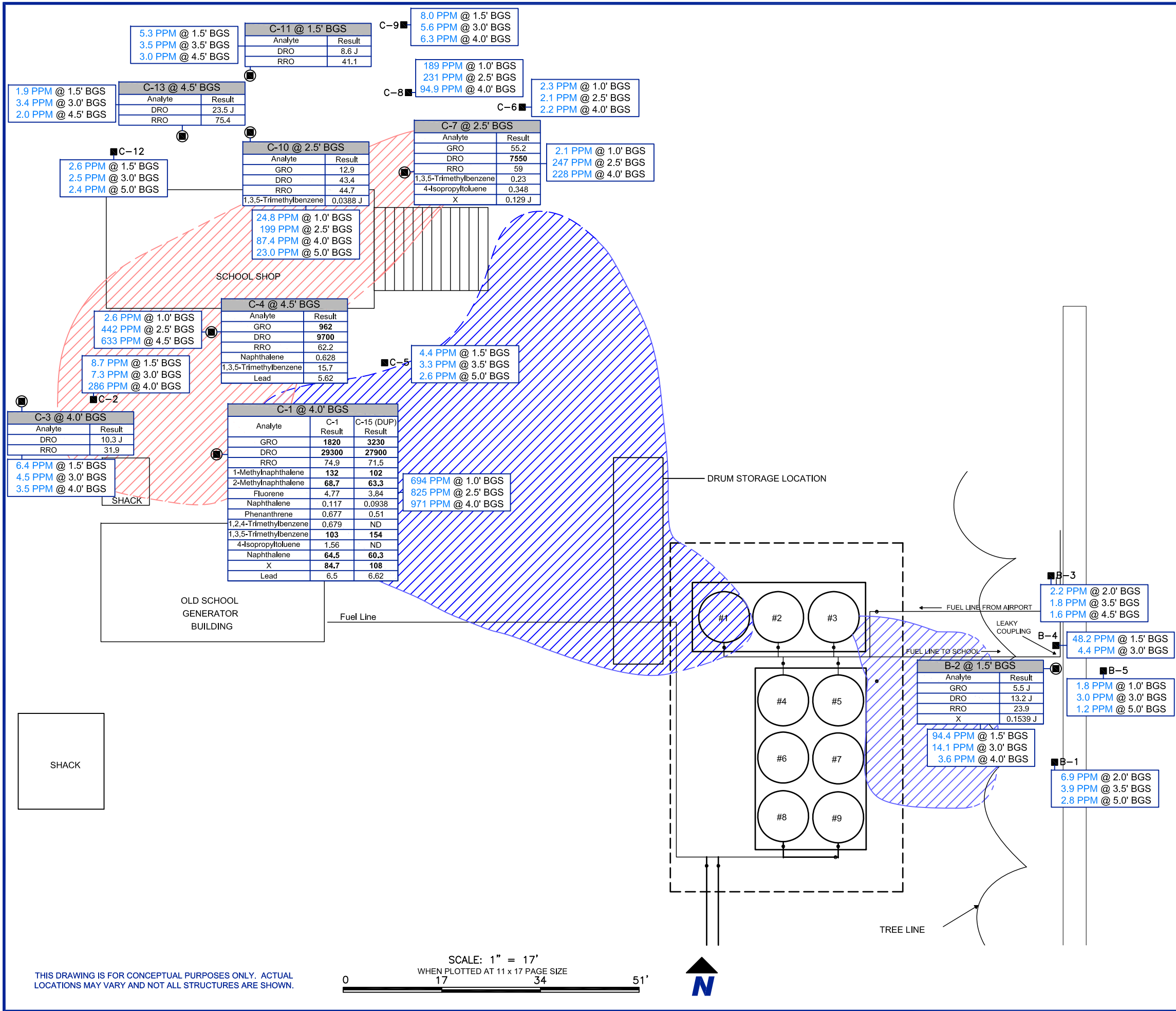


THIS DRAWING IS FOR CONCEPTUAL PURPOSES ONLY. ACTUAL
LOCATIONS MAY VARY AND NOT ALL STRUCTURES ARE SHOWN.

SCALE: 1" = 275'
WHEN PLOTTED AT 11 x 17 PAGE SIZE
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AERIAL PHOTOGRAPH REFERENCED FROM : ©2009 GOOGLE EARTH PRO



NOTES

FIGURE REFERENCED FROM 2002 VILLAGE OF BEAVER SITE ASSESSMENT PROJECT REPORT PREPARED BY OASIS ENVIRONMENTAL AND UPDATED FROM SEPTEMBER 2009 FIELD RECONNAISSANCE

LEGEND

- APPROXIMATE AREA OF CONTAMINATION IDENTIFIED IN THE 2002 OASIS SITE ASSESSMENT
- INFERRED CONTAMINATION BOUNDARY IDENTIFIED IN THE 2002 OASIS SITE ASSESSMENT
- APPROXIMATE AREA OF CONTAMINATION IDENTIFIED IN THE 2009 SLR SITE INVESTIGATION
- INFERRED CONTAMINATION BOUNDARY IDENTIFIED IN THE 2009 SLR SITE INVESTIGATION
- SOIL SAMPLE LOCATION
- SAMPLE SUBMITTED FOR LABORATORY ANALYSIS
- HEADSPACE VAPOR LEVEL IN PARTS PER MILLION

SAMPLING RESULTS GUIDELINES

ABBREVIATIONS:

ADEC ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
BGS BELOW GROUND SURFACE
DUP DUPLICATE SAMPLE
J THE QUANTITATION IS AN ESTIMATION
ND NOT DETECTED
DRO DIESEL RANGE ORGANICS
GRO GASOLINE RANGE ORGANICS
RRO RESIDUAL RANGE ORGANICS
B BENZENE
T TOLUENE
E ETHYLBENZENE
X TOTAL XYLENES

NOTES:

ALL LABORATORY RESULTS ARE SHOWN IN MILLIGRAMS PER KILOGRAM

BOLD TEXT IN THE SAMPLE RESULT COLUMN INDICATES THE ANALYTE CONCENTRATION IS ABOVE ADEC CLEANUP LEVELS.

ONLY RESULTS ABOVE LABORATORY REPORTING LIMITS ARE SHOWN

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
610 UNIVERSITY AVENUE
FAIRBANKS, AK 99709

Report
VILLAGE OF BEAVER OLD SCHOOL TANK FARM
PROPERTY ASSESSMENT AND CLEANUP REPORT

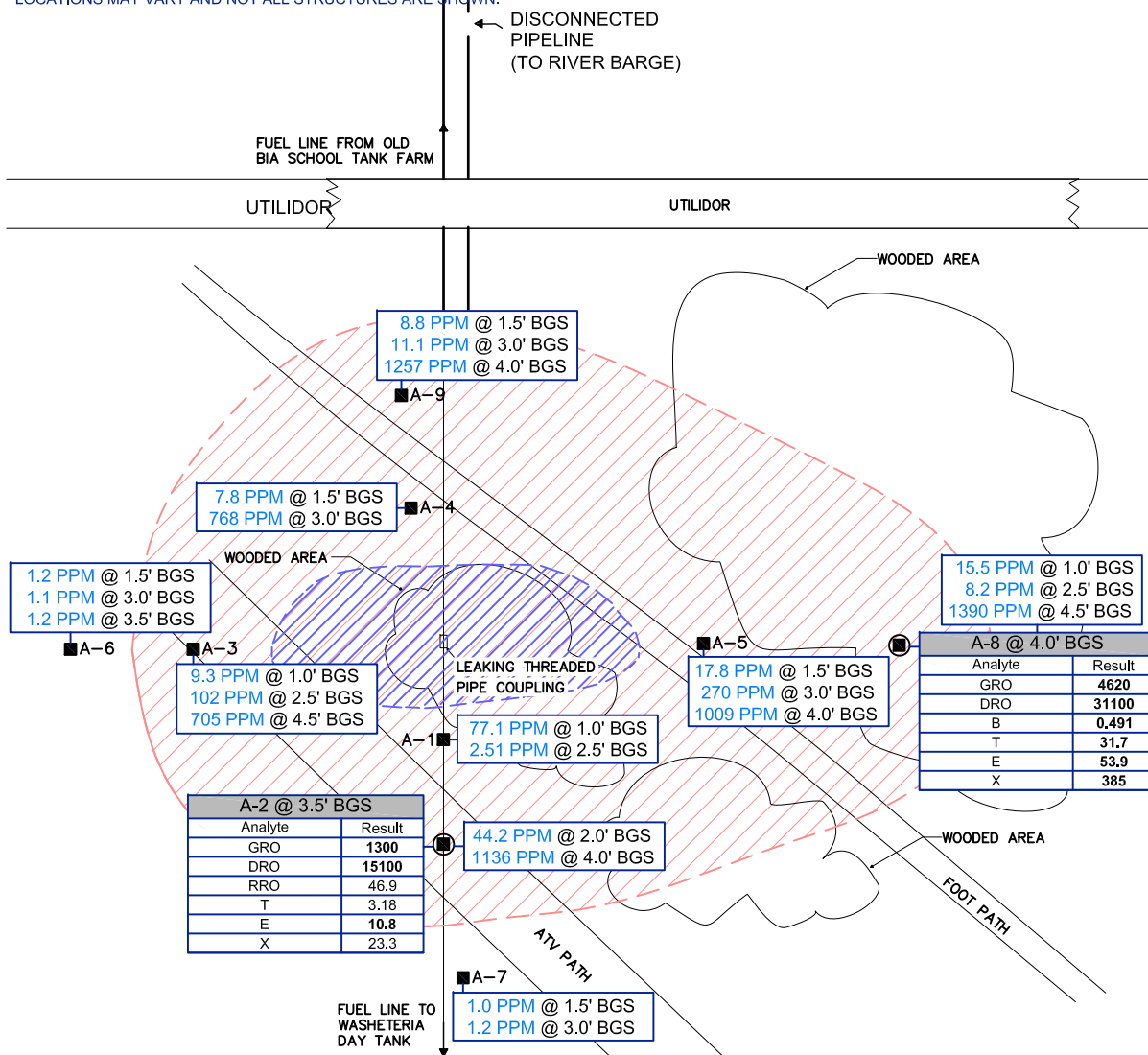
Drawing
OLD BIA SCHOOL SITE

Date November 11, 2009 Scale 1"=17' Fig. No. 2

File Name BEAVER_RP_09_F2 Project No. 005.0065.09008

SLR

THIS DRAWING IS FOR CONCEPTUAL PURPOSES ONLY. ACTUAL LOCATIONS MAY VARY AND NOT ALL STRUCTURES ARE SHOWN.



NOTES

FIGURE REFERENCED FROM 2002 VILLAGE OF BEAVER SITE ASSESSMENT PROJECT REPORT PREPARED BY OASIS ENVIRONMENTAL AND UPDATED FROM SEPTEMBER 2009 FIELD RECONNAISSANCE

LEGEND

- APPROXIMATE AREA OF CONTAMINATION IDENTIFIED IN THE 2002 OASIS SITE ASSESSMENT
- INFERRED CONTAMINATION BOUNDARY IDENTIFIED IN THE 2002 OASIS SITE ASSESSMENT
- APPROXIMATE AREA OF CONTAMINATION IDENTIFIED IN THE 2009 SLR SITE INVESTIGATION
- INFERRED CONTAMINATION BOUNDARY IDENTIFIED IN THE 2009 SLR SITE INVESTIGATION
- A-1 SOIL SAMPLE LOCATION
- SAMPLE SUBMITTED FOR LABORATORY ANALYSIS
- 6.9 PPM HEADSPACE VAPOR LEVEL IN PARTS PER MILLION

SAMPLING RESULTS GUIDELINES

ABBREVIATIONS:

ADEC ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
 BGS BELOW GROUND SURFACE
 DRO DIESEL RANGE ORGANICS
 GRO GASOLINE RANGE ORGANICS
 RRO RESIDUAL RANGE ORGANICS
 B BENZENE
 T TOLUENE
 E ETHYLBENZENE
 X TOTAL XYLENES

NOTES:

ALL LABORATORY RESULTS ARE SHOWN IN MILLIGRAMS PER KILOGRAM

BOLD TEXT IN THE SAMPLE RESULT COLUMN INDICATES THE ANALYTE CONCENTRATION IS ABOVE ADEC CLEANUP LEVELS.

ONLY RESULTS ABOVE LABORATORY REPORTING LIMITS ARE SHOWN

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
 610 UNIVERSITY AVENUE
 FAIRBANKS, AK 99709

Report

VILLAGE OF BEAVER OLD SCHOOL TANK FARM
 PROPERTY ASSESSMENT AND CLEANUP REPORT

Drawing

WASHETERIA LEAKING FUEL LINE AREA

Date November 11, 2009

Scale 1" = 15'

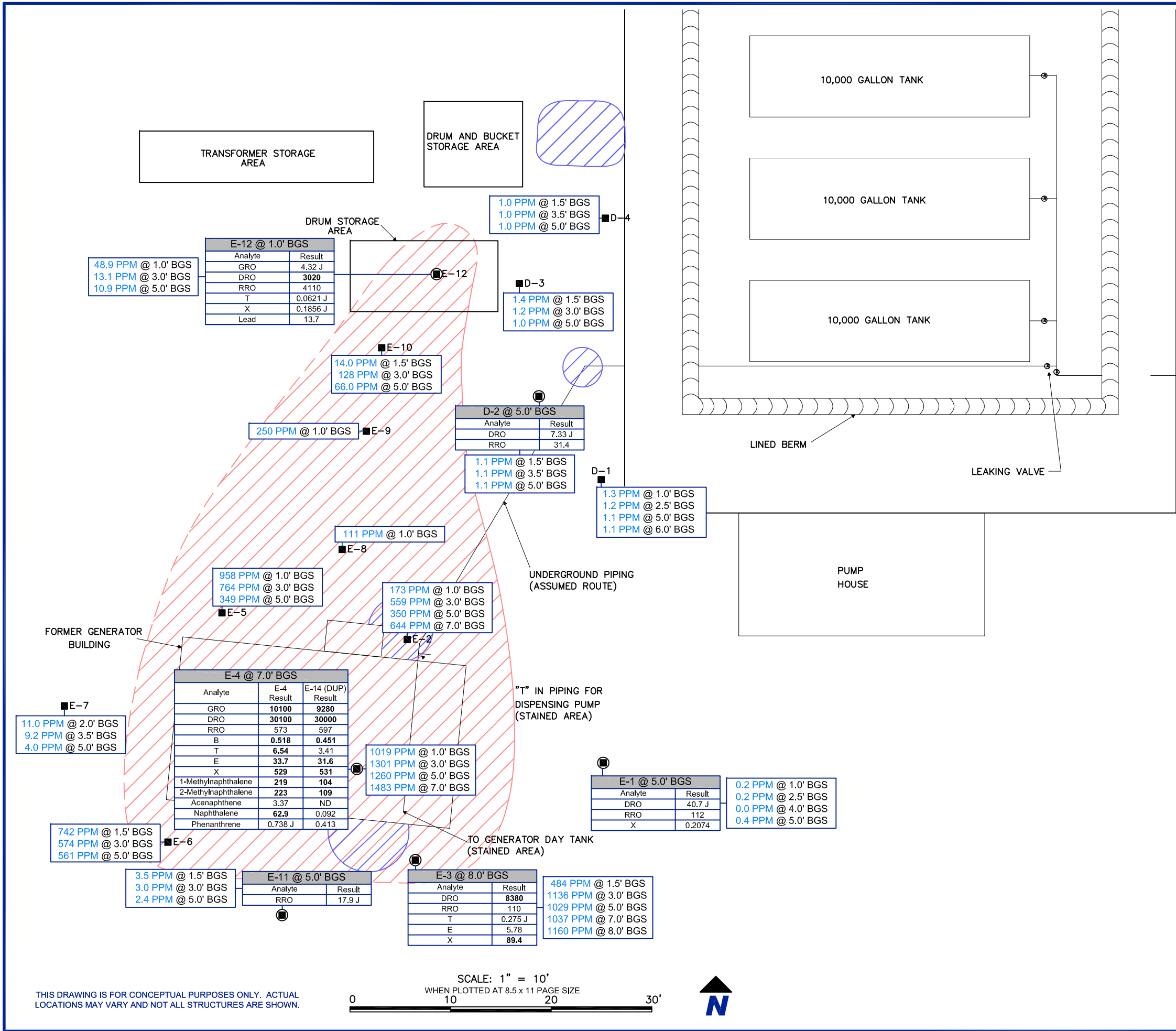
Fig. No.

File Name BEAVER_RP_09_F3

Project No. 005.0065.09008

3





NOTES

FIGURE REFERENCED FROM 2002 VILLAGE OF BEAVER SITE ASSESSMENT PROJECT REPORT PREPARED BY OASIS ENVIRONMENTAL AND UPDATED FROM SEPTEMBER 2009 FIELD RECONNAISSANCE

LEGEND

- APPROXIMATE AREA OF CONTAMINATION IDENTIFIED IN THE 2002 OASIS SITE ASSESSMENT
- INFERRED CONTAMINATION BOUNDARY IDENTIFIED IN THE 2002 OASIS SITE ASSESSMENT
- APPROXIMATE AREA OF CONTAMINATION IDENTIFIED IN THE 2009 SLR SITE INVESTIGATION
- INFERRED CONTAMINATION BOUNDARY IDENTIFIED IN THE 2009 SLR SITE INVESTIGATION
- E-1 SOIL SAMPLE LOCATION
- SAMPLE SUBMITTED FOR LABORATORY ANALYSIS
- 6.9 PPM HEADSPACE VAPOR LEVEL IN PARTS PER MILLION

SAMPLING RESULTS GUIDELINES

ABBREVIATIONS:

- ADEC ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
- BGS BELOW GROUND SURFACE
- DUP DUPLICATE SAMPLE
- J THE QUANTITATION IS AN ESTIMATION
- ND NOT DETECTED
- DRO DIESEL RANGE ORGANICS
- GRO GASOLINE RANGE ORGANICS
- RRO RESIDUAL RANGE ORGANICS
- B BENZENE
- T TOLUENE
- E ETHYLBENZENE
- X TOTAL XYLENES

NOTES:

ALL LABORATORY RESULTS ARE SHOWN IN MILLIGRAMS PER KILOGRAM
BOLD TEXT IN THE SAMPLE RESULT COLUMN INDICATES THE ANALYTE CONCENTRATION IS ABOVE ADEC CLEANUP LEVELS.
ONLY RESULTS ABOVE LABORATORY REPORTING LIMITS ARE SHOWN

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
610 UNIVERSITY AVENUE
FAIRBANKS, AK 99709

Report
VILLAGE OF BEAVER OLD SCHOOL TANK FARM
PROPERTY ASSESSMENT AND CLEANUP REPORT

Drawing
BURNED GENERATOR BUILDING SITE

Date November 11, 2009 Scale 1"=10' Fig. No. 4
File Name BEAVER_RP_09_F4 Project No. 005.0065.09008



TABLES

Table 1
Soil Sample Analytical Results
DEC - Village of Beaver, Old School Tank Farm Report
(All units in mg/kg)

Sample Location	Sample Identification	Sample Date	Sample Depth (Feet)	Alaska Methods			BTEX by EPA Method 8021B				PAHs by EPA Method 8270D SIMS					VOCs by EPA Method 8260B									Metals by EPA 6020 Lead	SM20 2540G Total Solids (Percent)
				AK101 GRO	AK102 DRO	AK103 RRO	Benzene	Toluene	Ethylbenzene	Total Xylenes	1-Methylnaphthalene	2-Methylnaphthalene	Fluorene	Naphthalene	Phenanthrene	Benzene	Toluene	Ethylbenzene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	4-Isopropyltoluene	Naphthalene	Xylenes (total)			
DEC Migration to Ground Water Cleanup Levels:				300	250	11,000	0.025	6.5	6.9	78	6.2	6.1	220	20	3,000	0.025	6.5	6.9	23	23	-	20	78	400	-	
DEC Ingestion Cleanup Levels:				1,400	10,250	10,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
DEC Direct Contact Cleanup Levels:				-	-	-	150	8,100	10,100	20,300	280	280	2,300	1400	20,600	150	8,100	10,100	5,100	5,100	-	1400	20,300	400	-	
DEC Outdoor Inhalation Cleanup Levels:				1,400	12,500	22,000	11	220	110	63	760	750	-	28	-	11	220	110	49	42	-	28	63	-	-	
A - 2	A - 2	9/10/2009	3.5	1,300	15,100	46.9	ND [0.294]	3.18	10.8	23.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	82.2		
A - 8	A - 8	9/10/2009	4.0	4,620	31,100	ND [1160]	0.491	31.7	53.9	385	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	85.5		
B - 2	B - 2	9/10/2009	1.5	5.5 J	13.2 J	23.9	ND [0.0304]	ND [0.122]	ND [0.122]	0.1539 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	95		
C - 1	C - 1	9/10/2009	4.0	1,820	29,300	74.9	NA	NA	NA	NA	132	68.7	4.77	0.117	0.677	ND [0.0467]	ND [0.156]	ND [0.0779]	0.679	103	1.56	64.5	84.7	6.5	82.2	
	C - 15 (DUP)	9/10/2009	4.0	3,230	27,900	71.5	NA	NA	NA	NA	102	63.3	3.84	0.0938	0.51	ND [0.0699]	ND [0.233]	ND [0.117]	ND [1.17]	154	ND [1.17]	60.3	108	6.62	84	
C - 3	C - 3	9/10/2009	4.0	ND [4.7]	10.3 J	31.9	ND [0.0235]	ND [0.0941]	ND [0.0941]	ND [0.0941]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	90.5		
C - 4	C - 4	9/10/2009	4.5	962	9,700	62.2	NA	NA	NA	NA	ND [0.109]	ND [0.109]	ND [0.109]	0.628	ND [0.109]	ND [0.314]	ND [1.05]	ND [0.524]	ND [0.524]	15.7	ND [0.524]	ND [1.05]	ND [1.05]	5.62	90.2	
C - 7	C - 7	9/10/2009	2.5	55.2	7,550	59	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND [0.0398]	ND [0.133]	ND [0.0663]	ND [0.0663]	0.23	0.348	ND [0.133]	0.129 J	NA	88.9	
C - 10	C - 10	9/10/2009	2.5	12.9	43.4	44.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND [0.0685]	ND [0.228]	ND [0.144]	ND [0.114]	0.0388 J	ND [0.114]	ND [0.228]	ND [0.228]	NA	82.9	
C - 11	C - 11	9/10/2009	1.5	ND [11.3]	8.6 J	41.1	ND [0.0563]	ND [0.225]	ND [0.225]	ND [0.225]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	86		
C - 13	C - 13	9/10/2009	4.5	ND [7.07]	23.5 J	75.4	ND [0.0353]	ND [0.141]	ND [0.141]	ND [0.141]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	80.7		

Descriptions:
NA = not analyzed
ND = not detected [reporting limit value]
[] = Reported detection limit
mg/kg = milligrams per kilogram
GRO = gasoline range organics
DRO = diesel range organics
DUP = duplicate sample
RRO = residual range organics
BTEX = benzene, toluene, ethylbenzene, and xylenes
PAH = Polynuclear aromatic hydrocarbon
VOCs = Volatile organic compounds
DEC = Alaska Department of Environmental Conservation
EPA = U.S. Environmental Protection Agency
~ = duplicate of preceding sample
"J" = Quantitation is an estimate

Notes:
DEC Soil Cleanup Levels derived from Table B.1. for migration to groundwater, and Under 40 Inch Zone for direct contact and inhalation, and DEC Technical Memorandum 01-007
DEC Petroleum Hydrocarbon Soil Cleanup Levels derived from Table B.2, Under 40-Inch Zone for ingestion and migration to ground water
Only PAH concentrations detected are listed
Bold indicates values exceeding the cleanup level
Italics indicate practical quantitation limit exceeds the cleanup level
Method Reporting Limits for benzene were elevated due to low sample mass

Table 2
Soil Sample Analytical Results
DEC - Village of Beaver, Burned Generator Building Report
(All units in mg/kg)

Sample ID	Sample Identification	Sample Date	Sample Depth (Feet)	Alaska Methods			BTEX by EPA Method 8021B				PAHs by EPA Method 8270D SIMS					Metals by EPA 6020 Lead	SM20 2540G Total Solids (Percent)
				AK101 GRO	AK102 DRO	AK103 RRO	Benzene	Toluene	Ethylbenzene	Total Xylenes	1-Methylnaphthalene	2-Methylnaphthalene	Acenaphthene	Naphthalene	Phenanthrene		
DEC Migration to Ground Water Cleanup Levels:				300	250	11,000	0.025	6.5	6.9	78	6.2	6.1	180	20	3,000	400	-
DEC Ingestion Cleanup Levels:				1,400	10,250	10,000	-	-	-	-	-	-	-	-	-	-	-
DEC Direct Contact Cleanup Levels:				-	-	-	150	8,100	10,100	20,300	280	280	2,800	1400	20,600	400	-
DEC Outdoor Inhalation Cleanup Levels:				1,400	12,500	22,000	11	220	110	63	760	750	-	28	-	-	-
D-2	D-2	9/10/2009	5.0	NA	7.33 J	31.4	ND [0.033]	ND [0.132]	ND [0.132]	ND [0.132]	NA	NA	NA	NA	NA	-	91.7
E-1	E-1	9/10/2009	5.0	NA	40.7 J	112	ND [0.0301]	ND [0.12]	ND [0.12]	0.2074	NA	NA	NA	NA	NA	-	79.6
E-3	E-3	9/10/2009	8.0	NA	8,380	110	ND [0.228]	0.275 J	5.78	89.4	NA	NA	NA	NA	NA	-	92.6
E-4	E-4	9/10/2009	7.0	10,100	30,100	573	0.518	6.54	33.7	529	219	223	3.37	62.9	0.738 J	-	91.2
	E-14 (DUP)	9/10/2009	7.0	9,280	30,000	597	0.451	3.41	31.6	531	104	109	NA	0.092	0.413	-	91.2
E-11	E-11	9/10/2009	5.0	NA	ND [22.4]	17.9 J	ND [0.0267]	ND [0.107]	ND [0.107]	ND [0.107]	NA	NA	NA	NA	NA	-	87.8
E-12	E-12	9/10/2009	1.0	4.32 J	3,020	4,110	ND [0.0484]	0.0621 J	ND [0.193]	0.1856 J	NA	NA	NA	NA	NA	13.7	64.8

Descriptions:

NA = not analyzed
ND = not detected [reporting limit value]
[] = Reported detection limit
mg/kg = milligrams per kilogram
GRO = gasoline range organics
DRO = diesel range organics
DUP = duplicate sample
RRO = residual range organics
BTEX = benzene, toluene, ethylbenzene, and xylenes
PAH = Polynuclear aromatic hydrocarbon
VOCs = Volatile organic compounds
DEC = Alaska Department of Environmental Conservation
EPA = U.S. Environmental Protection Agency
~ = duplicate of preceding sample
"J" = Quantitation is an estimate

Notes:

DEC Soil Cleanup Levels derived from Table B.1. for migration to groundwater, and Under 40 Inch Zone for direct contact and inhalation, and DEC Technical Memorandum 01-007
DEC Petroleum Hydrocarbon Soil Cleanup Levels derived from Table B.2, Under 40-Inch Zone for ingestion and migration to ground water
Only PAH concentrations detected are listed
Bold indicates values exceeding the cleanup level
Italics indicate practical quantitation limit exceeds the cleanup level

Table 3
Drinking Water Well Analytical Results
DEC - Village of Beaver,
Old School Tank Farm Report
(All units in mg/L)

Sample Location	Sample Identification	Date	Alaska Method 101	Alaska Method 102	Alaska Method 103	VOCs USEPA 524.2	PAHs USEPA 8270D SIM
			GRO	DRO	RRO	All Compounds	All Compounds
DEC Ground Water Cleanup Level			2.2	1.5	1.1	N/A	N/A
WS-1	WS-1	9/11/2009	ND [0.1]	ND [0.714]	ND [0.446]	ND	ND

Descriptions:

N/A = compounds not identified above method detection limit

ND = not detected [reporting limit value]

[] = Reported detection limit

mg/L = milligrams per liter

GRO = gasoline range organics

DRO = diesel range organics

RRO = residual range organics

PAHs = Polynuclear aromatic hydrocarbon

VOC's = Volatile organic compounds

DEC = Alaska Department of Environmental Conservation

EPA = U.S. Environmental Protection Agency

Notes:

DEC Soil Cleanup Levels derived from Table B.1 for migration to groundwater, and Under 40-Inch Zone

The trip blank accompanying the water sample contained a laboratory estimated Bromomethane concentration of 0.00065 mg/L

Table 4
Calculation of Contaminated Soil Volumes - Beaver

Site Description	Thickness (ft)	Square feet	Volume (ft ³)	Volume (CY)
Old BIA School Site (West of Tank Farm) - Lot 8	5	6,011	30,055	1,113
Old BIA School Site (East of Tank Farm) - Lot 8	5	686	3,430	127
Leaking Washeteria Fuel Line Site - Lot 8	5	2559	12,795	474
Burned Generator Site - Lot 1	5	1,740	8,700	322
Burned Generator Site - (Drum Storage Area) Lot 1	5	52	260	10
Burned Generator Site - (Leaking Fuel Line Area) Lot 1	5	12	60	2
TOTAL (CY)				2,048

Swell Factor for Excavated Soils	Loose Volume of Excavated Soils. (CY)
1.3	2,663

TOTAL TREATMENT CELL SOIL VOLUME (Loose)	2,663
Contingency:	10% = 266
Estimated Soil Remediation Cell Volume, w/Contingency	2,930

Table 5
Remedial Alternatives for Soil
ADEC - Village of Beaver, Old School Tank Farm Report

Alternative	Environmental Protection	Regulatory Compliance	Effectiveness	Implement-ability	Cost	Overall Rating
No Action	Fair	Fair	Poor	Excellent	Good; site ground water monitoring required	Fair
Passive Biopile Construction	Good	Good	Fair	Fair	Good	Fair
Road Base Encapsulation	Fair	Good	Good	Poor; The contaminated soil is silt which is likely unsuitable for road base use, and no upcoming road projects are identified.	Fair	Fair
Daily Landfill Cover	Good	Good	Fair	Good	Good	Good
Landfarming	Good	Good	Fair	Good	Good	Good
Thermal Remediation	Good	Fair	Good	Poor, logistically difficult and requires a large quantity of fuel in a village	Poor; extremely high cost for small projects	Fair

APPENDIX A-1

OLD BIA SCHOOL DEC BROWNFIELD ASSESSMENT REQUEST FORM – 2009

DEC BROWNFIELDS ASSESSMENT REQUEST FORM – 2009

Please check the appropriate box for each question at the top of this page, and then answer questions 1–5 by inserting text in the blank area under each question, using as much space as you need. The deadline for receipt of requests is March 3, 2009.

Eligibility Determination—General Questions:

Is the applicant in any way responsible for the potential contamination at the site, or related to those who may be responsible?

☐ Yes ☒ No

Is the site federally owned?

☒ Yes ☐ No

Has the site or facility received funding for remediation from the Leaking Underground Storage Tank (LUST) Trust Fund?

☐ Yes ☒ No ☐ Unknown

If you answered “yes” to any of the above questions, we recommend that you please call DEC to discuss the specifics of your eligibility determination.

To the best of your knowledge, is the *owner* of the property in question:

☐ Private ☐ City/Public ☐ State ☐ Native Corp ☐ Tribal ☒ Federal (USF&WS)

Known or suspected contaminant(s) (check one):

☐ Hazardous Substances ☐ Petroleum Only ☒ Hazardous Substances and Petroleum

Is this site currently listed on DEC's *contaminated sites* database?

☒ Yes ☐ No ☐ Unknown

If yes, please list the project name, if known: Village of Beaver School Tank Farm, Hazard ID # 3944

1. Applicant/Owner

- a) *Applicant*** - Provide the name and address of the organization applying for a DBA, the name of the contact person, email, telephone, and fax numbers.

Beaver Tribe
PO Box 24029
Beaver, AK 99724 Contact: April Williams, IGAP Coordinator
(907) 628-6126
(907) 628-6215 (fax)
beavercouncil@hotmail.com

If Applicant is IGAP staff, please provide name of EPA project officer: Sherry Kimmons, (907) 271-6322

- b) *Project Team*** - Because no one person can be responsible for all aspects of a brownfield project, we request that you form a *project team* to ensure continued action beyond this DBA. Attach a letter from each team member acknowledging their support and willingness to participate. (Team members may include: city or village government representatives, tribal council representatives, environmental managers, elders or other community leaders, and other interested parties.)

Selina Petruska, Chief, Beaver Tribe
Paul S. Williams, Sr. Second Chief, Beaver Tribe
Robert Jess, Manager, Yukon Flats Wildlife Refuge
Mara Bacsujlaky, Sustainable Communities Agent, Cooperative Extension Service
David James, Tanana Chiefs Conference
Representative of Yukon Flats School District (identification and contact information pending)

- c) **Property Owner** - The owner of the property must allow DEC access to the site. If the applicant is different from the owner, include written consent for access from the owner. (*Note: the applicant must be able to secure access for DEC and its contractors to conduct the assessment.*)

Owner of the property is US Fish and Wildlife Service. The State of Alaska has a lease for the property that is in effect until 2040. Letter of support will be submitted by USF&WS under separate cover. Contact information for the State of Alaska is pending.

2. **Site Information**

- a) **Historical Site Use** - Describe, to the best of your ability, the previous known uses of the site, when the different activities occurred, and any historic or cultural significance of the property. Identify when and how the site became or may have become contaminated, with what substance(s), and where the contamination is likely to be found.

The building and associated facilities initially housed a Bureau of Indian Affairs school. The school closed in 1986. After closure building largely stood empty until the Beaver Tribal Council used it for their offices in the late 1990s. They vacated the building when the new health clinic/tribal office building was completed in the early 2000s. Since then the building has been empty. There is a lease in effect for the property – lease holder is the State of Alaska. More information on the terms and a contact person/representative for the State are pending.

There is documented fuel contamination at the old school generator shed, the tank farm and from the underground pipe supply system. The depth of the soil contamination is not fully known at this time. It is assumed there is lead paint and asbestos present in the old building, since it was built at a time when these hazardous substances were used. There may be other contamination that has yet to be identified.

- b) **Current Site Condition and Use** - Provide the common name of the site, address, approximate acreage, zoning, and types of buildings. Please attach a site map or aerial photograph showing the site's location in the community, adjacent land use, and areas of known or suspected contamination. Identify approximate property boundaries.

The site is commonly referred to as the old BIA school, or old school. Its legal description is Lot 4 Block 8, US Survey 4895. The property size is 2.74 acres. Located on the property are a large frame building, a tank farm with nine vertical fuel tanks, a building housing the old school generator, and a school shop. There is also an underground fuel pipe system that runs from the airport to the school tank farm and to the washeteria across the street from the old school.

The old school building is abandoned and boarded up. The school shop building is currently is used by the adjacent Cruikshank school. The old school generator is still functional and is maintained as an emergency generator in case the village generator fails. The tank farm is still in use. Of the nine vertical tanks, one is not used because it leaks, five are used to store fuel for the Cruikshank school, and three supply fuel to the washeteria. There have been numerous leaks and spills at the tank farm and the old school generator building, and the underground pipeline to the washeteria leaks.

- c) **Prior Environmental Assessment Activities** - Please describe any prior site assessment or cleanup activities at the site and briefly state what you know about the findings of that work. Attach the summary or conclusion sections of the reports if available. If reports are not available, provide the consultant, client, approximate date of the study, and any other pertinent information.

Village of Beaver Site Assessment Project Report, Oasis Environmental, January 4, 2002, on file at DEC.

3. **Environmental Concerns**

- a) **Reason for Concern** - What is the reason for concern by the community, and what do you hope to gain by our involvement? Is there specific information that you are seeking? Please discuss community concerns in general, and identify any specific problems if possible.

The community is concerned about threats to public health and safety from contaminants inside the old school building and from fuel leaks from the tank farm, generator building and underground fuel pipes. Prior work by DEC & its environmental contractor has identified soil fuel contamination at the school tank farm, near the old school generator building and along the underground washeteria fuel line. Contamination levels are high enough to pose a human health threat through direct exposure to soil; groundwater contamination is also possible.

Further, the Tribe would like to demolish the building (an action which USF&WS supports) so that the land may be used either for housing or for a new community building such as a multipurpose building. Demolition cannot occur because it is suspected that there is lead-based paint and asbestos in the building. Soil fuel levels are high enough to cause concern for public health and safety should any demolition/construction work occur on the site; these levels also preclude safe alternate use/occupancy of the site.

Potential threats to groundwater also need to be identified, and if groundwater is contaminated, a remediation/mitigation plan developed and implemented. The village drinking water well is located between this site and the river. The depth at which the drinking water well is screened is not known to the preparer of this application; whether contamination from this site poses a threat to the village drinking water supply needs to be determined.

b) *Proposed Project Need* - Describe to the best of your ability what your project team believes are the needed assessment activities, and what result you would like to see from this project. Indicate any constraints as to when this work must be completed (e.g., to meet construction timeline, property transaction pending, etc.).

- 1) Asbestos and lead paint assessment in old school.
- 2) Further assessment of the depth and extent of fuel soil contamination, as delineated in the Village of Beaver Site Assessment.
- 3) Evaluation of potential impacts to village drinking water supply as a result of migrating fuel contamination.
- 4) Identification of other potential environmental hazards or fuel contamination that would prevent the reuse of the site for other village construction, i.e. housing or another type of community/public building.

This site is prime land for the village, since it is centrally located. The village needs this space for other use. The USF&WS may be willing to trade this property or a portion thereof for another parcel so that the village can benefit from its central location. The old school has been standing empty for over five years and is an eyesore and public safety and health threat to village residents. This assessment is needed so that the tribe and USF&WS can proceed with demolition of the building in a safe manner that protects the environment and workers' health. Further, this assessment will enable the tribe, DEC and other involved parties to develop a clean-up plan for the site, and to better define what, if any, threat exists to groundwater and to the village water supply.

4. Community Planning and Reuse Goals

a) *Other Community Plans or Projects* - It is helpful to know if other state or federal agencies are planning work in your community. List any community *plans* that may exist or are in development, such as: economic development plans, hazard mitigation plans, or erosion studies. Describe any other community *projects* that may be scheduled or pending, such as: water and sewer construction, a new landfill, road or airport construction, a new school or addition, fuel-storage tank farms, new housing, or other facilities.

The village of Beaver currently does not have a community plan, economic development plan, or hazard mitigation plan. There are no current community projects scheduled; however, there are tentative plans to relocate the airstrip to a safer distance away from the village, and to expand the

village tank farm. The site currently occupied by the old school is one that the village wants to use for future construction for village improvements.

- b) *Reuse or Redevelopment Plans*** - Does the community have well defined plans for how they would like to reuse this site if it were not for the real or perceived environmental problems? Is this site affecting the use of adjacent properties, subsistence habitat, or other resources? Do reuse plans include the incorporation of greenspace or sustainable, green building practices? If so, please describe.

Because the site is centrally located in the village, it is valuable for future village development. Additional housing is needed, but because of its central location, it is more likely that parcel would be used for a community building, such as a multipurpose building. Additionally, the assessment of this site is tied to other development in the village. The USF&WS wants to build a small office/bunkhouse in the village that would support personnel working in the Yukon Flats Wildlife Refuge. The USF&WS does not want nor need to build its facility on on this particular parcel and is willing to trade all or a portion of the site since the location is more valuable to community/tribal interests. However, further action in this matter is on hold pending a full evaluation of the site hazards and contamination, and the development of a clean-up plan.

5. Public Involvement

- a) *Public Benefit*** - Briefly discuss how your proposed reuse or redevelopment plans for the property will provide a benefit to the public. Why is this important to your community? (Things to consider: creation of jobs, preservation of historically or culturally significant property, preservation of subsistence habitat, reuse or recycling of materials, cost savings to the community, or increased property values.)

The abandoned and boarded up building is deteriorating and an eyesore in the village. It is located right in the village center – across the street is the cemetery, and next door is the school. It is on the main street from the airport, and as such, is one of the first things visitors to our community see. Not only does it visually detract from the community, but it occupies a prime site that could be better used by the village. There is limited good ground for construction, and the village needs this site for future development. Furthermore, the building and the site contamination pose a public health and safety hazard.

Finally, because the USF&WS has interest in a potential trade for other land in the village, delay in doing a site assessment in turn affects the construction of the USF&WS office and bunkhouse, which would also be a positive contribution to our community.

- b) *Community Support*** - Is the community strongly supportive of this project? Please identify other organizations in your community with whom you are coordinating on this reuse or redevelopment project. (Providing names and phone numbers of contacts is helpful here, and include resolutions or letters of support as applicable.)

Yes. USF&WS, the underlying land owner, is supportive. If the State/YFSD has an interest in the land through an existing lease, it is unlikely there will be opposition to assessment/remediation of site, since the empty building and associated hazards present health and safety threats to the adjacent school as well as the community overall.

A tribal resolution supporting this application will follow under separate cover.

USF&WS contact: Rob Jess, Refuge Manager, Yukon Flats Wildlife Refuge (907) 456-0407.

- c) *Community Resources*** - Our assessment often requires local assistance with site visits, lodging, excavation equipment, and transportation. Describe local resources that are available for this project. Does the community have financial or other resources to supplement this DBA or for other phases of the project, such as equipment, in-kind services, or funding for cleanup or new construction? Can this DBA be used to leverage other funding or services for the project?

Lodging is available at the school or tribal office. The village has backhoe that can be used for excavation, as well as a 12 cyd dump truck. There are ATVs and snow machines available for rent for local transportation. The tribe and community members may be able to donate in-kind service in the form of truck drivers and heavy equipment operators. Additionally there are four to five community members that have training in lead paint and asbestos removal. USF&WS is also willing to donate in-kind services, and there likely are small sums of money available that the agency can contribute towards future costs associated with clean up, demolition and disposal.

The selection of a site for a DBA in no way implies that DEC is accepting liability for any contamination that may exist at the site, nor is DEC responsible for any necessary cleanup of hazardous substances that may be found at the site. Liability for contamination on a property is specifically addressed in Alaska Statute (AS) 46.03.822, which outlines those who are liable for the release of a hazardous substance. The general liability categories include: (1) those with an ownership interest in the property; (2) those in control of the substance at the time of the release; or (3) those who arrange for disposal or transport of the substance.

Submit Completed Forms by March 3, 2009, to:

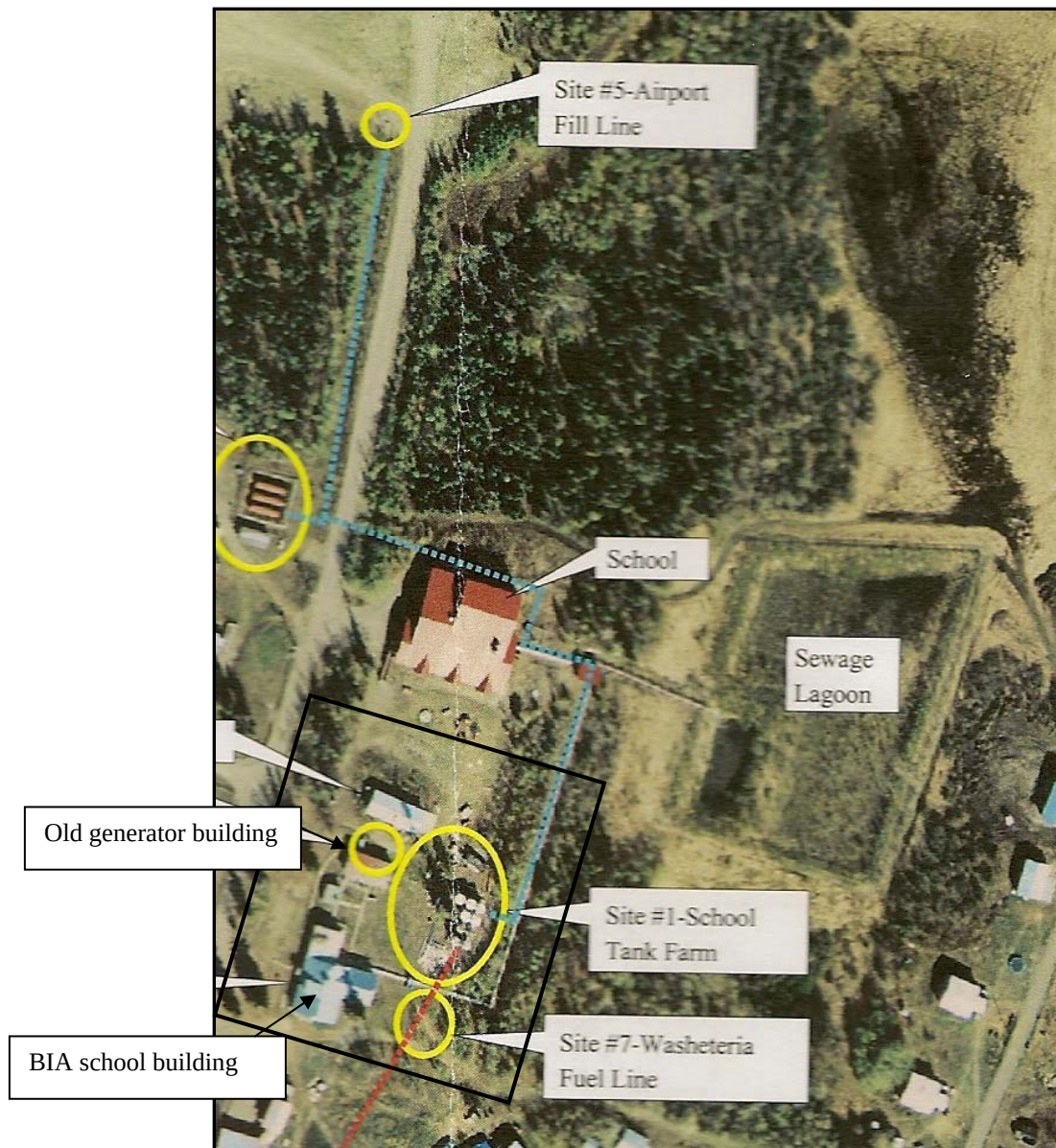
By email: Sonja.Benson@alaska.gov or
By fax: (907) 451-2155 c/o Sonja Benson

Or by regular mail:

DEC Brownfield Assessments
c/o Sonja Benson
Department of Environmental Conservation
610 University Avenue
Fairbanks, Alaska 99709

If you have questions, call Sonja Benson at (907) 451-2156, Deborah Williams at (907) 451-5174, or John Carnahan at (907) 451-2166.

Old BIA school and associated facilities; rectangle delineates approximate area proposed for site assessment. Survey map with actually property boundaries will be submitted in near future. BIA school building (with blue roof) is in lower left corner of rectangle



Aerial map detail from Village of Beaver Project Site Assessment, 2002, Oasis Environmental

APPENDIX A-2

BURNED GENERATOR BUILDING DEC BROWNFIELD ASSESSMENT REQUEST FORM – 2009

DEC BROWNFIELDS ASSESSMENT REQUEST FORM – 2009

Please check the appropriate box for each question at the top of this page, and then answer questions 1–5 by inserting text in the blank area under each question, using as much space as you need. The deadline for receipt of requests is March 3, 2009.

Eligibility Determination—General Questions:

Is the applicant in any way responsible for the potential contamination at the site, or related to those who may be responsible?

☒ Yes ☐ No

Is the site federally owned?

☐ Yes ☒ No

Has the site or facility received funding for remediation from the Leaking Underground Storage Tank (LUST) Trust Fund?

☐ Yes ☒ No ☐ Unknown

If you answered “yes” to any of the above questions, we recommend that you please call DEC to discuss the specifics of your eligibility determination.

To the best of your knowledge, is the *owner* of the property in question:

☐ Private ☐ City/Public ☐ State ☐ Native Corp ☒ Tribal ☐ Unknown

Known or suspected contaminant(s) (check one):

☐ Hazardous Substances ☐ Petroleum Only ☒ Hazardous Substances and Petroleum

Is this site currently listed on DEC's *contaminated sites* database?

☒ Yes ☐ No ☐ Unknown

If yes, please list the project name, if known: Beaver Generator Building Fire

1. Applicant/Owner

- a) *Applicant*** - Provide the name and address of the organization applying for a DBA, the name of the contact person, email, telephone, and fax numbers.

Beaver Tribe
PO Box 24029
Beaver, AK 99724 Contact: April Williams, IGAP Coordinator
(907) 628-6126
(907) 628-6215 (fax)
beavercouncil@hotmail.com

If Applicant is IGAP staff, please provide name of EPA project officer: Sherry Kimmons, 271-6322

- b) *Project Team*** - Because no one person can be responsible for all aspects of a brownfield project, we request that you form a *project team* to ensure continued action beyond this DBA. Attach a letter from each team member acknowledging their support and willingness to participate. (Team members may include: city or village government representatives, tribal council representatives, environmental managers, elders or other community leaders, and other interested parties.)

Selina Petruska, Chief, Beaver Tribe
Paul S. Williams, Sr. Second Chief, Beaver Tribe
Mara Bacsujlaky, Sustainable Communities Agent, Cooperative Extension Service
David James, Tanana Chiefs Conference

- c) **Property Owner** - The owner of the property must allow DEC access to the site. If the applicant is different from the owner, include written consent for access from the owner. (*Note: the applicant must be able to secure access for DEC and its contractors to conduct the assessment.*)

Beaver Tribe

2. **Site Information**

- a) **Historical Site Use** - Describe, to the best of your ability, the previous known uses of the site, when the different activities occurred, and any historic or cultural significance of the property. Identify when and how the site became or may have become contaminated, with what substance(s), and where the contamination is likely to be found.

The site houses a generator building which burned in 2007. Adjacent is a larger building which is used to store equipment. There was at least one fuel tank associated with the generator building. Across the street is the village tank farm, which is currently operated by Beaver Joint Utilities. The tank farm and associated generator building were constructed in the early 1990s and were originally operated by the Beaver Tribe. Fuel was also sold to community members and was dispensed to containers from the generator tank(s).

- b) **Current Site Condition and Use** - Provide the common name of the site, address, approximate acreage, zoning, and types of buildings. Please attach a site map or aerial photograph showing the site's location in the community, adjacent land use, and areas of known or suspected contamination. Identify approximate property boundaries.

Generator Building, C Street (also known as Airport Road). The site is not currently used because of the fire. A new generator building was constructed adjacent to the washeteria. The village would like to use the generator site to expand its tank farm, or to locate equipment or storage buildings.

- c) **Prior Environmental Assessment Activities** - Please describe any prior site assessment or cleanup activities at the site and briefly state what you know about the findings of that work. Attach the summary or conclusion sections of the reports if available. If reports are not available, provide the consultant, client, approximate date of the study, and any other pertinent information.

As part of the Village of Beaver Project Assessment conducted by Oasis Environmental in 2002, environmental soil sampling was conducted at the tank farm, but not at the generator building. Visual inspection around the generator building detected heavy fuel staining both where residents pumped fuel and where piping from the tank farm entered the generator day tank. There has been no further environmental assessment work since the fire.

3. **Environmental Concerns**

- a) **Reason for Concern** - What is the reason for concern by the community, and what do you hope to gain by our involvement? Is there specific information that you are seeking? Please discuss community concerns in general, and identify any specific problems if possible.

The Beaver Tribe is concerned that there may be extensive contamination of the site as a result of the fire. Although the debris has been cleaned up and hauled to the landfill, concerns remain about future use of the site, and if contamination levels are high enough to warrant clean-up and mitigation.

- b) **Proposed Project Need** - Describe to the best of your ability what your project team believes are the needed assessment activities, and what result you would like to see from this project. Indicate any constraints as to when this work must be completed (e.g., to meet construction timeline, property transaction pending, etc.).

Soil sampling and analyses to determine the extent of fuel contaminated soil, and level of remediation that will be required for clean up so that site may be safely used again. Sampling for likely contaminants other than GRO/BTEX if inspection of remains indicated other hazardous contaminants may have been

released and dispersed by the fire. Assess possible impacts to groundwater as result of historical fuel spills and fuel lost during the fire.

4. **Community Planning and Reuse Goals**

- a) ***Other Community Plans or Projects*** - It is helpful to know if other state or federal agencies are planning work in your community. List any community *plans* that may exist or are in development, such as: economic development plans, hazard mitigation plans, or erosion studies. Describe any other community *projects* that may be scheduled or pending, such as: water and sewer construction, a new landfill, road or airport construction, a new school or addition, fuel-storage tank farms, new housing, or other facilities.

The village of Beaver currently does not have a community plan, economic development plan, or hazard mitigation plan. There are no current community projects scheduled; however, there are preliminary plans to relocate the airstrip to a safer distance away from the village, and to expand the village tank farm. It is possible this site may be considered as part of the tank farm expansion.

- b) ***Reuse or Redevelopment Plans*** - Does the community have well defined plans for how they would like to reuse this site if it were not for the real or perceived environmental problems? Is this site affecting the use of adjacent properties, subsistence habitat, or other resources? Do reuse plans include the incorporation of greenspace or sustainable, green building practices? If so, please describe.

The community is in the process of developing these plans, as removal of the burn debris was a first priority after the fire. Additional information on the reuse of this site and tentative time table are pending and will be amended to this application.

5. **Public Involvement**

- a) ***Public Benefit*** - Briefly discuss how your proposed reuse or redevelopment plans for the property will provide a benefit to the public. Why is this important to your community? (Things to consider: creation of jobs, preservation of historically or culturally significant property, preservation of subsistence habitat, reuse or recycling of materials, cost savings to the community, or increased property values.)

The burn site is located just off the center of the village; it detracts from the image of the village. There is increasing numbers of tourists and other visitors coming to the villages, including day visits by Japanese tourists in the winter. In addition to improving the community appearance through clean-up and reuse of the site, the village does not have an abundance of good land upon which to build. The tank farm needs to be expanded, and this site is the most likely place to locate additional tanks.

- b) ***Community Support*** - Is the community strongly supportive of this project? Please identify other organizations in your community with whom you are coordinating on this reuse or redevelopment project. (Providing names and phone numbers of contacts is helpful here, and include resolutions or letters of support as applicable.)

Yes, the burned site presents a hazard to public safety and health and is an eyesore.

- c) ***Community Resources*** - Our assessment often requires local assistance with site visits, lodging, excavation equipment, and transportation. Describe local resources that are available for this project. Does the community have financial or other resources to supplement this DBA or for other phases of the project, such as equipment, in-kind services, or funding for cleanup or new construction? Can this DBA be used to leverage other funding or services for the project?

Lodging is available at the school or tribal office. The village has backhoe that can be used for excavation, as well as a 12 cyd dump truck. There are ATVs and snow machines available for rent for local transportation. The tribe and community members may be able to donate in-kind service in the form

of truck drivers and heavy equipment operators. Additionally there are four to five community members that have training in lead paint and asbestos removal. USF&WS is also willing to donate in-kind services, and there likely are small sums of money available that the agency can contribute towards future costs associated with clean up, demolition and disposal.

The selection of a site for a DBA in no way implies that DEC is accepting liability for any contamination that may exist at the site, nor is DEC responsible for any necessary cleanup of hazardous substances that may be found at the site. Liability for contamination on a property is specifically addressed in Alaska Statute (AS) 46.03.822, which outlines those who are liable for the release of a hazardous substance. The general liability categories include: (1) those with an ownership interest in the property; (2) those in control of the substance at the time of the release; or (3) those who arrange for disposal or transport of the substance.

Submit Completed Forms by March 3, 2009, to:

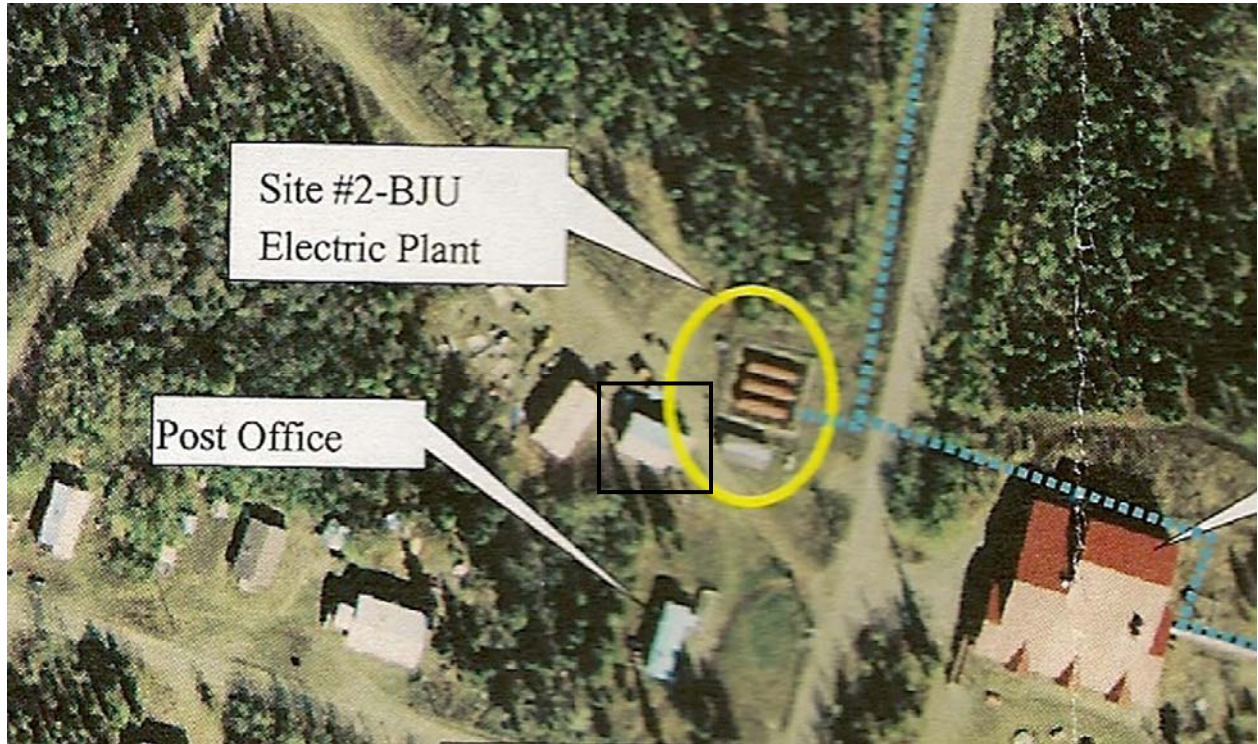
By email: Sonja.Benson@alaska.gov or
By fax: (907) 451-2155 c/o Sonja Benson

Or by regular mail:

DEC Brownfield Assessments
c/o Sonja Benson
Department of Environmental Conservation
610 University Avenue
Fairbanks, Alaska 99709

If you have questions, call Sonja Benson at (907) 451-2156, Deborah Williams at (907) 451-5174, or John Carnahan at (907) 451-2166.

Location of burned generator building



Aerial photo detail from Village of Beaver Project Site Assessment, 2002, Oasis Environmental

APPENDIX B

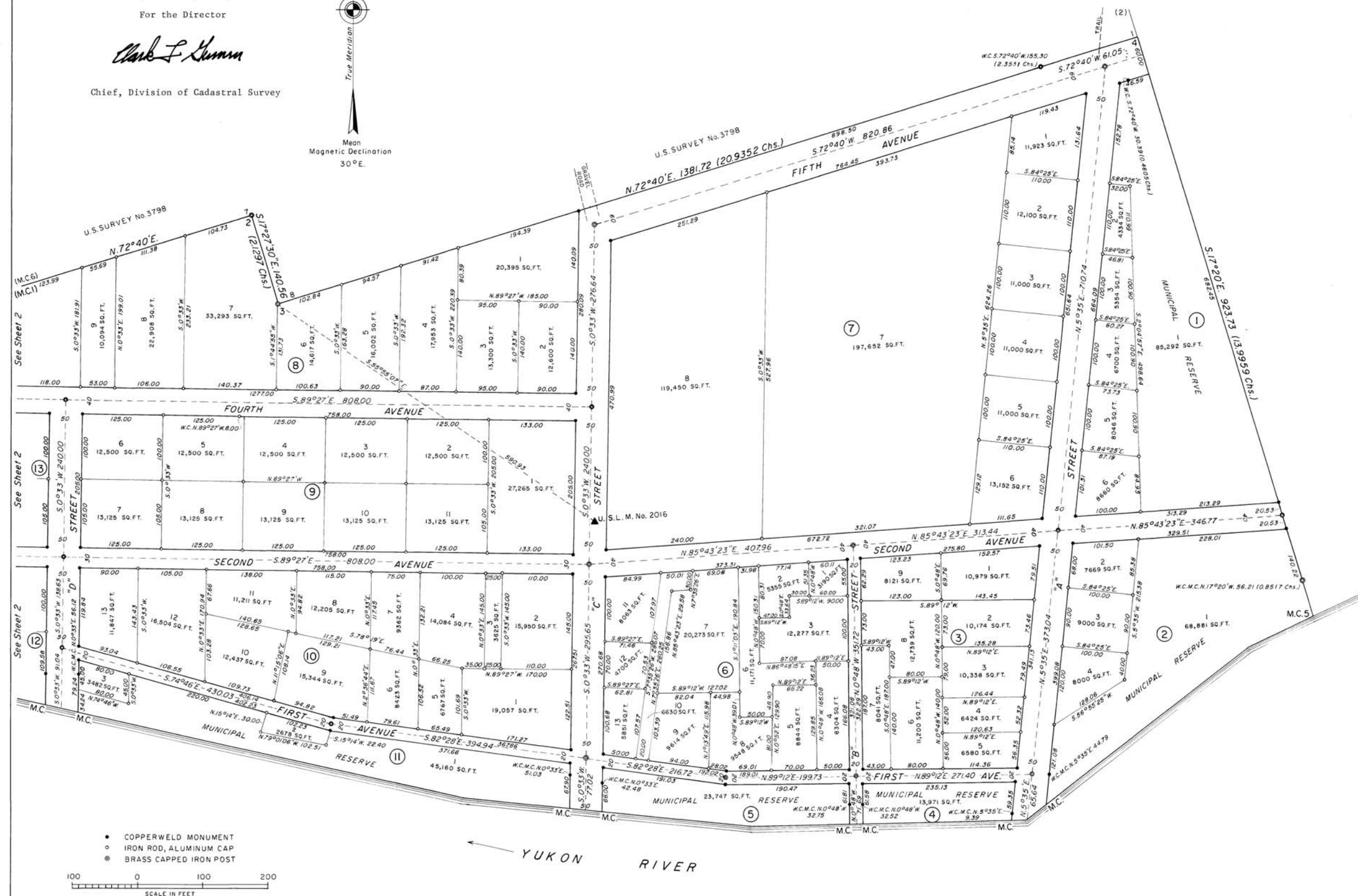
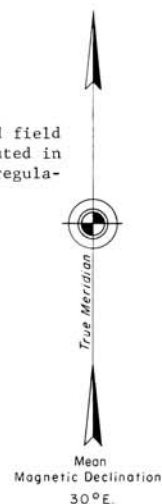
BEAVER PLAT AND USFWS LEASE TO STATE OF ALASKA

This plat is strictly conformable to the approved field notes, and the survey, having been correctly executed in accordance with the requirements of law and the regulations of this Bureau, is hereby accepted.

For the Director

Clark L. Summers

Chief, Division of Cadastral Survey



LEASE OF BUREAU OF INDIAN AFFAIRS SCHOOL SITE AT ~~BEAVER~~

This lease is entered into by and between the United States of America by and through the Secretary of the Interior as Lessor, and the State of Alaska as Lessee.

The Parties agree as follows:

1. The Lessor, pursuant to the authority of the Act of July 30, 1983, 97 Stat. 326, 25 U.S.C. § 292b; 25 U.S.C. §§ 293a, 293b; and the National Wildlife Refuge System Administration Act, 16 U.S.C. § 668dd and subject to all applicable federal laws and regulations, hereby leases to Lessee, subject to valid existing rights and the terms and conditions set forth herein, the following described property together with any improvements thereon:

Lot 8, Block 7 of U.S. Survey No. 4895, containing 2.74 acres.

2. The term of this lease shall be for fifty-five (55) years. Consideration for this lease is the mutual agreements contained herein.
3. The land and improvements conveyed herein shall be used for school and related purposes only and shall be available to all the Native children of the town, city, or other school district concerned on the same terms as to other children of such town, city, or district.
4. The Lessee may erect on the leased property such buildings, structures, or equipment as it may desire for a school and related purposes and the Lessee shall have the right to remove the same from the property on or before the expiration of this lease, or within 90 days thereafter.
5. Damage to or destruction of any building or buildings on the leased property, at any time, by fire or other casualty whatsoever, shall not work a termination of this lease.
6. The Lessee shall have the right to sublet the property, to assign this lease and all of its rights and duties under this lease, or otherwise to authorize the use of the premises by others for the purposes set out in paragraph 3.
7. The Lessee shall pay all taxes or assessments which may be levied or assessed upon or against the leased land and upon any improvements or fixtures thereon, which are assessed during the lease term.
8. The Lessee agrees that the agents of the Lessor at all reasonable times and during all reasonable hours shall have free access to the leased property, and through any building or structure that may at any time be thereon, for the purpose of examining or inspecting the conditions of the same or of exercising any right or power reserved to the Lessor under the terms and provisions of this lease. Where practical, Lessor shall exercise its rights under this paragraph in such a way as to minimize interference with Lessee's activities on the premises.

9. The Lessor reserves all mineral deposits in the lands and the right to prospect for and remove the deposits under such rules and regulations as the Secretary of the Interior may prescribe.
10. The Lessee shall have the right to terminate this lease by giving to the Lessor a written notice of its intention to do so at least six months prior to the date of the proposed termination.
11. If at any time the Lessor determines that the Lessee has violated or failed to observe the provisions of this lease and that such violation or failure has continued for a period of at least one year, the Lessor may declare a forfeiture of this lease. At least six months prior to such a declaration of forfeiture, however, the Lessor must give the Lessee a written notice specifying the particular violation or failure relied upon. The Lessee shall have a reasonable time under the circumstances to cure the alleged default. If the default is cured, there will be no forfeiture of the lease.
12. Upon the termination of this lease by expiration, surrender, or cancellation thereof, the Lessee shall surrender possession of the premises to the Lessor in good condition, reasonable wear and tear excepted.
13. The Lessee agrees to take such reasonable steps as may be needed to protect the surface of the leased area and the natural resources and improvements thereon.
14. The Lessee shall indemnify or hold harmless the Lessor for damages to life, person, or property arising from Lessee's use and occupancy of the premises during the term of the lease.
15. The Lessee shall maintain the premises during the period of the lease and may repair, improve, or remodel existing structures.
16. Equal Opportunity Clause. During the performance of this contract, the Lessee agrees as follows:
 - a. The Lessee will not discriminate against any employee or applicant for employment because of race, creed, color, national origin, sex, or handicap. The Lessee will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, creed, color, national origin, sex or handicap. Such action shall include, but not be limited to, the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Lessee agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the Lessor setting forth the provisions of the Equal Opportunity Clause.
 - b. The Lessee will, in all solicitations or advertisements for employees placed by or on behalf of the Lessee, state that all qualified applicants will receive consideration for employment without regard to race, creed, color, national origin, sex, or handicap.

3.

- c. The Lessee will send to each labor union or representative of workers, with which he has collective bargaining agreement or other contract or understanding, a notice, to be provided by the agency Lessee Officer, advising the labor union or workers' representative of the Lessee's commitments under the Equal Opportunity Clause, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
- d. The Lessee will comply with all provisions of Executive Order No. 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.
- e. The Lessee will furnish all information and reports required by Executive Order No. 11246 of September 24, 1965, and by the rules, regulations and orders of the Secretary of Labor, or pursuant to thereto, and will permit access to his books, records, and accounts, by the Lessee and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.
- f. In the event of the Lessee's noncompliance with the Equal Opportunity Clause of this lease or with any of the said rules, regulations, or orders, this lease may be cancelled, terminated, or suspended, in whole or in part, and the Lessee may be declared ineligible for further Government leases in accordance with procedures authorized in Executive Order No. 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order No. 11246 of September 24, 1965, or by rule, regulations, or order of the Secretary of Labor, or as otherwise provided by law.
- g. The Lessee will include the provisions of paragraph "a" through "g" in every sublease or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order No. 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The Lessee will take such action with respect to any subcontract or purchase order as the leasing agency may direct as a means of enforcing such provisions, including sanctions for non-compliance; Provided, however, that in the event the Lessee becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the leasing agency, the Lessee may request the United States to enter into such litigation to protect the interests of the United States.

17. Civil Rights of 1964.

- a. The Lessee covenants and agrees that it will comply with the provisions of Title VI of the Civil Rights Act of 1964, and that it will not, for the period during which the property conveyed by this instrument is used for the purpose designated in this lease, or for another purpose involving the provisions of similar services or benefits, engage in any discriminatory actions prohibited by 43 CFR 17.3, to the end that no person in the United States shall, on the grounds of race, color, creed, national origin, sex or handicap, be excluded from participation, be denied the benefits, or otherwise be subjected to discrimination under the program for which the Lessee received Federal

4.

financial assistance by this lease. This assurance shall obligate the Lessor or, in the case of the transfer of property leased herein, any transferee for the period of this lease.

- b. The Lessee further agrees that it will not transfer the property conveyed by this instrument for the purpose designated in the lease or for another purpose involving the provision of similar services or benefits, unless and until the transferee gives a similar written assurance to the Lessor, that it will comply with the provisions of paragraph "a" hereof.
 - c. The Lessee agrees that the right is reserved to the Department of the Interior to declare the term of this lease terminated in whole or in part and to revest in the Lessor full title to the property conveyed herein, in the event of a breach of the nondiscrimination provisions contained in paragraph "1" hereof during the term of this lease.
 - d. The Lessee agrees that as long as the property conveyed hereby is used for the purpose designated in this lease or for another purpose involving the provision of similar services, or benefits, the obligations to comply with the provisions of Title VI of the Civil Rights Act of 1964 shall constitute a covenant running with the land for the term of this lease.
 - e. The Lessor agrees that in the event of a violation or failure to comply with the requirements imposed by paragraph "a" the United States may seek judicial enforcement of such requirements.
 - f. The Lessor agrees that it will, upon request of the Secretary of the Interior or his delegate, post and maintain on the property conveyed by this document signs and posters bearing a legend concerning the applicability of Title VI of the Civil Rights Act of 1964 to the area or facility leased.
18. No member of, or delegate to, the Congress, or Resident Commissioner, after his election or appointment, and either before or after he has qualified, and during his continuance in office, and no officer, agent, or employee of the Department of the Interior, except as otherwise provided in 43 CFR Part 7, shall be admitted to any share or part of this lease, or derive any benefit that may arise therefrom, and the provisions of Title 18 USC Section 431-433, relating to contracts, enter into and form a part of this lease, so far as the same may be applicable.
19. Notices required by this agreement must be hand-delivered or sent by registered or certified mail to the appropriate party at the addresses listed below. Either party must notify the other in writing of any change in address.

For Lessor:

Fish and Wildlife Service
1011 East Tudor Road
Anchorage, Alaska 99503

For Lessee:

Department of Education
Pouch F
Juneau, Alaska 99811

20. The covenants, terms, conditions, provisions, and undertakings, in this lease or in any renewals thereof shall extend to and be binding upon the heirs, executors, administrators, successors and assigns of the respective parties hereto, as if they were in every case named and expressed, and shall be held to include and apply also to the heirs, executors, administrators, successors, and assigns of such party, as if in each and every case so expressed.
21. This lease contains the entire agreement between the parties and shall not be modified in any manner except by an instrument in writing executed by the parties. If any term or provision of this lease or the application thereof to any person or circumstance shall, to any extent, be invalid or unenforceable, the remainder of this lease, or the application of such term or provision to persons or circumstances other than those as to which it is held invalid or unenforceable, shall not be affected thereby and each term and provision of this lease shall be valid and be enforced to the fullest extent permitted by law.
22. This lease shall become effective when signed by the Secretary of the Interior for the Lessor and the Commissioner of the Department of Education for the Lessee or their authorized designees.

Harold Reynolds Jr.
 Commissioner
 Department of Education
 State of Alaska

Robert A. Jenkins
 Director, Fish and Wildlife Service
Charles Paul Hodel
 Secretary of the Interior

STATE OF ALASKA)
 First) ss:
~~THIRD~~ JUDICIAL DISTRICT)

On this 5th day of June, ¹⁹⁸⁵1984, before me personally appeared Harold Reynolds Jr., Commissioner of the Department of Education, State of Alaska, the agency that executed the written and foregoing instrument and acknowledged said instrument to be the free and voluntary act and deed of said agency, for the uses and purposes herein mentioned, and on oath stated that he was authorized to execute said instrument as the designee of the Commissioner of Education, State of Alaska.

IN WITNESS WHEREOF, I have hereunto set my official seal this 5th day of June, 1985, ~~1984~~.

Reggie Carr
 Notary Public in and for the State of Alaska
 My commission expires: 12/19/87

6

CITY OF WASHINGTON)
DISTRICT OF COLUMBIA) SS:

On this 5TH day of April, 1985, before me personally appeared Robert A. Jantzen, to me known to be the Director, Fish and Wildlife Service, the agency which executed the written foregoing instrument and acknowledged said instrument to be the free and voluntary act and deed of said agency, for the uses and purposes herein mentioned, and on oath stated that he was authorized to execute said instrument.

IN WITNESS THEREOF, I hereunto set my official seal this 5TH day of April, 1985.

Richard R. Lee

Notary Public in and for the City of
Washington, District of Columbia

My commission expires: April 14, 1985

CITY OF WASHINGTON)
DISTRICT OF COLUMBIA) SS:

On this 3rd day of June, 1985, before me personally appeared Donald Paul Hogel, to me known to be the Secretary of the United States Department of the Interior, the agency which executed the written foregoing instrument and acknowledged said instrument to be the free and voluntary act and deed of said agency, for the uses and purposes herein mentioned, and on oath stated that he was authorized to execute said instrument.

IN WITNESS THEREOF, I hereunto set my official seal this 3rd day of June, 1985.

Richard R. Lee

Notary Public in and for the City of
Washington, District of Columbia

My commission expires: April 14, 1985

APPENDIX C

STAKEHOLDER MEETING MINUTES



Meeting Summary

Date: August 10, 2009, 2:00 PM to 3:00 PM

Re: Village of Beaver Old School Tank Farm and Burned Generator Building
Stakeholder Meeting

Attendees: Wennona Brown – Yukon Flats Wildlife Refuge, U.S. Fish and Wildlife Service
Robert Jess – Refuge Manager, U.S. Fish and Wildlife Service
Caleb Aronson – Environmental Technician, YRITWC
Susan Morales – Brownfield Coordinator, U.S. EPA
Mary Goolie – Brownfield Projects Officer, U.S. EPA
John Carnahan - Brownfield Coordinator, ADEC
Deborah Williams – Project Manager, ADEC
Sonja Benson – Brownfield Program, ADEC
Carl Benson – Project Manager, SLR
David Puchrik - Geologist, SLR

Meeting Opening:

Ms. Williams noted that the attendees from the Village of Beaver could not attend the meeting due to a misunderstanding of the meeting timing.

The planning meeting was opened with brief introductions from each of the meeting attendees. Mr. Carnahan then spoke briefly about the EPA-funded Brownfield, reuse and development program and indicated this project was selected for funding because of the intent to reuse and develop the property. Mr. Carnahan stated the property is owned by the U.S. Fish and Wildlife Service (USFWS), and funding for this project is provided by the Alaska Department of Environmental Conservation (ADEC). Mr. Carnahan then clarified that the funding presently available for the project is designated for assessment and cleanup planning only and does not include funds required for site remediation activities. The property assessment and cleanup plan (PACP) prepared under this project will, however, be used to request additional funding to conduct cleanup activities under a subsequent project. Mr. Carnahan indicated that the preliminary extent of site contamination has been defined by previous investigations conducted by environmental contractors working for ADEC, and the next phase of the project, confirmation of contamination limits and development of a PACP, will be prepared to evaluate appropriate cleanup alternatives for the site. The community will have an opportunity to review the PACP and comment on the select remediation alternative for the site.

A project briefing was then given by Mr. Benson from SLR.

SLR Project Summary:

Mr. Benson explained the objectives of SLR to accomplish the project. Task 1 of this project is to conduct this stakeholder meeting in order to obtain information from the community, to plan the site visit, and to obtain name and contact information of people in the village. The second project task is to conduct a site visit where SLR will begin to outline options for cleanup, identify resources available to the community, assess the current site condition of previously documented contamination, verify site attributes identified in previous investigation reports, and fill in site data gaps needed for development of a PACP. The third project task will be preparation of the PACP. SLR will conduct the site visit in early September and will be investigating equipment and manpower available in the community, including personnel trained in handling of hazardous materials. SLR will investigate options for treatment or disposal of contaminated soil. One example given was to evaluate the option of using site soil as landfill cover.

Mr. Jess asked if the final product would include a cost estimate to perform the cleanup step. Mr. Benson said the PACP would include a rough estimate to complete the work based on either village equipment and manpower or a nearby contracting company if village equipment was not deemed adequate. Ms. Benson asked Mr. Jess what equipment was currently in Beaver and Mr. Jess said there was a front-end loader and a rubber-tire backhoe, and that the Alaska Department of Transportation & Public Facilities (ADOT&PF) also had equipment in the village. Ms. Benson asked if there were village residents who had the Hazardous Waste and Emergency Response (HAZWOPER) training necessary to work on contaminated sites projects. Mr. Jess said he didn't know about the training status of the residents in Beaver.

A discussion was then started regarding the State Historical Preservation Office (SHPO) designations of the buildings and associated equipment (i.e., tank farm and pipelines) and how that would affect how the work is conducted. Mr. Benson said the work controls imposed by SHPO would require the use of a hand auger to complete the delineation of soil contamination and any building material sampling would have to be non-destructive.

Mr. Carnahan asked if there were any other questions. There were no questions and Ms. Williams said she would re-schedule a meeting with the Tribal representatives in Beaver as soon as possible to complete the planning process and develop a local contact list.

Meeting Closing:

Mr. Carnahan concluded the meeting with requests for SLR to prepare the meeting notes and that a follow up meeting be arranged as soon as possible when the representatives from the Village of Beaver could be contacted.



Meeting Summary

Date: August 14, 2009, 9:00 AM to 10:00 AM

Re: Village of Beaver Old School Tank Farm and Burned Generator Building
Stakeholder Meeting

Attendees: Selena Petruska – First Chief, Beaver Village of Beaver
Paul Williams – Second Chief, Village of Beaver
Deborah Williams – Brownfield Project Manager, ADEC
Sonja Benson – Brownfield Program, ADEC
Carl Benson – Project Manager, SLR

Meeting Opening:

The planning meeting was opened with a brief introduction from each of the meeting attendees. Ms. Benson then spoke briefly about the EPA-funded Brownfield, reuse and development program and indicated this project was selected for funding because of the intent to reuse and develop the property.

A project briefing was then given by Mr. Benson from SLR.

SLR Project Summary:

Mr. Benson explained the objectives of SLR to accomplish the project. Task 1 of this project is to conduct this stakeholder meeting in order to obtain information from the community, to plan the site visit, and to obtain name and contact information of people in the village. The second project task is to conduct a site visit where SLR will begin to outline options for cleanup, identify resources available to the community, assess the current site condition, verify site attributes identified in previous investigation reports, and fill in site data gaps needed for development of a property assessment and cleanup plan (PACP). Mr. Benson named the field staff for the site visit as Mr. David Puchrik from the SLR Fairbanks office, and Mr. Aaron Nash from the SLR Anchorage office. Sampling of soils will be conducted to supplement work conducted in 2002 at the sites so a more accurate estimate of the volume of contaminated soil can be developed. SLR will conduct the site visit on September 8 through September 11, 2009 and will investigate options for treatment or disposal of contaminated soil. One example given for contaminated soil management was to evaluate the option of using site soil as periodic landfill cover. Examples of site information SLR will collect while on site were location and permitting requirements for

excavation backfill sources, local equipment capabilities, and the local labor pool with the Hazardous Waste and Emergency Response (HAZWOPER) training. Ms. Benson pointed out that construction activities would not be performed during the site visit, but the information would be used in the PACP to outline local capabilities to perform the work. The discussion was steered back to summarizing information on contaminated sites and its presentation in the PACP. Mr. Benson noted that the third project task will be preparation of the PACP incorporating the historical information, site visit information, and land reuse objectives of the village. SLR will identify whether data gaps are present, and determine if the site has been characterized sufficiently by the previous investigations. A volume estimate for contaminated soil at the site will be prepared.

Mr. Williams said the process sounded clear.

Scheduling for the site visit was then discussed. Mr. Benson said the site visit was scheduled for September 8 through 11. Ms. Petruska said she would be in Beaver at that time. Ms. Benson asked if others who could help with questions regarding the site would be in Beaver during the site visit. Mr. Williams and Ms. Petruska said they would help coordinate with anyone knowledgeable of the site history. Mr. Williams said that Ms. Petruska should be the lodging contact.

Mr. Benson asked about equipment capabilities in Beaver. Mr. Williams said most of the equipment was broken down, but there were a couple dump trucks, a front end loader (Case 250), and a small cat (Case 350), and a rubber-tire backhoe that were operable. Mr. Benson asked about HAZWOPER-trained labor in the village and Ms. Petruska said there were trained laborers and operators in Beaver. Mr. Benson said that Mr. Puchrik and Mr. Nash would conduct interviews to collect up-to-date information on equipment and labor capabilities.

Mr. Benson asked about material backfill source areas and Ms. Petruska said there was an upland area used by the village. Mr. Benson noted that the location of the backfill source would be important for future permitting or cost estimation of the work summarized in the PACP.

Ms. Benson asked with whom should lodging coordination be arranged. Ms. Petruska said she would be the primary point of contact and would reserve two beds at the Village Council building, and a 4-wheeler with a trailer for the four days the SLR field crew would be in Beaver.

Mr. Benson enquired as to the scope of the land owned by the U.S. Fish and Wildlife Service (USFWS) and the boundaries of the project area. This was noted because the fuel line to the washeteria was previously noted to be leaking. Contaminated soil boundaries for this potential source of contamination have not yet been defined. Mr. Benson said the USFWS would be contacted for any plat maps of the area and that the current scope of investigation was for the joint utilities tank farm and generator building, and the facilities at the old Bureau of Indian Affairs (BIA) school building and tank farm.

Ms. Benson asked if there were any other questions. Mr. Williams asked what part the USFWS would play in the process. Ms. Benson said Mr. Rob Jess with the USFWS would be the primary contact with the USFWS. Ms. Benson said both Mr. Jess and Ms. Wennona Brown of the USFWS had granted access to perform the field work necessary under the plan. They have said it may be possible to get funding for the building demolition and abatement, and to then negotiate a land

swap with the Village Council. The USFWS would then establish a new cabin for refuge staff outside the village, and the village would have more centrally located land for other purposes. Ms. Benson then asked if the village would like to remove the current old school building to build another structure at that location. Ms. Petruska said the Village Council just wants it gone because it is a hazard.

Ms. Williams then asked where the Cruikshank School obtained its fuel. Mr. Benson said fuel for the washeteria is supplied from three of the nine vertical tanks in the Old BIA school tank farm. Five of the nine tanks supply fuel to the new Cruikshank School. One of the tanks leaks and is not used. Mr. Williams said the fuel pipeline to the washeteria was buried approximately one to two feet and there is another buried pipe from the fuel barge header at the river bank that leads to the old BIA school tank farm. Mr. Williams said this fuel pipeline was used in the 1950s and 1960s. Ms. Benson asked if a new tank farm would have to be constructed prior to performing a cleanup. Mr. Benson said that the reuse plan would require removal of the tanks and pipelines before excavation and remediation of underlying soil could be performed. Therefore, an alternative fuel source would have to be constructed before execution of cleanup work summarized in the PACP.

Ms. Williams asked if the Village of Beaver was on the list of communities scheduled for a tank farm upgrade through the Denali Commission. Ms. Petruska said they had applied and were on a list, but it hadn't happened yet. Mr. Benson noted that the 2002 tank farm assessment performed by OASIS was likely associated with information gathering associated with the tank farm upgrade. Ms. Williams said this project should investigate whether a coordinated effort was possible. This would combine the equipment on site for the tank farm upgrade with the remediation project summarized in the PACP.

Ms. Petruska added in closing that the SLR field staff should bring much of their own food, and a kitchen is available in the Village Council building.

Meeting Closing:

Ms Williams concluded the meeting with requests for SLR to prepare the meeting notes and thanked the attendees for joining.

APPENDIX D

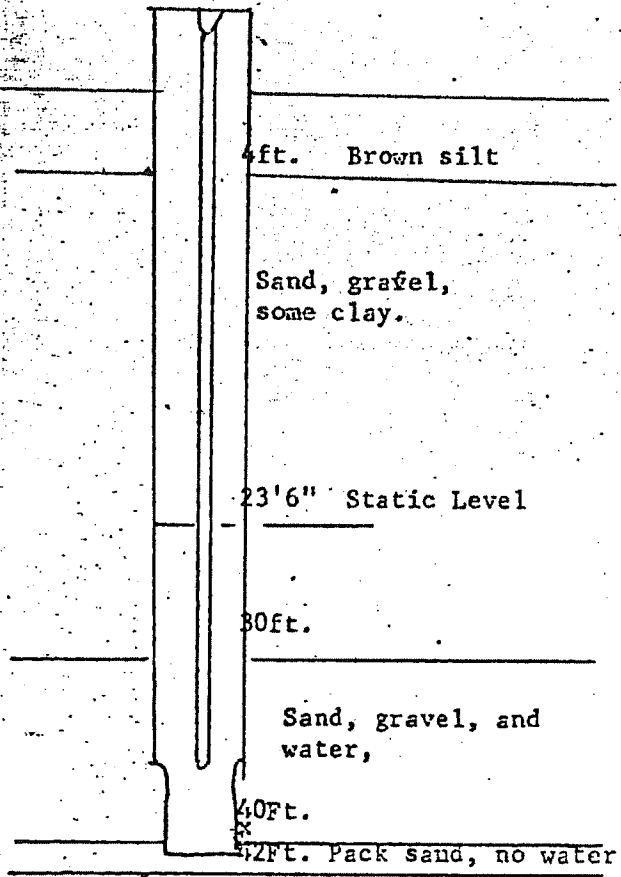
1968 WELL CONSTRUCTION LOG

2680

Brewer, Alaska
Water Well
E.I.A.-P.D.&C.
W.O.# 8128
Hole #2

8/19/68

WELL #2



This well is 41'9" total depth. Has 40' of 4" casing, one .020 slot 5'8" Johnson screen. Have 5'2" screen exposed. Static level 23'6", well will produce 15gpm of water, but should not be runned at more than 5 gpm. After setting this well will also pump some fine sand for a day or two. Have 86ft. of heat tape hanging on well cas.

Driller:
Galen Dirksen

For
Roy Longbotham

84' well
FA 18-2-30-ADDA 1-1
41.8' well
FA 18-2-30-ADDA 2-1

FA 18-2-30-ADDA 2-1

APPENDIX E-1

PHOTOGRAPHIC LOG – OLD BIA SCHOOL

OLD BIA SCHOOL SITE - PHOTOGRAPHIC LOG



Photograph 1:

The Old BIA School Site. The Old School is on the left in the photograph. The generator building and shop building are in the distance on the left. The tank farm is on the right in the photograph. The new school is in the background (September 2009).



Photograph 2:

The tank farm at the Old BIA School. Drums are stored all over the area north west of the tank farm (September 2009).



Photograph 3:
Drum conditions at the tank farm (September 2009).



Photograph 4:
Leaking coupling near utilidor east of tank farm (September 2009).



Photograph 5:

Hand auguring for field screening sample collection near entrance of shop building. Screening samples are heating up on left side of photograph (September 2009).



Photograph 6:

Vicinity of new school to shop building at Old BIA School Site (September 2009).



Photograph 7:
Unleaded gasoline drums stored at generator building (September 2009).



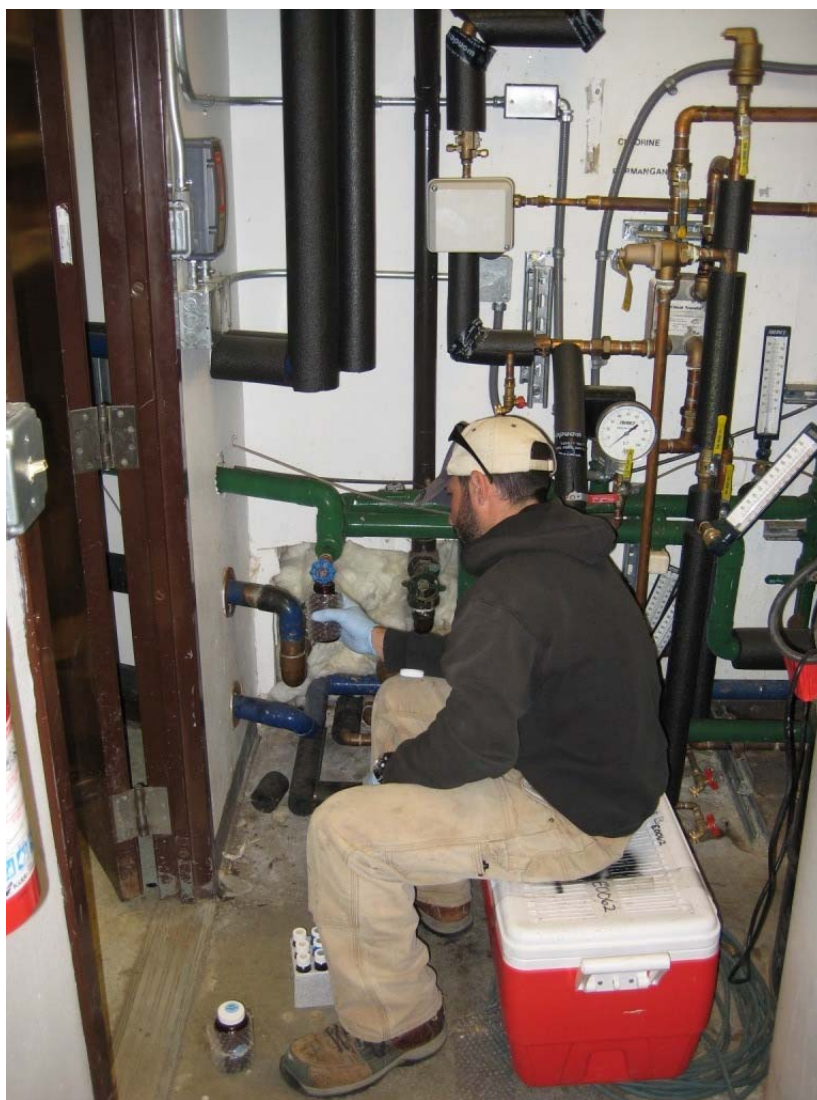
Photograph 8:
Inside generator building (September 2009).



Photograph 9:
Unleaded gasoline drums stored at generator building (September 2009).



Photograph 10:
Land between landfill and sewage lagoon. Site could be used for long-term storage of contaminated soils (September 2009)



Photograph 11:
Taking a water sample from the well at Port #1 of the Beaver Village drinking water system (September 2009)

APPENDIX E-2

PHOTOGRAPHIC LOG – BURNED GENERATOR BUILDING

BURNED GENERATOR BUILDING SITE - PHOTOGRAPHIC LOG



Photograph 1:
The Burned Generator Building Site (September 2009).



Photograph 2:
The Beaver Joint Utilities (BJU) Tank Farm. The Burned Generator Building Site is left of the fence and tanks, across the path. (September 2009).



Photograph 3:
Leaking pipe fittings at BJU Tank Farm (September 2009).



Photograph 4:
Fuel pump with garden hose used for fuel line (September 2009).



Photograph 5:
Drum storage area west of BJU Tank Farm. Soil sample E-12 was collected at the base of one of the drums (September 2009).



Photograph 6:
Another bucket/drum storage area west of BJU Tank Farm (September 2009).



Photograph 7:
Transformer storage west of BJU Tank Farm (September 2009).



Photograph 8:
Heating up field screening samples prior to taking readings with the photoionization detector. Hand-auguring is taking place in background. (September 2009).

APPENDIX F-1

FIELD NOTES – OLD BIA SCHOOL

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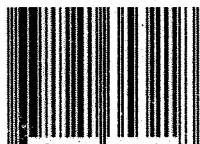
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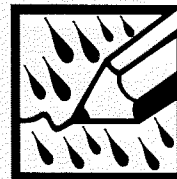
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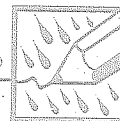
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Village of Beaver
Old School Tank
FARM
2009

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005.8065.0908

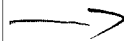
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[illegible]

1200 Drop off gear @ Warbelows
1330 Arrive @ Warbelows to fly
to Beaver. Extra cost for
gear. Only 23 lbs. per person
allowed. Gear is too heavy. It
flies out on a different plane.
1530 Arrive in Beaver, go to
Council Bldg. and unload gear.
Nelly says she will show us
around. Selina Petruska is not
in the village at this time.
We go talk to Paul Williams.
He says the Old School was
built in 1928, it got electricity
in 1986 and was the only
building that had electricity.
Events air flies in 2,200 gallons
at a time. No more barging
by Yutana. The fuel from
the airport is pumped into
the pipeline and blown through
with air. He says FAA leases
the airport land to DOT. It blocks
off the village from expansion -



2 DP/AN Sunny 65° 9/8/09

The airport is also a danger to the village due to its proximity. Paul Williams is retired as of July 31st

Paul says there are 6 heavy equipment operators in town — He calls somebody to come give us more information about heavy equipment capabilities

Land to the east of Beaver is Village Council land

Richard Williams says himself and his wife and Eddie Wehl have Harzopper training — Birdie Billie as well

Heavy equipment — Dump truck, loader — broken, 410 backhoe — needs work, One grader runs good — From DOT.

Operators go for 25 dollars an hour. There is no excavator, There are no known leaking lines or tanks currently in the village.

3 DP/AN Sunny 65° 9/8/09

Only 3 tanks in the tank farm are being used. They are being used by the new school —

1700 We head back to Council Building for 4 wheeler. They are closing for night — We get camera and head to Sites to take a look around.

Photos

- 161 - New school looking east
 - 162 - Shop Building looking south
 - 163 - New school looking north
 - 164 - Tank farm looking southeast
 - 165 - Shop / Old school looking southwest
 - 166 - Black drum content label
 - 167 - Green drum content label
 - 168 - Bulged drum with liquid contents inside (blue - gasoline)
 - 169 - Blue drum content label
 - 170 - Old School generator building
- The tank farm area smells like fuel. There is bulged drums everywhere. No containment
- 171 - Fuel line from tank farm to Old school generator building —

(DP/AN) Sunny 60° 9/8/09

- 172 - Old school and utilidor to tank farm looking southeast
- 173 - Old School Site looking north.
- 174 - Bulged drums @ tank farm looking east
- 175 - Leaky line (or previous leaking line) at tank farm. Looks like main line headed to old school generator building
- 176 Beaver Washeteria looking east
- 177 Beaver Power Plant looking east
- 178 Soil staining at washeteria
- 1800 We go into store and talk to Rebecca Fisher about school site. Council member. She says old generator building and the shop is still under lease agreement with Tulcan Flats Wildlife Refuge. She says her main concern is the old school building and the asbestos problem. The old school generator building is still being used as a back up generator for the new school.

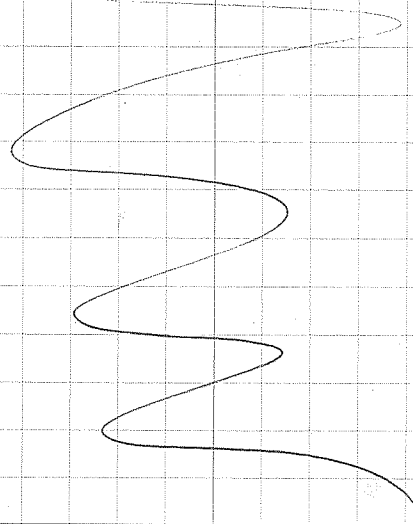
(DP/AN) Sunny 60° 9/8/09

She also thinks soil contamination and water gradient may be effecting water quality in the well. She does not want contaminated soil and the old school building hauled off to the dump areas. She would prefer to barge it out of Beaver.

1930 Go 100k @ generator site

End of Day

Paul R.



David Puchrik/Aaron Nash 9/9/09

0730 Go over work plan and activities for day. Stand by for 4 wheeler rental or truck — Tailgate meeting —

0800 Go measure out Old School building to place it on current map. —

0840 Start augering to assess leaking line at washeteria. Auger —

A-1 1.0' 77.1 ppm (PID)
2.5' 871 ppm

Refusal @ 3.2' —

Move to A-2

2' 44.2 ppm (PID)
4' 1136 ppm

0915 Get 4 wheeler and trailer —

0920 Refusal @ A-2 @ 4.2 feet
Move to A-3 —

During the conversation about the grad and trailer, Wilma said she had heard that they had buried drums in the past in the tank farm area —

50° wind 3-5 mph →

(DP/AN)

9.3 ppm
DP

9/9/09

A-3 1' 77.1 ppm
102 ppm ← 2.5' 871 ppm
4.5' 705 ppm

} PID

Refusal @ 4.7' —

So far all soil has been brown fine to medium sand from 0-4 feet. At 4.5 feet gravels are encountered. —

A-4 1.5' 7.8 ppm (PID)
3' 768 ppm

Refusal @ 4.0 feet —

Move to A-5

PID { 1.5' 17.8 ppm organic material
3' 270 ppm brown FM sand
4' 1009 ppm
4.2' Refusal

1030 Flat tire on trailer. Get new one. Soil bags are still cold move to area east of tank farm before taking PID readings. —

1045 Start on B-1

2' 6.9 ppm

3.5' 3.9 ppm

5' 2.8 ppm

(PID)

50°

wind

2-3 mph

8 (DP/AN) 50° Wind 2-3 mph 9/9/09

B-1 Refusal @ 5', brown
silt w/ organics near surface
silt from 2-4 feet. Sand
fine to medium brown w/ gravels
to 5 feet.

move to B-2

1.5' 94.4 ppm (PID)
3' 14.1 ppm
4' 3.6 ppm
4.2' Refusal

Brown silt to 3.8'. Brown F-M sand
to refusal

1120 Start on B-3

While augering we discover
fitting near B-2 and
utilidor is leaking or has
leaked. There is obvious
stained soil and leaves that
smell like fuel directly beneath
fitting. Photo 191

B-3

2' 2.2 ppm (PID)
3.5' 1.8 ppm
4.5' 1.6 ppm
Refusal @ 4.8'

9 (DP/AN) Sunny 55° Wind 1-3 mph 9/9/09

We auger another boring
north of fuel line to school
to delineate soil contamination as
a result of the leak/stained
soil observed

B-4

1.5' 48.2 ppm (PID)
3.0' 4.4 ppm

Refusal @ 4.2 feet

1150 Head back to Council Bldg

Lunch / update Mike Riesen

1230 Collect PID Readings

1300 Done w/ PID's - Head to
area between Generator Building
and school shop.

1315 Start on C-1

1' 694 ppm (PID)
2.5' 825 ppm
4' 971 ppm
Refusal @ 4.5'

1325 Start on C-2

1.5' 8.7 ppm (PID)
3.0' 7.3 ppm
4.0' 286 ppm

Refusal @ 4.2'

DP/AN

Sunny 55°

wind 2-3 mph

9/9/09

1335 Start on C-3

1.5' 6.4 ppm

3.0' 4.5 ppm

4.0' 3.5 ppm

4.25 Refusal

~~1343 Start AN~~

0-3' soil is brown silt. 3-4.25'

soil is brown F-M sand with silt

1344 Move to C-4

1' 2.6 ppm

2.5' 442 ppm (PID)

4.5' 633 ppm

5.0' Refusal

1400 Go back to call M. Rieser
for another update1430 Back @ site measure / swing tie
sample locations1445 Go inside School Shop. Area is
clean and well kept. Floor has
oil on it but nothing major.
Take photos

Generator building is locked

We will ask someone to open it
later

DP/AN

Sunny 55°

wind 2-3 mph

9/9/09

Continue with augering

C-5

1.5' 4.4 ppm

3.5' 3.3 ppm

5.0' 2.6 ppm

Refusal @ 5.1

Soil is brown silt to 4.0' then
brown F-M sand with silt to refusal

C-6 Begin augering

1.0' 2.3 ppm

2.5' 2.1 ppm

4.0' 2.2 ppm

4.2' Refusal

1520 Start on C-7

1.0' 2.1 ppm

2.5' 247 ppm

4.0' 228 ppm

Refusal @ 4.5'

~~1530 Start on DP~~ Hole had odor
4 feet of silt sand and gravel
from 4.0 to 4.5 feet. Gravel is
subrounded 1"

1530 Start on C-8

12 Aaron Nash / David Rickard
Sunny 55° Wind 2-3 mph 9/9/09
C-8

1.0' 189 ppm
2.5' 231 ppm (PID)
4' 94.9 ppm

Refusal @ 4.0 feet, silt
from 0-4, sand w 1" gravels
@ 4.0 feet →

C-9
1.5' 8.0 ppm
3.0' 5.6 ppm (PID)
4.0' 6.3 ppm

Refusal @ 4.0 feet
Same lithology as C-8

C-10
1.0' 24.8 ppm
2.5' 199 ppm
4.0' 87.4 ppm (PID)
5.0' 23.0 ppm

0-4' silt - 4-5' coarse sand
w/ gravels (1")

C-11
1.5' 5.3 ppm
3.5' 3.5 ppm (PID)
4.5' 3.0 ppm

Refusal @ 4.7 feet

13 Sunny 55° Wind 2-3 mph 9/9/09

C12
1.5' 2.6 ppm
3.0' 2.5 ppm (PID)
5.0' 2.4 ppm

Refusal @ 5.2 →

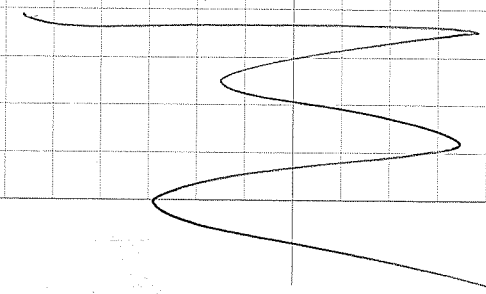
C13
1.5' 1.9 ppm
3.0' 3.4 ppm (PID)
4.5' 2.0 ppm
Refusal @ 4.75

1650 Finish @ school shop
area based on olfactory
odors. Swing tie new
auger locations

1705 Begin PID readings
1750 Finish PID readings.

Head to Generator Site

End of Day
L.R.



9/10/09 DP/AN 55° Sunny

1358 After speaking w/ Mike R.
return to 'A' site near leaking
fuel line to Washeteria. Move
10' West of A-3 and begin
augering A-6

1400 Begin augering A-6

1.5' 1.2 ppm
3.0' 1.1 ppm (PID)
3.5' 1.2 ppm

Refusal @ 3.6'

1415 Begin augering A-7

1.5' 1.0 ppm
3.0' 1.2 ppm (PID)
Refusal @ 3.25'

1420 Begin augering A-8

1.0' 15.5 ppm
3.0' 8.2 ppm (PID)
4.0' 1390 ppm
Refusal @ 4.2'

1430 Begin augering A-9

1.5' 8.8 ppm
3.0' 11.1 ppm
4.0' 1.257

Refusal @ 4.25'

1435 Take Swingties

(DP/AN) Sunny 60° 9/10/09

1500 Call M. Rieser to update —

Aaron and I go over —

Sampling program —

1545 Head back to generator site —

1735 Back @ site to collect
soil confirmation samples —

1745 collect A-2 @ 3.5'
met refusal @ 3.6' ★

Sample for GRO/BTEX/DRO/RRO

1800 Collect A-8 @ 4.0' ★

GRO/BTEX/DRO/RRO —

Move to area east of
tank farm to collect samples

1810 Finish additional screening
boring B-5 —

1820 Collect sample @ B-2 ★

GRO/BTEX/DRO/RRO ~15'

B-5

1' 1.8 ppm
3' 3.0 ppm
5' 1.2 ppm

(PID)

1825 Head to C-1 to collect
soil sample —

1835 Sample C-1 @ 4 ft — ★

Collect PAH/Lead/VOC/GRO/DRO/RRO

(DP/AN)

9/10/09

Collect duplicate C-1, [C-15
1850]

1840 collect C-3, collect 4'

GRO/BTEX/DRO/RRO 4.5'

1845 collect C-4, collect 4'

GRO/VOC/DRO/RRO/PAH/LEAD

1852 collect C-7 @ 2.5' 4'

GRO/VOC/DRO/RRO

1859 collect C-10 @ 2.5' 4'

collect GRO/VOC/DRO/RRO

1905 collect C-13 @ 4.5' 4'

collect GRO/BTEX/DRO/RRO

1910 collect C-11 @ 1.5' 4'

collect GRO/BTEX/DRO/RRO

1920 Finish collection of samples

1930 Dinner

2115 Put labels on soil sample
containers

2200 Start Petroflag tests -

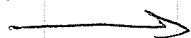
A-9 = over

A-3 = 2124 ppm

B-1 = 141 ppm

B-4 = 920 ppm

B-5 = 55 ppm



9/10/09

DP/AN

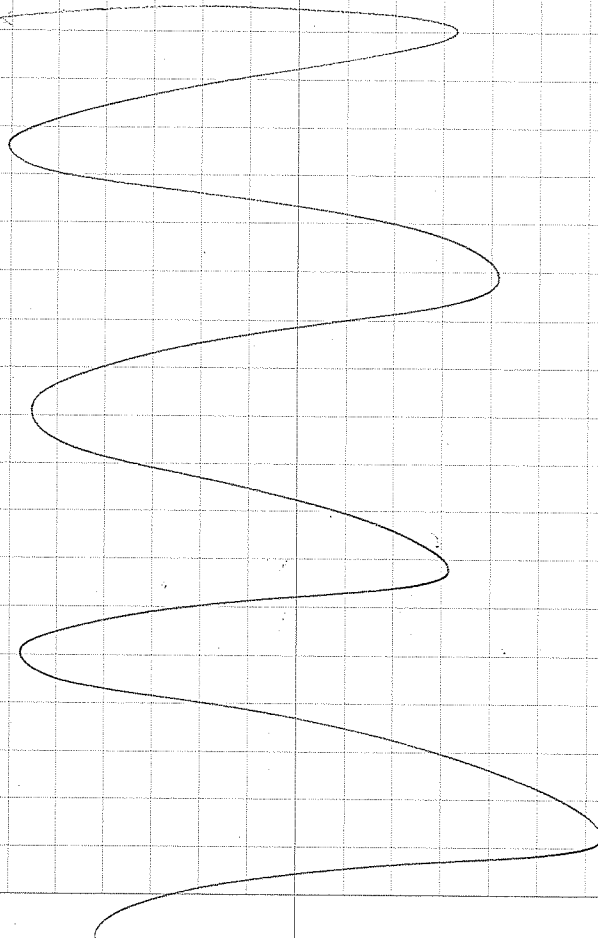
C-1 = OVER

C-9 = 130 ppm

2315 Clean up

2330 End of Day

Paul R. R.



(OP/AN)

9/11/09

0800 Pack up gear, get ready
to investigate the dump area.

0830 Flat tire, one of the
village ~~person~~ person (Charlie Yotla)
said he may be able to fix
it.

0845 He can't fix tire.
We go Video tape Old School
Tank farm site.

0930 We ask to borrow truck.
It has no fuel, we fuel
it up with Cliff Adams.

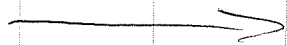
0945 Head to dump.

1000 Look around dump and take
video and photos. There is
a very large area that would
be suitable for land farming of
contaminated soil.

1030 Buckle @ generator bldg site.
Video site.

1100 Meet w/ Alvin ^{winner} to go over
water system and collect
water samples.

He says that houses are fuelled



OP/AN

9/11/09

by transportation of a fuel
tank via loader. The loader
will fuel from the BTU
tank farm.

1115 Collect village drinking
water sample.

WS-1

collect VOC 524.2

SVOC 625m

GRD AK101

DRO AK102

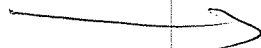
RRO AK103

1200 Head back to Council
Building / pack up gear -
Pay for atv rental.

1230 Lunch

~~1230~~ Water sample was collected
in washeteria from first port.
(labeled 1) water had an odor,
not necessarily fuel.

1300 Enter the Old School Site
shop building again to video
tape the inside. No major environmental
concerns are recognized. There are



DP/AN

9/18/09

tools, a table saw, a snow machine, a lawn mower etc. There is paint thinner and paint, some compressed gases and fuel containers. There is nothing leaking. There is heavy oil present on the base of the shop, but other than that, the shop appears to be very well kept.

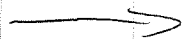
- we start backfilling holes and removing flags from asper points.

1320 Go to New school to get key from Charlotte (Principle)

She gives us key and says that many village members are not happy with U.S.

Fish and wildlife. They are not wanting them to occupy the old school property.

1330 Enter generator building. Video: There is an odor of heavy motor oil. The area is fairly clean.



(DP/AN)

9/18/09

There is motor oil, antifreeze and a few other common chemicals being stored in the building. There appears to be minor leaks associated w/ the generators. There may be a leak in the fuel filter but it is contained. The fuel tank does not appear to be leaking.

1345 Head back to council building and get ready to fly back to Fairbanks.

1500 Leave for airport.

APPENDIX F-2

FIELD NOTES – BURNED GENERATOR BUILDING

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Village of Beaver

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David Puchrik/Aaron Nash 9/9/09

1800 Start Investigation @
generator site

1802 Begin augering at D-1

1.0' 1.3 ppm

2.5' 1.2 ppm

5.0' 1.1 ppm

6.0' 1.1 ppm

6.5' saturated soil

1820 Start augering @ D-2

1.5' 1.1 ppm

3.5' 1.1 ppm

5.0' 1.1 ppm

0-1.5' sand w/ gravel. 1.5'-5'

Brown FM sand w/ silt.

1834 Begin augering D-3

1.5' 1.4 ppm

3.0' 1.2 ppm

5.0' 1.0 ppm

Brown silt 2-5 - Upper layer fill

1850 Begin auger of D-4

1.0' 1.0 ppm

3.5' 1.0 ppm

5.0' 1.0 ppm

0-1' Fill gravel 2-5 brown silt

(DP/AN)

9/2/09

1900 Measure out and flag auger
points

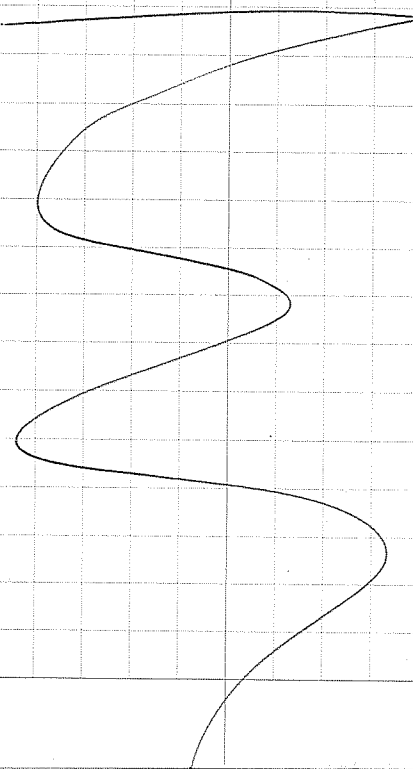
1915 Head back to Council Building

1930 Dinner

2030 Take PID readings on
soil samples collected
earlier

2045 Clean up / End of Day

David Puchrik



David Rubrik / Aaron Nash 9/10/09
 0730 Safety meeting / Set up
 for hand augering @ generator
 building site.

0748 Begin augering E-1

1.0' 0.2 ppm

2.5' 0.2 ppm

4.0' 0.0 ppm

5.0' 0.4 ppm

(PID)

Soil smells clean. Brown / Gray silt
 0-5'

0800 Begin augering E-2

1.0' 173 ppm

3.0' 559 ppm

5.0' 350 ppm

7.0' 644 ppm

(PID)

Saturated sand @ 8.0'

Silt 0-7.5'

0822 Begin augering E-3

1.5' 484 ppm

3.0' 1136 ppm

5.0' 1029 ppm

7.0' 1037 ppm

8.0' 1160 ppm

8.2' Refusal

(PID)

Brown silt 0-7'. Then F-M sand 7'-8.2'

David / Rubrik / Aaron Nash
 Sunny ~45°

9/10/09 5

0900 Begin augering E-4

1' 1019 ppm

3' 1301 ppm

5' 1260 ppm

7' 1483 ppm

Refusal

8' 1346 ppm

8.25' Refusal 0-1.5 Debris

1.5-7.0 Silt - 7-8-sand

0930 Attempt to call Mike R. Call

Warbelew's to make sure we can
 get gear on plane out tomorrow. They
 say flight only half full so we should
 be ok

1010 Begin augering at E-5

1' 958 (ppm)

3' 764 (ppm)

5' 349 (ppm)

Due to obvious contamination of site and
 time constraints augering only to 5'
 in an attempt to complete delineation
 of site

1025 Begin augering E-6

(DP/AN)

9/10/09

E-6

1.5' 742 ppm

3.0' 574 ppm

5.0' 561 ppm

1045 Begin augering E-7

2' 11.0 ppm

3.5' 9.2 ppm

5.0' 4.0 ppm

0-2 Feet debris/gravel 3-5' silt

1105 Begin augering E-8

Obvious contamination @ 1.0'

move north

1110 Begin augering E-9

obvious contamination (staining/
odor) at 1.0' move north

1115 Begin augering E-10

1.5' 14.0 ppm

3.0' 128.0 ppm

5.0' 66.0 ppm

Soil: 0-1' gravel (1-2") 1'-5' brown
silt

E-8

1' 250 ppm

E-9

1' 111 ppm

(PID)

David/Mary
Puchrik/Nashsunny
wind 3-5 mph

9/10/09

1125 Begin augering E-11

1.5' 3.5 ppm

3.0' 3.0 ppm

5.0' 2.4 ppm

Silt 0-5 feet

1145 Head back to Council Bldg
to update Rieser

1200 He is not available

Lunch

1215 Back @ site to (PID)

Samples

1220 Calibrate PID

Fresh air - zero Isobutylene - 100 ppm

1310 Swingtie auger points

1320 Go back to update Mike

Rieser

1545 Head back to site to
collect soil samples

1605 Collect E-12

1' 48.9 ppm

3' 13.1 ppm

5' 10.9 ppm

(PID)

* collect sample [E-12 1605] @ 1'

GRO/BTEX/DRO/RRO/LEAD

DP/AN

Sunny 60°

9/10/09

- 1620 Collect E-4 @ 7' ★
 1630 Collect Duplicate E-4 (E-14) ★
 1645 Collect E-3 @ 8' ★
 1700 Collect E-11 @ 5' ★
 1710 Collect D-2 @ 5' ★
 1725 Collect E-1 @ 5' ★

- The sample from E-4 and duplicate sample were collected for GRO/BTEX/DRO/RRO & PAH
- E-3, E-11, D-2, E-1 were collected for BTEX/DRO/RRO

1730 Finish up with sample collection / clean up head to Old School Site

- End of Day

Paul Ruel

Petroflag results 9/10/09

E-4 = OVER

E-7 = 54

E-10 = 240

APPENDIX G-1

OLD BIA SCHOOL LABORATORY ANALYTICAL RESULTS, QAR & DEC CHECKLIST



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

Project:	Village Of Beaver Old School
Client:	SLR Alaska-Fairbanks
SGS Work Order:	1094997

Released by:

Contents:

Cover Page
Case Narrative
Final Report Pages
Quality Control Summary Forms
Chain of Custody/Sample Receipt Forms

Note:

Unless otherwise noted, all quality assurance/quality control criteria is in compliance with the standards set forth by the proper regulatory authority, the SGS Quality Assurance Program Plan, and the National Environmental Accreditation Conference.

Case Narrative

Customer: SLRFBKS

SLR Alaska-Fairbanks

Project: 1094997

Village Of Beaver Old School

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

1094997001 PS A - 2

AK103 - Unknown hydrocarbon with several peaks is present.

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

8021B/AK101 - Sample cannot be analyzed at a lower dilution due to hydrocarbon interference.

8021B/AK101 - BFB (surrogate) recovery does not meet QC criteria (biased high) due to hydrocarbon interference.

8021B - 1,4-difluorobenzene (surrogate) recovery does not meet QC criteria (biased low) due to sample dilution.

1094997002 PS A - 8

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

AK103 - Sample was diluted due to dark color of extract; therefore the PQL was elevated.

AK101 - BFB (surrogate) recovery does not meet QC criteria (biased high) due to hydrocarbon interference.

AK101 - BFB (surrogate) recovery does not meet QC criteria (biased high) due to hydrocarbon interference.

1094997003 PS B - 2

AK103 - Unknown hydrocarbon with several peaks is present.

1094997004 PS C - 1

AK103 - Unknown hydrocarbon with several peaks is present.

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

AK101 - BFB (surrogate) recovery does not meet QC criteria (biased high) due to hydrocarbon interference.

8270D SIM - Elevated PQLs due to matrix interference with internal standards.

8270D SIM - Surrogate recovery is outside of QC criteria due to sample dilution.

1094997005 PS C - 3

AK103 - Unknown hydrocarbon with several peaks is present.

1094997006 PS C - 4

AK103 - Unknown hydrocarbon with several peaks is present.

AK102 - The pattern is consistent with a weathered gasoline.

8260B - Elevated PQL for several analytes due to matrix.

AK101 - BFB (surrogate) recovery does not meet QC criteria (biased high) due to hydrocarbon interference.

1094997007 PS C - 15

8260B - Toluene-d8 (surrogate) and BFB (surrogate) recovery does not meet QC criteria (biased high). The analytes associated with these surrogates were not detected above the PQL.

8260B - Elevated PQL for P&M-xylene, 1,2,4-trimethylbenzene and 4-isopropyltoluene due to matrix.

AK103 - Unknown hydrocarbon with several peaks is present.

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

AK101 - BFB (surrogate) recovery does not meet QC criteria (biased high) due to hydrocarbon interference.

1094997008 PS C - 7

AK103 - Unknown hydrocarbon with several peaks is present.

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

AK101 - BFB (surrogate) recovery does not meet QC criteria (biased high) due to hydrocarbon interference.

1094997009 PS C - 10

AK103 - Unknown hydrocarbon with several peaks is present.

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

1094997010 PS C - 13

AK103 - Unknown hydrocarbon with several peaks is present.

Case Narrative

Customer: SLRFBKS

SLR Alaska-Fairbanks

Project: 1094997

Village Of Beaver Old School

1094997011 PS

C - 11

AK103 - Unknown hydrocarbon with several peaks is present.

924643 LCS

VXX/19963]

8260B - LCS recovery for 1,1-dichloroethene and carbon disulfide does not meet QC criteria (biased high). These analytes were not detected above the PQL in the associated samples.

924744 CCV

VMS/10834]

8260B - CCV recovery for 1,1-dichloroethene and carbon disulfide does not meet QC criteria (biased high). These analytes were not detected above the PQL in the associated samples.

8260B - ICV recovery for several analytes does not meet QC criteria (biased high). These analytes were not detected above the PQL in the associated samples.



Report of Manual Integrations

Print Date: 10/12/2009 3:49 pm

<u>Laboratory ID</u>	<u>Client Sample ID</u>	<u>Analytical Batch</u>	<u>Method</u>	<u>Analyte</u>	<u>Reason</u>
1094997006	C - 4	XMS5111	8270D SIMS	Naphthalene	BLC
925721	1095905001A(925719MSD)	VMS10846	SW8260B	4-Chlorotoluene	PNF

Manual Integration Reason Code Descriptions

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

All DRO/RRO analysis are integrated per SOP.



Laboratory Analytical Report

Client: **SLR Alaska-Fairbanks**
3455 Rewak Dr, Suite 103
Fairbanks, AK 99709

Attn: **David Puchrik**
T: (907)455-9005 F:(907)455-9015

Project: **Village Of Beaver Old School**
Workorder No.: **1094997**

Certification:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, other than the conditions noted on the sample data sheet(s) and/or the case narrative. This certification applies only to the tested parameters and the specific sample(s) received at the laboratory.

If you have any questions regarding this report, or if we can be of further assistance, please contact your SGS Project Manager.

Carmon Beene

Project Manager



Enclosed are the analytical results associated with this workorder.

As required by the state of Alaska and the USEPA, a formal Quality Assurance/Quality Control Program is maintained by SGS. A copy of our Quality Assurance Plan (QAP), which outlines this program is available at your request.

The Laboratory certification numbers are AK971-05 (DW), UTS-005 (CS) and AK00971 (Micro) for ADEC and AK100001 for NELAP (RCRA methods: 1020A, 1311, 6010B, 7470A, 7471A, 9040B, 9045C, 9056, 9060, 8015B, 8021B, 8081A/8082, 8260B, 8270C).

Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP, the National Environmental Laboratory Accreditation Program and, when applicable, other regulatory authorities.

If you have any questions regarding this report or if we can be of any assistance, please contact your SGS Project Manager at 907-562-2343. All work is being provided under SGS general terms and conditions (http://www.sgs.com/terms_and_conditions.htm)

The following descriptors may be found on your report which will serve to further qualify the data.

MDL	Method Detection Limit
PQL	Practical Quantitation Limit (reporting limit).
CL	Control Limit
U	Indicates the analyte was analyzed for but not detected.
F	Indicates value that is greater than or equal to the MDL.
J	The quantitation is an estimation.
ND	Indicates the analyte is not detected
B	Indicates the analyte is found in a blank associated with the sample.
*	The analyte has exceeded allowable regulatory or control limits.
D	The analyte concentration is the result of dilution.
GT	Greater Than
LT	Less Than
Q	QC parameter out of acceptance range.
M	A matrix effect was present.
E	The analyte result is above the calibrated range.
R	Rejected
DF	Analytical Dilution Factor
JL	The analyte was positively identified, but the quantitation is a low estimation.
<Surr>	Surrogate QC spiked standard
<Surr/IS>	Surrogate / Internal Standard QC spiked standard
QC	Quality Control
QA	Quality Assurance
MB	Method Blank
LCS (D)	Laboratory Control Sample (Duplicate)
MS(D)	Matrix Spike (Duplicate)
BMS(D)	Site Specific Matrix Spike (Duplicate)
RPD	Relative Percent Difference
ICV	Initial Calibration Verification
CCV	Continuous Calibration Verification
MSA	Method of Standard Addition

Notes: Soil samples are reported on a dry weight basis unless otherwise specified

All DRO/RRO analyses are integrated per SOP.



SAMPLE SUMMARY

Print Date: 10/12/2009 3:49 pm

Client Name: SLR Alaska-Fairbanks
Project Name: Village Of Beaver Old School
Workorder No.: 1094997

Analytical Methods

<u>Method Description</u>	<u>Analytical Method</u>
8270 PAH SIM Semi-Volatiles GC/MS	8270D SIMS
AK101/8021 Combo. (S)	AK101
AK101/8021 Combo. (S)	SW8021B
Diesel/Residual Range Organics	AK102
Diesel/Residual Range Organics	AK103
Gasoline Range Organics (S)	AK101
Metals by ICP-MS (S)	SW6020
Percent Solids SM2540G	SM20 2540G
VOC 8260 (S) Field Extracted	SW8260B

Sample ID Cross Reference

<u>Lab Sample ID</u>	<u>Client Sample ID</u>
1094997001	A - 2
1094997002	A - 8
1094997003	B - 2
1094997004	C - 1
1094997005	C - 3
1094997006	C - 4
1094997007	C - 15
1094997008	C - 7
1094997009	C - 10
1094997010	C - 13
1094997011	C - 11
1094997012	Trip Blank

**SLR Alaska-Fairbanks**

Print Date: 10/12/2009 3:49 pm

Client Sample ID: **A - 2**

SGS Ref. #: 1094997001

Project ID: Village Of Beaver Old School

Matrix: Soil/Solid (dry weight)

Percent Solids: 82.2

Collection Date/Time: 09/10/09 17:45

Receipt Date/Time: 09/15/09 09:00

Volatile Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Gasoline Range Organics	1300	58.7	17.6	mg/Kg	10	VFC9660		
Benzene	ND	294	94.0	ug/Kg	10	VFC9660		
Toluene	3180	1170	352	ug/Kg	10	VFC9660		
Ethylbenzene	10800	1170	352	ug/Kg	10	VFC9660		
o-Xylene	13000	1170	352	ug/Kg	10	VFC9660		
P & M -Xylene	10300	1170	352	ug/Kg	10	VFC9660		
4-Bromofluorobenzene <sur>	15700	* 50-150		%	10	VFC9660		
1,4-Difluorobenzene <sur>	79.5	* 80-120		%	10	VFC9660		

Batch Information

Analytical Batch: VFC9660

Analytical Method: AK101

Analysis Date/Time: 09/24/09 01:11

Dilution Factor: 10

Initial Prep Wt./Vol.: 31.738 g

Container ID:1094997001-A

Analyst: KPW

Analytical Batch: VFC9660

Analytical Method: SW8021B

Analysis Date/Time: 09/24/09 01:11

Dilution Factor: 10

Initial Prep Wt./Vol.: 31.738 g

Container ID:1094997001-A

Analyst: KPW



SLR Alaska-Fairbanks

Print Date: 10/12/2009 3:49 pm

Client Sample ID: **A - 2**

SGS Ref. #: 1094997001

Project ID: Village Of Beaver Old School

Matrix: Soil/Solid (dry weight)

Percent Solids: 82.2

Collection Date/Time: 09/10/09 17:45

Receipt Date/Time: 09/15/09 09:00

Semivolatile Organic Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Diesel Range Organics	15100	1200	371	mg/Kg	50	XFC8874	XXX21649	
Residual Range Organics	46.9	23.9	7.42	mg/Kg	1	XFC8868	XXX21649	
5a Androstane <surr>	74.2	50-150		%	50	XFC8874	XXX21649	
n-Triacontane-d62 <surr>	90.5	50-150		%	1	XFC8868	XXX21649	

Batch Information

Analytical Batch: XFC8868

Analytical Method: AK103

Analysis Date/Time: 09/21/09 19:42

Dilution Factor: 1

Prep Batch: XXX21649

Prep Method: SW3550C

Prep Date/Time: 09/17/09 17:00

Initial Prep Wt./Vol.: 30.477 g

Prep Extract Vol.: 1 mL

Container ID:1094997001-B

Analyst: HM

Analytical Batch: XFC8874

Analytical Method: AK102

Analysis Date/Time: 09/22/09 16:21

Dilution Factor: 50

Prep Batch: XXX21649

Prep Method: SW3550C

Prep Date/Time: 09/17/09 17:00

Initial Prep Wt./Vol.: 30.477 g

Prep Extract Vol.: 1 mL

Container ID:1094997001-B

Analyst: HM

**SLR Alaska-Fairbanks**

Print Date: 10/12/2009 3:49 pm

Client Sample ID: **A - 2**

SGS Ref. #: 1094997001

Project ID: Village Of Beaver Old School

Matrix: Soil/Solid (dry weight)

Percent Solids: 82.2

Collection Date/Time: 09/10/09 17:45

Receipt Date/Time: 09/15/09 09:00

Solids

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Total Solids	82.2			%	1	SPT8008		

Batch Information

Analytical Batch: SPT8008

Analytical Method: SM20 2540G

Analysis Date/Time: 09/15/09 16:37

Dilution Factor: 1

Initial Prep Wt./Vol.: 1 mL

Container ID:1094997001-B

Analyst: HJ

**SLR Alaska-Fairbanks**

Print Date: 10/12/2009 3:49 pm

Client Sample ID: **A - 8**

SGS Ref. #: 1094997002

Project ID: Village Of Beaver Old School

Matrix: Soil/Solid (dry weight)

Percent Solids: 85.5

Collection Date/Time: 09/10/09 18:00

Receipt Date/Time: 09/15/09 09:00

Volatile Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Gasoline Range Organics	4620	556	167	mg/Kg	100	VFC9665		
Benzene	491	278	88.9	ug/Kg	10	VFC9660		
Toluene	31700	1110	334	ug/Kg	10	VFC9660		
Ethylbenzene	53900	1110	334	ug/Kg	10	VFC9660		
o-Xylene	166000	11100	3340	ug/Kg	100	VFC9665		
P & M -Xylene	219000	1110	334	ug/Kg	10	VFC9660		
4-Bromofluorobenzene <sur>	16400	* 50-150		%	100	VFC9665		
1,4-Difluorobenzene <sur>	84.4	80-120		%	10	VFC9660		

Batch Information

Analytical Batch: VFC9660

Analytical Method: SW8021B

Analysis Date/Time: 09/24/09 01:30

Dilution Factor: 10

Initial Prep Wt./Vol.: 31.058 g

Container ID:1094997002-A

Analyst: KPW

Analytical Batch: VFC9665

Analytical Method: AK101

Analysis Date/Time: 09/25/09 22:03

Dilution Factor: 100

Initial Prep Wt./Vol.: 31.058 g

Container ID:1094997002-A

Analyst: KPW

Analytical Batch: VFC9665

Analytical Method: SW8021B

Analysis Date/Time: 09/25/09 22:03

Dilution Factor: 100

Initial Prep Wt./Vol.: 31.058 g

Container ID:1094997002-A

Analyst: KPW



SLR Alaska-Fairbanks

Print Date: 10/12/2009 3:49 pm

Client Sample ID: **A - 8**

SGS Ref. #: 1094997002

Project ID: Village Of Beaver Old School

Matrix: Soil/Solid (dry weight)

Percent Solids: 85.5

Collection Date/Time: 09/10/09 18:00

Receipt Date/Time: 09/15/09 09:00

Semivolatile Organic Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Diesel Range Organics	31100	1160	360	mg/Kg	50	XFC8865	XXX21635	
Residual Range Organics	ND	1160	360	mg/Kg	50	XFC8865	XXX21635	
n-Triacontane-d62 <sur>	56.4	50-150		%	50	XFC8865	XXX21635	
5a Androstane <sur>	80.6	50-150		%	50	XFC8865	XXX21635	

Batch Information

Analytical Batch: XFC8865

Analytical Method: AK102

Analysis Date/Time: 09/20/09 05:42

Dilution Factor: 50

Prep Batch: XXX21635

Prep Method: SW3550C

Prep Date/Time: 09/15/09 16:40

Initial Prep Wt./Vol.: 30.2169 g

Prep Extract Vol.: 1 mL

Container ID:1094997002-B

Analyst: HM

Analytical Batch: XFC8865

Analytical Method: AK103

Analysis Date/Time: 09/20/09 05:42

Dilution Factor: 50

Prep Batch: XXX21635

Prep Method: SW3550C

Prep Date/Time: 09/15/09 16:40

Initial Prep Wt./Vol.: 30.2169 g

Prep Extract Vol.: 1 mL

Container ID:1094997002-B

Analyst: HM

**SLR Alaska-Fairbanks**

Print Date: 10/12/2009 3:49 pm

Client Sample ID: **A - 8**

SGS Ref. #: 1094997002

Project ID: Village Of Beaver Old School

Matrix: Soil/Solid (dry weight)

Percent Solids: 85.5

Collection Date/Time: 09/10/09 18:00

Receipt Date/Time: 09/15/09 09:00

Solids

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Total Solids	85.5			%	1	SPT8008		

Batch Information

Analytical Batch: SPT8008

Analytical Method: SM20 2540G

Analysis Date/Time: 09/15/09 16:37

Dilution Factor: 1

Initial Prep Wt./Vol.: 1 mL

Container ID:1094997002-B

Analyst: HJ

**SLR Alaska-Fairbanks**

Print Date: 10/12/2009 3:49 pm

Client Sample ID: **B - 2**

SGS Ref. #: 1094997003

Project ID: Village Of Beaver Old School

Matrix: Soil/Solid (dry weight)

Percent Solids: 95.0

Collection Date/Time: 09/10/09 18:20

Receipt Date/Time: 09/15/09 09:00

Volatile Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Gasoline Range Organics	5.50J	6.08	1.82	mg/Kg	1	VFC9659		
Benzene	ND	30.4	9.73	ug/Kg	1	VFC9659		
Toluene	ND	122	36.5	ug/Kg	1	VFC9659		
Ethylbenzene	ND	122	36.5	ug/Kg	1	VFC9659		
o-Xylene	61.8 J	122	36.5	ug/Kg	1	VFC9659		
P & M -Xylene	92.1 J	122	36.5	ug/Kg	1	VFC9659		
4-Bromofluorobenzene <sur>	83.7	50-150		%	1	VFC9659		
1,4-Difluorobenzene <sur>	105	80-120		%	1	VFC9659		

Batch Information

Analytical Batch: VFC9659

Analytical Method: AK101

Analysis Date/Time: 09/23/09 16:37

Dilution Factor: 1

Initial Prep Wt./Vol.: 22.612 g

Container ID:1094997003-A

Analyst: KPW

Analytical Batch: VFC9659

Analytical Method: SW8021B

Analysis Date/Time: 09/23/09 16:37

Dilution Factor: 1

Initial Prep Wt./Vol.: 22.612 g

Container ID:1094997003-A

Analyst: KPW



SLR Alaska-Fairbanks

Print Date: 10/12/2009 3:49 pm

Client Sample ID: **B - 2**

SGS Ref. #: 1094997003

Project ID: Village Of Beaver Old School

Matrix: Soil/Solid (dry weight)

Percent Solids: 95.0

Collection Date/Time: 09/10/09 18:20

Receipt Date/Time: 09/15/09 09:00

Semivolatile Organic Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Diesel Range Organics	13.2 J	20.8	6.46	mg/Kg	1	XFC8874	XXX21635	
Residual Range Organics	23.9	20.8	6.46	mg/Kg	1	XFC8874	XXX21635	
n-Triacontane-d62 <sur>	62.9	50-150		%	1	XFC8874	XXX21635	
5a Androstane <sur>	80	50-150		%	1	XFC8874	XXX21635	

Batch Information

Analytical Batch: XFC8874

Analytical Method: AK102

Analysis Date/Time: 09/22/09 21:31

Dilution Factor: 1

Prep Batch: XXX21635

Prep Method: SW3550C

Prep Date/Time: 09/15/09 16:40

Initial Prep Wt./Vol.: 30.3135 g

Prep Extract Vol.: 1 mL

Container ID:1094997003-B

Analyst: HM

Analytical Batch: XFC8874

Analytical Method: AK103

Analysis Date/Time: 09/22/09 21:31

Dilution Factor: 1

Prep Batch: XXX21635

Prep Method: SW3550C

Prep Date/Time: 09/15/09 16:40

Initial Prep Wt./Vol.: 30.3135 g

Prep Extract Vol.: 1 mL

Container ID:1094997003-B

Analyst: HM

**SLR Alaska-Fairbanks**

Print Date: 10/12/2009 3:49 pm

Client Sample ID: **B - 2**

SGS Ref. #: 1094997003

Project ID: Village Of Beaver Old School

Matrix: Soil/Solid (dry weight)

Percent Solids: 95.0

Collection Date/Time: 09/10/09 18:20

Receipt Date/Time: 09/15/09 09:00

Solids

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Total Solids	95.0			%	1	SPT8008		

Batch Information

Analytical Batch: SPT8008

Analytical Method: SM20 2540G

Analysis Date/Time: 09/15/09 16:37

Dilution Factor: 1

Initial Prep Wt./Vol.: 1 mL

Container ID:1094997003-B

Analyst: HJ

**SLR Alaska-Fairbanks**

Print Date: 10/12/2009 3:49 pm

Client Sample ID: **C - 1**

SGS Ref. #: 1094997004

Project ID: Village Of Beaver Old School

Matrix: Soil/Solid (dry weight)

Percent Solids: 82.2

Collection Date/Time: 09/10/09 18:35

Receipt Date/Time: 09/15/09 09:00

Metals by ICP/MS

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Lead	6.50	0.221	0.0685	mg/Kg	10	MMS6089	MXX22233	

Batch Information

Analytical Batch: MMS6089

Analytical Method: SW6020

Analysis Date/Time: 09/18/09 14:14

Dilution Factor: 10

Prep Batch: MXX22233

Prep Method: SW3050B

Prep Date/Time: 09/16/09 11:00

Initial Prep Wt./Vol.: 1.101 g

Prep Extract Vol.: 50 mL

Container ID:1094997004-D

Analyst: NRB

**SLR Alaska-Fairbanks**

Print Date: 10/12/2009 3:49 pm

Client Sample ID: **C - 1**

SGS Ref. #: 1094997004

Project ID: Village Of Beaver Old School

Matrix: Soil/Solid (dry weight)

Percent Solids: 82.2

Collection Date/Time: 09/10/09 18:35

Receipt Date/Time: 09/15/09 09:00

Volatile Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Gasoline Range Organics	1820	77.9	23.4	mg/Kg	10	VFC9665		
4-Bromofluorobenzene <sur>	5870	* 50-150		%	10	VFC9665		

Batch Information

Analytical Batch: VFC9665

Analytical Method: AK101

Analysis Date/Time: 09/26/09 00:19

Dilution Factor: 10

Initial Prep Wt./Vol.: 22.666 g

Container ID:1094997004-A

Analyst: KPW



SLR Alaska-Fairbanks

Print Date: 10/12/2009 3:49 pm

Client Sample ID: C - 1

SGS Ref. #: 1094997004

Project ID: Village Of Beaver Old School

Matrix: Soil/Solid (dry weight)

Percent Solids: 82.2

Collection Date/Time: 09/10/09 18:35

Receipt Date/Time: 09/15/09 09:00

Semivolatile Organic Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Diesel Range Organics	29300	1210	374	mg/Kg	50	XFC8859	XXX21648	
Residual Range Organics	74.9	24.1	7.48	mg/Kg	1	XFC8857	XXX21648	
n-Triacontane-d62 <sur>	73.3	50-150		%	1	XFC8857	XXX21648	
5a Androstane <sur>	83.3	50-150		%	50	XFC8859	XXX21648	

Batch Information

Analytical Batch: XFC8857

Analytical Method: AK103

Analysis Date/Time: 09/18/09 19:37

Dilution Factor: 1

Prep Batch: XXX21648

Prep Method: SW3550C

Prep Date/Time: 09/17/09 14:15

Initial Prep Wt./Vol.: 30.2488 g

Prep Extract Vol.: 1 mL

Container ID:1094997004-D

Analyst: HM

Analytical Batch: XFC8859

Analytical Method: AK102

Analysis Date/Time: 09/19/09 20:41

Dilution Factor: 50

Prep Batch: XXX21648

Prep Method: SW3550C

Prep Date/Time: 09/17/09 14:15

Initial Prep Wt./Vol.: 30.2488 g

Prep Extract Vol.: 1 mL

Container ID:1094997004-D

Analyst: HM



SLR Alaska-Fairbanks

Print Date: 10/12/2009 3:49 pm

Client Sample ID: C - 1

SGS Ref. #: 1094997004

Project ID: Village Of Beaver Old School

Matrix: Soil/Solid (dry weight)

Percent Solids: 82.2

Collection Date/Time: 09/10/09 18:35

Receipt Date/Time: 09/15/09 09:00

Volatile Gas Chromatography/Mass Spectroscopy

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Benzene	ND	46.7	15.6	ug/Kg	1	VMS10834		
Toluene	ND	156	46.7	ug/Kg	1	VMS10834		
Ethylbenzene	ND	77.9	24.3	ug/Kg	1	VMS10834		
n-Butylbenzene	ND	77.9	24.3	ug/Kg	1	VMS10834		
Carbon disulfide	ND	312	96.6	ug/Kg	1	VMS10834		
1,4-Dichlorobenzene	ND	77.9	24.3	ug/Kg	1	VMS10834		
1,2-Dichloroethane	ND	77.9	24.3	ug/Kg	1	VMS10834		
1,3,5-Trimethylbenzene	103000	3890	1220	ug/Kg	50	VMS10838		
4-Chlorotoluene	ND	77.9	24.3	ug/Kg	1	VMS10834		
Chlorobenzene	ND	77.9	24.3	ug/Kg	1	VMS10834		
4-Methyl-2-pentanone (MIBK)	ND	77.9	24.3	ug/Kg	1	VMS10834		
cis-1,2-Dichloroethene	ND	77.9	24.3	ug/Kg	1	VMS10834		
4-Isopropyltoluene	1560	77.9	24.3	ug/Kg	1	VMS10834		
Methyl-t-butyl ether	ND	125	37.4	ug/Kg	1	VMS10834		
cis-1,3-Dichloropropene	ND	77.9	24.3	ug/Kg	1	VMS10834		
n-Propylbenzene	ND	77.9	24.3	ug/Kg	1	VMS10834		
Styrene	ND	77.9	24.3	ug/Kg	1	VMS10834		
Dibromomethane	ND	77.9	24.3	ug/Kg	1	VMS10834		
trans-1,3-Dichloropropene	ND	77.9	24.3	ug/Kg	1	VMS10834		
1,2,4-Trichlorobenzene	ND	156	46.7	ug/Kg	1	VMS10834		
1,1,2,2-Tetrachloroethane	ND	156	46.7	ug/Kg	1	VMS10834		
1,2-Dibromo-3-chloropropane	ND	312	96.6	ug/Kg	1	VMS10834		
Tetrachloroethene	ND	77.9	24.3	ug/Kg	1	VMS10834		
Dibromochloromethane	ND	77.9	24.3	ug/Kg	1	VMS10834		
1,3-Dichloropropane	ND	77.9	24.3	ug/Kg	1	VMS10834		
1,2-Dibromoethane	ND	77.9	24.3	ug/Kg	1	VMS10834		
Carbon tetrachloride	ND	77.9	24.3	ug/Kg	1	VMS10834		
1,1,1,2-Tetrachloroethane	ND	77.9	24.3	ug/Kg	1	VMS10834		
Chloroform	ND	77.9	24.3	ug/Kg	1	VMS10834		
Bromobenzene	ND	77.9	24.3	ug/Kg	1	VMS10834		
Chloromethane	ND	77.9	24.3	ug/Kg	1	VMS10834		
1,2,3-Trichloropropane	ND	156	46.7	ug/Kg	1	VMS10834		
Bromomethane	ND	623	193	ug/Kg	1	VMS10834		
Bromochloromethane	ND	77.9	24.3	ug/Kg	1	VMS10834		
Vinyl chloride	ND	77.9	37.4	ug/Kg	1	VMS10834		
Dichlorodifluoromethane	ND	156	46.7	ug/Kg	1	VMS10834		

**SLR Alaska-Fairbanks**

Print Date: 10/12/2009 3:49 pm

Client Sample ID: **C - 1**

SGS Ref. #: 1094997004

Project ID: Village Of Beaver Old School

Matrix: Soil/Solid (dry weight)

Percent Solids: 82.2

Collection Date/Time: 09/10/09 18:35

Receipt Date/Time: 09/15/09 09:00

Volatile Gas Chromatography/Mass Spectroscopy

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Chloroethane	ND	623	193	ug/Kg	1	VMS10834		
sec-Butylbenzene	ND	77.9	24.3	ug/Kg	1	VMS10834		
Bromodichloromethane	ND	77.9	24.3	ug/Kg	1	VMS10834		
1,1-Dichloroethene	ND	77.9	24.3	ug/Kg	1	VMS10834		
2-Butanone (MEK)	ND	779	243	ug/Kg	1	VMS10834		
Methylene chloride	ND	312	96.6	ug/Kg	1	VMS10834		
Trichlorofluoromethane	ND	156	46.7	ug/Kg	1	VMS10834		
P & M -Xylene	245	156	46.7	ug/Kg	1	VMS10834		
Naphthalene	64500	7790	2340	ug/Kg	50	VMS10838		
o-Xylene	84400	7790	2340	ug/Kg	50	VMS10838		
Bromoform	ND	77.9	24.3	ug/Kg	1	VMS10834		
Xylenes (total)	84700	15600	4670	ug/Kg	50	VMS10838		
1,2,4-Trimethylbenzene	679	77.9	24.3	ug/Kg	1	VMS10834		
tert-Butylbenzene	ND	77.9	24.3	ug/Kg	1	VMS10834		
1,1,1-Trichloroethane	ND	77.9	24.3	ug/Kg	1	VMS10834		
1,1-Dichloroethane	ND	77.9	24.3	ug/Kg	1	VMS10834		
2-Chlorotoluene	ND	77.9	24.3	ug/Kg	1	VMS10834		
Trichloroethene	ND	77.9	24.3	ug/Kg	1	VMS10834		
trans-1,2-Dichloroethene	ND	77.9	24.3	ug/Kg	1	VMS10834		
1,2-Dichlorobenzene	ND	77.9	24.3	ug/Kg	1	VMS10834		
2,2-Dichloropropane	ND	77.9	24.3	ug/Kg	1	VMS10834		
Hexachlorobutadiene	ND	156	46.7	ug/Kg	1	VMS10834		
Isopropylbenzene (Cumene)	ND	77.9	24.3	ug/Kg	1	VMS10834		
2-Hexanone	ND	779	243	ug/Kg	1	VMS10834		
1,2-Dichloropropane	ND	77.9	24.3	ug/Kg	1	VMS10834		
1,1-Dichloropropene	ND	77.9	24.3	ug/Kg	1	VMS10834		
1,1,2-Trichloroethane	ND	77.9	24.3	ug/Kg	1	VMS10834		
1,3-Dichlorobenzene	ND	77.9	24.3	ug/Kg	1	VMS10834		
1,2,3-Trichlorobenzene	ND	156	46.7	ug/Kg	1	VMS10834		
1,2-Dichloroethane-D4 <sur>	87	69-132		%	1	VMS10834		
Toluene-d8 <sur>	120	84-124		%	1	VMS10834		
4-Bromofluorobenzene <sur>	139	65-144		%	1	VMS10834		

**SLR Alaska-Fairbanks**

Print Date: 10/12/2009 3:49 pm

Client Sample ID: **C - 1**

SGS Ref. #: 1094997004

Collection Date/Time: 09/10/09 18:35

Project ID: Village Of Beaver Old School

Receipt Date/Time: 09/15/09 09:00

Matrix: Soil/Solid (dry weight)

Percent Solids: 82.2

Volatile Gas Chromatography/Mass Spectroscopy

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Batch Information								
Analytical Batch: VMS10834						Initial Prep Wt./Vol.: 22.666 g		
Analytical Method: SW8260B								
Analysis Date/Time: 09/16/09 20:09						Container ID:1094997004-A		
Dilution Factor: 1						Analyst: DSH		
Analytical Batch: VMS10838						Initial Prep Wt./Vol.: 22.666 g		
Analytical Method: SW8260B								
Analysis Date/Time: 09/18/09 04:33						Container ID:1094997004-A		
Dilution Factor: 50						Analyst: DSH		



SLR Alaska-Fairbanks

Print Date: 10/12/2009 3:49 pm

Client Sample ID: C - 1

SGS Ref. #: 1094997004

Project ID: Village Of Beaver Old School

Matrix: Soil/Solid (dry weight)

Percent Solids: 82.2

Collection Date/Time: 09/10/09 18:35

Receipt Date/Time: 09/15/09 09:00

Polynuclear Aromatics GC/MS

Parameter	Result	PQL/CL	MDL	Units	DF	Analytical Batch	Prep Batch	Qualifiers
Acenaphthylene	ND	300	90.1	ug/Kg	50	XMS5114	XXX21640	
Acenaphthene	ND	300	90.1	ug/Kg	50	XMS5114	XXX21640	
Fluorene	4770	300	90.1	ug/Kg	50	XMS5114	XXX21640	
Phenanthrene	677	300	90.1	ug/Kg	50	XMS5114	XXX21640	
Anthracene	ND	300	90.1	ug/Kg	50	XMS5114	XXX21640	
Fluoranthene	ND	300	90.1	ug/Kg	50	XMS5114	XXX21640	
Pyrene	ND	300	90.1	ug/Kg	50	XMS5114	XXX21640	
Benzo(a)Anthracene	ND	300	90.1	ug/Kg	50	XMS5114	XXX21640	
Chrysene	ND	300	90.1	ug/Kg	50	XMS5114	XXX21640	
Benzo[b]Fluoranthene	ND	300	90.1	ug/Kg	50	XMS5114	XXX21640	
Benzo[k]fluoranthene	ND	300	90.1	ug/Kg	50	XMS5114	XXX21640	
Benzo[a]pyrene	ND	300	90.1	ug/Kg	50	XMS5114	XXX21640	
Indeno[1,2,3-c,d] pyrene	ND	300	90.1	ug/Kg	50	XMS5114	XXX21640	
Dibenzo[a,h]anthracene	ND	300	90.1	ug/Kg	50	XMS5114	XXX21640	
Benzo[g,h,i]perylene	ND	300	90.1	ug/Kg	50	XMS5114	XXX21640	
Naphthalene	117	6.00	1.80	ug/Kg	1	XMS5120	XXX21640	
1-Methylnaphthalene	132000	12000	3600	ug/Kg	2000	XMS5124	XXX21640	
2-Methylnaphthalene	68700	12000	3600	ug/Kg	2000	XMS5124	XXX21640	
Terphenyl-d14 <sur>	152	* 30-125		%	50	XMS5114	XXX21640	

Batch Information

Analytical Batch: XMS5114	Prep Batch: XXX21640	Initial Prep Wt./Vol.: 22.7894 g
Analytical Method: 8270D SIMS	Prep Method: SW3550C	Prep Extract Vol.: 1 mL
Analysis Date/Time: 10/06/09 17:08	Prep Date/Time: 09/16/09 14:00	Container ID:1094997004-D
Dilution Factor: 50		Analyst: JDH
Analytical Batch: XMS5120	Prep Batch: XXX21640	Initial Prep Wt./Vol.: 22.7894 g
Analytical Method: 8270D SIMS	Prep Method: SW3550C	Prep Extract Vol.: 1 mL
Analysis Date/Time: 10/07/09 23:14	Prep Date/Time: 09/16/09 14:00	Container ID:1094997004-D
Dilution Factor: 1		Analyst: MCM
Analytical Batch: XMS5124	Prep Batch: XXX21640	Initial Prep Wt./Vol.: 22.7894 g
Analytical Method: 8270D SIMS	Prep Method: SW3550C	Prep Extract Vol.: 1 mL
Analysis Date/Time: 10/08/09 20:28	Prep Date/Time: 09/16/09 14:00	Container ID:1094997004-D
Dilution Factor: 2000		Analyst: CDE

**SLR Alaska-Fairbanks**

Print Date: 10/12/2009 3:49 pm

Client Sample ID: **C - 1**

SGS Ref. #: 1094997004

Project ID: Village Of Beaver Old School

Matrix: Soil/Solid (dry weight)

Percent Solids: 82.2

Collection Date/Time: 09/10/09 18:35

Receipt Date/Time: 09/15/09 09:00

Solids

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Total Solids	82.2			%	1	SPT8008		

Batch Information

Analytical Batch: SPT8008

Analytical Method: SM20 2540G

Analysis Date/Time: 09/15/09 16:37

Dilution Factor: 1

Initial Prep Wt./Vol.: 1 mL

Container ID:1094997004-D

Analyst: HJ

**SLR Alaska-Fairbanks**

Print Date: 10/12/2009 3:49 pm

Client Sample ID: **C - 3**

SGS Ref. #: 1094997005

Project ID: Village Of Beaver Old School

Matrix: Soil/Solid (dry weight)

Percent Solids: 90.5

Collection Date/Time: 09/10/09 18:40

Receipt Date/Time: 09/15/09 09:00

Volatile Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Gasoline Range Organics	ND	4.70	1.41	mg/Kg	1	VFC9659		
Benzene	ND	23.5	7.52	ug/Kg	1	VFC9659		
Toluene	ND	94.1	28.2	ug/Kg	1	VFC9659		
Ethylbenzene	ND	94.1	28.2	ug/Kg	1	VFC9659		
o-Xylene	ND	94.1	28.2	ug/Kg	1	VFC9659		
P & M -Xylene	ND	94.1	28.2	ug/Kg	1	VFC9659		
4-Bromofluorobenzene <sur>	78.6	50-150		%	1	VFC9659		
1,4-Difluorobenzene <sur>	106	80-120		%	1	VFC9659		

Batch Information

Analytical Batch: VFC9659

Analytical Method: AK101

Analysis Date/Time: 09/23/09 17:02

Dilution Factor: 1

Initial Prep Wt./Vol.: 33.098 g

Container ID:1094997005-A

Analyst: KPW

Analytical Batch: VFC9659

Analytical Method: SW8021B

Analysis Date/Time: 09/23/09 17:02

Dilution Factor: 1

Initial Prep Wt./Vol.: 33.098 g

Container ID:1094997005-A

Analyst: KPW

**SLR Alaska-Fairbanks**

Print Date: 10/12/2009 3:49 pm

Client Sample ID: **C - 3**

SGS Ref. #: 1094997005

Project ID: Village Of Beaver Old School

Matrix: Soil/Solid (dry weight)

Percent Solids: 90.5

Collection Date/Time: 09/10/09 18:40

Receipt Date/Time: 09/15/09 09:00

Semivolatile Organic Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Diesel Range Organics	10.3 J	21.9	6.79	mg/Kg	1	XFC8874	XXX21635	
Residual Range Organics	31.9	21.9	6.79	mg/Kg	1	XFC8874	XXX21635	
n-Triacontane-d62 <sur>	52.7	50-150		%	1	XFC8874	XXX21635	
5a Androstane <sur>	68	50-150		%	1	XFC8874	XXX21635	

Batch Information

Analytical Batch: XFC8874

Analytical Method: AK102

Analysis Date/Time: 09/22/09 21:52

Dilution Factor: 1

Prep Batch: XXX21635

Prep Method: SW3550C

Prep Date/Time: 09/15/09 16:40

Initial Prep Wt./Vol.: 30.262 g

Prep Extract Vol.: 1 mL

Container ID:1094997005-B

Analyst: HM

Analytical Batch: XFC8874

Analytical Method: AK103

Analysis Date/Time: 09/22/09 21:52

Dilution Factor: 1

Prep Batch: XXX21635

Prep Method: SW3550C

Prep Date/Time: 09/15/09 16:40

Initial Prep Wt./Vol.: 30.262 g

Prep Extract Vol.: 1 mL

Container ID:1094997005-B

Analyst: HM

**SLR Alaska-Fairbanks**

Print Date: 10/12/2009 3:49 pm

Client Sample ID: **C - 3**

SGS Ref. #: 1094997005

Project ID: Village Of Beaver Old School

Matrix: Soil/Solid (dry weight)

Percent Solids: 90.5

Collection Date/Time: 09/10/09 18:40

Receipt Date/Time: 09/15/09 09:00

Solids

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Total Solids	90.5			%	1	SPT8008		

Batch Information

Analytical Batch: SPT8008

Analytical Method: SM20 2540G

Analysis Date/Time: 09/15/09 16:37

Dilution Factor: 1

Initial Prep Wt./Vol.: 1 mL

Container ID:1094997005-B

Analyst: HJ

**SLR Alaska-Fairbanks**

Print Date: 10/12/2009 3:49 pm

Client Sample ID: **C - 4**

SGS Ref. #: 1094997006

Project ID: Village Of Beaver Old School

Matrix: Soil/Solid (dry weight)

Percent Solids: 90.2

Collection Date/Time: 09/10/09 18:45

Receipt Date/Time: 09/15/09 09:00

Metals by ICP/MS

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Lead	5.62	0.216	0.0669	mg/Kg	10	MMS6089	MXX22233	

Batch Information

Analytical Batch: MMS6089

Analytical Method: SW6020

Analysis Date/Time: 09/18/09 14:16

Dilution Factor: 10

Prep Batch: MXX22233

Prep Method: SW3050B

Prep Date/Time: 09/16/09 11:00

Initial Prep Wt./Vol.: 1.0274 g

Prep Extract Vol.: 50 mL

Container ID:1094997006-D

Analyst: NRB

**SLR Alaska-Fairbanks**

Print Date: 10/12/2009 3:49 pm

Client Sample ID: **C - 4**

SGS Ref. #: 1094997006

Project ID: Village Of Beaver Old School

Matrix: Soil/Solid (dry weight)

Percent Solids: 90.2

Collection Date/Time: 09/10/09 18:45

Receipt Date/Time: 09/15/09 09:00

Volatile Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Gasoline Range Organics	962	54.6	16.4	mg/Kg	10	VFC9665		
4-Bromofluorobenzene <sur>	2790	* 50-150		%	10	VFC9665		

Batch Information

Analytical Batch: VFC9665

Analytical Method: AK101

Analysis Date/Time: 09/26/09 00:38

Dilution Factor: 10

Initial Prep Wt./Vol.: 28.156 g

Container ID:1094997006-A

Analyst: KPW



SLR Alaska-Fairbanks

Print Date: 10/12/2009 3:49 pm

Client Sample ID: **C - 4**

SGS Ref. #: 1094997006

Project ID: Village Of Beaver Old School

Matrix: Soil/Solid (dry weight)

Percent Solids: 90.2

Collection Date/Time: 09/10/09 18:45

Receipt Date/Time: 09/15/09 09:00

Semivolatile Organic Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Diesel Range Organics	9700	442	137	mg/Kg	20	XFC8867	XXX21635	
Residual Range Organics	62.2	22.1	6.85	mg/Kg	1	XFC8865	XXX21635	
n-Triacontane-d62 <sur>	81.1	50-150		%	1	XFC8865	XXX21635	
5a Androstane <sur>	81.9	50-150		%	20	XFC8867	XXX21635	

Batch Information

Analytical Batch: XFC8865

Analytical Method: AK103

Analysis Date/Time: 09/20/09 04:20

Dilution Factor: 1

Prep Batch: XXX21635

Prep Method: SW3550C

Prep Date/Time: 09/15/09 16:40

Initial Prep Wt./Vol.: 30.1074 g

Prep Extract Vol.: 1 mL

Container ID:1094997006-D

Analyst: HM

Analytical Batch: XFC8867

Analytical Method: AK102

Analysis Date/Time: 09/21/09 03:22

Dilution Factor: 20

Prep Batch: XXX21635

Prep Method: SW3550C

Prep Date/Time: 09/15/09 16:40

Initial Prep Wt./Vol.: 30.1074 g

Prep Extract Vol.: 1 mL

Container ID:1094997006-D

Analyst: HM



SLR Alaska-Fairbanks

Print Date: 10/12/2009 3:49 pm

Client Sample ID: C - 4

SGS Ref. #: 1094997006

Project ID: Village Of Beaver Old School

Matrix: Soil/Solid (dry weight)

Percent Solids: 90.2

Collection Date/Time: 09/10/09 18:45

Receipt Date/Time: 09/15/09 09:00

Volatile Gas Chromatography/Mass Spectroscopy

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Benzene	ND	314	105	ug/Kg	10	VMS10846		
Toluene	ND	1050	314	ug/Kg	10	VMS10846		
Ethylbenzene	ND	524	163	ug/Kg	10	VMS10846		
n-Butylbenzene	ND	524	163	ug/Kg	10	VMS10846		
Carbon disulfide	ND	2100	650	ug/Kg	10	VMS10846		
1,4-Dichlorobenzene	ND	524	163	ug/Kg	10	VMS10846		
1,2-Dichloroethane	ND	524	163	ug/Kg	10	VMS10846		
1,3,5-Trimethylbenzene	15700	524	163	ug/Kg	10	VMS10846		
4-Chlorotoluene	ND	524	163	ug/Kg	10	VMS10846		
Chlorobenzene	ND	524	163	ug/Kg	10	VMS10846		
4-Methyl-2-pentanone (MIBK)	ND	5240	1630	ug/Kg	10	VMS10846		
cis-1,2-Dichloroethene	ND	524	163	ug/Kg	10	VMS10846		
4-Isopropyltoluene	ND	524	163	ug/Kg	10	VMS10846		
Methyl-t-butyl ether	ND	838	252	ug/Kg	10	VMS10846		
cis-1,3-Dichloropropene	ND	524	163	ug/Kg	10	VMS10846		
n-Propylbenzene	ND	524	163	ug/Kg	10	VMS10846		
Styrene	ND	524	163	ug/Kg	10	VMS10846		
Dibromomethane	ND	524	163	ug/Kg	10	VMS10846		
trans-1,3-Dichloropropene	ND	524	163	ug/Kg	10	VMS10846		
1,2,4-Trichlorobenzene	ND	1050	314	ug/Kg	10	VMS10846		
1,1,2,2-Tetrachloroethane	ND	1050	314	ug/Kg	10	VMS10846		
1,2-Dibromo-3-chloropropane	ND	2100	650	ug/Kg	10	VMS10846		
Tetrachloroethene	ND	524	163	ug/Kg	10	VMS10846		
Dibromochloromethane	ND	524	163	ug/Kg	10	VMS10846		
1,3-Dichloropropane	ND	524	163	ug/Kg	10	VMS10846		
1,2-Dibromoethane	ND	524	163	ug/Kg	10	VMS10846		
Carbon tetrachloride	ND	524	163	ug/Kg	10	VMS10846		
1,1,1,2-Tetrachloroethane	ND	524	163	ug/Kg	10	VMS10846		
Chloroform	ND	524	163	ug/Kg	10	VMS10846		
Bromobenzene	ND	524	163	ug/Kg	10	VMS10846		
Chloromethane	ND	524	163	ug/Kg	10	VMS10846		
1,2,3-Trichloropropane	ND	1050	314	ug/Kg	10	VMS10846		
Bromomethane	ND	4190	1300	ug/Kg	10	VMS10846		
Bromochloromethane	ND	524	163	ug/Kg	10	VMS10846		
Vinyl chloride	ND	524	252	ug/Kg	10	VMS10846		
Dichlorodifluoromethane	ND	1050	314	ug/Kg	10	VMS10846		



SLR Alaska-Fairbanks

Print Date: 10/12/2009 3:49 pm

Client Sample ID: C - 4

SGS Ref. #: 1094997006

Project ID: Village Of Beaver Old School

Matrix: Soil/Solid (dry weight)

Percent Solids: 90.2

Collection Date/Time: 09/10/09 18:45

Receipt Date/Time: 09/15/09 09:00

Volatile Gas Chromatography/Mass Spectroscopy

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Chloroethane	ND	4190	1300	ug/Kg	10	VMS10846		
sec-Butylbenzene	ND	524	163	ug/Kg	10	VMS10846		
Bromodichloromethane	ND	524	163	ug/Kg	10	VMS10846		
1,1-Dichloroethene	ND	524	163	ug/Kg	10	VMS10846		
2-Butanone (MEK)	ND	5240	1630	ug/Kg	10	VMS10846		
Methylene chloride	ND	2100	650	ug/Kg	10	VMS10846		
Trichlorofluoromethane	ND	1050	314	ug/Kg	10	VMS10846		
P & M -Xylene	ND	1050	314	ug/Kg	10	VMS10846		
Naphthalene	ND	1050	314	ug/Kg	10	VMS10846		
o-Xylene	ND	1050	314	ug/Kg	10	VMS10846		
Bromoform	ND	524	163	ug/Kg	10	VMS10846		
Xylenes (total)	ND	2100	629	ug/Kg	10	VMS10846		
1,2,4-Trimethylbenzene	ND	524	163	ug/Kg	10	VMS10846		
tert-Butylbenzene	ND	524	163	ug/Kg	10	VMS10846		
1,1,1-Trichloroethane	ND	524	163	ug/Kg	10	VMS10846		
1,1-Dichloroethane	ND	524	163	ug/Kg	10	VMS10846		
2-Chlorotoluene	ND	524	163	ug/Kg	10	VMS10846		
Trichloroethene	ND	524	163	ug/Kg	10	VMS10846		
trans-1,2-Dichloroethene	ND	524	163	ug/Kg	10	VMS10846		
1,2-Dichlorobenzene	ND	524	163	ug/Kg	10	VMS10846		
2,2-Dichloropropane	ND	524	163	ug/Kg	10	VMS10846		
Hexachlorobutadiene	ND	1050	314	ug/Kg	10	VMS10846		
Isopropylbenzene (Cumene)	ND	524	163	ug/Kg	10	VMS10846		
2-Hexanone	ND	5240	1630	ug/Kg	10	VMS10846		
1,2-Dichloropropane	ND	524	163	ug/Kg	10	VMS10846		
1,1-Dichloropropene	ND	524	163	ug/Kg	10	VMS10846		
1,1,2-Trichloroethane	ND	524	163	ug/Kg	10	VMS10846		
1,3-Dichlorobenzene	ND	524	163	ug/Kg	10	VMS10846		
1,2,3-Trichlorobenzene	ND	1050	314	ug/Kg	10	VMS10846		
1,2-Dichloroethane-D4 <surr>	89.7	69-132		%	10	VMS10846		
Toluene-d8 <surr>	97	84-124		%	10	VMS10846		
4-Bromofluorobenzene <surr>	126	65-144		%	10	VMS10846		



SLR Alaska-Fairbanks

Print Date: 10/12/2009 3:49 pm

Client Sample ID: **C - 4**

SGS Ref. #: 1094997006

Project ID: Village Of Beaver Old School

Matrix: Soil/Solid (dry weight)

Percent Solids: 90.2

Collection Date/Time: 09/10/09 18:45

Receipt Date/Time: 09/15/09 09:00

Volatile Gas Chromatography/Mass Spectroscopy

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Batch Information								
Analytical Batch: VMS10846						Initial Prep Wt./Vol.: 29.488 g		
Analytical Method: SW8260B								
Analysis Date/Time: 09/22/09 03:41						Container ID:1094997006-A		
Dilution Factor: 10						Analyst: DSH		



SLR Alaska-Fairbanks

Print Date: 10/12/2009 3:49 pm

Client Sample ID: **C - 4**

SGS Ref. #: 1094997006

Project ID: Village Of Beaver Old School

Matrix: Soil/Solid (dry weight)

Percent Solids: 90.2

Collection Date/Time: 09/10/09 18:45

Receipt Date/Time: 09/15/09 09:00

Polynuclear Aromatics GC/MS

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Acenaphthylene	ND	109	32.7	ug/Kg	20	XMS5111	XXX21640	
Acenaphthene	ND	109	32.7	ug/Kg	20	XMS5111	XXX21640	
Fluorene	ND	109	32.7	ug/Kg	20	XMS5111	XXX21640	
Phenanthrene	ND	109	32.7	ug/Kg	20	XMS5111	XXX21640	
Anthracene	ND	109	32.7	ug/Kg	20	XMS5111	XXX21640	
Fluoranthene	ND	109	32.7	ug/Kg	20	XMS5111	XXX21640	
Pyrene	ND	109	32.7	ug/Kg	20	XMS5111	XXX21640	
Benzo(a)Anthracene	ND	109	32.7	ug/Kg	20	XMS5111	XXX21640	
Chrysene	ND	109	32.7	ug/Kg	20	XMS5111	XXX21640	
Benzo[b]Fluoranthene	ND	109	32.7	ug/Kg	20	XMS5111	XXX21640	
Benzo[k]fluoranthene	ND	109	32.7	ug/Kg	20	XMS5111	XXX21640	
Benzo[a]pyrene	ND	109	32.7	ug/Kg	20	XMS5111	XXX21640	
Indeno[1,2,3-c,d] pyrene	ND	109	32.7	ug/Kg	20	XMS5111	XXX21640	
Dibenzo[a,h]anthracene	ND	109	32.7	ug/Kg	20	XMS5111	XXX21640	
Benzo[g,h,i]perylene	ND	109	32.7	ug/Kg	20	XMS5111	XXX21640	
Naphthalene	628	109	32.7	ug/Kg	20	XMS5111	XXX21640	
1-Methylnaphthalene	ND	109	32.7	ug/Kg	20	XMS5111	XXX21640	
2-Methylnaphthalene	ND	109	32.7	ug/Kg	20	XMS5111	XXX21640	
Terphenyl-d14 <sur>	109	30-125		%	20	XMS5111	XXX21640	

Batch Information

Analytical Batch: XMS5111

Analytical Method: 8270D SIMS

Analysis Date/Time: 10/05/09 15:39

Dilution Factor: 20

Prep Batch: XXX21640

Prep Method: SW3550C

Prep Date/Time: 09/16/09 14:00

Initial Prep Wt./Vol.: 22.8631 g

Prep Extract Vol.: 1 mL

Container ID:1094997006-D

Analyst: JDH

**SLR Alaska-Fairbanks**

Print Date: 10/12/2009 3:49 pm

Client Sample ID: **C - 4**

SGS Ref. #: 1094997006

Project ID: Village Of Beaver Old School

Matrix: Soil/Solid (dry weight)

Percent Solids: 90.2

Collection Date/Time: 09/10/09 18:45

Receipt Date/Time: 09/15/09 09:00

Solids

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Total Solids	90.2			%	1	SPT8008		

Batch Information

Analytical Batch: SPT8008

Analytical Method: SM20 2540G

Analysis Date/Time: 09/15/09 16:37

Dilution Factor: 1

Initial Prep Wt./Vol.: 1 mL

Container ID:1094997006-D

Analyst: HJ

**SLR Alaska-Fairbanks**

Print Date: 10/12/2009 3:49 pm

Client Sample ID: **C - 15**

SGS Ref. #: 1094997007

Project ID: Village Of Beaver Old School

Matrix: Soil/Solid (dry weight)

Percent Solids: 84.0

Collection Date/Time: 09/10/09 18:50

Receipt Date/Time: 09/15/09 09:00

Metals by ICP/MS

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Lead	6.62	0.208	0.0645	mg/Kg	10	MMS6089	MXX22233	

Batch Information

Analytical Batch: MMS6089

Analytical Method: SW6020

Analysis Date/Time: 09/18/09 14:18

Dilution Factor: 10

Prep Batch: MXX22233

Prep Method: SW3050B

Prep Date/Time: 09/16/09 11:00

Initial Prep Wt./Vol.: 1.1448 g

Prep Extract Vol.: 50 mL

Container ID:1094997007-D

Analyst: NRB

**SLR Alaska-Fairbanks**

Print Date: 10/12/2009 3:49 pm

Client Sample ID: **C - 15**

SGS Ref. #: 1094997007

Project ID: Village Of Beaver Old School

Matrix: Soil/Solid (dry weight)

Percent Solids: 84.0

Collection Date/Time: 09/10/09 18:50

Receipt Date/Time: 09/15/09 09:00

Volatile Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Gasoline Range Organics	3230	117	35.0	mg/Kg	10	VFC9665		
4-Bromofluorobenzene <sur>	4050	* 50-150		%	10	VFC9665		

Batch Information

Analytical Batch: VFC9665

Analytical Method: AK101

Analysis Date/Time: 09/26/09 00:58

Dilution Factor: 10

Initial Prep Wt./Vol.: 13.91 g

Container ID:1094997007-A

Analyst: KPW



SLR Alaska-Fairbanks

Print Date: 10/12/2009 3:49 pm

Client Sample ID: **C - 15**

SGS Ref. #: 1094997007

Project ID: Village Of Beaver Old School

Matrix: Soil/Solid (dry weight)

Percent Solids: 84.0

Collection Date/Time: 09/10/09 18:50

Receipt Date/Time: 09/15/09 09:00

Semivolatile Organic Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Diesel Range Organics	27900	1170	364	mg/Kg	50	XFC8859	XXX21648	
Residual Range Organics	71.5	23.5	7.27	mg/Kg	1	XFC8857	XXX21648	
n-Triacontane-d62 <sur>	74.9	50-150		%	1	XFC8857	XXX21648	
5a Androstane <sur>	92.6	50-150		%	50	XFC8859	XXX21648	

Batch Information

Analytical Batch: XFC8857

Analytical Method: AK103

Analysis Date/Time: 09/18/09 19:46

Dilution Factor: 1

Prep Batch: XXX21648

Prep Method: SW3550C

Prep Date/Time: 09/17/09 14:15

Initial Prep Wt./Vol.: 30.4496 g

Prep Extract Vol.: 1 mL

Container ID:1094997007-D

Analyst: HM

Analytical Batch: XFC8859

Analytical Method: AK102

Analysis Date/Time: 09/19/09 20:50

Dilution Factor: 50

Prep Batch: XXX21648

Prep Method: SW3550C

Prep Date/Time: 09/17/09 14:15

Initial Prep Wt./Vol.: 30.4496 g

Prep Extract Vol.: 1 mL

Container ID:1094997007-D

Analyst: HM



SLR Alaska-Fairbanks

Print Date: 10/12/2009 3:49 pm

Client Sample ID: C - 15

SGS Ref. #: 1094997007

Project ID: Village Of Beaver Old School

Matrix: Soil/Solid (dry weight)

Percent Solids: 84.0

Collection Date/Time: 09/10/09 18:50

Receipt Date/Time: 09/15/09 09:00

Volatile Gas Chromatography/Mass Spectroscopy

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Benzene	ND	69.9	23.3	ug/Kg	1	VMS10834		
Toluene	ND	233	69.9	ug/Kg	1	VMS10834		
Ethylbenzene	ND	117	36.4	ug/Kg	1	VMS10834		
n-Butylbenzene	ND	117	36.4	ug/Kg	1	VMS10834		
Carbon disulfide	ND	466	145	ug/Kg	1	VMS10834		
1,4-Dichlorobenzene	ND	117	36.4	ug/Kg	1	VMS10834		
1,2-Dichloroethane	ND	117	36.4	ug/Kg	1	VMS10834		
1,3,5-Trimethylbenzene	154000	5830	1820	ug/Kg	50	VMS10838		
4-Chlorotoluene	ND	117	36.4	ug/Kg	1	VMS10834		
Chlorobenzene	ND	117	36.4	ug/Kg	1	VMS10834		
4-Methyl-2-pentanone (MIBK)	ND	1170	364	ug/Kg	1	VMS10834		
cis-1,2-Dichloroethene	ND	117	36.4	ug/Kg	1	VMS10834		
4-Isopropyltoluene	ND	1170	364	ug/Kg	10	VMS10838		
Methyl-t-butyl ether	ND	186	55.9	ug/Kg	1	VMS10834		
cis-1,3-Dichloropropene	ND	117	36.4	ug/Kg	1	VMS10834		
n-Propylbenzene	ND	117	36.4	ug/Kg	1	VMS10834		
Styrene	ND	117	36.4	ug/Kg	1	VMS10834		
Dibromomethane	ND	117	36.4	ug/Kg	1	VMS10834		
trans-1,3-Dichloropropene	ND	117	36.4	ug/Kg	1	VMS10834		
1,2,4-Trichlorobenzene	ND	233	69.9	ug/Kg	1	VMS10834		
1,1,2,2-Tetrachloroethane	ND	233	69.9	ug/Kg	1	VMS10834		
1,2-Dibromo-3-chloropropane	ND	466	145	ug/Kg	1	VMS10834		
Tetrachloroethene	ND	117	36.4	ug/Kg	1	VMS10834		
Dibromochloromethane	ND	117	36.4	ug/Kg	1	VMS10834		
1,3-Dichloropropane	ND	117	36.4	ug/Kg	1	VMS10834		
1,2-Dibromoethane	ND	117	36.4	ug/Kg	1	VMS10834		
Carbon tetrachloride	ND	117	36.4	ug/Kg	1	VMS10834		
1,1,1,2-Tetrachloroethane	ND	117	36.4	ug/Kg	1	VMS10834		
Chloroform	ND	117	36.4	ug/Kg	1	VMS10834		
Bromobenzene	ND	117	36.4	ug/Kg	1	VMS10834		
Chloromethane	ND	117	36.4	ug/Kg	1	VMS10834		
1,2,3-Trichloropropane	ND	233	69.9	ug/Kg	1	VMS10834		
Bromomethane	ND	932	289	ug/Kg	1	VMS10834		
Bromochloromethane	ND	117	36.4	ug/Kg	1	VMS10834		
Vinyl chloride	ND	117	55.9	ug/Kg	1	VMS10834		
Dichlorodifluoromethane	ND	233	69.9	ug/Kg	1	VMS10834		



SLR Alaska-Fairbanks

Print Date: 10/12/2009 3:49 pm

Client Sample ID: **C - 15**

SGS Ref. #: 1094997007

Project ID: Village Of Beaver Old School

Matrix: Soil/Solid (dry weight)

Percent Solids: 84.0

Collection Date/Time: 09/10/09 18:50

Receipt Date/Time: 09/15/09 09:00

Volatile Gas Chromatography/Mass Spectroscopy

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Chloroethane	ND	932	289	ug/Kg	1	VMS10834		
sec-Butylbenzene	ND	117	36.4	ug/Kg	1	VMS10834		
Bromodichloromethane	ND	117	36.4	ug/Kg	1	VMS10834		
1,1-Dichloroethene	ND	117	36.4	ug/Kg	1	VMS10834		
2-Butanone (MEK)	ND	1170	364	ug/Kg	1	VMS10834		
Methylene chloride	ND	466	145	ug/Kg	1	VMS10834		
Trichlorofluoromethane	ND	233	69.9	ug/Kg	1	VMS10834		
P & M -Xylene	ND	2330	699	ug/Kg	10	VMS10838		
Naphthalene	60300	2330	699	ug/Kg	10	VMS10838		
o-Xylene	108000	11700	3500	ug/Kg	50	VMS10838		
Bromoform	ND	117	36.4	ug/Kg	1	VMS10834		
Xylenes (total)	108000	23300	6990	ug/Kg	50	VMS10838		
1,2,4-Trimethylbenzene	ND	1170	364	ug/Kg	10	VMS10838		
tert-Butylbenzene	ND	117	36.4	ug/Kg	1	VMS10834		
1,1,1-Trichloroethane	ND	117	36.4	ug/Kg	1	VMS10834		
1,1-Dichloroethane	ND	117	36.4	ug/Kg	1	VMS10834		
2-Chlorotoluene	ND	117	36.4	ug/Kg	1	VMS10834		
Trichloroethene	ND	117	36.4	ug/Kg	1	VMS10834		
trans-1,2-Dichloroethene	ND	117	36.4	ug/Kg	1	VMS10834		
1,2-Dichlorobenzene	ND	117	36.4	ug/Kg	1	VMS10834		
2,2-Dichloropropane	ND	117	36.4	ug/Kg	1	VMS10834		
Hexachlorobutadiene	ND	233	69.9	ug/Kg	1	VMS10834		
Isopropylbenzene (Cumene)	ND	117	36.4	ug/Kg	1	VMS10834		
2-Hexanone	ND	1170	364	ug/Kg	1	VMS10834		
1,2-Dichloropropane	ND	117	36.4	ug/Kg	1	VMS10834		
1,1-Dichloropropene	ND	117	36.4	ug/Kg	1	VMS10834		
1,1,2-Trichloroethane	ND	117	36.4	ug/Kg	1	VMS10834		
1,3-Dichlorobenzene	ND	117	36.4	ug/Kg	1	VMS10834		
1,2,3-Trichlorobenzene	ND	233	69.9	ug/Kg	1	VMS10834		
1,2-Dichloroethane-D4 <sur>	86.8	69-132		%	1	VMS10834		
Toluene-d8 <sur>	125	* 84-124		%	1	VMS10834		
4-Bromofluorobenzene <sur>	151	* 65-144		%	1	VMS10834		

**SLR Alaska-Fairbanks**

Print Date: 10/12/2009 3:49 pm

Client Sample ID: **C - 15**

SGS Ref. #: 1094997007

Project ID: Village Of Beaver Old School

Matrix: Soil/Solid (dry weight)

Percent Solids: 84.0

Collection Date/Time: 09/10/09 18:50

Receipt Date/Time: 09/15/09 09:00

Volatile Gas Chromatography/Mass Spectroscopy

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Batch Information								
Analytical Batch: VMS10834						Initial Prep Wt./Vol.: 13.91 g		
Analytical Method: SW8260B								
Analysis Date/Time: 09/16/09 21:16						Container ID:1094997007-A		
Dilution Factor: 1						Analyst: DSH		
Analytical Batch: VMS10838						Initial Prep Wt./Vol.: 13.91 g		
Analytical Method: SW8260B								
Analysis Date/Time: 09/18/09 05:03						Container ID:		
Dilution Factor: 50						Analyst: DSH		
Analytical Batch: VMS10838						Initial Prep Wt./Vol.: 13.91 g		
Analytical Method: SW8260B								
Analysis Date/Time: 09/18/09 05:34						Container ID:1094997007-A		
Dilution Factor: 10						Analyst: DSH		



SLR Alaska-Fairbanks

Print Date: 10/12/2009 3:49 pm

Client Sample ID: **C - 15**

SGS Ref. #: 1094997007

Project ID: Village Of Beaver Old School

Matrix: Soil/Solid (dry weight)

Percent Solids: 84.0

Collection Date/Time: 09/10/09 18:50

Receipt Date/Time: 09/15/09 09:00

Polynuclear Aromatics GC/MS

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Acenaphthylene	ND	293	88.0	ug/Kg	50	XMS5114	XXX21640	
Acenaphthene	ND	293	88.0	ug/Kg	50	XMS5114	XXX21640	
Fluorene	3840	293	88.0	ug/Kg	50	XMS5114	XXX21640	
Phenanthrene	510	293	88.0	ug/Kg	50	XMS5114	XXX21640	
Anthracene	ND	293	88.0	ug/Kg	50	XMS5114	XXX21640	
Fluoranthene	ND	293	88.0	ug/Kg	50	XMS5114	XXX21640	
Pyrene	ND	293	88.0	ug/Kg	50	XMS5114	XXX21640	
Benzo(a)Anthracene	ND	293	88.0	ug/Kg	50	XMS5114	XXX21640	
Chrysene	ND	293	88.0	ug/Kg	50	XMS5114	XXX21640	
Benzo[b]Fluoranthene	ND	293	88.0	ug/Kg	50	XMS5114	XXX21640	
Benzo[k]fluoranthene	ND	293	88.0	ug/Kg	50	XMS5114	XXX21640	
Benzo[a]pyrene	ND	293	88.0	ug/Kg	50	XMS5114	XXX21640	
Indeno[1,2,3-c,d] pyrene	ND	293	88.0	ug/Kg	50	XMS5114	XXX21640	
Dibenzo[a,h]anthracene	ND	293	88.0	ug/Kg	50	XMS5114	XXX21640	
Benzo[g,h,i]perylene	ND	293	88.0	ug/Kg	50	XMS5114	XXX21640	
Naphthalene	93.8	5.87	1.76	ug/Kg	1	XMS5120	XXX21640	
1-Methylnaphthalene	102000	11700	3520	ug/Kg	2000	XMS5124	XXX21640	
2-Methylnaphthalene	63300	11700	3520	ug/Kg	2000	XMS5124	XXX21640	
Terphenyl-d14 <sur>	103	30-125		%	50	XMS5114	XXX21640	

Batch Information

Analytical Batch: XMS5114	Prep Batch: XXX21640	Initial Prep Wt./Vol.: 22.8327 g
Analytical Method: 8270D SIMS	Prep Method: SW3550C	Prep Extract Vol.: 1 mL
Analysis Date/Time: 10/06/09 17:40	Prep Date/Time: 09/16/09 14:00	Container ID:1094997007-D
Dilution Factor: 50		Analyst: JDH
Analytical Batch: XMS5120	Prep Batch: XXX21640	Initial Prep Wt./Vol.: 22.8327 g
Analytical Method: 8270D SIMS	Prep Method: SW3550C	Prep Extract Vol.: 1 mL
Analysis Date/Time: 10/07/09 23:46	Prep Date/Time: 09/16/09 14:00	Container ID:1094997007-D
Dilution Factor: 1		Analyst: MCM
Analytical Batch: XMS5124	Prep Batch: XXX21640	Initial Prep Wt./Vol.: 22.8327 g
Analytical Method: 8270D SIMS	Prep Method: SW3550C	Prep Extract Vol.: 1 mL
Analysis Date/Time: 10/08/09 21:00	Prep Date/Time: 09/16/09 14:00	Container ID:1094997007-D
Dilution Factor: 2000		Analyst: CDE



SLR Alaska-Fairbanks

Print Date: 10/12/2009 3:49 pm

Client Sample ID: **C - 15**

SGS Ref. #: 1094997007

Project ID: Village Of Beaver Old School

Matrix: Soil/Solid (dry weight)

Percent Solids: 84.0

Collection Date/Time: 09/10/09 18:50

Receipt Date/Time: 09/15/09 09:00

Solids

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Total Solids	84.0			%	1	SPT8008		

Batch Information

Analytical Batch: SPT8008

Analytical Method: SM20 2540G

Analysis Date/Time: 09/15/09 16:37

Dilution Factor: 1

Initial Prep Wt./Vol.: 1 mL

Container ID:1094997007-D

Analyst: HJ

**SLR Alaska-Fairbanks**

Print Date: 10/12/2009 3:49 pm

Client Sample ID: **C - 7**

SGS Ref. #: 1094997008

Project ID: Village Of Beaver Old School

Matrix: Soil/Solid (dry weight)

Percent Solids: 88.9

Collection Date/Time: 09/10/09 18:52

Receipt Date/Time: 09/15/09 09:00

Volatile Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Gasoline Range Organics	55.2	6.63	1.99	mg/Kg	1	VFC9665		
4-Bromofluorobenzene <sur>	182	* 50-150		%	1	VFC9665		

Batch Information

Analytical Batch: VFC9665

Analytical Method: AK101

Analysis Date/Time: 09/25/09 19:09

Dilution Factor: 1

Initial Prep Wt./Vol.: 23.392 g

Container ID:1094997008-A

Analyst: KPW



SLR Alaska-Fairbanks

Print Date: 10/12/2009 3:49 pm

Client Sample ID: **C - 7**

SGS Ref. #: 1094997008

Project ID: Village Of Beaver Old School

Matrix: Soil/Solid (dry weight)

Percent Solids: 88.9

Collection Date/Time: 09/10/09 18:52

Receipt Date/Time: 09/15/09 09:00

Semivolatile Organic Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Diesel Range Organics	7550	448	139	mg/Kg	20	XFC8859	XXX21648	
Residual Range Organics	59.0	22.4	6.94	mg/Kg	1	XFC8857	XXX21648	
n-Triacontane-d62 <sur>	72.8	50-150		%	1	XFC8857	XXX21648	
5a Androstane <sur>	88.4	50-150		%	20	XFC8859	XXX21648	

Batch Information

Analytical Batch: XFC8857

Analytical Method: AK103

Analysis Date/Time: 09/18/09 19:55

Dilution Factor: 1

Prep Batch: XXX21648

Prep Method: SW3550C

Prep Date/Time: 09/17/09 14:15

Initial Prep Wt./Vol.: 30.151 g

Prep Extract Vol.: 1 mL

Container ID:1094997008-C

Analyst: HM

Analytical Batch: XFC8859

Analytical Method: AK102

Analysis Date/Time: 09/19/09 20:59

Dilution Factor: 20

Prep Batch: XXX21648

Prep Method: SW3550C

Prep Date/Time: 09/17/09 14:15

Initial Prep Wt./Vol.: 30.151 g

Prep Extract Vol.: 1 mL

Container ID:1094997008-C

Analyst: HM



SLR Alaska-Fairbanks

Print Date: 10/12/2009 3:49 pm

Client Sample ID: C - 7

SGS Ref. #: 1094997008

Project ID: Village Of Beaver Old School

Matrix: Soil/Solid (dry weight)

Percent Solids: 88.9

Collection Date/Time: 09/10/09 18:52

Receipt Date/Time: 09/15/09 09:00

Volatile Gas Chromatography/Mass Spectroscopy

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Benzene	ND	39.8	13.3	ug/Kg	1	VMS10834		
Toluene	ND	133	39.8	ug/Kg	1	VMS10834		
Ethylbenzene	ND	66.3	20.7	ug/Kg	1	VMS10834		
n-Butylbenzene	ND	66.3	20.7	ug/Kg	1	VMS10834		
Carbon disulfide	ND	265	82.2	ug/Kg	1	VMS10834		
1,4-Dichlorobenzene	ND	66.3	20.7	ug/Kg	1	VMS10834		
1,2-Dichloroethane	ND	66.3	20.7	ug/Kg	1	VMS10834		
1,3,5-Trimethylbenzene	230	66.3	20.7	ug/Kg	1	VMS10834		
4-Chlorotoluene	ND	66.3	20.7	ug/Kg	1	VMS10834		
Chlorobenzene	ND	66.3	20.7	ug/Kg	1	VMS10834		
4-Methyl-2-pentanone (MIBK)	ND	663	207	ug/Kg	1	VMS10834		
cis-1,2-Dichloroethene	ND	66.3	20.7	ug/Kg	1	VMS10834		
4-Isopropyltoluene	348	66.3	20.7	ug/Kg	1	VMS10834		
Methyl-t-butyl ether	ND	106	31.8	ug/Kg	1	VMS10834		
cis-1,3-Dichloropropene	ND	66.3	20.7	ug/Kg	1	VMS10834		
n-Propylbenzene	ND	66.3	20.7	ug/Kg	1	VMS10834		
Styrene	ND	66.3	20.7	ug/Kg	1	VMS10834		
Dibromomethane	ND	66.3	20.7	ug/Kg	1	VMS10834		
trans-1,3-Dichloropropene	ND	66.3	20.7	ug/Kg	1	VMS10834		
1,2,4-Trichlorobenzene	ND	133	39.8	ug/Kg	1	VMS10834		
1,1,2,2-Tetrachloroethane	ND	133	39.8	ug/Kg	1	VMS10834		
1,2-Dibromo-3-chloropropane	ND	265	82.2	ug/Kg	1	VMS10834		
Tetrachloroethene	ND	66.3	20.7	ug/Kg	1	VMS10834		
Dibromochloromethane	ND	66.3	20.7	ug/Kg	1	VMS10834		
1,3-Dichloropropane	ND	66.3	20.7	ug/Kg	1	VMS10834		
1,2-Dibromoethane	ND	66.3	20.7	ug/Kg	1	VMS10834		
Carbon tetrachloride	ND	66.3	20.7	ug/Kg	1	VMS10834		
1,1,1,2-Tetrachloroethane	ND	66.3	20.7	ug/Kg	1	VMS10834		
Chloroform	ND	66.3	20.7	ug/Kg	1	VMS10834		
Bromobenzene	ND	66.3	20.7	ug/Kg	1	VMS10834		
Chloromethane	ND	66.3	20.7	ug/Kg	1	VMS10834		
1,2,3-Trichloropropane	ND	133	39.8	ug/Kg	1	VMS10834		
Bromomethane	ND	531	164	ug/Kg	1	VMS10834		
Bromochloromethane	ND	66.3	20.7	ug/Kg	1	VMS10834		
Vinyl chloride	ND	66.3	31.8	ug/Kg	1	VMS10834		
Dichlorodifluoromethane	ND	133	39.8	ug/Kg	1	VMS10834		



SLR Alaska-Fairbanks

Print Date: 10/12/2009 3:49 pm

Client Sample ID: C - 7

SGS Ref. #: 1094997008

Project ID: Village Of Beaver Old School

Matrix: Soil/Solid (dry weight)

Percent Solids: 88.9

Collection Date/Time: 09/10/09 18:52

Receipt Date/Time: 09/15/09 09:00

Volatile Gas Chromatography/Mass Spectroscopy

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Chloroethane	ND	531	164	ug/Kg	1	VMS10834		
sec-Butylbenzene	ND	66.3	20.7	ug/Kg	1	VMS10834		
Bromodichloromethane	ND	66.3	20.7	ug/Kg	1	VMS10834		
1,1-Dichloroethene	ND	66.3	20.7	ug/Kg	1	VMS10834		
2-Butanone (MEK)	ND	663	207	ug/Kg	1	VMS10834		
Methylene chloride	ND	265	82.2	ug/Kg	1	VMS10834		
Trichlorofluoromethane	ND	133	39.8	ug/Kg	1	VMS10834		
P & M -Xylene	ND	133	39.8	ug/Kg	1	VMS10834		
Naphthalene	ND	133	39.8	ug/Kg	1	VMS10834		
o-Xylene	93.5 J	133	39.8	ug/Kg	1	VMS10834		
Bromoform	ND	66.3	20.7	ug/Kg	1	VMS10834		
Xylenes (total)	129 J	265	79.6	ug/Kg	1	VMS10834		
1,2,4-Trimethylbenzene	ND	66.3	20.7	ug/Kg	1	VMS10834		
tert-Butylbenzene	ND	66.3	20.7	ug/Kg	1	VMS10834		
1,1,1-Trichloroethane	ND	66.3	20.7	ug/Kg	1	VMS10834		
1,1-Dichloroethane	ND	66.3	20.7	ug/Kg	1	VMS10834		
2-Chlorotoluene	ND	66.3	20.7	ug/Kg	1	VMS10834		
Trichloroethene	ND	66.3	20.7	ug/Kg	1	VMS10834		
trans-1,2-Dichloroethene	ND	66.3	20.7	ug/Kg	1	VMS10834		
1,2-Dichlorobenzene	ND	66.3	20.7	ug/Kg	1	VMS10834		
2,2-Dichloropropane	ND	66.3	20.7	ug/Kg	1	VMS10834		
Hexachlorobutadiene	ND	133	39.8	ug/Kg	1	VMS10834		
Isopropylbenzene (Cumene)	ND	66.3	20.7	ug/Kg	1	VMS10834		
2-Hexanone	ND	663	207	ug/Kg	1	VMS10834		
1,2-Dichloropropane	ND	66.3	20.7	ug/Kg	1	VMS10834		
1,1-Dichloropropene	ND	66.3	20.7	ug/Kg	1	VMS10834		
1,1,2-Trichloroethane	ND	66.3	20.7	ug/Kg	1	VMS10834		
1,3-Dichlorobenzene	ND	66.3	20.7	ug/Kg	1	VMS10834		
1,2,3-Trichlorobenzene	ND	133	39.8	ug/Kg	1	VMS10834		
1,2-Dichloroethane-D4 <surr>	85.6	69-132		%	1	VMS10834		
Toluene-d8 <surr>	105	84-124		%	1	VMS10834		
4-Bromofluorobenzene <surr>	71.4	65-144		%	1	VMS10834		

**SLR Alaska-Fairbanks**

Print Date: 10/12/2009 3:49 pm

Client Sample ID: **C - 7**

SGS Ref. #: 1094997008

Project ID: Village Of Beaver Old School

Matrix: Soil/Solid (dry weight)

Percent Solids: 88.9

Collection Date/Time: 09/10/09 18:52

Receipt Date/Time: 09/15/09 09:00

Volatile Gas Chromatography/Mass Spectroscopy

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Batch Information								
Analytical Batch: VMS10834						Initial Prep Wt./Vol.: 23.392 g		
Analytical Method: SW8260B								
Analysis Date/Time: 09/16/09 21:50						Container ID:1094997008-A		
Dilution Factor: 1						Analyst: DSH		

**SLR Alaska-Fairbanks**

Print Date: 10/12/2009 3:49 pm

Client Sample ID: **C - 7**

SGS Ref. #: 1094997008

Project ID: Village Of Beaver Old School

Matrix: Soil/Solid (dry weight)

Percent Solids: 88.9

Collection Date/Time: 09/10/09 18:52

Receipt Date/Time: 09/15/09 09:00

Solids

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Total Solids	88.9			%	1	SPT8008		

Batch Information

Analytical Batch: SPT8008

Analytical Method: SM20 2540G

Analysis Date/Time: 09/15/09 16:37

Dilution Factor: 1

Initial Prep Wt./Vol.: 1 mL

Container ID:1094997008-C

Analyst: HJ

**SLR Alaska-Fairbanks**

Print Date: 10/12/2009 3:49 pm

Client Sample ID: **C - 10**

SGS Ref. #: 1094997009

Project ID: Village Of Beaver Old School

Matrix: Soil/Solid (dry weight)

Percent Solids: 82.9

Collection Date/Time: 09/10/09 18:59

Receipt Date/Time: 09/15/09 09:00

Volatile Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Gasoline Range Organics	12.9	11.4	3.43	mg/Kg	1	VFC9665		
4-Bromofluorobenzene <sur>	90.4	50-150		%	1	VFC9665		

Batch Information

Analytical Batch: VFC9665

Analytical Method: AK101

Analysis Date/Time: 09/25/09 19:28

Dilution Factor: 1

Initial Prep Wt./Vol.: 14.504 g

Container ID:1094997009-A

Analyst: KPW



SLR Alaska-Fairbanks

Print Date: 10/12/2009 3:49 pm

Client Sample ID: **C - 10**

SGS Ref. #: 1094997009

Project ID: Village Of Beaver Old School

Matrix: Soil/Solid (dry weight)

Percent Solids: 82.9

Collection Date/Time: 09/10/09 18:59

Receipt Date/Time: 09/15/09 09:00

Semivolatile Organic Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Diesel Range Organics	43.4	24.1	7.46	mg/Kg	1	XFC8857	XXX21648	
Residual Range Organics	44.7	24.1	7.46	mg/Kg	1	XFC8857	XXX21648	
5a Androstane <sur>	75.2	50-150		%	1	XFC8857	XXX21648	
n-Triacontane-d62 <sur>	77.8	50-150		%	1	XFC8857	XXX21648	

Batch Information

Analytical Batch: XFC8857

Analytical Method: AK102

Analysis Date/Time: 09/18/09 20:14

Dilution Factor: 1

Prep Batch: XXX21648

Prep Method: SW3550C

Prep Date/Time: 09/17/09 14:15

Initial Prep Wt./Vol.: 30.0586 g

Prep Extract Vol.: 1 mL

Container ID:1094997009-C

Analyst: HM

Analytical Batch: XFC8857

Analytical Method: AK103

Analysis Date/Time: 09/18/09 20:14

Dilution Factor: 1

Prep Batch: XXX21648

Prep Method: SW3550C

Prep Date/Time: 09/17/09 14:15

Initial Prep Wt./Vol.: 30.0586 g

Prep Extract Vol.: 1 mL

Container ID:1094997009-C

Analyst: HM



SLR Alaska-Fairbanks

Print Date: 10/12/2009 3:49 pm

Client Sample ID: **C - 10**

SGS Ref. #: 1094997009

Project ID: Village Of Beaver Old School

Matrix: Soil/Solid (dry weight)

Percent Solids: 82.9

Collection Date/Time: 09/10/09 18:59

Receipt Date/Time: 09/15/09 09:00

Volatile Gas Chromatography/Mass Spectroscopy

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Benzene	ND	68.5	22.8	ug/Kg	1	VMS10834		
Toluene	ND	228	68.5	ug/Kg	1	VMS10834		
Ethylbenzene	ND	114	35.6	ug/Kg	1	VMS10834		
n-Butylbenzene	ND	114	35.6	ug/Kg	1	VMS10834		
Carbon disulfide	ND	457	142	ug/Kg	1	VMS10834		
1,4-Dichlorobenzene	ND	114	35.6	ug/Kg	1	VMS10834		
1,2-Dichloroethane	ND	114	35.6	ug/Kg	1	VMS10834		
1,3,5-Trimethylbenzene	38.8 J	114	35.6	ug/Kg	1	VMS10834		
4-Chlorotoluene	ND	114	35.6	ug/Kg	1	VMS10834		
Chlorobenzene	ND	114	35.6	ug/Kg	1	VMS10834		
4-Methyl-2-pentanone (MIBK)	ND	1140	356	ug/Kg	1	VMS10834		
cis-1,2-Dichloroethene	ND	114	35.6	ug/Kg	1	VMS10834		
4-Isopropyltoluene	ND	114	35.6	ug/Kg	1	VMS10834		
Methyl-t-butyl ether	ND	183	54.8	ug/Kg	1	VMS10834		
cis-1,3-Dichloropropene	ND	114	35.6	ug/Kg	1	VMS10834		
n-Propylbenzene	ND	114	35.6	ug/Kg	1	VMS10834		
Styrene	ND	114	35.6	ug/Kg	1	VMS10834		
Dibromomethane	ND	114	35.6	ug/Kg	1	VMS10834		
trans-1,3-Dichloropropene	ND	114	35.6	ug/Kg	1	VMS10834		
1,2,4-Trichlorobenzene	ND	228	68.5	ug/Kg	1	VMS10834		
1,1,2,2-Tetrachloroethane	ND	228	68.5	ug/Kg	1	VMS10834		
1,2-Dibromo-3-chloropropane	ND	457	142	ug/Kg	1	VMS10834		
Tetrachloroethene	ND	114	35.6	ug/Kg	1	VMS10834		
Dibromochloromethane	ND	114	35.6	ug/Kg	1	VMS10834		
1,3-Dichloropropane	ND	114	35.6	ug/Kg	1	VMS10834		
1,2-Dibromoethane	ND	114	35.6	ug/Kg	1	VMS10834		
Carbon tetrachloride	ND	114	35.6	ug/Kg	1	VMS10834		
1,1,1,2-Tetrachloroethane	ND	114	35.6	ug/Kg	1	VMS10834		
Chloroform	ND	114	35.6	ug/Kg	1	VMS10834		
Bromobenzene	ND	114	35.6	ug/Kg	1	VMS10834		
Chloromethane	ND	114	35.6	ug/Kg	1	VMS10834		
1,2,3-Trichloropropane	ND	228	68.5	ug/Kg	1	VMS10834		
Bromomethane	ND	913	283	ug/Kg	1	VMS10834		
Bromochloromethane	ND	114	35.6	ug/Kg	1	VMS10834		
Vinyl chloride	ND	114	54.8	ug/Kg	1	VMS10834		
Dichlorodifluoromethane	ND	228	68.5	ug/Kg	1	VMS10834		



SLR Alaska-Fairbanks

Print Date: 10/12/2009 3:49 pm

Client Sample ID: **C - 10**

SGS Ref. #: 1094997009

Project ID: Village Of Beaver Old School

Matrix: Soil/Solid (dry weight)

Percent Solids: 82.9

Collection Date/Time: 09/10/09 18:59

Receipt Date/Time: 09/15/09 09:00

Volatile Gas Chromatography/Mass Spectroscopy

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Chloroethane	ND	913	283	ug/Kg	1	VMS10834		
sec-Butylbenzene	ND	114	35.6	ug/Kg	1	VMS10834		
Bromodichloromethane	ND	114	35.6	ug/Kg	1	VMS10834		
1,1-Dichloroethene	ND	114	35.6	ug/Kg	1	VMS10834		
2-Butanone (MEK)	ND	1140	356	ug/Kg	1	VMS10834		
Methylene chloride	ND	457	142	ug/Kg	1	VMS10834		
Trichlorofluoromethane	ND	228	68.5	ug/Kg	1	VMS10834		
P & M -Xylene	ND	228	68.5	ug/Kg	1	VMS10834		
Naphthalene	ND	228	68.5	ug/Kg	1	VMS10834		
o-Xylene	ND	228	68.5	ug/Kg	1	VMS10834		
Bromoform	ND	114	35.6	ug/Kg	1	VMS10834		
Xylenes (total)	ND	457	137	ug/Kg	1	VMS10834		
1,2,4-Trimethylbenzene	ND	114	35.6	ug/Kg	1	VMS10834		
tert-Butylbenzene	ND	114	35.6	ug/Kg	1	VMS10834		
1,1,1-Trichloroethane	ND	114	35.6	ug/Kg	1	VMS10834		
1,1-Dichloroethane	ND	114	35.6	ug/Kg	1	VMS10834		
2-Chlorotoluene	ND	114	35.6	ug/Kg	1	VMS10834		
Trichloroethene	ND	114	35.6	ug/Kg	1	VMS10834		
trans-1,2-Dichloroethene	ND	114	35.6	ug/Kg	1	VMS10834		
1,2-Dichlorobenzene	ND	114	35.6	ug/Kg	1	VMS10834		
2,2-Dichloropropane	ND	114	35.6	ug/Kg	1	VMS10834		
Hexachlorobutadiene	ND	228	68.5	ug/Kg	1	VMS10834		
Isopropylbenzene (Cumene)	ND	114	35.6	ug/Kg	1	VMS10834		
2-Hexanone	ND	1140	356	ug/Kg	1	VMS10834		
1,2-Dichloropropane	ND	114	35.6	ug/Kg	1	VMS10834		
1,1-Dichloropropene	ND	114	35.6	ug/Kg	1	VMS10834		
1,1,2-Trichloroethane	ND	114	35.6	ug/Kg	1	VMS10834		
1,3-Dichlorobenzene	ND	114	35.6	ug/Kg	1	VMS10834		
1,2,3-Trichlorobenzene	ND	228	68.5	ug/Kg	1	VMS10834		
1,2-Dichloroethane-D4 <sur>	86.2	69-132		%	1	VMS10834		
Toluene-d8 <sur>	103	84-124		%	1	VMS10834		
4-Bromofluorobenzene <sur>	87.5	65-144		%	1	VMS10834		

**SLR Alaska-Fairbanks**

Print Date: 10/12/2009 3:49 pm

Client Sample ID: **C - 10**

SGS Ref. #: 1094997009

Project ID: Village Of Beaver Old School

Matrix: Soil/Solid (dry weight)

Percent Solids: 82.9

Collection Date/Time: 09/10/09 18:59

Receipt Date/Time: 09/15/09 09:00

Volatile Gas Chromatography/Mass Spectroscopy

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Batch Information								
Analytical Batch: VMS10834						Initial Prep Wt./Vol.: 14.504 g		
Analytical Method: SW8260B								
Analysis Date/Time: 09/16/09 22:23						Container ID:1094997009-A		
Dilution Factor: 1						Analyst: DSH		

**SLR Alaska-Fairbanks**

Print Date: 10/12/2009 3:49 pm

Client Sample ID: **C - 10**

SGS Ref. #: 1094997009

Project ID: Village Of Beaver Old School

Matrix: Soil/Solid (dry weight)

Percent Solids: 82.9

Collection Date/Time: 09/10/09 18:59

Receipt Date/Time: 09/15/09 09:00

Solids

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Total Solids	82.9			%	1	SPT8008		

Batch Information

Analytical Batch: SPT8008

Analytical Method: SM20 2540G

Analysis Date/Time: 09/15/09 16:37

Dilution Factor: 1

Initial Prep Wt./Vol.: 1 mL

Container ID:1094997009-C

Analyst: HJ

**SLR Alaska-Fairbanks**

Print Date: 10/12/2009 3:49 pm

Client Sample ID: **C - 13**

SGS Ref. #: 1094997010

Project ID: Village Of Beaver Old School

Matrix: Soil/Solid (dry weight)

Percent Solids: 80.7

Collection Date/Time: 09/10/09 19:05

Receipt Date/Time: 09/15/09 09:00

Volatile Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Gasoline Range Organics	ND	7.07	2.12	mg/Kg	1	VFC9659		
Benzene	ND	35.3	11.3	ug/Kg	1	VFC9659		
Toluene	ND	141	42.4	ug/Kg	1	VFC9659		
Ethylbenzene	ND	141	42.4	ug/Kg	1	VFC9659		
o-Xylene	ND	141	42.4	ug/Kg	1	VFC9659		
P & M -Xylene	ND	141	42.4	ug/Kg	1	VFC9659		
4-Bromofluorobenzene <sur>	76.5	50-150		%	1	VFC9659		
1,4-Difluorobenzene <sur>	106	80-120		%	1	VFC9659		

Batch Information

Analytical Batch: VFC9659

Analytical Method: AK101

Analysis Date/Time: 09/23/09 17:21

Dilution Factor: 1

Initial Prep Wt./Vol.: 26.413 g

Container ID:1094997010-A

Analyst: KPW

Analytical Batch: VFC9659

Analytical Method: SW8021B

Analysis Date/Time: 09/23/09 17:21

Dilution Factor: 1

Initial Prep Wt./Vol.: 26.413 g

Container ID:1094997010-A

Analyst: KPW



SLR Alaska-Fairbanks

Print Date: 10/12/2009 3:49 pm

Client Sample ID: **C - 13**

SGS Ref. #: 1094997010

Project ID: Village Of Beaver Old School

Matrix: Soil/Solid (dry weight)

Percent Solids: 80.7

Collection Date/Time: 09/10/09 19:05

Receipt Date/Time: 09/15/09 09:00

Semivolatile Organic Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Diesel Range Organics	23.5 J	24.7	7.65	mg/Kg	1	XFC8857	XXX21648	
Residual Range Organics	75.4	24.7	7.65	mg/Kg	1	XFC8857	XXX21648	
n-Triacontane-d62 <sur>	97.4	50-150		%	1	XFC8857	XXX21648	
5a Androstane <sur>	89.9	50-150		%	1	XFC8857	XXX21648	

Batch Information

Analytical Batch: XFC8857

Analytical Method: AK102

Analysis Date/Time: 09/18/09 20:24

Dilution Factor: 1

Prep Batch: XXX21648

Prep Method: SW3550C

Prep Date/Time: 09/17/09 14:15

Initial Prep Wt./Vol.: 30.1316 g

Prep Extract Vol.: 1 mL

Container ID:1094997010-B

Analyst: HM

Analytical Batch: XFC8857

Analytical Method: AK103

Analysis Date/Time: 09/18/09 20:24

Dilution Factor: 1

Prep Batch: XXX21648

Prep Method: SW3550C

Prep Date/Time: 09/17/09 14:15

Initial Prep Wt./Vol.: 30.1316 g

Prep Extract Vol.: 1 mL

Container ID:1094997010-B

Analyst: HM

**SLR Alaska-Fairbanks**

Print Date: 10/12/2009 3:49 pm

Client Sample ID: **C - 13**

SGS Ref. #: 1094997010

Project ID: Village Of Beaver Old School

Matrix: Soil/Solid (dry weight)

Percent Solids: 80.7

Collection Date/Time: 09/10/09 19:05

Receipt Date/Time: 09/15/09 09:00

Solids

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Total Solids	80.7			%	1	SPT8008		

Batch Information

Analytical Batch: SPT8008

Analytical Method: SM20 2540G

Analysis Date/Time: 09/15/09 16:37

Dilution Factor: 1

Initial Prep Wt./Vol.: 1 mL

Container ID:1094997010-B

Analyst: HJ

**SLR Alaska-Fairbanks**

Print Date: 10/12/2009 3:49 pm

Client Sample ID: **C - 11**

SGS Ref. #: 1094997011

Project ID: Village Of Beaver Old School

Matrix: Soil/Solid (dry weight)

Percent Solids: 86.0

Collection Date/Time: 09/10/09 19:10

Receipt Date/Time: 09/15/09 09:00

Volatile Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Gasoline Range Organics	ND	11.3	3.38	mg/Kg	1	VFC9659		
Benzene	ND	56.3	18.0	ug/Kg	1	VFC9659		
Toluene	ND	225	67.5	ug/Kg	1	VFC9659		
Ethylbenzene	ND	225	67.5	ug/Kg	1	VFC9659		
o-Xylene	ND	225	67.5	ug/Kg	1	VFC9659		
P & M -Xylene	ND	225	67.5	ug/Kg	1	VFC9659		
4-Bromofluorobenzene <sur>	79.2	50-150		%	1	VFC9659		
1,4-Difluorobenzene <sur>	107	80-120		%	1	VFC9659		

Batch Information

Analytical Batch: VFC9659

Analytical Method: AK101

Analysis Date/Time: 09/23/09 17:40

Dilution Factor: 1

Initial Prep Wt./Vol.: 13.919 g

Container ID:1094997011-A

Analyst: KPW

Analytical Batch: VFC9659

Analytical Method: SW8021B

Analysis Date/Time: 09/23/09 17:40

Dilution Factor: 1

Initial Prep Wt./Vol.: 13.919 g

Container ID:1094997011-A

Analyst: KPW



SLR Alaska-Fairbanks

Print Date: 10/12/2009 3:49 pm

Client Sample ID: **C - 11**

SGS Ref. #: 1094997011

Project ID: Village Of Beaver Old School

Matrix: Soil/Solid (dry weight)

Percent Solids: 86.0

Collection Date/Time: 09/10/09 19:10

Receipt Date/Time: 09/15/09 09:00

Semivolatile Organic Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Diesel Range Organics	8.60 J	22.9	7.11	mg/Kg	1	XFC8857	XXX21648	
Residual Range Organics	41.1	22.9	7.11	mg/Kg	1	XFC8857	XXX21648	
n-Triacontane-d62 <sur>	93.2	50-150		%	1	XFC8857	XXX21648	
5a Androstane <sur>	88.3	50-150		%	1	XFC8857	XXX21648	

Batch Information

Analytical Batch: XFC8857

Analytical Method: AK102

Analysis Date/Time: 09/18/09 20:33

Dilution Factor: 1

Prep Batch: XXX21648

Prep Method: SW3550C

Prep Date/Time: 09/17/09 14:15

Initial Prep Wt./Vol.: 30.4176 g

Prep Extract Vol.: 1 mL

Container ID:1094997011-B

Analyst: HM

Analytical Batch: XFC8857

Analytical Method: AK103

Analysis Date/Time: 09/18/09 20:33

Dilution Factor: 1

Prep Batch: XXX21648

Prep Method: SW3550C

Prep Date/Time: 09/17/09 14:15

Initial Prep Wt./Vol.: 30.4176 g

Prep Extract Vol.: 1 mL

Container ID:1094997011-B

Analyst: HM

**SLR Alaska-Fairbanks**

Print Date: 10/12/2009 3:49 pm

Client Sample ID: **C - 11**

SGS Ref. #: 1094997011

Project ID: Village Of Beaver Old School

Matrix: Soil/Solid (dry weight)

Percent Solids: 86.0

Collection Date/Time: 09/10/09 19:10

Receipt Date/Time: 09/15/09 09:00

Solids

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Total Solids	86.0			%	1	SPT8008		

Batch Information

Analytical Batch: SPT8008

Analytical Method: SM20 2540G

Analysis Date/Time: 09/15/09 16:37

Dilution Factor: 1

Initial Prep Wt./Vol.: 1 mL

Container ID:1094997011-B

Analyst: HJ

**SLR Alaska-Fairbanks**

Print Date: 10/12/2009 3:49 pm

Client Sample ID: **Trip Blank**

SGS Ref. #: 1094997012

Project ID: Village Of Beaver Old School

Matrix: Solid/Soil (Wet Weight)

Collection Date/Time: 09/10/09 18:59

Receipt Date/Time: 09/15/09 09:00

Volatile Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Gasoline Range Organics	ND	2.55	0.766	mg/Kg	1	VFC9659		
Benzene	ND	12.8	4.09	ug/Kg	1	VFC9659		
Toluene	ND	51.1	15.3	ug/Kg	1	VFC9659		
Ethylbenzene	ND	51.1	15.3	ug/Kg	1	VFC9659		
o-Xylene	ND	51.1	15.3	ug/Kg	1	VFC9659		
P & M -Xylene	ND	51.1	15.3	ug/Kg	1	VFC9659		
4-Bromofluorobenzene <sur>	75.9	50-150		%	1	VFC9659		
1,4-Difluorobenzene <sur>	107	80-120		%	1	VFC9659		

Batch Information

Analytical Batch: VFC9659

Analytical Method: AK101

Analysis Date/Time: 09/23/09 15:52

Dilution Factor: 1

Initial Prep Wt./Vol.: 48.946 g

Container ID:1094997012-A

Analyst: KPW

Analytical Batch: VFC9659

Analytical Method: SW8021B

Analysis Date/Time: 09/23/09 15:52

Dilution Factor: 1

Initial Prep Wt./Vol.: 48.946 g

Container ID:1094997012-A

Analyst: KPW



SLR Alaska-Fairbanks

Print Date: 10/12/2009 3:49 pm

Client Sample ID: **Trip Blank**

SGS Ref. #: 1094997012

Project ID: Village Of Beaver Old School

Matrix: Solid/Soil (Wet Weight)

Collection Date/Time: 09/10/09 18:59

Receipt Date/Time: 09/15/09 09:00

Volatile Gas Chromatography/Mass Spectroscopy

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Benzene	ND	15.3	5.11	ug/Kg	1	VMS10834		
Toluene	ND	51.1	15.3	ug/Kg	1	VMS10834		
Ethylbenzene	ND	25.5	7.97	ug/Kg	1	VMS10834		
n-Butylbenzene	ND	25.5	7.97	ug/Kg	1	VMS10834		
Carbon disulfide	ND	102	31.7	ug/Kg	1	VMS10834		
1,4-Dichlorobenzene	ND	25.5	7.97	ug/Kg	1	VMS10834		
1,2-Dichloroethane	ND	25.5	7.97	ug/Kg	1	VMS10834		
1,3,5-Trimethylbenzene	ND	25.5	7.97	ug/Kg	1	VMS10834		
4-Chlorotoluene	ND	25.5	7.97	ug/Kg	1	VMS10834		
Chlorobenzene	ND	25.5	7.97	ug/Kg	1	VMS10834		
4-Methyl-2-pentanone (MIBK)	ND	255	79.7	ug/Kg	1	VMS10834		
cis-1,2-Dichloroethene	ND	25.5	7.97	ug/Kg	1	VMS10834		
4-Isopropyltoluene	ND	25.5	7.97	ug/Kg	1	VMS10834		
Methyl-t-butyl ether	ND	40.9	12.3	ug/Kg	1	VMS10834		
cis-1,3-Dichloropropene	ND	25.5	7.97	ug/Kg	1	VMS10834		
n-Propylbenzene	ND	25.5	7.97	ug/Kg	1	VMS10834		
Styrene	ND	25.5	7.97	ug/Kg	1	VMS10834		
Dibromomethane	ND	25.5	7.97	ug/Kg	1	VMS10834		
trans-1,3-Dichloropropene	ND	25.5	7.97	ug/Kg	1	VMS10834		
1,2,4-Trichlorobenzene	ND	51.1	15.3	ug/Kg	1	VMS10834		
1,1,2,2-Tetrachloroethane	ND	51.1	15.3	ug/Kg	1	VMS10834		
1,2-Dibromo-3-chloropropane	ND	102	31.7	ug/Kg	1	VMS10834		
Tetrachloroethene	ND	25.5	7.97	ug/Kg	1	VMS10834		
Dibromochloromethane	ND	25.5	7.97	ug/Kg	1	VMS10834		
1,3-Dichloropropane	ND	25.5	7.97	ug/Kg	1	VMS10834		
1,2-Dibromoethane	ND	25.5	7.97	ug/Kg	1	VMS10834		
Carbon tetrachloride	ND	25.5	7.97	ug/Kg	1	VMS10834		
1,1,1,2-Tetrachloroethane	ND	25.5	7.97	ug/Kg	1	VMS10834		
Chloroform	ND	25.5	7.97	ug/Kg	1	VMS10834		
Bromobenzene	ND	25.5	7.97	ug/Kg	1	VMS10834		
Chloromethane	ND	25.5	7.97	ug/Kg	1	VMS10834		
1,2,3-Trichloropropane	ND	51.1	15.3	ug/Kg	1	VMS10834		
Bromomethane	ND	204	63.3	ug/Kg	1	VMS10834		
Bromochloromethane	ND	25.5	7.97	ug/Kg	1	VMS10834		
Vinyl chloride	ND	25.5	12.3	ug/Kg	1	VMS10834		
Dichlorodifluoromethane	ND	51.1	15.3	ug/Kg	1	VMS10834		



SLR Alaska-Fairbanks

Print Date: 10/12/2009 3:49 pm

Client Sample ID: **Trip Blank**

SGS Ref. #: 1094997012

Project ID: Village Of Beaver Old School

Matrix: Solid/Soil (Wet Weight)

Collection Date/Time: 09/10/09 18:59

Receipt Date/Time: 09/15/09 09:00

Volatile Gas Chromatography/Mass Spectroscopy

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Chloroethane	ND	204	63.3	ug/Kg	1	VMS10834		
sec-Butylbenzene	ND	25.5	7.97	ug/Kg	1	VMS10834		
Bromodichloromethane	ND	25.5	7.97	ug/Kg	1	VMS10834		
1,1-Dichloroethene	ND	25.5	7.97	ug/Kg	1	VMS10834		
2-Butanone (MEK)	ND	255	79.7	ug/Kg	1	VMS10834		
Methylene chloride	ND	102	31.7	ug/Kg	1	VMS10834		
Trichlorofluoromethane	ND	51.1	15.3	ug/Kg	1	VMS10834		
P & M -Xylene	ND	51.1	15.3	ug/Kg	1	VMS10834		
Naphthalene	ND	51.1	15.3	ug/Kg	1	VMS10834		
o-Xylene	ND	51.1	15.3	ug/Kg	1	VMS10834		
Bromoform	ND	25.5	7.97	ug/Kg	1	VMS10834		
Xylenes (total)	ND	102	30.6	ug/Kg	1	VMS10834		
1,2,4-Trimethylbenzene	ND	25.5	7.97	ug/Kg	1	VMS10834		
tert-Butylbenzene	ND	25.5	7.97	ug/Kg	1	VMS10834		
1,1,1-Trichloroethane	ND	25.5	7.97	ug/Kg	1	VMS10834		
1,1-Dichloroethane	ND	25.5	7.97	ug/Kg	1	VMS10834		
2-Chlorotoluene	ND	25.5	7.97	ug/Kg	1	VMS10834		
Trichloroethene	ND	25.5	7.97	ug/Kg	1	VMS10834		
trans-1,2-Dichloroethene	ND	25.5	7.97	ug/Kg	1	VMS10834		
1,2-Dichlorobenzene	ND	25.5	7.97	ug/Kg	1	VMS10834		
2,2-Dichloropropane	ND	25.5	7.97	ug/Kg	1	VMS10834		
Hexachlorobutadiene	ND	51.1	15.3	ug/Kg	1	VMS10834		
Isopropylbenzene (Cumene)	ND	25.5	7.97	ug/Kg	1	VMS10834		
2-Hexanone	ND	255	79.7	ug/Kg	1	VMS10834		
1,2-Dichloropropane	ND	25.5	7.97	ug/Kg	1	VMS10834		
1,1-Dichloropropene	ND	25.5	7.97	ug/Kg	1	VMS10834		
1,1,2-Trichloroethane	ND	25.5	7.97	ug/Kg	1	VMS10834		
1,3-Dichlorobenzene	ND	25.5	7.97	ug/Kg	1	VMS10834		
1,2,3-Trichlorobenzene	ND	51.1	15.3	ug/Kg	1	VMS10834		
1,2-Dichloroethane-D4 <surr>	91.6	69-132		%	1	VMS10834		
Toluene-d8 <surr>	102	84-124		%	1	VMS10834		
4-Bromofluorobenzene <surr>	93.1	65-144		%	1	VMS10834		



SLR Alaska-Fairbanks

Print Date: 10/12/2009 3:49 pm

Client Sample ID: **Trip Blank**

SGS Ref. #: 1094997012

Project ID: Village Of Beaver Old School

Matrix: Solid/Soil (Wet Weight)

Collection Date/Time: 09/10/09 18:59

Receipt Date/Time: 09/15/09 09:00

Volatile Gas Chromatography/Mass Spectroscopy

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Batch Information								
Analytical Batch: VMS10834						Initial Prep Wt./Vol.: 48.946 g		
Analytical Method: SW8260B								
Analysis Date/Time: 09/16/09 16:13						Container ID:1094997012-A		
Dilution Factor: 1						Analyst: DSH		



SGS Ref.# 924168 Method Blank
Client Name SLR Alaska-Fairbanks
Project Name/# Village Of Beaver Old School
Matrix Soil/Solid (dry weight)

Printed Date/Time 10/12/2009 15:49
Prep Batch XXX21635
Method SW3550C
Date 09/15/2009

QC results affect the following production samples:

1094997002, 1094997003, 1094997005, 1094997006

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date
<u>Semivolatile Organic Fuels Department</u>					
Diesel Range Organics	ND	20.0	6.20	mg/Kg	09/19/09
Surrogates					
5a Androstane <surr>	83.5	60-120		%	09/19/09
Batch	XFC8862				
Method	AK102				
Instrument	HP 7890A	FID SV E F			
Residual Range Organics	ND	20.0	6.20	mg/Kg	09/19/09
Surrogates					
n-Triacontane-d62 <surr>	91.7	60-120		%	09/19/09
Batch	XFC8862				
Method	AK103				
Instrument	HP 7890A	FID SV E F			



SGS Ref.#	924252	Method Blank	Printed Date/Time	10/12/2009 15:49
Client Name	SLR Alaska-Fairbanks		Prep	Batch
Project Name/#	Village Of Beaver Old School			Method
Matrix	Soil/Solid (dry weight)			Date

QC results affect the following production samples:
1094997001, 1094997002, 1094997003, 1094997004, 1094997005, 1094997006, 1094997007, 1094997008, 1094997009,
1094997010, 1094997011

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date

Solids

Total Solids	100			%	09/15/09
Batch	SPT8008				
Method	SM20 2540G				
Instrument					



SGS Ref.# 924333 Method Blank
Client Name SLR Alaska-Fairbanks
Project Name/# Village Of Beaver Old School
Matrix Soil/Solid (dry weight)

Printed Date/Time 10/12/2009 15:49
Prep Batch XXX21640
Method SW3550C
Date 09/16/2009

QC results affect the following production samples:

1094997004, 1094997006, 1094997007

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date
<u>Polynuclear Aromatics GC/MS</u>					
Acenaphthylene	ND	5.00	1.50	ug/Kg	10/02/09
Acenaphthene	ND	5.00	1.50	ug/Kg	10/02/09
Fluorene	ND	5.00	1.50	ug/Kg	10/02/09
Phenanthrene	ND	5.00	1.50	ug/Kg	10/02/09
Anthracene	ND	5.00	1.50	ug/Kg	10/02/09
Fluoranthene	ND	5.00	1.50	ug/Kg	10/02/09
Pyrene	ND	5.00	1.50	ug/Kg	10/02/09
Benzo(a)Anthracene	ND	5.00	1.50	ug/Kg	10/02/09
Chrysene	ND	5.00	1.50	ug/Kg	10/02/09
Benzo[b]Fluoranthene	ND	5.00	1.50	ug/Kg	10/02/09
Benzo[k]fluoranthene	ND	5.00	1.50	ug/Kg	10/02/09
Benzo[a]pyrene	ND	5.00	1.50	ug/Kg	10/02/09
Indeno[1,2,3-c,d] pyrene	ND	5.00	1.50	ug/Kg	10/02/09
Dibenzo[a,h]anthracene	ND	5.00	1.50	ug/Kg	10/02/09
Benzo[g,h,i]perylene	ND	5.00	1.50	ug/Kg	10/02/09
Naphthalene	ND	5.00	1.50	ug/Kg	10/02/09
1-Methylnaphthalene	ND	5.00	1.50	ug/Kg	10/02/09
2-Methylnaphthalene	ND	5.00	1.50	ug/Kg	10/02/09
Surrogates					
Terphenyl-d14 <surr>	86.8	30-125		%	10/02/09
Batch	XMS5108				
Method	8270D SIMS				
Instrument	HP 6890/5973 MS SVQA				



SGS Ref.#	924337	Method Blank	Printed Date/Time	10/12/2009 15:49
Client Name	SLR Alaska-Fairbanks		Prep	Batch
Project Name/#	Village Of Beaver Old School			Method
Matrix	Soil/Solid (dry weight)			Date
				09/16/2009

QC results affect the following production samples:
1094997004, 1094997006, 1094997007

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date

Metals by ICP/MS

Lead	ND	0.200	0.0620	mg/Kg	09/18/09
Batch	MMS6089				
Method	SW6020				
Instrument	Perkin Elmer Sciex ICP-MS P3				



SGS Ref.#	924642	Method Blank	Printed Date/Time	10/12/2009 15:49
Client Name	SLR Alaska-Fairbanks		Prep	Batch
Project Name/#	Village Of Beaver Old School			Method
Matrix	Soil/Solid (dry weight)			Date

QC results affect the following production samples:
1094997004, 1094997007, 1094997008, 1094997009, 1094997012

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date

Volatile Gas Chromatography/Mass Spectroscopy



SGS Ref.# 924642 Method Blank
Client Name SLR Alaska-Fairbanks
Project Name/# Village Of Beaver Old School
Matrix Soil/Solid (dry weight)

Printed Date/Time 10/12/2009 15:49
Prep Batch
Method
Date

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date

Volatile Gas Chromatography/Mass Spectroscopy

Benzene	ND	15.0	5.00	ug/Kg	09/16/09
Toluene	ND	50.0	15.0	ug/Kg	09/16/09
Ethylbenzene	ND	25.0	7.80	ug/Kg	09/16/09
n-Butylbenzene	ND	25.0	7.80	ug/Kg	09/16/09
Carbon disulfide	ND	100	31.0	ug/Kg	09/16/09
1,4-Dichlorobenzene	ND	25.0	7.80	ug/Kg	09/16/09
1,2-Dichloroethane	ND	25.0	7.80	ug/Kg	09/16/09
1,3,5-Trimethylbenzene	ND	25.0	7.80	ug/Kg	09/16/09
4-Chlorotoluene	ND	25.0	7.80	ug/Kg	09/16/09
Chlorobenzene	ND	25.0	7.80	ug/Kg	09/16/09
4-Methyl-2-pentanone (MIBK)	ND	250	78.0	ug/Kg	09/16/09
cis-1,2-Dichloroethene	ND	25.0	7.80	ug/Kg	09/16/09
4-Isopropyltoluene	ND	25.0	7.80	ug/Kg	09/16/09
Methyl-t-butyl ether	ND	40.0	12.0	ug/Kg	09/16/09
cis-1,3-Dichloropropene	ND	25.0	7.80	ug/Kg	09/16/09
n-Propylbenzene	ND	25.0	7.80	ug/Kg	09/16/09
Styrene	ND	25.0	7.80	ug/Kg	09/16/09
Dibromomethane	ND	25.0	7.80	ug/Kg	09/16/09
trans-1,3-Dichloropropene	ND	25.0	7.80	ug/Kg	09/16/09
1,2,4-Trichlorobenzene	ND	50.0	15.0	ug/Kg	09/16/09
1,1,2,2-Tetrachloroethane	ND	50.0	15.0	ug/Kg	09/16/09
1,2-Dibromo-3-chloropropane	ND	100	31.0	ug/Kg	09/16/09
Tetrachloroethene	ND	25.0	7.80	ug/Kg	09/16/09
Dibromochloromethane	ND	25.0	7.80	ug/Kg	09/16/09
1,3-Dichloropropane	ND	25.0	7.80	ug/Kg	09/16/09
1,2-Dibromoethane	ND	25.0	7.80	ug/Kg	09/16/09
Carbon tetrachloride	ND	25.0	7.80	ug/Kg	09/16/09
1,1,1,2-Tetrachloroethane	ND	25.0	7.80	ug/Kg	09/16/09
Chloroform	ND	25.0	7.80	ug/Kg	09/16/09
Bromobenzene	ND	25.0	7.80	ug/Kg	09/16/09
Chloromethane	ND	25.0	7.80	ug/Kg	09/16/09
1,2,3-Trichloropropane	ND	50.0	15.0	ug/Kg	09/16/09
Bromomethane	ND	200	62.0	ug/Kg	09/16/09
Bromochloromethane	ND	25.0	7.80	ug/Kg	09/16/09
Vinyl chloride	ND	25.0	12.0	ug/Kg	09/16/09
Dichlorodifluoromethane	ND	50.0	15.0	ug/Kg	09/16/09
Chloroethane	ND	200	62.0	ug/Kg	09/16/09
sec-Butylbenzene	ND	25.0	7.80	ug/Kg	09/16/09
Bromodichloromethane	ND	25.0	7.80	ug/Kg	09/16/09



SGS Ref.# 924642 Method Blank
Client Name SLR Alaska-Fairbanks
Project Name/# Village Of Beaver Old School
Matrix Soil/Solid (dry weight)

Printed Date/Time 10/12/2009 15:49
Prep Batch
Method
Date

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date

Volatile Gas Chromatography/Mass Spectroscopy

1,1-Dichloroethene	ND	25.0	7.80	ug/Kg	09/16/09
2-Butanone (MEK)	ND	250	78.0	ug/Kg	09/16/09
Methylene chloride	ND	100	31.0	ug/Kg	09/16/09
Trichlorofluoromethane	ND	50.0	15.0	ug/Kg	09/16/09
P & M -Xylene	ND	50.0	15.0	ug/Kg	09/16/09
Naphthalene	ND	50.0	15.0	ug/Kg	09/16/09
o-Xylene	ND	50.0	15.0	ug/Kg	09/16/09
Bromoform	ND	25.0	7.80	ug/Kg	09/16/09
1,2,4-Trimethylbenzene	ND	25.0	7.80	ug/Kg	09/16/09
tert-Butylbenzene	ND	25.0	7.80	ug/Kg	09/16/09
1,1,1-Trichloroethane	ND	25.0	7.80	ug/Kg	09/16/09
1,1-Dichloroethane	ND	25.0	7.80	ug/Kg	09/16/09
2-Chlorotoluene	ND	25.0	7.80	ug/Kg	09/16/09
Trichloroethene	ND	25.0	7.80	ug/Kg	09/16/09
trans-1,2-Dichloroethene	ND	25.0	7.80	ug/Kg	09/16/09
1,2-Dichlorobenzene	ND	25.0	7.80	ug/Kg	09/16/09
2,2-Dichloropropane	ND	25.0	7.80	ug/Kg	09/16/09
Hexachlorobutadiene	ND	50.0	15.0	ug/Kg	09/16/09
Isopropylbenzene (Cumene)	ND	25.0	7.80	ug/Kg	09/16/09
2-Hexanone	ND	250	78.0	ug/Kg	09/16/09
1,2-Dichloropropane	ND	25.0	7.80	ug/Kg	09/16/09
1,1-Dichloropropene	ND	25.0	7.80	ug/Kg	09/16/09
1,1,2-Trichloroethane	ND	25.0	7.80	ug/Kg	09/16/09
1,3-Dichlorobenzene	ND	25.0	7.80	ug/Kg	09/16/09
1,2,3-Trichlorobenzene	ND	50.0	15.0	ug/Kg	09/16/09

Surrogates

1,2-Dichloroethane-D4 <surr>	97.7	69-132	%	09/16/09
Toluene-d8 <surr>	100	84-124	%	09/16/09
4-Bromofluorobenzene <surr>	104	65-144	%	09/16/09

Batch VMS10834
Method SW8260B
Instrument HP 5890 Series II MS5 VLA



SGS Ref.# 924709 Method Blank
Client Name SLR Alaska-Fairbanks
Project Name/# Village Of Beaver Old School
Matrix Soil/Solid (dry weight)

Printed Date/Time 10/12/2009 15:49
Prep Batch XXX21648
Method SW3550C
Date 09/17/2009

QC results affect the following production samples:

1094997004, 1094997007, 1094997008, 1094997009, 1094997010, 1094997011

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date
<u>Semivolatile Organic Fuels Department</u>					
Diesel Range Organics	ND	20.0	6.20	mg/Kg	09/18/09
Surrogates					
5a Androstane <surr>	86.1	60-120		%	09/18/09
Batch	XFC8857				
Method	AK102				
Instrument	HP 6890 Series II FID SV D R				
Residual Range Organics	ND	20.0	6.20	mg/Kg	09/18/09
Surrogates					
n-Triacontane-d62 <surr>	90.3	60-120		%	09/18/09
Batch	XFC8857				
Method	AK103				
Instrument	HP 6890 Series II FID SV D R				



SGS Ref.# 924761 Method Blank
Client Name SLR Alaska-Fairbanks
Project Name/# Village Of Beaver Old School
Matrix Soil/Solid (dry weight)

Printed Date/Time 10/12/2009 15:49
Prep Batch XXX21649
Method SW3550C
Date 09/17/2009

QC results affect the following production samples:
1094997001

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date
<u>Semivolatile Organic Fuels Department</u>					
Diesel Range Organics	ND	20.0	6.20	mg/Kg	09/21/09
Surrogates					
5a Androstane <surr>	70.5	60-120		%	09/21/09
Batch	XFC8868				
Method	AK102				
Instrument	HP 7890A	FID SV E F			
Residual Range Organics	ND	20.0	6.20	mg/Kg	09/21/09
Surrogates					
n-Triacontane-d62 <surr>	70.3	60-120		%	09/21/09
Batch	XFC8868				
Method	AK103				
Instrument	HP 7890A	FID SV E F			



SGS Ref.# 925046 Method Blank
Client Name SLR Alaska-Fairbanks
Project Name/# Village Of Beaver Old School
Matrix Soil/Solid (dry weight)

Printed Date/Time 10/12/2009 15:49
Prep Batch
Method
Date

QC results affect the following production samples:

1094997004, 1094997007

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date

Volatile Gas Chromatography/Mass Spectroscopy

1,3,5-Trimethylbenzene	ND	25.0	7.80	ug/Kg	09/17/09
4-Isopropyltoluene	ND	25.0	7.80	ug/Kg	09/17/09
P & M -Xylene	ND	50.0	15.0	ug/Kg	09/17/09
Naphthalene	ND	50.0	15.0	ug/Kg	09/17/09
o-Xylene	ND	50.0	15.0	ug/Kg	09/17/09
1,2,4-Trimethylbenzene	ND	25.0	7.80	ug/Kg	09/17/09

Surrogates

1,2-Dichloroethane-D4 <surr>	103	69-132		%	09/17/09
Toluene-d8 <surr>	105	84-124		%	09/17/09
4-Bromofluorobenzene <surr>	99.1	65-144		%	09/17/09

Batch VMS10838
Method SW8260B
Instrument HP 5890 Series II MS1 VMA



SGS Ref.#	925717	Method Blank	Printed Date/Time	10/12/2009 15:49
Client Name	SLR Alaska-Fairbanks		Prep	Batch
Project Name/#	Village Of Beaver Old School			Method
Matrix	Soil/Solid (dry weight)			Date

QC results affect the following production samples:
1094997006

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date

Volatile Gas Chromatography/Mass Spectroscopy



SGS Ref.# 925717 Method Blank
Client Name SLR Alaska-Fairbanks
Project Name/# Village Of Beaver Old School
Matrix Soil/Solid (dry weight)

Printed Date/Time 10/12/2009 15:49
Prep Batch
Method
Date

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date

Volatile Gas Chromatography/Mass Spectroscopy

Benzene	ND	15.0	5.00	ug/Kg	09/21/09
Toluene	ND	50.0	15.0	ug/Kg	09/21/09
Ethylbenzene	ND	25.0	7.80	ug/Kg	09/21/09
n-Butylbenzene	ND	25.0	7.80	ug/Kg	09/21/09
Carbon disulfide	ND	100	31.0	ug/Kg	09/21/09
1,4-Dichlorobenzene	ND	25.0	7.80	ug/Kg	09/21/09
1,2-Dichloroethane	ND	25.0	7.80	ug/Kg	09/21/09
1,3,5-Trimethylbenzene	ND	25.0	7.80	ug/Kg	09/21/09
4-Chlorotoluene	ND	25.0	7.80	ug/Kg	09/21/09
Chlorobenzene	ND	25.0	7.80	ug/Kg	09/21/09
4-Methyl-2-pentanone (MIBK)	ND	250	78.0	ug/Kg	09/21/09
cis-1,2-Dichloroethene	ND	25.0	7.80	ug/Kg	09/21/09
4-Isopropyltoluene	ND	25.0	7.80	ug/Kg	09/21/09
Methyl-t-butyl ether	ND	40.0	12.0	ug/Kg	09/21/09
cis-1,3-Dichloropropene	ND	25.0	7.80	ug/Kg	09/21/09
n-Propylbenzene	ND	25.0	7.80	ug/Kg	09/21/09
Styrene	ND	25.0	7.80	ug/Kg	09/21/09
Dibromomethane	ND	25.0	7.80	ug/Kg	09/21/09
trans-1,3-Dichloropropene	ND	25.0	7.80	ug/Kg	09/21/09
1,2,4-Trichlorobenzene	ND	50.0	15.0	ug/Kg	09/21/09
1,1,2,2-Tetrachloroethane	ND	50.0	15.0	ug/Kg	09/21/09
1,2-Dibromo-3-chloropropane	ND	100	31.0	ug/Kg	09/21/09
Tetrachloroethene	ND	25.0	7.80	ug/Kg	09/21/09
Dibromochloromethane	ND	25.0	7.80	ug/Kg	09/21/09
1,3-Dichloropropane	ND	25.0	7.80	ug/Kg	09/21/09
1,2-Dibromoethane	ND	25.0	7.80	ug/Kg	09/21/09
Carbon tetrachloride	ND	25.0	7.80	ug/Kg	09/21/09
1,1,1,2-Tetrachloroethane	ND	25.0	7.80	ug/Kg	09/21/09
Chloroform	ND	25.0	7.80	ug/Kg	09/21/09
Bromobenzene	ND	25.0	7.80	ug/Kg	09/21/09
Chloromethane	ND	25.0	7.80	ug/Kg	09/21/09
1,2,3-Trichloropropane	ND	50.0	15.0	ug/Kg	09/21/09
Bromomethane	ND	200	62.0	ug/Kg	09/21/09
Bromochloromethane	ND	25.0	7.80	ug/Kg	09/21/09
Vinyl chloride	ND	25.0	12.0	ug/Kg	09/21/09
Dichlorodifluoromethane	ND	50.0	15.0	ug/Kg	09/21/09
Chloroethane	ND	200	62.0	ug/Kg	09/21/09
sec-Butylbenzene	ND	25.0	7.80	ug/Kg	09/21/09
Bromodichloromethane	ND	25.0	7.80	ug/Kg	09/21/09



SGS Ref.# 925717 Method Blank
Client Name SLR Alaska-Fairbanks
Project Name/# Village Of Beaver Old School
Matrix Soil/Solid (dry weight)

Printed Date/Time 10/12/2009 15:49
Prep Batch
Method
Date

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date

Volatile Gas Chromatography/Mass Spectroscopy

1,1-Dichloroethene	ND	25.0	7.80	ug/Kg	09/21/09
2-Butanone (MEK)	ND	250	78.0	ug/Kg	09/21/09
Methylene chloride	ND	100	31.0	ug/Kg	09/21/09
Trichlorofluoromethane	ND	50.0	15.0	ug/Kg	09/21/09
P & M -Xylene	ND	50.0	15.0	ug/Kg	09/21/09
Naphthalene	ND	50.0	15.0	ug/Kg	09/21/09
o-Xylene	ND	50.0	15.0	ug/Kg	09/21/09
Bromoform	ND	25.0	7.80	ug/Kg	09/21/09
1,2,4-Trimethylbenzene	ND	25.0	7.80	ug/Kg	09/21/09
tert-Butylbenzene	ND	25.0	7.80	ug/Kg	09/21/09
1,1,1-Trichloroethane	ND	25.0	7.80	ug/Kg	09/21/09
1,1-Dichloroethane	ND	25.0	7.80	ug/Kg	09/21/09
2-Chlorotoluene	ND	25.0	7.80	ug/Kg	09/21/09
Trichloroethene	ND	25.0	7.80	ug/Kg	09/21/09
trans-1,2-Dichloroethene	ND	25.0	7.80	ug/Kg	09/21/09
1,2-Dichlorobenzene	ND	25.0	7.80	ug/Kg	09/21/09
2,2-Dichloropropane	ND	25.0	7.80	ug/Kg	09/21/09
Hexachlorobutadiene	ND	50.0	15.0	ug/Kg	09/21/09
Isopropylbenzene (Cumene)	ND	25.0	7.80	ug/Kg	09/21/09
2-Hexanone	ND	250	78.0	ug/Kg	09/21/09
1,2-Dichloropropane	ND	25.0	7.80	ug/Kg	09/21/09
1,1-Dichloropropene	ND	25.0	7.80	ug/Kg	09/21/09
1,1,2-Trichloroethane	ND	25.0	7.80	ug/Kg	09/21/09
1,3-Dichlorobenzene	ND	25.0	7.80	ug/Kg	09/21/09
1,2,3-Trichlorobenzene	ND	50.0	15.0	ug/Kg	09/21/09

Surrogates

1,2-Dichloroethane-D4 <surr>	90.1	69-132	%	09/21/09
Toluene-d8 <surr>	97.4	84-124	%	09/21/09
4-Bromofluorobenzene <surr>	100	65-144	%	09/21/09

Batch VMS10846
Method SW8260B
Instrument HP 5890 Series II MS5 VLA



SGS Ref.# 926481 Method Blank
Client Name SLR Alaska-Fairbanks
Project Name/# Village Of Beaver Old School
Matrix Soil/Solid (dry weight)

Printed Date/Time 10/12/2009 15:49
Prep Batch VXX19995
Method SW5035A
Date 09/23/2009

QC results affect the following production samples:

1094997003, 1094997005, 1094997010, 1094997011, 1094997012

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date

Volatile Fuels Department

Gasoline Range Organics	ND	2.50	0.750	mg/Kg	09/23/09

Surrogates

4-Bromofluorobenzene <surr>	107	50-150		%	09/23/09

Batch VFC9659

Method AK101

Instrument HP 5890 Series II PID+HECD VBA

Benzene	ND	12.5	4.00	ug/Kg	09/23/09

Toluene	ND	50.0	15.0	ug/Kg	09/23/09

Ethylbenzene	ND	50.0	15.0	ug/Kg	09/23/09

o-Xylene	ND	50.0	15.0	ug/Kg	09/23/09

P & M -Xylene	ND	50.0	15.0	ug/Kg	09/23/09

Surrogates

1,4-Difluorobenzene <surr>	107	80-120		%	09/23/09

Batch VFC9659

Method SW8021B

Instrument HP 5890 Series II PID+HECD VBA



SGS Ref.# 926518 Method Blank
Client Name SLR Alaska-Fairbanks
Project Name/# Village Of Beaver Old School
Matrix Soil/Solid (dry weight)

Printed Date/Time 10/12/2009 15:49
Prep Batch VXX19998
Method SW5035A
Date 09/23/2009

QC results affect the following production samples:

1094997001, 1094997002

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date

Volatile Fuels Department

Gasoline Range Organics	ND	2.50	0.750	mg/Kg	09/23/09

Surrogates

4-Bromofluorobenzene <surr>	112	50-150		%	09/23/09

Batch VFC9660

Method AK101

Instrument HP 5890 Series II PID+FID VCA

Benzene	ND	12.5	4.00	ug/Kg	09/23/09

Toluene	ND	50.0	15.0	ug/Kg	09/23/09

Ethylbenzene	ND	50.0	15.0	ug/Kg	09/23/09

o-Xylene	ND	50.0	15.0	ug/Kg	09/23/09

P & M -Xylene	ND	50.0	15.0	ug/Kg	09/23/09

Surrogates

1,4-Difluorobenzene <surr>	89.7	80-120		%	09/23/09

Batch VFC9660

Method SW8021B

Instrument HP 5890 Series II PID+FID VCA



SGS Ref.# 926955 Method Blank
Client Name SLR Alaska-Fairbanks
Project Name/# Village Of Beaver Old School
Matrix Soil/Solid (dry weight)

Printed Date/Time 10/12/2009 15:49
Prep Batch VXX20008
Method SW5035A
Date 09/25/2009

QC results affect the following production samples:

1094997002, 1094997004, 1094997006, 1094997007, 1094997008, 1094997009

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date

Volatile Fuels Department

Gasoline Range Organics	0.778J	2.50	0.750	mg/Kg	09/25/09
o-Xylene	ND	0.0500	0.0150	mg/Kg	09/25/09

Surrogates

4-Bromofluorobenzene <surr>	119	50-150		%	09/25/09
1,4-Difluorobenzene <surr>	87.2	80-120		%	09/25/09

Batch VFC9665
Method AK101
Instrument HP 5890 Series II PID+FID VCA

o-Xylene	ND	50.0	15.0	ug/Kg	09/25/09

Surrogates

1,4-Difluorobenzene <surr>	87.2	80-120		%	09/25/09

Batch VFC9665
Method SW8021B
Instrument HP 5890 Series II PID+FID VCA



SGS Ref.# 924253 Duplicate
Client Name SLR Alaska-Fairbanks
Project Name/# Village Of Beaver Old School
Original 1094853001
Matrix Soil/Solid (dry weight)

Printed Date/Time 10/12/2009 15:49
Prep Batch
Method
Date

QC results affect the following production samples:

1094997001, 1094997002, 1094997003, 1094997004, 1094997005, 1094997006, 1094997007, 1094997008, 1094997009, 1094997010,
1094997011

Parameter	Original Result	QC Result	Units	RPD	RPD Limits	Analysis Date

Solids

Total Solids	93.8	94.6	%	1	(< 15)	09/15/2009

Batch SPT8008
Method SM20 2540G
Instrument

SGS Ref.# 924169 Lab Control Sample
 924170 Lab Control Sample Duplicate
Client Name SLR Alaska-Fairbanks
Project Name/# Village Of Beaver Old School
Matrix Soil/Solid (dry weight)

Printed Date/Time 10/12/2009 15:49
Prep Batch XXX21635
Method SW3550C
Date 09/15/2009

QC results affect the following production samples:

1094997002, 1094997003, 1094997005, 1094997006

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

Semivolatile Organic Fuels Department

Diesel Range Organics	LCS	151	91	(75-125)			167 mg/Kg	09/19/2009
	LCSD	158	95		4	(< 20)	167 mg/Kg	09/19/2009

Surrogates

5a Androstane <surr>	LCS		77	(60-120)				09/19/2009
	LCSD		80		4			09/19/2009

Batch XFC8862
Method AK102
Instrument HP 7890A FID SV E F

Residual Range Organics	LCS	163	98	(60-120)			167 mg/Kg	09/19/2009
	LCSD	170	102		4	(< 20)	167 mg/Kg	09/19/2009

Surrogates

n-Triacontane-d62 <surr>	LCS		85	(60-120)				09/19/2009
	LCSD		87		3			09/19/2009

Batch XFC8862
Method AK103
Instrument HP 7890A FID SV E F



SGS Ref.# 924334 Lab Control Sample

Printed Date/Time 10/12/2009 15:49
Prep Batch XXX21640
Method SW3550C
Date 09/16/2009

Client Name SLR Alaska-Fairbanks
Project Name/# Village Of Beaver Old School
Matrix Soil/Solid (dry weight)

QC results affect the following production samples:
1094997004, 1094997006, 1094997007

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

Polynuclear Aromatics GC/MS



SGS Ref.# 924334 Lab Control Sample

Printed Date/Time 10/12/2009 15:49

Client Name SLR Alaska-Fairbanks
Project Name/# Village Of Beaver Old School
Matrix Soil/Solid (dry weight)

Prep Batch XXX21640
Method SW3550C
Date 09/16/2009

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
<u>Polynuclear Aromatics GC/MS</u>							
Acenaphthylene	LCS 18.4	83	(45-102)			22.2 ug/Kg	10/02/2009
Acenaphthene	LCS 17.8	80	(45-99)			22.2 ug/Kg	10/02/2009
Fluorene	LCS 18.9	85	(50-107)			22.2 ug/Kg	10/02/2009
Phenanthrene	LCS 19.1	86	(50-110)			22.2 ug/Kg	10/02/2009
Anthracene	LCS 19.8	89	(28-103)			22.2 ug/Kg	10/02/2009
Fluoranthene	LCS 20.1	90	(55-115)			22.2 ug/Kg	10/02/2009
Pyrene	LCS 18.4	83	(45-120)			22.2 ug/Kg	10/02/2009
Benzo(a)Anthracene	LCS 20.7	93	(40-110)			22.2 ug/Kg	10/02/2009
Chrysene	LCS 20.5	92	(55-110)			22.2 ug/Kg	10/02/2009
Benzo[b]Fluoranthene	LCS 21.2	96	(45-115)			22.2 ug/Kg	10/02/2009
Benzo[k]fluoranthene	LCS 21.8	98	(45-120)			22.2 ug/Kg	10/02/2009
Benzo[a]pyrene	LCS 21.8	98	(10-102)			22.2 ug/Kg	10/02/2009
Indeno[1,2,3-c,d] pyrene	LCS 22.6	102	(40-120)			22.2 ug/Kg	10/02/2009
Dibenzo[a,h]anthracene	LCS 23.3	105	(40-125)			22.2 ug/Kg	10/02/2009
Benzo[g,h,i]perylene	LCS 21.6	97	(40-118)			22.2 ug/Kg	10/02/2009
Naphthalene	LCS 18.8	85	(40-92)			22.2 ug/Kg	10/02/2009
1-Methylnaphthalene	LCS 20.1	90	(30-97)			22.2 ug/Kg	10/02/2009
2-Methylnaphthalene	LCS 18.6	84	(45-96)			22.2 ug/Kg	10/02/2009
<u>Surrogates</u>							
Terphenyl-d14 <surr>	LCS	87	(30-125)				10/02/2009



SGS Ref.#	924334	Lab Control Sample	Printed Date/Time	10/12/2009	15:49
Client Name	SLR Alaska-Fairbanks		Prep	Batch	XXX21640
Project Name/#	Village Of Beaver Old School			Method	SW3550C
Matrix	Soil/Solid (dry weight)			Date	09/16/2009

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

Polynuclear Aromatics GC/MS

Batch	XMS5108
Method	8270D SIMS
Instrument	HP 6890/5973 MS SVQA



SGS Ref.#	924338	Lab Control Sample	Printed Date/Time	10/12/2009	15:49
			Prep	Batch	MXX22233
Client Name	SLR Alaska-Fairbanks			Method	SW3050B
Project Name/#	Village Of Beaver Old School			Date	09/16/2009
Matrix	Soil/Solid (dry weight)				

QC results affect the following production samples:
1094997004, 1094997006, 1094997007

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

Metals by ICP/MS

Lead	LCS	54.2	108	(80-120)		50 mg/Kg	09/18/2009

Batch	MMS6089
Method	SW6020
Instrument	Perkin Elmer Sciex ICP-MS P3



SGS Ref.#	924643	Lab Control Sample	Printed Date/Time	10/12/2009	15:49
Client Name	SLR Alaska-Fairbanks		Prep	Batch	
Project Name/#	Village Of Beaver Old School			Method	
Matrix	Soil/Solid (dry weight)			Date	

QC results affect the following production samples:
1094997004, 1094997007, 1094997008, 1094997009, 1094997012

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

Volatile Gas Chromatography/Mass Spectroscopy



SGS Ref.# 924643 Lab Control Sample

Printed Date/Time 10/12/2009 15:49
Prep Batch

Client Name SLR Alaska-Fairbanks
Project Name/# Village Of Beaver Old School
Matrix Soil/Solid (dry weight)

Method
Date

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
<u>Volatile Gas Chromatography/Mass Spectroscopy</u>							
Benzene	LCS 760	101	(81-124)			750 ug/Kg	09/16/2009
Toluene	LCS 796	106	(87-119)			750 ug/Kg	09/16/2009
Ethylbenzene	LCS 820	109	(87-119)			750 ug/Kg	09/16/2009
n-Butylbenzene	LCS 772	103	(82-127)			750 ug/Kg	09/16/2009
Carbon disulfide	LCS 2100	187 *	(58-155)			1130 ug/Kg	09/16/2009
1,4-Dichlorobenzene	LCS 773	103	(86-118)			750 ug/Kg	09/16/2009
1,2-Dichloroethane	LCS 740	99	(83-121)			750 ug/Kg	09/16/2009
1,3,5-Trimethylbenzene	LCS 765	102	(87-120)			750 ug/Kg	09/16/2009
4-Chlorotoluene	LCS 747	100	(84-120)			750 ug/Kg	09/16/2009
Chlorobenzene	LCS 777	104	(84-121)			750 ug/Kg	09/16/2009
4-Methyl-2-pentanone (MIBK)	LCS 2450	109	(67-135)			2250 ug/Kg	09/16/2009
cis-1,2-Dichloroethene	LCS 768	102	(82-124)			750 ug/Kg	09/16/2009
4-Isopropyltoluene	LCS 786	105	(83-121)			750 ug/Kg	09/16/2009
Methyl-t-butyl ether	LCS 1180	105	(76-133)			1130 ug/Kg	09/16/2009
cis-1,3-Dichloropropene	LCS 788	105	(82-122)			750 ug/Kg	09/16/2009
n-Propylbenzene	LCS 727	97	(82-125)			750 ug/Kg	09/16/2009
Styrene	LCS 819	109	(91-120)			750 ug/Kg	09/16/2009
Dibromomethane	LCS 747	100	(80-123)			750 ug/Kg	09/16/2009
trans-1,3-Dichloropropene	LCS 833	111	(86-122)			750 ug/Kg	09/16/2009
1,2,4-Trichlorobenzene	LCS 784	105	(77-126)			750 ug/Kg	09/16/2009
1,1,2,2-Tetrachloroethane	LCS 719	96	(80-122)			750 ug/Kg	09/16/2009



SGS Ref.# 924643 Lab Control Sample

Printed Date/Time 10/12/2009 15:49
Prep Batch

Client Name SLR Alaska-Fairbanks
Project Name/# Village Of Beaver Old School
Matrix Soil/Solid (dry weight)

Method
Date

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

Volatile Gas Chromatography/Mass Spectroscopy

1,2-Dibromo-3-chloropropane	LCS	733	98	(60-135)		750 ug/Kg	09/16/2009
Tetrachloroethene	LCS	825	110	(82-125)		750 ug/Kg	09/16/2009
Dibromochloromethane	LCS	773	103	(84-125)		750 ug/Kg	09/16/2009
1,3-Dichloropropane	LCS	817	109	(84-123)		750 ug/Kg	09/16/2009
1,2-Dibromoethane	LCS	807	108	(85-124)		750 ug/Kg	09/16/2009
Carbon tetrachloride	LCS	798	106	(79-128)		750 ug/Kg	09/16/2009
1,1,1,2-Tetrachloroethane	LCS	826	110	(77-123)		750 ug/Kg	09/16/2009
Chloroform	LCS	775	103	(77-124)		750 ug/Kg	09/16/2009
Bromobenzene	LCS	743	99	(86-119)		750 ug/Kg	09/16/2009
Chloromethane	LCS	874	117	(54-129)		750 ug/Kg	09/16/2009
1,2,3-Trichloropropane	LCS	665	89	(77-125)		750 ug/Kg	09/16/2009
Bromomethane	LCS	813	108	(49-141)		750 ug/Kg	09/16/2009
Bromochloromethane	LCS	783	104	(79-125)		750 ug/Kg	09/16/2009
Vinyl chloride	LCS	903	120	(67-125)		750 ug/Kg	09/16/2009
Dichlorodifluoromethane	LCS	874	117	(43-135)		750 ug/Kg	09/16/2009
Chloroethane	LCS	791	105	(51-141)		750 ug/Kg	09/16/2009
sec-Butylbenzene	LCS	790	105	(84-122)		750 ug/Kg	09/16/2009
Bromodichloromethane	LCS	830	111	(81-127)		750 ug/Kg	09/16/2009
1,1-Dichloroethene	LCS	982	131 *	(75-125)		750 ug/Kg	09/16/2009
2-Butanone (MEK)	LCS	2160	96	(57-135)		2250 ug/Kg	09/16/2009



SGS Ref.# 924643 Lab Control Sample

Printed Date/Time 10/12/2009 15:49
Prep Batch

Client Name SLR Alaska-Fairbanks
Project Name/# Village Of Beaver Old School
Matrix Soil/Solid (dry weight)

Method
Date

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
<u>Volatile Gas Chromatography/Mass Spectroscopy</u>							
Methylene chloride	LCS 741	99	(63-137)			750 ug/Kg	09/16/2009
Trichlorofluoromethane	LCS 828	110	(64-139)			750 ug/Kg	09/16/2009
P & M -Xylene	LCS 1620	108	(88-121)			1500 ug/Kg	09/16/2009
Naphthalene	LCS 712	95	(73-131)			750 ug/Kg	09/16/2009
o-Xylene	LCS 824	110	(89-120)			750 ug/Kg	09/16/2009
Bromoform	LCS 768	102	(72-135)			750 ug/Kg	09/16/2009
1,2,4-Trimethylbenzene	LCS 781	104	(85-121)			750 ug/Kg	09/16/2009
tert-Butylbenzene	LCS 756	101	(82-122)			750 ug/Kg	09/16/2009
1,1,1-Trichloroethane	LCS 755	101	(77-129)			750 ug/Kg	09/16/2009
1,1-Dichloroethane	LCS 792	106	(81-126)			750 ug/Kg	09/16/2009
2-Chlorotoluene	LCS 759	101	(81-122)			750 ug/Kg	09/16/2009
Trichloroethene	LCS 817	109	(77-124)			750 ug/Kg	09/16/2009
trans-1,2-Dichloroethene	LCS 790	105	(79-125)			750 ug/Kg	09/16/2009
1,2-Dichlorobenzene	LCS 804	107	(88-113)			750 ug/Kg	09/16/2009
2,2-Dichloropropane	LCS 759	101	(69-132)			750 ug/Kg	09/16/2009
Hexachlorobutadiene	LCS 678	90	(74-124)			750 ug/Kg	09/16/2009
Isopropylbenzene (Cumene)	LCS 835	111	(89-121)			750 ug/Kg	09/16/2009
2-Hexanone	LCS 2400	107	(58-145)			2250 ug/Kg	09/16/2009
1,2-Dichloropropane	LCS 754	101	(81-120)			750 ug/Kg	09/16/2009
1,1-Dichloropropene	LCS 753	100	(76-134)			750 ug/Kg	09/16/2009
1,1,2-Trichloroethane	LCS 749	100	(85-121)			750 ug/Kg	09/16/2009



SGS Ref.# 924643 Lab Control Sample

Printed Date/Time 10/12/2009 15:49
Prep Batch

Client Name SLR Alaska-Fairbanks
Project Name/# Village Of Beaver Old School
Matrix Soil/Solid (dry weight)

Method
Date

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

Volatile Gas Chromatography/Mass Spectroscopy

1,3-Dichlorobenzene	LCS	753	100	(86-117)		750 ug/Kg	09/16/2009

1,2,3-Trichlorobenzene	LCS	757	101	(78-124)		750 ug/Kg	09/16/2009

Surrogates

1,2-Dichloroethane-D4 <surr>	LCS		100	(69-132)			09/16/2009

Toluene-d8 <surr>	LCS		105	(84-124)			09/16/2009

4-Bromofluorobenzene <surr>	LCS		97	(65-144)			09/16/2009

Batch VMS10834
Method SW8260B
Instrument HP 5890 Series II MS5 VLA

SGS Ref.#	924710	Lab Control Sample	Printed Date/Time	10/12/2009	15:49
	924711	Lab Control Sample Duplicate	Prep	Batch	XXX21648
Client Name	SLR Alaska-Fairbanks		Method	SW3550C	
Project Name/#	Village Of Beaver Old School		Date	09/17/2009	
Matrix	Soil/Solid (dry weight)				

QC results affect the following production samples:

1094997004, 1094997007, 1094997008, 1094997009, 1094997010, 1094997011

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

Semivolatile Organic Fuels Department

Diesel Range Organics	LCS	150	90	(75-125)		167 mg/Kg	09/18/2009
	LCSD	150	90		1	(< 20)	167 mg/Kg 09/18/2009

Surrogates

5a Androstane <surr>	LCS		89	(60-120)			09/18/2009
	LCSD		89		0		09/18/2009

Batch	XFC8857
Method	AK102
Instrument	HP 6890 Series II FID SV D R

Residual Range Organics	LCS	135	81	(60-120)		167 mg/Kg	09/18/2009
	LCSD	137	82		1	(< 20)	167 mg/Kg 09/18/2009

Surrogates

n-Triacontane-d62 <surr>	LCS		83	(60-120)			09/18/2009
	LCSD		84		1		09/18/2009

Batch	XFC8857
Method	AK103
Instrument	HP 6890 Series II FID SV D R

SGS Ref.# 924762 Lab Control Sample
 924763 Lab Control Sample Duplicate
Client Name SLR Alaska-Fairbanks
Project Name/# Village Of Beaver Old School
Matrix Soil/Solid (dry weight)

Printed Date/Time 10/12/2009 15:49
Prep Batch XXX21649
Method SW3550C
Date 09/17/2009

QC results affect the following production samples:
 1094997001

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

Semivolatile Organic Fuels Department

Diesel Range Organics	LCS	149	90	(75-125)		167 mg/Kg	09/21/2009
	LCSD	147	88		2	(< 20)	167 mg/Kg 09/21/2009

Surrogates

5a Androstane <surr>	LCS		77	(60-120)			09/21/2009
	LCSD		75		2		09/21/2009

Batch XFC8868
Method AK102
Instrument HP 7890A FID SV E F

Residual Range Organics	LCS	159	96	(60-120)		167 mg/Kg	09/21/2009
	LCSD	155	93		2	(< 20)	167 mg/Kg 09/21/2009

Surrogates

n-Triacontane-d62 <surr>	LCS		82	(60-120)			09/21/2009
	LCSD		79		4		09/21/2009

Batch XFC8868
Method AK103
Instrument HP 7890A FID SV E F



SGS Ref.# 925047 Lab Control Sample

Printed Date/Time 10/12/2009 15:49
Prep Batch

Client Name SLR Alaska-Fairbanks
Project Name/# Village Of Beaver Old School
Matrix Soil/Solid (dry weight)

Method
Date

QC results affect the following production samples:

1094997004, 1094997007

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

Volatile Gas Chromatography/Mass Spectroscopy

1,3,5-Trimethylbenzene	LCS	750	100	(87-120)		750 ug/Kg	09/17/2009
4-Isopropyltoluene	LCS	729	97	(83-121)		750 ug/Kg	09/17/2009
P & M -Xylene	LCS	1640	110	(88-121)		1500 ug/Kg	09/17/2009
Naphthalene	LCS	776	103	(73-131)		750 ug/Kg	09/17/2009
o-Xylene	LCS	783	104	(89-120)		750 ug/Kg	09/17/2009
1,2,4-Trimethylbenzene	LCS	763	102	(85-121)		750 ug/Kg	09/17/2009

Surrogates

1,2-Dichloroethane-D4 <surr>	LCS		112	(69-132)			09/17/2009
Toluene-d8 <surr>	LCS		108	(84-124)			09/17/2009
4-Bromofluorobenzene <surr>	LCS		91	(65-144)			09/17/2009

Batch VMS10838
Method SW8260B
Instrument HP 5890 Series II MS1 VMA



SGS Ref.#	925718	Lab Control Sample	Printed Date/Time	10/12/2009	15:49
Client Name	SLR Alaska-Fairbanks		Prep	Batch	
Project Name/#	Village Of Beaver Old School			Method	
Matrix	Soil/Solid (dry weight)			Date	

QC results affect the following production samples:
1094997006

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

Volatile Gas Chromatography/Mass Spectroscopy



SGS Ref.# 925718 Lab Control Sample

Printed Date/Time 10/12/2009 15:49
Prep Batch

Client Name SLR Alaska-Fairbanks
Project Name/# Village Of Beaver Old School
Matrix Soil/Solid (dry weight)

Method
Date

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
<u>Volatile Gas Chromatography/Mass Spectroscopy</u>							
Benzene	LCS 687	92	(81-124)			750 ug/Kg	09/21/2009
Toluene	LCS 725	97	(87-119)			750 ug/Kg	09/21/2009
Ethylbenzene	LCS 727	97	(87-119)			750 ug/Kg	09/21/2009
n-Butylbenzene	LCS 821	109	(82-127)			750 ug/Kg	09/21/2009
Carbon disulfide	LCS 1150	102	(58-155)			1130 ug/Kg	09/21/2009
1,4-Dichlorobenzene	LCS 747	100	(86-118)			750 ug/Kg	09/21/2009
1,2-Dichloroethane	LCS 740	99	(83-121)			750 ug/Kg	09/21/2009
1,3,5-Trimethylbenzene	LCS 751	100	(87-120)			750 ug/Kg	09/21/2009
4-Chlorotoluene	LCS 767	102	(84-120)			750 ug/Kg	09/21/2009
Chlorobenzene	LCS 716	95	(84-121)			750 ug/Kg	09/21/2009
4-Methyl-2-pentanone (MIBK)	LCS 2350	104	(67-135)			2250 ug/Kg	09/21/2009
cis-1,2-Dichloroethene	LCS 837	112	(82-124)			750 ug/Kg	09/21/2009
4-Isopropyltoluene	LCS 749	100	(83-121)			750 ug/Kg	09/21/2009
Methyl-t-butyl ether	LCS 1230	110	(76-133)			1130 ug/Kg	09/21/2009
cis-1,3-Dichloropropene	LCS 722	96	(82-122)			750 ug/Kg	09/21/2009
n-Propylbenzene	LCS 793	106	(82-125)			750 ug/Kg	09/21/2009
Styrene	LCS 773	103	(91-120)			750 ug/Kg	09/21/2009
Dibromomethane	LCS 692	92	(80-123)			750 ug/Kg	09/21/2009
trans-1,3-Dichloropropene	LCS 794	106	(86-122)			750 ug/Kg	09/21/2009
1,2,4-Trichlorobenzene	LCS 742	99	(77-126)			750 ug/Kg	09/21/2009
1,1,2,2-Tetrachloroethane	LCS 795	106	(80-122)			750 ug/Kg	09/21/2009



SGS Ref.# 925718 Lab Control Sample

Printed Date/Time 10/12/2009 15:49
Prep Batch

Client Name SLR Alaska-Fairbanks
Project Name/# Village Of Beaver Old School
Matrix Soil/Solid (dry weight)

Method
Date

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

Volatile Gas Chromatography/Mass Spectroscopy

1,2-Dibromo-3-chloropropane	LCS	786	105	(60-135)		750 ug/Kg	09/21/2009
Tetrachloroethene	LCS	682	91	(82-125)		750 ug/Kg	09/21/2009
Dibromochloromethane	LCS	661	88	(84-125)		750 ug/Kg	09/21/2009
1,3-Dichloropropane	LCS	778	104	(84-123)		750 ug/Kg	09/21/2009
1,2-Dibromoethane	LCS	755	101	(85-124)		750 ug/Kg	09/21/2009
Carbon tetrachloride	LCS	681	91	(79-128)		750 ug/Kg	09/21/2009
1,1,1,2-Tetrachloroethane	LCS	668	89	(77-123)		750 ug/Kg	09/21/2009
Chloroform	LCS	720	96	(77-124)		750 ug/Kg	09/21/2009
Bromobenzene	LCS	719	96	(86-119)		750 ug/Kg	09/21/2009
Chloromethane	LCS	819	109	(54-129)		750 ug/Kg	09/21/2009
1,2,3-Trichloropropane	LCS	768	102	(77-125)		750 ug/Kg	09/21/2009
Bromomethane	LCS	806	107	(49-141)		750 ug/Kg	09/21/2009
Bromochloromethane	LCS	785	105	(79-125)		750 ug/Kg	09/21/2009
Vinyl chloride	LCS	779	104	(67-125)		750 ug/Kg	09/21/2009
Dichlorodifluoromethane	LCS	822	110	(43-135)		750 ug/Kg	09/21/2009
Chloroethane	LCS	675	90	(51-141)		750 ug/Kg	09/21/2009
sec-Butylbenzene	LCS	772	103	(84-122)		750 ug/Kg	09/21/2009
Bromodichloromethane	LCS	687	92	(81-127)		750 ug/Kg	09/21/2009
1,1-Dichloroethene	LCS	760	101	(75-125)		750 ug/Kg	09/21/2009
2-Butanone (MEK)	LCS	2520	112	(57-135)		2250 ug/Kg	09/21/2009



SGS Ref.# 925718 Lab Control Sample

Printed Date/Time 10/12/2009 15:49
Prep Batch

Client Name SLR Alaska-Fairbanks
Project Name/# Village Of Beaver Old School
Matrix Soil/Solid (dry weight)

Method
Date

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
<u>Volatile Gas Chromatography/Mass Spectroscopy</u>							
Methylene chloride	LCS 878	117	(63-137)			750 ug/Kg	09/21/2009
Trichlorofluoromethane	LCS 742	99	(64-139)			750 ug/Kg	09/21/2009
P & M -Xylene	LCS 1560	104	(88-121)			1500 ug/Kg	09/21/2009
Naphthalene	LCS 767	102	(73-131)			750 ug/Kg	09/21/2009
o-Xylene	LCS 746	100	(89-120)			750 ug/Kg	09/21/2009
Bromoform	LCS 641	85	(72-135)			750 ug/Kg	09/21/2009
1,2,4-Trimethylbenzene	LCS 765	102	(85-121)			750 ug/Kg	09/21/2009
tert-Butylbenzene	LCS 719	96	(82-122)			750 ug/Kg	09/21/2009
1,1,1-Trichloroethane	LCS 691	92	(77-129)			750 ug/Kg	09/21/2009
1,1-Dichloroethane	LCS 834	111	(81-126)			750 ug/Kg	09/21/2009
2-Chlorotoluene	LCS 774	103	(81-122)			750 ug/Kg	09/21/2009
Trichloroethene	LCS 651	87	(77-124)			750 ug/Kg	09/21/2009
trans-1,2-Dichloroethene	LCS 837	112	(79-125)			750 ug/Kg	09/21/2009
1,2-Dichlorobenzene	LCS 754	101	(88-113)			750 ug/Kg	09/21/2009
2,2-Dichloropropane	LCS 804	107	(69-132)			750 ug/Kg	09/21/2009
Hexachlorobutadiene	LCS 696	93	(74-124)			750 ug/Kg	09/21/2009
Isopropylbenzene (Cumene)	LCS 744	99	(89-121)			750 ug/Kg	09/21/2009
2-Hexanone	LCS 2700	120	(58-145)			2250 ug/Kg	09/21/2009
1,2-Dichloropropane	LCS 759	101	(81-120)			750 ug/Kg	09/21/2009
1,1-Dichloropropene	LCS 693	92	(76-134)			750 ug/Kg	09/21/2009
1,1,2-Trichloroethane	LCS 793	106	(85-121)			750 ug/Kg	09/21/2009



SGS Ref.# 925718 Lab Control Sample

Printed Date/Time 10/12/2009 15:49
Prep Batch

Client Name SLR Alaska-Fairbanks
Project Name/# Village Of Beaver Old School
Matrix Soil/Solid (dry weight)

Method
Date

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

Volatile Gas Chromatography/Mass Spectroscopy

1,3-Dichlorobenzene	LCS	749	100	(86-117)		750 ug/Kg	09/21/2009

1,2,3-Trichlorobenzene	LCS	738	98	(78-124)		750 ug/Kg	09/21/2009

Surrogates

1,2-Dichloroethane-D4 <surr>	LCS		87	(69-132)			09/21/2009

Toluene-d8 <surr>	LCS		96	(84-124)			09/21/2009

4-Bromofluorobenzene <surr>	LCS		96	(65-144)			09/21/2009

Batch VMS10846
Method SW8260B
Instrument HP 5890 Series II MS5 VLA



SGS Ref.#	926482	Lab Control Sample	Printed Date/Time	10/12/2009	15:49
	926483	Lab Control Sample Duplicate	Prep	Batch	VXX19995
Client Name	SLR Alaska-Fairbanks		Method	SW5035A	
Project Name/#	Village Of Beaver Old School		Date	09/23/2009	
Matrix	Soil/Solid (dry weight)				

QC results affect the following production samples:

1094997003, 1094997005, 1094997010, 1094997011, 1094997012

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
<u>Volatile Fuels Department</u>							
Benzene	LCS 1300	104	(80-125)			1250 ug/Kg	09/23/2009
	LCSD 1320	105		1	(< 20)	1250 ug/Kg	09/23/2009
Toluene	LCS 1310	104	(85-120)			1250 ug/Kg	09/23/2009
	LCSD 1320	106		1	(< 20)	1250 ug/Kg	09/23/2009
Ethylbenzene	LCS 1330	106	(85-125)			1250 ug/Kg	09/23/2009
	LCSD 1350	108		2	(< 20)	1250 ug/Kg	09/23/2009
o-Xylene	LCS 1310	104	(85-125)			1250 ug/Kg	09/23/2009
	LCSD 1320	105		1	(< 20)	1250 ug/Kg	09/23/2009
P & M -Xylene	LCS 2700	108	(85-125)			2500 ug/Kg	09/23/2009
	LCSD 2740	110		2	(< 20)	2500 ug/Kg	09/23/2009
Surrogates							
1,4-Difluorobenzene <surr>	LCS	105	(80-120)				09/23/2009
	LCSD	105		0			09/23/2009
Batch	VFC9659						
Method	SW8021B						
Instrument	HP 5890 Series II PID+HECD VBA						



SGS Ref.#	926484	Lab Control Sample	Printed Date/Time	10/12/2009	15:49
	926485	Lab Control Sample Duplicate	Prep	Batch	VXX19995
Client Name	SLR Alaska-Fairbanks		Method	SW5035A	
Project Name/#	Village Of Beaver Old School		Date	09/23/2009	
Matrix	Soil/Solid (dry weight)				

QC results affect the following production samples:

1094997003, 1094997005, 1094997010, 1094997011, 1094997012

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

Volatile Fuels Department

Gasoline Range Organics	LCS	12.1	108	(60-120)		11.3 mg/Kg	09/23/2009
	LCSD	12.5	111		3	(< 20)	11.3 mg/Kg 09/23/2009

Surrogates

4-Bromofluorobenzene <surr>	LCS		109	(50-150)			09/23/2009
	LCSD		110		1		09/23/2009

Batch	VFC9659
Method	AK101
Instrument	HP 5890 Series II PID+HECD VBA



SGS Ref.# 926519 Lab Control Sample
926520 Lab Control Sample Duplicate
Client Name SLR Alaska-Fairbanks
Project Name/# Village Of Beaver Old School
Matrix Soil/Solid (dry weight)

Printed Date/Time 10/12/2009 15:49
Prep Batch VXX19998
Method SW5035A
Date 09/23/2009

QC results affect the following production samples:
1094997001, 1094997002

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
<u>Volatile Fuels Department</u>							
Benzene	LCS 1180	94	(80-125)			1250 ug/Kg	09/23/2009
	LCSD 1210	97		3	(< 20)	1250 ug/Kg	09/23/2009
Toluene	LCS 1200	96	(85-120)			1250 ug/Kg	09/23/2009
	LCSD 1240	99		3	(< 20)	1250 ug/Kg	09/23/2009
Ethylbenzene	LCS 1270	102	(85-125)			1250 ug/Kg	09/23/2009
	LCSD 1320	105		4	(< 20)	1250 ug/Kg	09/23/2009
o-Xylene	LCS 1260	100	(85-125)			1250 ug/Kg	09/23/2009
	LCSD 1300	104		3	(< 20)	1250 ug/Kg	09/23/2009
P & M -Xylene	LCS 2580	103	(85-125)			2500 ug/Kg	09/23/2009
	LCSD 2670	107		3	(< 20)	2500 ug/Kg	09/23/2009
Surrogates							
1,4-Difluorobenzene <surr>	LCS	91	(80-120)				09/23/2009
	LCSD	90		0			09/23/2009

Batch VFC9660
Method SW8021B
Instrument HP 5890 Series II PID+FID VCA



SGS Ref.# 926521 Lab Control Sample
926522 Lab Control Sample Duplicate
Client Name SLR Alaska-Fairbanks
Project Name/# Village Of Beaver Old School
Matrix Soil/Solid (dry weight)

Printed Date/Time 10/12/2009 15:49
Prep Batch VXX19998
Method SW5035A
Date 09/23/2009

QC results affect the following production samples:
1094997001, 1094997002

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

Volatile Fuels Department

Gasoline Range Organics	LCS	12.1	108	(60-120)		11.3 mg/Kg	09/23/2009
	LCSD	12.2	109		1	(< 20)	11.3 mg/Kg 09/23/2009

Surrogates

4-Bromofluorobenzene <surr>	LCS		121	(50-150)			09/23/2009
	LCSD		120		1		09/23/2009

Batch VFC9660
Method AK101
Instrument HP 5890 Series II PID+FID VCA



SGS Ref.#	926956	Lab Control Sample	Printed Date/Time	10/12/2009	15:49
	926957	Lab Control Sample Duplicate	Prep	Batch	VXX20008
Client Name	SLR Alaska-Fairbanks		Method	SW5035A	
Project Name/#	Village Of Beaver Old School		Date	09/25/2009	
Matrix	Soil/Solid (dry weight)				

QC results affect the following production samples:

1094997002, 1094997004, 1094997006, 1094997007, 1094997008, 1094997009

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

Volatile Fuels Department

Gasoline Range Organics	LCS	12.6	112	(60-120)		11.3 mg/Kg	09/25/2009
	LCSD	12.5	111		1	(< 20)	11.3 mg/Kg 09/25/2009

Surrogates

4-Bromofluorobenzene <surr>	LCS		130	(50-150)			09/25/2009
	LCSD		125		4		09/25/2009

Batch	VFC9665
Method	AK101
Instrument	HP 5890 Series II PID+FID VCA

SGS Ref.#	924335	Matrix Spike	Printed Date/Time	10/12/2009 15:49
	924336	Matrix Spike Duplicate	Prep	Batch
			Method	XXX21640
			Date	Sonication Extraction Soil 8270
Original	1094998002			09/16/2009
Matrix	Soil/Solid (dry weight)			

QC results affect the following production samples:

1094997004, 1094997006, 1094997007

Parameter	Qualifiers	Original Result	QC Result	Pct Recov	MS/MSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
Polynuclear Aromatics GC/MS									
Acenaphthylene	MS	ND	0.00	0* (45-102)				24.1 ug/Kg	10/08/2009
	MSD		0.00	0*		0 (< 30)		24.2 ug/Kg	10/08/2009
Acenaphthene	MS	3370	3410	172* (45-99)				24.1 ug/Kg	10/08/2009
	MSD		3421	219*		0 (< 30)		24.2 ug/Kg	10/08/2009
Fluorene	MS	ND	0.00	0* (50-107)				24.1 ug/Kg	10/08/2009
	MSD		0.00	0*		0 (< 30)		24.2 ug/Kg	10/08/2009
Phenanthrene	MS	738 J	784	190* (50-110)				24.1 ug/Kg	10/08/2009
	MSD		900	668*		14 (< 30)		24.2 ug/Kg	10/08/2009
Anthracene	MS	ND	0.00	0* (28-103)				24.1 ug/Kg	10/08/2009
	MSD		0.00	0*		0 (< 30)		24.2 ug/Kg	10/08/2009
Fluoranthene	MS	ND	0.00	0* (55-115)				24.1 ug/Kg	10/08/2009
	MSD		0.00	0*		0 (< 30)		24.2 ug/Kg	10/08/2009
Pyrene	MS	ND	0.00	0* (45-120)				24.1 ug/Kg	10/08/2009
	MSD		0.00	0*		0 (< 30)		24.2 ug/Kg	10/08/2009
Benzo(a)Anthracene	MS	ND	0.00	0* (40-110)				24.1 ug/Kg	10/08/2009
	MSD		0.00	0*		0 (< 30)		24.2 ug/Kg	10/08/2009
Chrysene	MS	ND	0.00	0* (55-110)				24.1 ug/Kg	10/08/2009
	MSD		0.00	0*		0 (< 30)		24.2 ug/Kg	10/08/2009
Benzo[b]Fluoranthene	MS	ND	0.00	0* (45-115)				24.1 ug/Kg	10/08/2009
	MSD		0.00	0*		0 (< 30)		24.2 ug/Kg	10/08/2009
Benzo[k]fluoranthene	MS	ND	0.00	0* (45-120)				24.1 ug/Kg	10/08/2009
	MSD		0.00	0*		0 (< 30)		24.2 ug/Kg	10/08/2009
Benzo[a]pyrene	MS	ND	0.00	0* (10-102)				24.1 ug/Kg	10/08/2009
	MSD		0.00	0*		0 (< 30)		24.2 ug/Kg	10/08/2009
Indeno[1,2,3-c,d] pyrene	MS	ND	0.00	0* (40-120)				24.1 ug/Kg	10/08/2009
	MSD		0.00	0*		0 (< 30)		24.2 ug/Kg	10/08/2009
Dibenzo[a,h]anthracene	MS	ND	0.00	0* (40-125)				24.1 ug/Kg	10/08/2009
	MSD		0.00	0*		0 (< 30)		24.2 ug/Kg	10/08/2009
Benzo[g,h,i]perylene	MS	ND	0.00	0* (40-118)				24.1 ug/Kg	10/08/2009
	MSD		0.00	0*		0 (< 30)		24.2 ug/Kg	10/08/2009
Naphthalene	MS	62900	75768	53,400* (40-92)				24.1 ug/Kg	10/08/2009
	MSD		52961	-41,300*		36 * (< 30)		24.2 ug/Kg	10/08/2009
1-Methylnaphthalene	MS	219000	221491	10,000* (30-97)				24.1 ug/Kg	10/08/2009
	MSD		209430	-36,500*		5 (< 30)		24.2 ug/Kg	10/08/2009
2-Methylnaphthalene	MS	223000	246711	97,400* (45-96)				24.1 ug/Kg	10/08/2009
	MSD		240132	69,200*		3 (< 30)		24.2 ug/Kg	10/08/2009

SGS Ref.# 924335 Matrix Spike
924336 Matrix Spike Duplicate

Printed Date/Time 10/12/2009 15:49
Prep Batch XXX21640
Method Sonication Extraction Soil 8270
Date 09/16/2009

Original 1094998002
Matrix Soil/Solid (dry weight)

Parameter	Qualifiers	Original Result	QC Result	Pct Recov	MS/MSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date

Polynuclear Aromatics GC/MS

Terphenyl-d14 <sur>	MS	53.0	220* (30-125)					10/08/2009
	MSD	55.8	230*	5				10/08/2009

Batch XMS5120
Method 8270D SIMS
Instrument HP 6890/5973 MS SVQA



SGS Ref.# 924339 Matrix Spike
924340 Matrix Spike Duplicate

Printed Date/Time 10/12/2009 15:49
Prep Batch MXX22233
Method Soils/Solids Digest for Metals b
Date 09/16/2009

Original 1094853001
Matrix Soil/Solid (dry weight)

QC results affect the following production samples:

1094997004, 1094997006, 1094997007

Parameter	Qualifiers	Original Result	QC Result	Pct Recov	MS/MSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date

Metals by ICP/MS

Lead	MS	34.9	80.7	93	(80-120)			49.1	mg/Kg 09/18/2009
	MSD		84.2	99		4	(< 20)	49.9	mg/Kg 09/18/2009

Batch MMS6089
Method SW6020
Instrument Perkin Elmer Sciex ICP-MS P3



SGS Ref.# 924645 Matrix Spike
924646 Matrix Spike Duplicate

Printed Date/Time 10/12/2009 15:49
Prep Batch
Method
Date

Original 924644
Matrix Solid/Soil (Wet Weight)

QC results affect the following production samples:

1094997004, 1094997007, 1094997008, 1094997009, 1094997012

Parameter	Qualifiers	Original Result	QC Result	Pct Recov	MS/MSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date

Volatile Gas Chromatography/Mass Spectroscopy

SGS Ref.# 924645 Matrix Spike
924646 Matrix Spike Duplicate

Printed Date/Time 10/12/2009 15:49
Prep Batch
Method
Date

Original 924644
Matrix Solid/Soil (Wet Weight)

Parameter	Qualifiers	Original Result	QC Result	Pct Recov	MS/MSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
Volatile Gas Chromatography/Mass Spectroscopy									
Benzene	MS	ND	1810	104	(81-124)			1740 ug/Kg	09/16/2009
	MSD		1770	102		2	(< 20)	1740 ug/Kg	09/16/2009
Toluene	MS	ND	1890	108	(87-119)			1740 ug/Kg	09/16/2009
	MSD		1890	108		0	(< 20)	1740 ug/Kg	09/16/2009
Ethylbenzene	MS	ND	1970	113	(87-119)			1740 ug/Kg	09/16/2009
	MSD		1790	103		10	(< 20)	1740 ug/Kg	09/16/2009
n-Butylbenzene	MS	ND	1910	110	(82-127)			1740 ug/Kg	09/16/2009
	MSD		1790	103		7	(< 20)	1740 ug/Kg	09/16/2009
Carbon disulfide	MS	ND	4810	184*	(58-155)			2620 ug/Kg	09/16/2009
	MSD		4520	173*		6	(< 20)	2620 ug/Kg	09/16/2009
1,4-Dichlorobenzene	MS	ND	1910	110	(86-118)			1740 ug/Kg	09/16/2009
	MSD		1750	100		9	(< 20)	1740 ug/Kg	09/16/2009
1,2-Dichloroethane	MS	ND	1700	97	(83-121)			1740 ug/Kg	09/16/2009
	MSD		1620	93		5	(< 20)	1740 ug/Kg	09/16/2009
1,3,5-Trimethylbenzene	MS	24.9 J	1890	107	(87-120)			1740 ug/Kg	09/16/2009
	MSD		1770	100		6	(< 20)	1740 ug/Kg	09/16/2009
4-Chlorotoluene	MS	ND	1820	104	(84-120)			1740 ug/Kg	09/16/2009
	MSD		1720	98		6	(< 20)	1740 ug/Kg	09/16/2009
Chlorobenzene	MS	ND	1800	103	(84-121)			1740 ug/Kg	09/16/2009
	MSD		1780	102		1	(< 20)	1740 ug/Kg	09/16/2009
4-Methyl-2-pentanone (MIBK)	MS	ND	5510	105	(67-135)			5230 ug/Kg	09/16/2009
	MSD		5660	108		3	(< 20)	5230 ug/Kg	09/16/2009
cis-1,2-Dichloroethene	MS	ND	1770	101	(82-124)			1740 ug/Kg	09/16/2009
	MSD		1730	99		2	(< 20)	1740 ug/Kg	09/16/2009
4-Isopropyltoluene	MS	ND	1970	113	(83-121)			1740 ug/Kg	09/16/2009
	MSD		1760	101		11	(< 20)	1740 ug/Kg	09/16/2009
Methyl-t-butyl ether	MS	ND	2650	101	(76-133)			2620 ug/Kg	09/16/2009
	MSD		2640	101		0	(< 20)	2620 ug/Kg	09/16/2009
cis-1,3-Dichloropropene	MS	ND	1850	106	(82-122)			1740 ug/Kg	09/16/2009
	MSD		1740	100		6	(< 20)	1740 ug/Kg	09/16/2009
n-Propylbenzene	MS	ND	1890	109	(82-125)			1740 ug/Kg	09/16/2009
	MSD		1740	100		8	(< 20)	1740 ug/Kg	09/16/2009
Styrene	MS	ND	1870	107	(91-120)			1740 ug/Kg	09/16/2009
	MSD		1770	102		5	(< 20)	1740 ug/Kg	09/16/2009
Dibromomethane	MS	ND	1710	98	(80-123)			1740 ug/Kg	09/16/2009
	MSD		1700	97		1	(< 20)	1740 ug/Kg	09/16/2009
trans-1,3-Dichloropropene	MS	ND	1980	113	(86-122)			1740 ug/Kg	09/16/2009
	MSD		1870	107		6	(< 20)	1740 ug/Kg	09/16/2009
1,2,4-Trichlorobenzene	MS	ND	1920	110	(77-126)			1740 ug/Kg	09/16/2009
	MSD		1780	102		7	(< 20)	1740 ug/Kg	09/16/2009



SGS Ref.# 924645 Matrix Spike
924646 Matrix Spike Duplicate

Printed Date/Time 10/12/2009 15:49
Prep Batch
Method
Date

Original 924644
Matrix Solid/Soil (Wet Weight)

Parameter	Qualifiers	Original Result	QC Result	Pct Recov	MS/MSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
Volatile Gas Chromatography/Mass Spectroscopy									
1,1,2,2-Tetrachloroethane	MS	ND	1800	103	(80-122)			1740 ug/Kg	09/16/2009
	MSD		1730	99		4	(< 20)	1740 ug/Kg	09/16/2009
1,2-Dibromo-3-chloropropane	MS	ND	1890	109	(60-135)			1740 ug/Kg	09/16/2009
	MSD		1800	103		5	(< 20)	1740 ug/Kg	09/16/2009
Tetrachloroethene	MS	ND	1960	112	(82-125)			1740 ug/Kg	09/16/2009
	MSD		1780	102		10	(< 20)	1740 ug/Kg	09/16/2009
Dibromochloromethane	MS	ND	1720	98	(84-125)			1740 ug/Kg	09/16/2009
	MSD		1650	95		4	(< 20)	1740 ug/Kg	09/16/2009
1,3-Dichloropropane	MS	ND	1950	112	(84-123)			1740 ug/Kg	09/16/2009
	MSD		1800	103		8	(< 20)	1740 ug/Kg	09/16/2009
1,2-Dibromoethane	MS	ND	1950	112	(85-124)			1740 ug/Kg	09/16/2009
	MSD		1780	102		9	(< 20)	1740 ug/Kg	09/16/2009
Carbon tetrachloride	MS	ND	1850	106	(79-128)			1740 ug/Kg	09/16/2009
	MSD		1750	100		6	(< 20)	1740 ug/Kg	09/16/2009
1,1,1,2-Tetrachloroethane	MS	ND	1880	108	(77-123)			1740 ug/Kg	09/16/2009
	MSD		1820	104		3	(< 20)	1740 ug/Kg	09/16/2009
Chloroform	MS	ND	1780	102	(77-124)			1740 ug/Kg	09/16/2009
	MSD		1650	95		7	(< 20)	1740 ug/Kg	09/16/2009
Bromobenzene	MS	ND	1800	103	(86-119)			1740 ug/Kg	09/16/2009
	MSD		1680	96		7	(< 20)	1740 ug/Kg	09/16/2009
Chloromethane	MS	ND	1880	108	(54-129)			1740 ug/Kg	09/16/2009
	MSD		1810	104		4	(< 20)	1740 ug/Kg	09/16/2009
1,2,3-Trichloropropane	MS	ND	1680	97	(77-125)			1740 ug/Kg	09/16/2009
	MSD		1800	103		7	(< 20)	1740 ug/Kg	09/16/2009
Bromomethane	MS	ND	1940	111	(49-141)			1740 ug/Kg	09/16/2009
	MSD		1920	110		1	(< 20)	1740 ug/Kg	09/16/2009
Bromochloromethane	MS	ND	1810	104	(79-125)			1740 ug/Kg	09/16/2009
	MSD		1640	94		10	(< 20)	1740 ug/Kg	09/16/2009
Vinyl chloride	MS	ND	1860	107	(67-125)			1740 ug/Kg	09/16/2009
	MSD		1840	106		1	(< 20)	1740 ug/Kg	09/16/2009
Dichlorodifluoromethane	MS	ND	1960	112	(43-135)			1740 ug/Kg	09/16/2009
	MSD		1820	104		8	(< 20)	1740 ug/Kg	09/16/2009
Chloroethane	MS	ND	1670	96	(51-141)			1740 ug/Kg	09/16/2009
	MSD		1590	91		5	(< 20)	1740 ug/Kg	09/16/2009
sec-Butylbenzene	MS	ND	1910	110	(84-122)			1740 ug/Kg	09/16/2009
	MSD		1760	101		9	(< 20)	1740 ug/Kg	09/16/2009
Bromodichloromethane	MS	ND	1900	109	(81-127)			1740 ug/Kg	09/16/2009
	MSD		1820	104		4	(< 20)	1740 ug/Kg	09/16/2009
1,1-Dichloroethene	MS	ND	2480	142*	(75-125)			1740 ug/Kg	09/16/2009
	MSD		2330	134*		6	(< 20)	1740 ug/Kg	09/16/2009

SGS Ref.# 924645 Matrix Spike
924646 Matrix Spike Duplicate

Printed Date/Time 10/12/2009 15:49
Prep Batch
Method
Date

Original 924644
Matrix Solid/Soil (Wet Weight)

Parameter	Qualifiers	Original Result	QC Result	Pct Recov	MS/MSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
<u>Volatile Gas Chromatography/Mass Spectroscopy</u>									
2-Butanone (MEK)	MS	ND	5310	101	(57-135)			5230 ug/Kg	09/16/2009
	MSD		5400	103		2	(< 20)	5230 ug/Kg	09/16/2009
Methylene chloride	MS	ND	1680	96	(63-137)			1740 ug/Kg	09/16/2009
	MSD		1580	91		6	(< 20)	1740 ug/Kg	09/16/2009
Trichlorofluoromethane	MS	ND	1870	107	(64-139)			1740 ug/Kg	09/16/2009
	MSD		1680	96		11	(< 20)	1740 ug/Kg	09/16/2009
P & M -Xylene	MS	ND	3850	110	(88-121)			3490 ug/Kg	09/16/2009
	MSD		3550	102		8	(< 20)	3490 ug/Kg	09/16/2009
Naphthalene	MS	ND	1920	110	(73-131)			1740 ug/Kg	09/16/2009
	MSD		1930	110		0	(< 20)	1740 ug/Kg	09/16/2009
o-Xylene	MS	ND	1940	111	(89-120)			1740 ug/Kg	09/16/2009
	MSD		1830	105		6	(< 20)	1740 ug/Kg	09/16/2009
Bromoform	MS	ND	1790	102	(72-135)			1740 ug/Kg	09/16/2009
	MSD		1650	95		8	(< 20)	1740 ug/Kg	09/16/2009
1,2,4-Trimethylbenzene	MS	71.4	1870	103	(85-121)			1740 ug/Kg	09/16/2009
	MSD		1750	97		7	(< 20)	1740 ug/Kg	09/16/2009
tert-Butylbenzene	MS	ND	1820	104	(82-122)			1740 ug/Kg	09/16/2009
	MSD		1730	99		5	(< 20)	1740 ug/Kg	09/16/2009
1,1,1-Trichloroethane	MS	ND	1790	102	(77-129)			1740 ug/Kg	09/16/2009
	MSD		1660	95		8	(< 20)	1740 ug/Kg	09/16/2009
1,1-Dichloroethane	MS	ND	1770	102	(81-126)			1740 ug/Kg	09/16/2009
	MSD		1690	97		5	(< 20)	1740 ug/Kg	09/16/2009
2-Chlorotoluene	MS	ND	1850	106	(81-122)			1740 ug/Kg	09/16/2009
	MSD		1720	98		7	(< 20)	1740 ug/Kg	09/16/2009
Trichloroethene	MS	ND	1890	108	(77-124)			1740 ug/Kg	09/16/2009
	MSD		1810	104		4	(< 20)	1740 ug/Kg	09/16/2009
trans-1,2-Dichloroethene	MS	ND	1790	102	(79-125)			1740 ug/Kg	09/16/2009
	MSD		1770	101		1	(< 20)	1740 ug/Kg	09/16/2009
1,2-Dichlorobenzene	MS	ND	1840	106	(88-113)			1740 ug/Kg	09/16/2009
	MSD		1760	101		4	(< 20)	1740 ug/Kg	09/16/2009
2,2-Dichloropropane	MS	ND	1800	103	(69-132)			1740 ug/Kg	09/16/2009
	MSD		1720	99		5	(< 20)	1740 ug/Kg	09/16/2009
Hexachlorobutadiene	MS	ND	1790	103	(74-124)			1740 ug/Kg	09/16/2009
	MSD		1780	102		1	(< 20)	1740 ug/Kg	09/16/2009
Isopropylbenzene (Cumene)	MS	ND	1870	107	(89-121)			1740 ug/Kg	09/16/2009
	MSD		1830	105		2	(< 20)	1740 ug/Kg	09/16/2009
2-Hexanone	MS	ND	5420	103	(58-145)			5230 ug/Kg	09/16/2009
	MSD		5480	105		1	(< 20)	5230 ug/Kg	09/16/2009
1,2-Dichloropropane	MS	ND	1810	104	(81-120)			1740 ug/Kg	09/16/2009
	MSD		1760	101		3	(< 20)	1740 ug/Kg	09/16/2009

SGS Ref.# 924645 Matrix Spike
924646 Matrix Spike Duplicate

Printed Date/Time 10/12/2009 15:49
Prep Batch
Method
Date

Original 924644
Matrix Solid/Soil (Wet Weight)

Parameter	Qualifiers	Original Result	QC Result	Pct Recov	MS/MSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date

Volatile Gas Chromatography/Mass Spectroscopy

1,1-Dichloropropene	MS	ND	1860	106	(76-134)			1740 ug/Kg	09/16/2009
	MSD		1790	103		4	(< 20)	1740 ug/Kg	09/16/2009
1,1,2-Trichloroethane	MS	ND	1800	103	(85-121)			1740 ug/Kg	09/16/2009
	MSD		1700	97		6	(< 20)	1740 ug/Kg	09/16/2009
1,3-Dichlorobenzene	MS	ND	1820	104	(86-117)			1740 ug/Kg	09/16/2009
	MSD		1720	99		6	(< 20)	1740 ug/Kg	09/16/2009
1,2,3-Trichlorobenzene	MS	ND	1890	108	(78-124)			1740 ug/Kg	09/16/2009
	MSD		1720	98		10	(< 20)	1740 ug/Kg	09/16/2009

Surrogates

1,2-Dichloroethane-D4 <surr>	MS		1700	97	(69-132)				09/16/2009
	MSD		1600	92		6			09/16/2009
Toluene-d8 <surr>	MS		1820	104	(84-124)				09/16/2009
	MSD		1780	102		3			09/16/2009
4-Bromofluorobenzene <surr>	MS		4250	97	(65-144)				09/16/2009
	MSD		4130	94		3			09/16/2009

Batch VMS10834
Method SW8260B
Instrument HP 5890 Series II MS5 VLA

SGS Ref.#	924712	Matrix Spike	Printed Date/Time	10/12/2009 15:49
	924713	Matrix Spike Duplicate	Prep	Batch
			Method	Sonication Extraction Soil AK1
			Date	09/17/2009
Original	1094888001			
Matrix	Soil/Solid (dry weight)			

QC results affect the following production samples:

1094997004, 1094997007, 1094997008, 1094997009, 1094997010, 1094997011

Parameter	Qualifiers	Original Result	QC Result	Pet Recov	MS/MSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date

Semivolatile Organic Fuels Department

Diesel Range Organics	MS	30.4 J	208	94	(60-140)			190 mg/Kg	09/18/2009
	MSD		171	75		19	(< 50)	188 mg/Kg	09/18/2009

Surrogates

5a Androstane <surr>	MS		3.58	95	(50-150)				09/18/2009
	MSD		3.05	81		16			09/18/2009

Batch XFC8857
Method AK102
Instrument HP 6890 Series II FID SV D R

Residual Range Organics	MS	163	329	88	(60-140)			190 mg/Kg	09/18/2009
	MSD		267	55*		21	(< 50)	188 mg/Kg	09/18/2009

Surrogates

n-Triacontane-d62 <surr>	MS		3.46	92	(50-150)				09/18/2009
	MSD		3.21	85		8			09/18/2009

Batch XFC8857
Method AK103
Instrument HP 6890 Series II FID SV D R



SGS Ref.# 925049 Matrix Spike
925050 Matrix Spike Duplicate

Printed Date/Time 10/12/2009 15:49
Prep Batch
Method
Date

Original 925048
Matrix Solid/Soil (Wet Weight)

QC results affect the following production samples:

1094997004, 1094997007

Parameter	Qualifiers	Original Result	QC Result	Pet Recov	MS/MSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
<u>Volatile Gas Chromatography/Mass Spectroscopy</u>									
1,3,5-Trimethylbenzene	MS	ND	1500	102	(87-120)			1480 ug/Kg	09/17/2009
	MSD		1490	101		1	(< 20)	1480 ug/Kg	09/17/2009
4-Isopropyltoluene	MS	ND	1560	106	(83-121)			1480 ug/Kg	09/17/2009
	MSD		1470	99		6	(< 20)	1480 ug/Kg	09/17/2009
P & M -Xylene	MS	ND	2870	97	(88-121)			2950 ug/Kg	09/17/2009
	MSD		3090	104		7	(< 20)	2950 ug/Kg	09/17/2009
Naphthalene	MS	ND	1630	110	(73-131)			1480 ug/Kg	09/17/2009
	MSD		1590	108		2	(< 20)	1480 ug/Kg	09/17/2009
o-Xylene	MS	ND	1420	96	(89-120)			1480 ug/Kg	09/17/2009
	MSD		1510	102		7	(< 20)	1480 ug/Kg	09/17/2009
1,2,4-Trimethylbenzene	MS	ND	1470	100	(85-121)			1480 ug/Kg	09/17/2009
	MSD		1520	103		3	(< 20)	1480 ug/Kg	09/17/2009
Surrogates									
1,2-Dichloroethane-D4 <surr>	MS		1510	102	(69-132)				09/17/2009
	MSD		1530	104		2			09/17/2009
Toluene-d8 <surr>	MS		1400	95	(84-124)				09/17/2009
	MSD		1610	109		14			09/17/2009
4-Bromofluorobenzene <surr>	MS		3500	91	(65-144)				09/17/2009
	MSD		3590	93		2			09/17/2009

Batch VMS10838
Method SW8260B
Instrument HP 5890 Series II MS1 VMA

SGS Ref.# 925720 Matrix Spike
925721 Matrix Spike Duplicate

Printed Date/Time 10/12/2009 15:49
Prep Batch
Method
Date

Original 925719
Matrix Solid/Soil (Wet Weight)

QC results affect the following production samples:

1094997006

Parameter	Qualifiers	Original Result	QC Result	Pet Recov	MS/MSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date

Volatile Gas Chromatography/Mass Spectroscopy

SGS Ref.# 925720 Matrix Spike
925721 Matrix Spike Duplicate

Printed Date/Time 10/12/2009 15:49
Prep Batch
Method
Date

Original 925719
Matrix Solid/Soil (Wet Weight)

Parameter	Qualifiers	Original Result	QC Result	Pct Recov	MS/MSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
Volatile Gas Chromatography/Mass Spectroscopy									
Benzene	MS	ND	1560	95	(81-124)			1640 ug/Kg	09/21/2009
	MSD		1550	95		1	(< 20)	1640 ug/Kg	09/21/2009
Toluene	MS	ND	1590	97	(87-119)			1640 ug/Kg	09/21/2009
	MSD		1620	99		2	(< 20)	1640 ug/Kg	09/21/2009
Ethylbenzene	MS	ND	1600	97	(87-119)			1640 ug/Kg	09/21/2009
	MSD		1550	95		3	(< 20)	1640 ug/Kg	09/21/2009
n-Butylbenzene	MS	ND	1860	114	(82-127)			1640 ug/Kg	09/21/2009
	MSD		1780	109		5	(< 20)	1640 ug/Kg	09/21/2009
Carbon disulfide	MS	ND	2600	106	(58-155)			2460 ug/Kg	09/21/2009
	MSD		2630	107		1	(< 20)	2460 ug/Kg	09/21/2009
1,4-Dichlorobenzene	MS	ND	1660	101	(86-118)			1640 ug/Kg	09/21/2009
	MSD		1660	102		0	(< 20)	1640 ug/Kg	09/21/2009
1,2-Dichloroethane	MS	ND	1620	99	(83-121)			1640 ug/Kg	09/21/2009
	MSD		1620	99		0	(< 20)	1640 ug/Kg	09/21/2009
1,3,5-Trimethylbenzene	MS	74.4	1750	102	(87-120)			1640 ug/Kg	09/21/2009
	MSD		1720	100		2	(< 20)	1640 ug/Kg	09/21/2009
4-Chlorotoluene	MS	ND	1720	105	(84-120)			1640 ug/Kg	09/21/2009
	MSD		1690	103		1	(< 20)	1640 ug/Kg	09/21/2009
Chlorobenzene	MS	ND	1560	95	(84-121)			1640 ug/Kg	09/21/2009
	MSD		1560	95		0	(< 20)	1640 ug/Kg	09/21/2009
4-Methyl-2-pentanone (MIBK)	MS	ND	5160	105	(67-135)			4920 ug/Kg	09/21/2009
	MSD		5360	109		4	(< 20)	4920 ug/Kg	09/21/2009
cis-1,2-Dichloroethene	MS	ND	1820	111	(82-124)			1640 ug/Kg	09/21/2009
	MSD		1760	108		3	(< 20)	1640 ug/Kg	09/21/2009
4-Isopropyltoluene	MS	30.1 J	1730	104	(83-121)			1640 ug/Kg	09/21/2009
	MSD		1660	100		4	(< 20)	1640 ug/Kg	09/21/2009
Methyl-t-butyl ether	MS	ND	2760	112	(76-133)			2460 ug/Kg	09/21/2009
	MSD		2740	111		1	(< 20)	2460 ug/Kg	09/21/2009
cis-1,3-Dichloropropene	MS	ND	1650	101	(82-122)			1640 ug/Kg	09/21/2009
	MSD		1610	98		3	(< 20)	1640 ug/Kg	09/21/2009
n-Propylbenzene	MS	ND	1780	109	(82-125)			1640 ug/Kg	09/21/2009
	MSD		1740	106		2	(< 20)	1640 ug/Kg	09/21/2009
Styrene	MS	ND	1680	102	(91-120)			1640 ug/Kg	09/21/2009
	MSD		1630	99		3	(< 20)	1640 ug/Kg	09/21/2009
Dibromomethane	MS	ND	1540	94	(80-123)			1640 ug/Kg	09/21/2009
	MSD		1600	98		4	(< 20)	1640 ug/Kg	09/21/2009
trans-1,3-Dichloropropene	MS	ND	1660	102	(86-122)			1640 ug/Kg	09/21/2009
	MSD		1730	106		4	(< 20)	1640 ug/Kg	09/21/2009
1,2,4-Trichlorobenzene	MS	ND	1620	99	(77-126)			1640 ug/Kg	09/21/2009
	MSD		1660	101		2	(< 20)	1640 ug/Kg	09/21/2009

SGS Ref.# 925720 Matrix Spike
925721 Matrix Spike Duplicate

Printed Date/Time 10/12/2009 15:49
Prep Batch
Method
Date

Original 925719
Matrix Solid/Soil (Wet Weight)

Parameter	Qualifiers	Original Result	QC Result	Pct Recov	MS/MSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
Volatile Gas Chromatography/Mass Spectroscopy									
1,1,2,2-Tetrachloroethane	MS	ND	1720	105	(80-122)			1640 ug/Kg	09/21/2009
	MSD		1700	103		1	(< 20)	1640 ug/Kg	09/21/2009
1,2-Dibromo-3-chloropropane	MS	ND	1630	99	(60-135)			1640 ug/Kg	09/21/2009
	MSD		1710	104		5	(< 20)	1640 ug/Kg	09/21/2009
Tetrachloroethene	MS	ND	1530	93	(82-125)			1640 ug/Kg	09/21/2009
	MSD		1530	94		0	(< 20)	1640 ug/Kg	09/21/2009
Dibromochloromethane	MS	ND	1400	86	(84-125)			1640 ug/Kg	09/21/2009
	MSD		1450	89		4	(< 20)	1640 ug/Kg	09/21/2009
1,3-Dichloropropane	MS	ND	1720	105	(84-123)			1640 ug/Kg	09/21/2009
	MSD		1720	105		0	(< 20)	1640 ug/Kg	09/21/2009
1,2-Dibromoethane	MS	ND	1650	100	(85-124)			1640 ug/Kg	09/21/2009
	MSD		1650	101		0	(< 20)	1640 ug/Kg	09/21/2009
Carbon tetrachloride	MS	ND	1380	84	(79-128)			1640 ug/Kg	09/21/2009
	MSD		1370	84		0	(< 20)	1640 ug/Kg	09/21/2009
1,1,1,2-Tetrachloroethane	MS	ND	1440	88	(77-123)			1640 ug/Kg	09/21/2009
	MSD		1440	88		0	(< 20)	1640 ug/Kg	09/21/2009
Chloroform	MS	ND	1720	105	(77-124)			1640 ug/Kg	09/21/2009
	MSD		1530	94		12	(< 20)	1640 ug/Kg	09/21/2009
Bromobenzene	MS	ND	1630	99	(86-119)			1640 ug/Kg	09/21/2009
	MSD		1610	98		1	(< 20)	1640 ug/Kg	09/21/2009
Chloromethane	MS	ND	1420	86	(54-129)			1640 ug/Kg	09/21/2009
	MSD		1380	84		3	(< 20)	1640 ug/Kg	09/21/2009
1,2,3-Trichloropropane	MS	ND	1650	101	(77-125)			1640 ug/Kg	09/21/2009
	MSD		1750	107		6	(< 20)	1640 ug/Kg	09/21/2009
Bromomethane	MS	ND	1680	103	(49-141)			1640 ug/Kg	09/21/2009
	MSD		1710	104		2	(< 20)	1640 ug/Kg	09/21/2009
Bromochloromethane	MS	ND	1710	104	(79-125)			1640 ug/Kg	09/21/2009
	MSD		1720	105		0	(< 20)	1640 ug/Kg	09/21/2009
Vinyl chloride	MS	ND	1450	88	(67-125)			1640 ug/Kg	09/21/2009
	MSD		1380	84		5	(< 20)	1640 ug/Kg	09/21/2009
Dichlorodifluoromethane	MS	ND	1340	82	(43-135)			1640 ug/Kg	09/21/2009
	MSD		1260	77		6	(< 20)	1640 ug/Kg	09/21/2009
Chloroethane	MS	ND	1450	88	(51-141)			1640 ug/Kg	09/21/2009
	MSD		1330	81		8	(< 20)	1640 ug/Kg	09/21/2009
sec-Butylbenzene	MS	ND	1770	108	(84-122)			1640 ug/Kg	09/21/2009
	MSD		1740	106		2	(< 20)	1640 ug/Kg	09/21/2009
Bromodichloromethane	MS	ND	1520	93	(81-127)			1640 ug/Kg	09/21/2009
	MSD		1510	92		1	(< 20)	1640 ug/Kg	09/21/2009
1,1-Dichloroethene	MS	ND	1560	95	(75-125)			1640 ug/Kg	09/21/2009
	MSD		1790	109		14	(< 20)	1640 ug/Kg	09/21/2009

SGS Ref.# 925720 Matrix Spike
925721 Matrix Spike Duplicate

Printed Date/Time 10/12/2009 15:49
Prep Batch
Method
Date

Original 925719
Matrix Solid/Soil (Wet Weight)

Parameter	Qualifiers	Original Result	QC Result	Pct Recov	MS/MSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
<u>Volatile Gas Chromatography/Mass Spectroscopy</u>									
2-Butanone (MEK)	MS	ND	6440	131	(57-135)			4920 ug/Kg	09/21/2009
	MSD		6580	134		2	(< 20)	4920 ug/Kg	09/21/2009
Methylene chloride	MS	ND	1940	119	(63-137)			1640 ug/Kg	09/21/2009
	MSD		1930	118		1	(< 20)	1640 ug/Kg	09/21/2009
Trichlorofluoromethane	MS	ND	1470	90	(64-139)			1640 ug/Kg	09/21/2009
	MSD		1410	86		5	(< 20)	1640 ug/Kg	09/21/2009
P & M -Xylene	MS	250	3650	104	(88-121)			3280 ug/Kg	09/21/2009
	MSD		3660	104		0	(< 20)	3280 ug/Kg	09/21/2009
Naphthalene	MS	ND	1770	108	(73-131)			1640 ug/Kg	09/21/2009
	MSD		1760	107		1	(< 20)	1640 ug/Kg	09/21/2009
o-Xylene	MS	113	1820	104	(89-120)			1640 ug/Kg	09/21/2009
	MSD		1770	101		3	(< 20)	1640 ug/Kg	09/21/2009
Bromoform	MS	ND	1410	86	(72-135)			1640 ug/Kg	09/21/2009
	MSD		1400	86		1	(< 20)	1640 ug/Kg	09/21/2009
1,2,4-Trimethylbenzene	MS	33.9 J	1750	104	(85-121)			1640 ug/Kg	09/21/2009
	MSD		1730	103		1	(< 20)	1640 ug/Kg	09/21/2009
tert-Butylbenzene	MS	ND	1630	100	(82-122)			1640 ug/Kg	09/21/2009
	MSD		1650	101		1	(< 20)	1640 ug/Kg	09/21/2009
1,1,1-Trichloroethane	MS	ND	1530	93	(77-129)			1640 ug/Kg	09/21/2009
	MSD		1540	94		1	(< 20)	1640 ug/Kg	09/21/2009
1,1-Dichloroethane	MS	ND	1830	112	(81-126)			1640 ug/Kg	09/21/2009
	MSD		1800	110		2	(< 20)	1640 ug/Kg	09/21/2009
2-Chlorotoluene	MS	ND	1710	105	(81-122)			1640 ug/Kg	09/21/2009
	MSD		1710	104		1	(< 20)	1640 ug/Kg	09/21/2009
Trichloroethene	MS	ND	1490	91	(77-124)			1640 ug/Kg	09/21/2009
	MSD		1500	92		1	(< 20)	1640 ug/Kg	09/21/2009
trans-1,2-Dichloroethene	MS	ND	1820	111	(79-125)			1640 ug/Kg	09/21/2009
	MSD		1770	108		3	(< 20)	1640 ug/Kg	09/21/2009
1,2-Dichlorobenzene	MS	ND	1690	103	(88-113)			1640 ug/Kg	09/21/2009
	MSD		1670	102		2	(< 20)	1640 ug/Kg	09/21/2009
2,2-Dichloropropane	MS	ND	1720	105	(69-132)			1640 ug/Kg	09/21/2009
	MSD		1660	101		3	(< 20)	1640 ug/Kg	09/21/2009
Hexachlorobutadiene	MS	ND	1720	105	(74-124)			1640 ug/Kg	09/21/2009
	MSD		1700	104		1	(< 20)	1640 ug/Kg	09/21/2009
Isopropylbenzene (Cumene)	MS	ND	1650	101	(89-121)			1640 ug/Kg	09/21/2009
	MSD		1640	100		1	(< 20)	1640 ug/Kg	09/21/2009
2-Hexanone	MS	ND	5880	120	(58-145)			4920 ug/Kg	09/21/2009
	MSD		5990	122		2	(< 20)	4920 ug/Kg	09/21/2009
1,2-Dichloropropane	MS	ND	1650	101	(81-120)			1640 ug/Kg	09/21/2009
	MSD		1660	101		0	(< 20)	1640 ug/Kg	09/21/2009

SGS Ref.# 925720 Matrix Spike
925721 Matrix Spike Duplicate

Printed Date/Time 10/12/2009 15:49
Prep Batch
Method
Date

Original 925719
Matrix Solid/Soil (Wet Weight)

Parameter	Qualifiers	Original Result	QC Result	Pct Recov	MS/MSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date

Volatile Gas Chromatography/Mass Spectroscopy

1,1-Dichloropropene	MS	ND	1540	94	(76-134)			1640	ug/Kg 09/21/2009
	MSD		1570	96		2	(< 20)	1640	ug/Kg 09/21/2009
1,1,2-Trichloroethane	MS	ND	2810	171*	(85-121)			1640	ug/Kg 09/21/2009
	MSD		2750	168*		2	(< 20)	1640	ug/Kg 09/21/2009
1,3-Dichlorobenzene	MS	ND	1650	101	(86-117)			1640	ug/Kg 09/21/2009
	MSD		1650	101		0	(< 20)	1640	ug/Kg 09/21/2009
1,2,3-Trichlorobenzene	MS	ND	1690	103	(78-124)			1640	ug/Kg 09/21/2009
	MSD		1680	102		1	(< 20)	1640	ug/Kg 09/21/2009

Surrogates

1,2-Dichloroethane-D4 <surr>	MS		1440	88	(69-132)				09/21/2009
	MSD		1480	90		3			09/21/2009
Toluene-d8 <surr>	MS		1600	97	(84-124)				09/21/2009
	MSD		1600	98		0			09/21/2009
4-Bromofluorobenzene <surr>	MS		4080	100	(65-144)				09/21/2009
	MSD		4070	100		0			09/21/2009

Batch VMS10846
Method SW8260B
Instrument HP 5890 Series II MS5 VLA



1094997

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Page 1

1 CLIENT: **SLR International Corp**
CONTACT: **David Pichnik** PHONE NO: **907.455.9005**
PROJECT: **Village of Barrow** SITE/PWSID#: **005.0065.09008**
REPORTS TO: **M. Diez** EMAIL: **dpcichnik@slrcorp.com**
D. Pichnik **clomson@slrcorp.com**
T. Barber **mraser@slrcorp.com**
C. Peterson **tharber@slrcorp.com**
INVOICE TO: **SLR** QUOTE #:
P.O. #:

SGS Reference #:
page 1 of 2

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX/ MATRIX CODE	# CONTAINERS	SAMPLE TYPE C= COMP G= GRAB MI= Multi Incremental Samples	Preservatives Used	Analysis Required	REMARKS/ LOC ID
1 A-B	A-2	9/10/09	1745	soil	2	G	X	X	GRO AK101
2 A-8	A-8	1800	1800		2		X	X	BTEX 80218
3 B-2	B-2	1820	1820		2		X	X	DRD AK102
4 A-D	C-1	1835	1835		3		X	X	PRD AK103
5 A-B	C-3	1840	1840		2		X	X	VOC 82608
6 A-D	C-4	1845	1845		3		X	X	LEAD 6020
7 A-D	C-15	1850	1850		3		X	X	PAH 8276C(SIM)
8 A-C	C-7	1852	1852		3		X	X	
9 A-C	C-10	1859	1859		3		X	X	
10 A-B	C-13	1905	1905		2		X	X	

4 Collected/Relinquished By: (1) **David Pichnik** Received By: **Curmon Beere** 1355 9/14/09
Relinquished By: (2) **Curmon Beere** 1530 9/14/09
Relinquished By: (3) **Curmon Beere** 0900 9/15/09
Relinquished By: (4) **Curmon Beere** 0900 9/15/09

DOD Project? YES NO Cooler ID
Requested Turnaround Time and/or Special Instructions:
Special Deliverable Requirements:
Samples Received Cold? YES NO
Cooler Temperature °C: 2.4 2.4 2.4
Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

1094997

Services Inc. BODY RECORD

Locations Nationwide

- Alaska
- New Jersey
- North Carolina
- West Virginia
- Maryland
- New York
- Ohio

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[illegible]

SAMPLE RECEIPT FORM

SGS WO#:



Yes No NA

- ☐ ☒ ☐ Are samples **RUSH**, priority or w/in 72 hrs of hold time?
☐ ☐ ☒ If yes, have you done e-mail ALERT notification?
☐ ☒ Are samples *within 24 hrs.* of hold time or due date?
☐ ☒ If yes, have you also spoken with supervisor?
☐ ☒ Archiving bottles: Are lids marked w/ red "X"?
☒ ☐ ☐ Were samples collected with proper preservative?
☐ ☐ ☒ Any problems (ID, cond'n, HT, etc)? Explain:
NOT CHECKED IN AIRBANKS OFFICE

- ☐ ☒ ☐ If this is for PWS, provide PWSID: _____
☐ ☐ ☒ Payment received: \$ _____ by Check or Credit Card
☐ ☒ Will courier charges apply?
☒ ☐ ☐ Data package required? (Level: 1 / 2 / 3 / 4)
 Notes: _____
☐ ☒ ☐ Is this a DoD project? (USACE, Navy, AFCEE)

This section must be filled out for DoD projects (USACE, Navy, AFCEE):

Yes	No	
☐	☐	Is received temperature $\leq 6^{\circ}\text{C}$?
☐	☐	Were containers ice-free? <i>Notify PM immediately of any ice in samples.</i> If some cooler temperatures are non-compliant, see form FS-0029 (attached) for samples/analyses affected.
☐	☐	Was there an airbill? (If "yes," see attached.)
☐	☐	Was cooler sealed with custody seals & were they intact? # / where: _____
☐	☐	Was there a COC with cooler?
☐	☐	Was COC sealed in plastic bag & taped inside lid of cooler?
☐	☐	Was the COC filled out properly? Did labels correspond?
☐	☐	Did the COC indicate USACE / Navy / AFCEE project?
☐	☐	Samples were packed to prevent breakage with (circle one): Bubble Wrap Vermiculite Other (specify): _____
☐	☐	Were all samples sealed in separate plastic bags?
☐	☐	Were all VOCs free of headspace and/or MeOH preserved?
☐	☐	Were correct container / sample sizes submitted?
☐	☐	Was the PM notified of arrival so they can send Sample Receipt Acknowledgement to client?

TAT (circle one): Standard -or- RushReceived Date: 9/14/09Received Time: 1355

Cooler ID	Temperature	Measured w/
		(Therm/IR ID#)
<u>1</u>	<u>2.4</u> °C	<u>8910</u>
_____	_____ °C	_____
_____	_____ °C	_____
_____	_____ °C	_____

Note: Temperature readings include thermometer correction factors

Delivery method (circle all that apply):

☒ Client / ☐ Alert Courier / ☐ Lynden / ☐ SGS
☐ UPS / ☐ FedEx / ☐ USPS / ☐ DHL / ☐ Carlisle
☐ AkAir Goldstreak / ☐ NAC / ☐ ERA / ☐ PenAir
 Other: _____

Additional Sample Remarks: (✓ if applicable)

- ☐ Extra Sample Volume?
☐ Limited Sample Volume?
☐ Multi-Incremental Samples?
☐ Lab-filtered for dissolved _____
☐ Ref Lab required for _____
☐ Foreign Soil?

This section must be completed if problems are noted.

Was client notified of problems? Yes / No

By (SGS PM): _____

Individual contacted: _____

Via: Phone / Fax / E-mail (circle one)

Date/Time: _____

Reason for contact: _____

Change Order Required? Yes / No

Notes:

Completed by (sign): Carmon Beene (print): CARMON BEENELogin proof: Self-check completed for Peer-reviewer's Initials for



SGS WO#

#	Container ID	Matrix	Test	Container Volume				Container Type							Preservative							*Notes						
				QC	TB	IL	500mL	250mL or 8oz	125mL or 4oz	60mL	40mL	Other:	AG	CG	HDPE	Nalgene	Coli	Septa	Other:	None	HCl		HNO3	H2SO4	NaOH	Ascorbic Acid	NH4Cl	Other: MOH
1311	A	2	GRO/BTEX																								X	
	B	2	DRO/RRO																									
1467	A	2	GRO/BTEX/VOC																								X	
	B	2	Extra Volume																								X	
	C	2	Extra Volume																								X	
	D	2	DRO/RRO/PAT BRDC																								X	
1498	A	2	GRO/BTEX/VOC																								X	
	B	2	Extra Volume																								X	
	C	2	DRO/RRO																								X	
172	A	2	GRO/VOC/BTEX																								X	
Bottle Totals																												

* Note: Containers which require (additional) chemical preservation upon receipt must be documented per SOP#106

* Note: Containers which require (additional) chemical preservation upon receipt must be documented per SOP#106

Completed by: June Adams

Date: 9/19/04

F042r02 Revised 9/8/2009

SGS

1094997

SGS W



SAMPLE RECEIPT FORM FOR TRANSFERS

From
FAIRBANKS, ALASKA
To
ANCHORAGE, AK

TO BE COMPLETED IN ANCHORAGE UPON ARRIVAL FROM FAIRBANKS.

NOTES RECORDED BELOW ARE ACTIONS NEEDED UPON ARRIVAL IN ANCHORAGE.

Notes: _____

Receipt Date / Time: 9.15.09 0900

Delivery method to Anchorage (circle all that apply):

Alert Courier / UPS / FedEx / USPS / AA Goldstreak / NAC / ERA / PenAir / Carlife / Lynden / SGS

Other: _____

Airbill # _____

COOLER AND TEMP BLANK READINGS* #6

Cooler ID	Temp Blank (°C)	Cooler (°C)	Cooler ID	Temp Blank (°C)	Cooler (°C)
<u>1</u>	<u>1.3</u>	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

CUSTODY SEALS INTACT: YES / NO
/ WHERE: 2 Front & Back TOP LIN

COMPLETED BY: [Signature]

*Temperature readings include thermometer correction factors.

Environmental

CUSTODY SEAL

Paula

Date/Time:

1345 9/14/09

1094997

LABORATORY DATA QUALITY ASSURANCE SUMMARY

ADEC BEAVER SCHOOL TANK FARM

ADEC Contaminated Site Number: 790.38.002

This report summarizes a review of analytical results for work order numbers 1094997 (soil samples) and 1094996 (water sample), for samples collected on 9/10/09 and 9/11/09. Samples were collected by SLR International Corp (SLR), and submitted to SGS Environmental Services (SGS), Alaska. Samples were analyzed for the following parameters:

- Gasoline Range Organics (GRO), using Alaska Method 101
- Diesel Range Organics (DRO), using Alaska Method 102
- Residual Range Organics (RRO), using Alaska Method 103
- Lead, using EPA Method 6020
- Polynuclear Aromatic Hydrocarbons (PAHs), using EPA Methods 8270D
- Benzene, Toluene, Ethylbenzene, Xylenes, using EPA Methods 8021B
- Percent Solids, using Standard Method 2540
- Volatile Organics, using EPA Method 524.2
- Volatile Organic Compounds (VOCs), using EPA Method 8260B

Quality Assurance Program

A quality assurance (QA) program was followed that addressed project administration, sampling protocols, data review, and data QA. Sample QA was provided by SLR through strict adherence to sampling protocols. Chain-of-custody (COC) procedures were followed as an integral part of the QA program.

Data validation consisted of the following:

- Verifying that quality control (QC) blanks were properly prepared, identified, and analyzed.
- Reviewing COC records for completeness, signatures, and dates.
- Verifying that surrogate analyses (when applicable) are within recovery acceptance limits.
- Verifying that Laboratory Control Samples (LCS) and Laboratory Control Sample Duplicates (LCSD) are within recovery acceptance limits.

- Reviewing the Continuing Calibration Verification (CCV) recoveries are within recovery acceptance levels.
- Evaluating the result RPD between original and duplicate (QC) samples.
- Providing an overall assessment of laboratory data quality and qualifying sample results if necessary.

Data Qualifications

The comments presented in this report refer to the field procedures and the laboratory's performance in meeting the QC specifications. The sample results were reviewed using the following documents:

- ADEC, 18 AAC 75 Oil and Other Hazardous Substances Pollution Control (ADEC, Revised as of October 9, 2008).
- ADEC, 2009 18 AAC 70 Water Quality Standards (ADEC, as amended through September 19).
- ADEC, Underground Storage Tanks Procedure Manual Guidance for Treatment of Petroleum – Contaminated Soil and Water and Standard Sampling Procedures (ADEC, November 2002).
- ADEC, Technical Memorandum – 06-002, Environmental Laboratory Data and Quality Assurance Requirements (ADEC, March 2009).
- EPA Document 530/SW-846, Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, fourth edition (EPA, November 1991).
- EPA Document 540//R-94/012, EPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (EPA, February 1994).

Data Validation

Data Package

The data packages were checked for transcription errors, omissions, or other anomalies. No anomalies were found except as noted below.

Work order 1094997

- Transcription error: PAHs using EPA Method 8270C was requested on the COC. The correct analysis is EPA Method 8270D. The samples were analyzed with the correct method, 8270D.

Work order 1094996

- Semi Volatile Organic Compounds (SVOCs) is requested on the COC, however, it was later determined and documented as a change order to analyze for EPA Method 8270D instead. The sample was analyzed for EPA Method 8270D, the correct analysis.

Holding Times and Preservation

Samples were appropriately preserved upon collection and were submitted to SGS. Sample analysis was conducted within holding time criteria. Issues with regard to sample preservation are noted below.

Work order 1094996

- Limited volume for EPA Method 8270D and AK Method 102 was noted on the COC. The reason for limited volume was due to sample containers originally submitted for SVOCs. After the samples were submitted to the laboratory, a change order was written to replace the SVOC analysis with the EPA Method 8270D analysis. Enough sample volume was submitted from other appropriately preserved containers to analyze the samples for the EPA Method 8270D analysis.

Laboratory Method Blanks

Laboratory method blanks were analyzed at the appropriate frequencies. No analytes were detected in method blanks at or above the method reporting limits (MRL) for either work order.

Trip Blanks

One trip blank was included with each work order, 1094998 and 1094996. No analytes were detected in the trip blanks at or above the method reporting limits (MRL). Each COC indicated one cooler was used for each work order, and therefore it is assumed each trip blank traveled with the same samples submitted with each work order.

Surrogate Recovery Results

Surrogate analyses were performed at the required frequencies, and the results were within EPA and SGS percent recovery acceptance limits for work order 1094996. Issues regarding surrogate recovery for work order 1094997 are noted below.

Work order 1094997

- 4-Bromofluorobenzene surrogate recovery did not meet QC criteria (biased high) due to hydrocarbon interference using EPA Method 8021B and AK Method 101. Surrogate recovery failure was associated with field samples A-2, A-8, C-1, C-4, C-15 and C-7. Analytical results for the associated samples using EPA Method 8021B and AK Method 101 may be biased high because of this QC failure.
- 1,4-difluorobenzene surrogate recovery does not meet QC criteria (biased low) due to sample dilution using EPA Method 8021B. Surrogate recovery failure was associated with field sample A-2. Analytical results for sample A-2 using EPA Method 8021B may be biased low because of this QC failure.
- Toluene-d8 surrogate recovery did not meet QC criteria (biased high) using EPA Method 8260B. Surrogate recovery failure was associated with field sample C-15. Analytes

Continuing Calibration Verification

Continuing calibration verifications (CCV) were performed at the required frequencies, and percent recoveries were within EPA and SGS percent recovery acceptance limits except as noted below.

Work order 1094996

- According to the Case Narrative, ICV recovery for dichlorodifluoromethane, chloromethane and vinyl chloride did not meet QC criteria (biased high). These analytes were not detected above the PQL in associated samples, and therefore should not be affected by this QC failure.

Work order 1094997

- According to the Case Narrative, CCV and ICV recovery for several analytes did not QC criteria (biased high). These analytes were not detected above the PQL in associated samples, and therefore should not be affected by this QC failure.

Field Duplicates

A total of twelve primary field samples were submitted between work orders 1094997, and 1094996. One duplicate soil sample was collected and submitted to the laboratory blind. Since one water sample was collected, there were no duplicates collected for water. The soil duplicate samples are not in full compliance with regulatory requirements for two reasons listed below.

- Two duplicates should have been collected for the eleven primary soil samples. Only one duplicate soil sample was collected.
- BTEX using EPA Method 8021B was analyzed for field samples, however it was not analyzed for the parent or duplicate soil samples.

The following field duplicate was collected:

- C-15 is the duplicate to parent sample C-1

For analytes detected above the MRL, duplicate/parent relative percent differences (RPD) are summarized below.

RELATIVE PERCENT DIFFERENCES		
Parent sample (Duplicate sample)	Analyte	RPD (%)
C-1 (C-15)	Lead	1.83
C-1 (C-15)	GRO	55.84
C-1 (C-15)	DRO	4.90
C-1 (C-15)	RRO	4.64
C-1 (C-15)	1,3,5-Trimethylbenzene	39.69
C-1 (C-15)	4-Isopropyltoluene*	*28.57

C-1 (C-15)	P & M Xylene*	*161.94
C-1 (C-15)	Naphthalene	6.73
C-1 (C-15)	o-Xylene	24.53
C-1 (C-15)	Xylenes (total)	24.18
C-1 (C-15)	1,2,4-Trimethylbenzene	53.11
C-1 (C-15)	Fluorene	21.60
C-1 (C-15)	Phenanthrene	28.14
C-1 (C-15)	Naphthalene	22.01
C-1 (C-15)	Total Solids	2.17

* One sample result is an estimate (below PQL), and the other is ND

GRO and 1,2,4-Trimethylbenzene did not meet the required 50% RPD for parent soil samples and their duplicates. These two analytes are out of compliance. The remainder of the analytes were below the 50% RPD for soil. Analytes with one sample result of ND are noted in the table.

Laboratory Control Samples/Laboratory Control Duplicate Samples

Laboratory Control Samples (LCS) and Laboratory Control Duplicate Samples (LCSD) were analyzed at the appropriate frequencies and all LCS/LCSD results met percent recovery and RPD limits for work order 1094996. Issues relating to LCS results for work order 1094997 are noted below.

- The LCS recovery for 1,1-dichloroethene and carbon disulfide did not meet QC criteria (biased high). These analytes were not detected above the PQL in the associated samples, therefore project sample results are unaffected.

Laboratory Duplicate Samples

Laboratory duplicates were not analyzed, or required for work order 1094996 or 1094997.

Matrix Spike/Matrix Spike Duplicate Samples

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) samples were analyzed at the appropriate frequencies and all MS/MSD results met percent recovery and RPD limits for work order 1094997. MS/MSD samples were not analyzed, or required for work order 1094996.

Reporting Limits

Method reporting limits (MRLs) were compared to applicable cleanup levels for the site. The analytes with results of ND had MRLs below applicable cleanup levels except as noted below.

- The benzene result for sample C-11 is ND. The MRL for this analyte and sample was set by the laboratory at .0563 mg/Kg. The ADEC site cleanup level for benzene is .03 mg/Kg, therefore the benzene result of ND is not a measurable result when comparing site cleanup levels.

Overall Assessment

The data are judged to be acceptable for use.

Precision, Accuracy, and Completeness

- Precision: Precision goals were met except as noted in the Field Duplicates section.
- Accuracy: Accuracy goals were met except as noted in the LCS/LCSD, Surrogate Recovery and CCV section.
- Completeness: Completeness goals were met.

Laboratory Data Review Checklist

Completed by:	Kirsten Hoppe
Title:	Geologist
Date:	Oct 12, 2009
CS Report Name:	Beaver School Tank Farm
Report Date:	Oct 12, 2009
Consultant Firm:	SLR International Corp.
Laboratory Name:	SGS North America Inc.
Laboratory Report Number:	1094997
ADEC File Number:	790.38.002
ADEC RecKey Number:	NA

1. Laboratory

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

☒ Yes

☐ No

Comments:

SGS North America, Inc.

- 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:

NA

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:

Nothing needed to be noted.

- 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:

Nothing needed to be noted.

- e. Data quality or usability affected? Explain.

Comments:

No

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:

No corrective actions needed to be noted.

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

Comments:

Notes made in Case Narrative vary depending on the issue or observation. Detailed notes and observations are noted in the QC section of this checklist.

5. Samples Results

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

☒ Yes ☐ No

Comments:

Transcription error: PAHs using EPA Method 8270C was requested on the COC. The correct analysis is EPA Method 8270D. The samples were analyzed with the correct method, 8270D

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:

One analyte/sample:

The benzene result for sample C-11 is ND. The MRL for this analyte and sample was set by the laboratory at .0563 mg/Kg. The ADEC site cleanup level for benzene is .03 mg/Kg, therefore the benzene result of ND is not a measurable result when comparing site cleanup levels.

e. Data quality or usability affected?

Comments:

The benzene result of ND is not a measurable result when comparing site cleanup levels.

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:

NA

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

☒ Yes ☐ No

Comments:

No samples were affected.

v. Data quality or usability affected? Explain.

Comments:

No samples were 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

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:

The LCS recovery for 1,1-dichloroethene and carbon disulfide did not meet QC criteria (biased high). These analytes were not detected above the PQL in the associated samples, therefore project sample results are unaffected.

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

☒ Yes ☐ No

Comments:

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

Comments:

LCS QC failures did not affect associated samples because the sample results were ND.

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

☒ Yes

☐ No

Comments:

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

Comments:

Analytes were not detected above the PQL in the associated samples, therefore project sample results are unaffected.

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:

Yes: Percent recoveries reported.

No:

1. 4-Bromofluorobenzene surrogate recovery did not meet QC criteria (biased high) due to hydrocarbon interference using EPA Method 8021B and AK Method 101. Surrogate recovery failure was associated with field samples A-2, A-8, C-1, C-4, C-15 and C-7. Analytical results for the associated samples using EPA Method 8021B and AK Method 101 may be biased high because of this QC failure.

2. 1,4-difluorobenzene surrogate recovery does not meet QC criteria (biased low) due to sample dilution using EPA Method 8021B. Surrogate recovery failure was associated with field sample A-2. Analytical results for sample A-2 using EPA Method 8021B may be biased low because of this QC failure.

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

☒ Yes

☐ No

Comments:

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

Comments:

1. Surrogate recovery failure was associated with field samples A-2, A-8, C-1, C-4, C-15 and C-7. Analytical results for the associated samples using EPA Method 8021B and AK Method 101 may be biased high because of this QC failure.

2. Surrogate recovery failure was associated with field sample A-2. Analytical results for sample A-2 using EPA Method 8021B may be biased low because of this QC failure.

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 Comments:

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

☒ Yes ☐ No Comments:

All samples including the trip blank were included in one cooler.

- iii. All results less than PQL?

☒ Yes ☐ No Comments:

- iv. If above PQL, what samples are affected?

Comments:

NA

- v. Data quality or usability affected? Explain.

Comments:

NA-all results for the trip blank were less than the PQL.

e. Field Duplicate

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

☒ Yes ☐ No Comments:

A total of twelve primary field samples were submitted between work orders 1094997, and 1094996. One duplicate soil sample was collected and submitted to the laboratory blind. Since one water sample was collected, there were no duplicates collected for water. The soil duplicate samples are not in full compliance with regulatory requirements for two reasons:

1. Two duplicates should have been collected for the eleven primary soil samples. Only one duplicate soil sample was collected.
2. BTEX using EPA Method 8021B was analyzed for field samples, however it was not analyzed for the parent or duplicate soil samples.

ii. Submitted blind to lab?

☒ Yes ☐ No

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

Comments:

GRO and 1,2,4-Trimethylbenzene did not meet the required 50% RPD for parent soil samples and their duplicates. These two analytes are out of compliance. The remainder of the analytes were below the 50% RPD for soil.

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

Comments:

GRO and 1,2,4-Trimethylbenzene failed field precision goals, however the data usability should not be affected.

f. Decontamination or Equipment Blank (If not applicable, a comment stating why must be entered below.)

☒ Yes ☐ No ☒ Not Applicable

i. All results less than PQL?

☒ Yes ☐ No

Comments:

NA

ii. If above PQL, what samples are affected?

Comments:

NA

iii. Data quality or usability affected? Explain.

Comments:

NA

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

a. Defined and appropriate?

☒ Yes ☐ No

Comments:

APPENDIX G-2

BURNED GENERATOR BUILDING LABORATORY ANALYTICAL RESULTS, QAR & DEC CHECKLIST



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

Project:	Village of Beaver Burned Gener
Client:	SLR Alaska-Fairbanks
SGS Work Order:	1094998

Released by:

Contents:

Cover Page
Case Narrative
Final Report Pages
Quality Control Summary Forms
Chain of Custody/Sample Receipt Forms

Note:

Unless otherwise noted, all quality assurance/quality control criteria is in compliance with the standards set forth by the proper regulatory authority, the SGS Quality Assurance Program Plan, and the National Environmental Accreditation Conference.

Case Narrative

Customer: SLRFBKS

SLR Alaska-Fairbanks

Project: 1094998

Village of Beaver Burned Gener

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

1094998001 PS E-12

AK103 - Unknown hydrocarbon with several peaks is present.

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

1094998002 PS E-4

AK103 - Unknown hydrocarbon with several peaks is present.

AK102 - The pattern is consistent with a weathered gasoline.

AK101/8021B - BFB (surrogate) recovery does not meet QC criteria (biased high) due to hydrocarbon interference.

8270D SIM - Surrogate recovery is outside of QC criteria due to sample dilution.

1094998003 PS E-14

AK103 - Unknown hydrocarbon with several peaks is present.

AK102 - The pattern is consistent with a weathered gasoline.

AK101/8021B - BFB (surrogate) recovery does not meet QC criteria (biased high) due to hydrocarbon interference.

8270D SIM - Surrogate recovery is outside of QC criteria due to sample dilution.

8270D SIM - PQLs are elevated due to sample dilution. Sample analyzed at a dilution due to matrix interference with internal standards.

1094998004 PS E-3

AK103 - Unknown hydrocarbon with several peaks is present.

AK102 - The pattern is consistent with a weathered gasoline.

1094998006 PS D-2

AK103 - Unknown hydrocarbon with several peaks is present.

1094998007 PS E-1

AK103 - Unknown hydrocarbon with several peaks is present.

924335 MS 1094998002MS

8270D SIM - Surrogate recovery is outside of QC criteria due to sample dilution.

8270D SIM - PQLs are elevated due to sample dilution. Sample analyzed at a dilution due to matrix interference with internal standards.

8270D SIM - MS recovery for several compounds are outside of QC criteria. Refer to LCS for accuracy.

8270D SIM - Results are estimated for 2-methylnaphthalene due to the concentration exceeding the upper calibration range.

924336 MSD 1094998002MSD

8270D SIM - Surrogate recovery is outside of QC criteria due to sample dilution.

8270D SIM - PQLs are elevated due to sample dilution. Sample analyzed at a dilution due to matrix interference with internal standards.

8270D SIM - MSD recovery for several compounds are outside of QC criteria. Refer to LCS for accuracy.

8270D SIM - MS/MSD RPD for naphthalene does not meet QC criteria. Results for this analyte are estimated in the original sample.



Laboratory Analytical Report

Client: **SLR Alaska-Fairbanks**
3455 Rewak Dr, Suite 103
Fairbanks, AK 99709

Attn: **David Puchrik**
T: (907)455-9005 F:(907)455-9015

Project: **Village of Beaver Burned Gener**
Workorder No.: **1094998**

Certification:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, other than the conditions noted on the sample data sheet(s) and/or the case narrative. This certification applies only to the tested parameters and the specific sample(s) received at the laboratory.

If you have any questions regarding this report, or if we can be of further assistance, please contact your SGS Project Manager.

Carmon Beene

Project Manager

Enclosed are the analytical results associated with this workorder.

As required by the state of Alaska and the USEPA, a formal Quality Assurance/Quality Control Program is maintained by SGS. A copy of our Quality Assurance Plan (QAP), which outlines this program is available at your request.

The Laboratory certification numbers are AK971-05 (DW), UTS-005 (CS) and AK00971 (Micro) for ADEC and AK100001 for NELAP (RCRA methods: 1020A, 1311, 6010B, 7470A, 7471A, 9040B, 9045C, 9056, 9060, 8015B, 8021B, 8081A/8082, 8260B, 8270C).

Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP, the National Environmental Laboratory Accreditation Program and, when applicable, other regulatory authorities.

If you have any questions regarding this report or if we can be of any assistance, please contact your SGS Project Manager at 907-562-2343. All work is being provided under SGS general terms and conditions (http://www.sgs.com/terms_and_conditions.htm)

The following descriptors may be found on your report which will serve to further qualify the data.

MDL	Method Detection Limit
PQL	Practical Quantitation Limit (reporting limit).
CL	Control Limit
U	Indicates the analyte was analyzed for but not detected.
F	Indicates value that is greater than or equal to the MDL.
J	The quantitation is an estimation.
ND	Indicates the analyte is not detected
B	Indicates the analyte is found in a blank associated with the sample.
*	The analyte has exceeded allowable regulatory or control limits.
D	The analyte concentration is the result of dilution.
GT	Greater Than
LT	Less Than
Q	QC parameter out of acceptance range.
M	A matrix effect was present.
E	The analyte result is above the calibrated range.
R	Rejected
DF	Analytical Dilution Factor
JL	The analyte was positively identified, but the quantitation is a low estimation.
<Surr>	Surrogate QC spiked standard
<Surr/IS>	Surrogate / Internal Standard QC spiked standard
QC	Quality Control
QA	Quality Assurance
MB	Method Blank
LCS (D)	Laboratory Control Sample (Duplicate)
MS(D)	Matrix Spike (Duplicate)
BMS(D)	Site Specific Matrix Spike (Duplicate)
RPD	Relative Percent Difference
ICV	Initial Calibration Verification
CCV	Continuous Calibration Verification
MSA	Method of Standard Addition

Notes: Soil samples are reported on a dry weight basis unless otherwise specified

All DRO/RRO analyses are integrated per SOP.



SAMPLE SUMMARY

Print Date: 10/12/2009 4:27 pm

Client Name: SLR Alaska-Fairbanks

Project Name: Village of Beaver Burned Gener

Workorder No.: 1094998

Analytical Methods

Method Description

8270 PAH SIM Semi-Volatiles GC/MS

AK101/8021 Combo. (S)

AK101/8021 Combo. (S)

BTEX 8021 prepped by AK101 Field Prep

Diesel/Residual Range Organics

Diesel/Residual Range Organics

Metals by ICP-MS (S)

Percent Solids SM2540G

Analytical Method

8270D SIMS

AK101

SW8021B

SW8021B

AK102

AK103

SW6020

SM20 2540G

Sample ID Cross Reference

Lab Sample ID

1094998001

1094998002

1094998003

1094998004

1094998005

1094998006

1094998007

1094998008

Client Sample ID

E-12

E-4

E-14

E-3

E-11

D-2

E-1

Trip Blank

**SLR Alaska-Fairbanks**

Print Date: 10/12/2009 4:27 pm

Client Sample ID: **E-12**

SGS Ref. #: 1094998001

Project ID: Village of Beaver Burned Gener

Matrix: Soil/Solid (dry weight)

Percent Solids: 64.8

Collection Date/Time: 09/10/09 16:05

Receipt Date/Time: 09/16/09 09:00

Metals by ICP/MS

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Lead	13.7	1.48	0.458	mg/Kg	50	MMS6089	MXX22233	

Batch Information

Analytical Batch: MMS6089

Analytical Method: SW6020

Analysis Date/Time: 09/18/09 14:20

Dilution Factor: 50

Prep Batch: MXX22233

Prep Method: SW3050B

Prep Date/Time: 09/16/09 11:00

Initial Prep Wt./Vol.: 1.045 g

Prep Extract Vol.: 50 mL

Container ID:1094998001-B

Analyst: NRB



SLR Alaska-Fairbanks

Print Date: 10/12/2009 4:27 pm

Client Sample ID: **E-12**

SGS Ref. #: 1094998001

Project ID: Village of Beaver Burned Gener

Matrix: Soil/Solid (dry weight)

Percent Solids: 64.8

Collection Date/Time: 09/10/09 16:05

Receipt Date/Time: 09/16/09 09:00

Volatile Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Gasoline Range Organics	4.32J	9.67	2.90	mg/Kg	1	VFC9656		
Benzene	ND	48.4	15.5	ug/Kg	1	VFC9656		
Toluene	62.1 J	193	58.0	ug/Kg	1	VFC9656		
Ethylbenzene	ND	193	58.0	ug/Kg	1	VFC9656		
o-Xylene	93.6 J	193	58.0	ug/Kg	1	VFC9656		
P & M -Xylene	92.0 J	193	58.0	ug/Kg	1	VFC9656		
4-Bromofluorobenzene <sur>	84.4	50-150		%	1	VFC9656		
1,4-Difluorobenzene <sur>	98.8	80-120		%	1	VFC9656		

Batch Information

Analytical Batch: VFC9656

Analytical Method: AK101

Analysis Date/Time: 09/21/09 19:03

Dilution Factor: 1

Initial Prep Wt./Vol.: 27.709 g

Container ID:1094998001-A

Analyst: KPW

Analytical Batch: VFC9656

Analytical Method: SW8021B

Analysis Date/Time: 09/21/09 19:03

Dilution Factor: 1

Initial Prep Wt./Vol.: 27.709 g

Container ID:1094998001-A

Analyst: KPW



SLR Alaska-Fairbanks

Print Date: 10/12/2009 4:27 pm

Client Sample ID: **E-12**

SGS Ref. #: 1094998001

Project ID: Village of Beaver Burned Gener

Matrix: Soil/Solid (dry weight)

Percent Solids: 64.8

Collection Date/Time: 09/10/09 16:05

Receipt Date/Time: 09/16/09 09:00

Semivolatile Organic Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Diesel Range Organics	3020	152	47.1	mg/Kg	5	XFC8867	XXX21642	
Residual Range Organics	4110	152	47.1	mg/Kg	5	XFC8867	XXX21642	
5a Androstane <surr>	79.2	50-150		%	5	XFC8867	XXX21642	
n-Triacontane-d62 <surr>	75.6	50-150		%	5	XFC8867	XXX21642	

Batch Information

Analytical Batch: XFC8867

Analytical Method: AK102

Analysis Date/Time: 09/21/09 01:59

Dilution Factor: 5

Prep Batch: XXX21642

Prep Method: SW3550C

Prep Date/Time: 09/16/09 17:00

Initial Prep Wt./Vol.: 30.489 g

Prep Extract Vol.: 1 mL

Container ID:1094998001-B

Analyst: HM

Analytical Batch: XFC8867

Analytical Method: AK103

Analysis Date/Time: 09/21/09 01:59

Dilution Factor: 5

Prep Batch: XXX21642

Prep Method: SW3550C

Prep Date/Time: 09/16/09 17:00

Initial Prep Wt./Vol.: 30.489 g

Prep Extract Vol.: 1 mL

Container ID:1094998001-B

Analyst: HM

**SLR Alaska-Fairbanks**

Print Date: 10/12/2009 4:27 pm

Client Sample ID: **E-12**

SGS Ref. #: 1094998001

Project ID: Village of Beaver Burned Gener

Matrix: Soil/Solid (dry weight)

Percent Solids: 64.8

Collection Date/Time: 09/10/09 16:05

Receipt Date/Time: 09/16/09 09:00

Solids

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Total Solids	64.8			%	1	SPT8008		

Batch Information

Analytical Batch: SPT8008

Analytical Method: SM20 2540G

Analysis Date/Time: 09/15/09 16:37

Dilution Factor: 1

Initial Prep Wt./Vol.: 1 mL

Container ID:1094998001-B

Analyst: HJ

**SLR Alaska-Fairbanks**

Print Date: 10/12/2009 4:27 pm

Client Sample ID: **E-4**

SGS Ref. #: 1094998002

Project ID: Village of Beaver Burned Gener

Matrix: Soil/Solid (dry weight)

Percent Solids: 91.2

Collection Date/Time: 09/10/09 16:20

Receipt Date/Time: 09/16/09 09:00

Volatile Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Gasoline Range Organics	10100	777	233	mg/Kg	100	VFC9659		
Benzene	518	389	124	ug/Kg	10	VFC9656		
Toluene	6540	1550	466	ug/Kg	10	VFC9656		
Ethylbenzene	33700	1550	466	ug/Kg	10	VFC9656		
o-Xylene	240000	15500	4660	ug/Kg	100	VFC9659		
P & M -Xylene	289000	1550	466	ug/Kg	10	VFC9656		
4-Bromofluorobenzene <sur>	31100	* 50-150		%	100	VFC9659		
1,4-Difluorobenzene <sur>	84.3	80-120		%	10	VFC9656		

Batch Information

Analytical Batch: VFC9656

Analytical Method: SW8021B

Analysis Date/Time: 09/21/09 19:27

Dilution Factor: 10

Initial Prep Wt./Vol.: 18.795 g

Container ID:1094998002-A

Analyst: KPW

Analytical Batch: VFC9659

Analytical Method: AK101

Analysis Date/Time: 09/24/09 04:41

Dilution Factor: 100

Initial Prep Wt./Vol.: 18.795 g

Container ID:1094998002-A

Analyst: KPW

Analytical Batch: VFC9659

Analytical Method: SW8021B

Analysis Date/Time: 09/24/09 04:41

Dilution Factor: 100

Initial Prep Wt./Vol.: 18.795 g

Container ID:1094998002-A

Analyst: KPW



SLR Alaska-Fairbanks

Print Date: 10/12/2009 4:27 pm

Client Sample ID: **E-4**

SGS Ref. #: 1094998002

Project ID: Village of Beaver Burned Gener

Matrix: Soil/Solid (dry weight)

Percent Solids: 91.2

Collection Date/Time: 09/10/09 16:20

Receipt Date/Time: 09/16/09 09:00

Semivolatile Organic Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Diesel Range Organics	30100	1860	576	mg/Kg	50	XFC8867	XXX21642	
Residual Range Organics	573	37.1	11.5	mg/Kg	1	XFC8865	XXX21642	
n-Triacontane-d62 <sur>	97.5	50-150		%	1	XFC8865	XXX21642	
5a Androstane <sur>	87.5	50-150		%	50	XFC8867	XXX21642	

Batch Information

Analytical Batch: XFC8865

Analytical Method: AK103

Analysis Date/Time: 09/20/09 02:36

Dilution Factor: 1

Prep Batch: XXX21642

Prep Method: SW3550C

Prep Date/Time: 09/16/09 17:00

Initial Prep Wt./Vol.: 30.1 g

Prep Extract Vol.: 1.7 mL

Container ID:1094998002-B

Analyst: HM

Analytical Batch: XFC8867

Analytical Method: AK102

Analysis Date/Time: 09/21/09 02:20

Dilution Factor: 50

Prep Batch: XXX21642

Prep Method: SW3550C

Prep Date/Time: 09/16/09 17:00

Initial Prep Wt./Vol.: 30.1 g

Prep Extract Vol.: 1.7 mL

Container ID:1094998002-B

Analyst: HM



SLR Alaska-Fairbanks

Print Date: 10/12/2009 4:27 pm

Client Sample ID: E-4

SGS Ref. #: 1094998002

Project ID: Village of Beaver Burned Gener

Matrix: Soil/Solid (dry weight)

Percent Solids: 91.2

Collection Date/Time: 09/10/09 16:20

Receipt Date/Time: 09/16/09 09:00

Polynuclear Aromatics GC/MS

Parameter	Result	PQL/CL	MDL	Units	DF	Analytical Batch	Prep Batch	Qualifiers
Acenaphthylene	ND	1080	323	ug/Kg	200	XMS5120	XXX21640	
Acenaphthene	3370	1080	323	ug/Kg	200	XMS5120	XXX21640	
Fluorene	ND	1080	323	ug/Kg	200	XMS5120	XXX21640	
Phenanthrene	738 J	1080	323	ug/Kg	200	XMS5120	XXX21640	
Anthracene	ND	1080	323	ug/Kg	200	XMS5120	XXX21640	
Fluoranthene	ND	1080	323	ug/Kg	200	XMS5120	XXX21640	
Pyrene	ND	1080	323	ug/Kg	200	XMS5120	XXX21640	
Benzo(a)Anthracene	ND	1080	323	ug/Kg	200	XMS5120	XXX21640	
Chrysene	ND	1080	323	ug/Kg	200	XMS5120	XXX21640	
Benzo[b]Fluoranthene	ND	1080	323	ug/Kg	200	XMS5120	XXX21640	
Benzo[k]fluoranthene	ND	1080	323	ug/Kg	200	XMS5120	XXX21640	
Benzo[a]pyrene	ND	1080	323	ug/Kg	200	XMS5120	XXX21640	
Indeno[1,2,3-c,d] pyrene	ND	1080	323	ug/Kg	200	XMS5120	XXX21640	
Dibenzo[a,h]anthracene	ND	1080	323	ug/Kg	200	XMS5120	XXX21640	
Benzo[g,h,i]perylene	ND	1080	323	ug/Kg	200	XMS5120	XXX21640	
Naphthalene	62900	10800	3230	ug/Kg	2000	XMS5124	XXX21640	
1-Methylnaphthalene	219000	10800	3230	ug/Kg	2000	XMS5124	XXX21640	
2-Methylnaphthalene	223000	10800	3230	ug/Kg	2000	XMS5124	XXX21640	
Terphenyl-d14 <sur>	196	* 30-125		%	200	XMS5120	XXX21640	

Batch Information

Analytical Batch: XMS5120

Analytical Method: 8270D SIMS

Analysis Date/Time: 10/08/09 00:18

Dilution Factor: 200

Prep Batch: XXX21640

Prep Method: SW3550C

Prep Date/Time: 09/16/09 14:00

Initial Prep Wt./Vol.: 22.91 g

Prep Extract Vol.: 1 mL

Container ID:1094998002-B

Analyst: MCM

Analytical Batch: XMS5124

Analytical Method: 8270D SIMS

Analysis Date/Time: 10/08/09 21:32

Dilution Factor: 2000

Prep Batch: XXX21640

Prep Method: SW3550C

Prep Date/Time: 09/16/09 14:00

Initial Prep Wt./Vol.: 22.91 g

Prep Extract Vol.: 1 mL

Container ID:1094998002-B

Analyst: CDE

**SLR Alaska-Fairbanks**

Print Date: 10/12/2009 4:27 pm

Client Sample ID: **E-4**

SGS Ref. #: 1094998002

Project ID: Village of Beaver Burned Gener

Matrix: Soil/Solid (dry weight)

Percent Solids: 91.2

Collection Date/Time: 09/10/09 16:20

Receipt Date/Time: 09/16/09 09:00

Solids

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Total Solids	91.2			%	1	SPT8008		

Batch Information

Analytical Batch: SPT8008

Analytical Method: SM20 2540G

Analysis Date/Time: 09/15/09 16:37

Dilution Factor: 1

Initial Prep Wt./Vol.: 1 mL

Container ID:1094998002-B

Analyst: HJ



SLR Alaska-Fairbanks

Print Date: 10/12/2009 4:27 pm

Client Sample ID: **E-14**

SGS Ref. #: 1094998003

Project ID: Village of Beaver Burned Gener

Matrix: Soil/Solid (dry weight)

Percent Solids: 91.2

Collection Date/Time: 09/10/09 16:30

Receipt Date/Time: 09/16/09 09:00

Volatile Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Gasoline Range Organics	9280	700	210	mg/Kg	100	VFC9659		
Benzene	451	350	112	ug/Kg	10	VFC9656		
Toluene	3410	1400	420	ug/Kg	10	VFC9656		
Ethylbenzene	31600	1400	420	ug/Kg	10	VFC9656		
o-Xylene	244000	14000	4200	ug/Kg	100	VFC9659		
P & M -Xylene	287000	1400	420	ug/Kg	10	VFC9656		
4-Bromofluorobenzene <sur>	31900	* 50-150		%	100	VFC9659		
1,4-Difluorobenzene <sur>	93.3	80-120		%	10	VFC9656		

Batch Information

Analytical Batch: VFC9656

Analytical Method: SW8021B

Analysis Date/Time: 09/21/09 19:51

Dilution Factor: 10

Initial Prep Wt./Vol.: 21.028 g

Container ID:1094998003-A

Analyst: KPW

Analytical Batch: VFC9659

Analytical Method: AK101

Analysis Date/Time: 09/24/09 05:05

Dilution Factor: 100

Initial Prep Wt./Vol.: 21.028 g

Container ID:1094998003-A

Analyst: KPW

Analytical Batch: VFC9659

Analytical Method: SW8021B

Analysis Date/Time: 09/24/09 05:05

Dilution Factor: 100

Initial Prep Wt./Vol.: 21.028 g

Container ID:1094998003-A

Analyst: KPW



SLR Alaska-Fairbanks

Print Date: 10/12/2009 4:27 pm

Client Sample ID: **E-14**

SGS Ref. #: 1094998003

Project ID: Village of Beaver Burned Gener

Matrix: Soil/Solid (dry weight)

Percent Solids: 91.2

Collection Date/Time: 09/10/09 16:30

Receipt Date/Time: 09/16/09 09:00

Semivolatile Organic Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Diesel Range Organics	30000	1740	539	mg/Kg	50	XFC8867	XXX21635	
Residual Range Organics	597	34.7	10.8	mg/Kg	1	XFC8865	XXX21635	
n-Triacontane-d62 <sur>	68.1	50-150		%	1	XFC8865	XXX21635	
5a Androstane <sur>	77.4	50-150		%	50	XFC8867	XXX21635	

Batch Information

Analytical Batch: XFC8865

Analytical Method: AK103

Analysis Date/Time: 09/20/09 04:41

Dilution Factor: 1

Prep Batch: XXX21635

Prep Method: SW3550C

Prep Date/Time: 09/15/09 16:40

Initial Prep Wt./Vol.: 30.286 g

Prep Extract Vol.: 1.6 mL

Container ID:1094998003-B

Analyst: HM

Analytical Batch: XFC8867

Analytical Method: AK102

Analysis Date/Time: 09/21/09 02:41

Dilution Factor: 50

Prep Batch: XXX21635

Prep Method: SW3550C

Prep Date/Time: 09/15/09 16:40

Initial Prep Wt./Vol.: 30.286 g

Prep Extract Vol.: 1.6 mL

Container ID:1094998003-B

Analyst: HM



SLR Alaska-Fairbanks

Print Date: 10/12/2009 4:27 pm

Client Sample ID: **E-14**

SGS Ref. #: 1094998003

Project ID: Village of Beaver Burned Gener

Matrix: Soil/Solid (dry weight)

Percent Solids: 91.2

Collection Date/Time: 09/10/09 16:30

Receipt Date/Time: 09/16/09 09:00

Polynuclear Aromatics GC/MS

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Acenaphthylene	ND	270	81.0	ug/Kg	50	XMS5114	XXX21640	
Acenaphthene	ND	270	81.0	ug/Kg	50	XMS5114	XXX21640	
Fluorene	ND	270	81.0	ug/Kg	50	XMS5114	XXX21640	
Phenanthrene	413	270	81.0	ug/Kg	50	XMS5114	XXX21640	
Anthracene	ND	270	81.0	ug/Kg	50	XMS5114	XXX21640	
Fluoranthene	ND	270	81.0	ug/Kg	50	XMS5114	XXX21640	
Pyrene	ND	270	81.0	ug/Kg	50	XMS5114	XXX21640	
Benzo(a)Anthracene	ND	270	81.0	ug/Kg	50	XMS5114	XXX21640	
Chrysene	ND	270	81.0	ug/Kg	50	XMS5114	XXX21640	
Benzo[b]Fluoranthene	ND	270	81.0	ug/Kg	50	XMS5114	XXX21640	
Benzo[k]fluoranthene	ND	270	81.0	ug/Kg	50	XMS5114	XXX21640	
Benzo[a]pyrene	ND	270	81.0	ug/Kg	50	XMS5114	XXX21640	
Indeno[1,2,3-c,d] pyrene	ND	270	81.0	ug/Kg	50	XMS5114	XXX21640	
Dibenzo[a,h]anthracene	ND	270	81.0	ug/Kg	50	XMS5114	XXX21640	
Benzo[g,h,i]perylene	ND	270	81.0	ug/Kg	50	XMS5114	XXX21640	
Naphthalene	91.5	5.40	1.62	ug/Kg	1	XMS5120	XXX21640	
1-Methylnaphthalene	104000	10800	3240	ug/Kg	2000	XMS5124	XXX21640	
2-Methylnaphthalene	109000	10800	3240	ug/Kg	2000	XMS5124	XXX21640	
Terphenyl-d14 <sur>	196	* 30-125		%	50	XMS5114	XXX21640	

Batch Information

Analytical Batch: XMS5114	Prep Batch: XXX21640	Initial Prep Wt./Vol.: 22.83 g
Analytical Method: 8270D SIMS	Prep Method: SW3550C	Prep Extract Vol.: 1 mL
Analysis Date/Time: 10/06/09 19:49	Prep Date/Time: 09/16/09 14:00	Container ID:1094998003-B
Dilution Factor: 50		Analyst: JDH
Analytical Batch: XMS5120	Prep Batch: XXX21640	Initial Prep Wt./Vol.: 22.83 g
Analytical Method: 8270D SIMS	Prep Method: SW3550C	Prep Extract Vol.: 1 mL
Analysis Date/Time: 10/08/09 01:55	Prep Date/Time: 09/16/09 14:00	Container ID:1094998003-B
Dilution Factor: 1		Analyst: MCM
Analytical Batch: XMS5124	Prep Batch: XXX21640	Initial Prep Wt./Vol.: 22.83 g
Analytical Method: 8270D SIMS	Prep Method: SW3550C	Prep Extract Vol.: 1 mL
Analysis Date/Time: 10/08/09 23:09	Prep Date/Time: 09/16/09 14:00	Container ID:1094998003-B
Dilution Factor: 2000		Analyst: CDE



SLR Alaska-Fairbanks

Print Date: 10/12/2009 4:27 pm

Client Sample ID: **E-14**
SGS Ref. #: 1094998003
Project ID: Village of Beaver Burned Gener
Matrix: Soil/Solid (dry weight)
Percent Solids: 91.2

Collection Date/Time: 09/10/09 16:30
Receipt Date/Time: 09/16/09 09:00

Solids

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Total Solids	91.2			%	1	SPT8008		

Batch Information

Analytical Batch: SPT8008
Analytical Method: SM20 2540G
Analysis Date/Time: 09/15/09 16:37
Dilution Factor: 1

Initial Prep Wt./Vol.: 1 mL
Container ID:1094998003-B
Analyst: HJ

**SLR Alaska-Fairbanks**

Print Date: 10/12/2009 4:27 pm

Client Sample ID: **E-3**

SGS Ref. #: 1094998004

Project ID: Village of Beaver Burned Gener

Matrix: Soil/Solid (dry weight)

Percent Solids: 92.6

Collection Date/Time: 09/10/09 16:45

Receipt Date/Time: 09/16/09 09:00

Volatile Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Benzene	ND	228	72.8	ug/Kg	10	VFC9656		
Toluene	275 J	910	273	ug/Kg	10	VFC9656		
Ethylbenzene	5780	910	273	ug/Kg	10	VFC9656		
o-Xylene	52300	910	273	ug/Kg	10	VFC9656		
P & M -Xylene	37100	910	273	ug/Kg	10	VFC9656		
1,4-Difluorobenzene <sur>	86.8	80-120		%	10	VFC9656		

Batch Information

Analytical Batch: VFC9656

Analytical Method: SW8021B

Analysis Date/Time: 09/21/09 20:16

Dilution Factor: 10

Initial Prep Wt./Vol.: 32.521 g

Container ID:1094998004-A

Analyst: KPW

**SLR Alaska-Fairbanks**

Print Date: 10/12/2009 4:27 pm

Client Sample ID: **E-3**

SGS Ref. #: 1094998004

Project ID: Village of Beaver Burned Gener

Matrix: Soil/Solid (dry weight)

Percent Solids: 92.6

Collection Date/Time: 09/10/09 16:45

Receipt Date/Time: 09/16/09 09:00

Semivolatile Organic Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Diesel Range Organics	8380	428	133	mg/Kg	20	XFC8867	XXX21642	
Residual Range Organics	110	21.4	6.63	mg/Kg	1	XFC8865	XXX21642	
n-Triacontane-d62 <sur>	93.9	50-150		%	1	XFC8865	XXX21642	
5a Androstane <sur>	86.5	50-150		%	20	XFC8867	XXX21642	

Batch Information

Analytical Batch: XFC8865

Analytical Method: AK103

Analysis Date/Time: 09/20/09 02:57

Dilution Factor: 1

Prep Batch: XXX21642

Prep Method: SW3550C

Prep Date/Time: 09/16/09 17:00

Initial Prep Wt./Vol.: 30.279 g

Prep Extract Vol.: 1 mL

Container ID:1094998004-B

Analyst: HM

Analytical Batch: XFC8867

Analytical Method: AK102

Analysis Date/Time: 09/21/09 03:01

Dilution Factor: 20

Prep Batch: XXX21642

Prep Method: SW3550C

Prep Date/Time: 09/16/09 17:00

Initial Prep Wt./Vol.: 30.279 g

Prep Extract Vol.: 1 mL

Container ID:1094998004-B

Analyst: HM



SLR Alaska-Fairbanks

Print Date: 10/12/2009 4:27 pm

Client Sample ID: **E-3**

SGS Ref. #: 1094998004

Project ID: Village of Beaver Burned Gener

Matrix: Soil/Solid (dry weight)

Percent Solids: 92.6

Collection Date/Time: 09/10/09 16:45

Receipt Date/Time: 09/16/09 09:00

Solids

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Total Solids	92.6			%	1	SPT8008		

Batch Information

Analytical Batch: SPT8008

Analytical Method: SM20 2540G

Analysis Date/Time: 09/15/09 16:37

Dilution Factor: 1

Initial Prep Wt./Vol.: 1 mL

Container ID:1094998004-B

Analyst: HJ



SLR Alaska-Fairbanks

Print Date: 10/12/2009 4:27 pm

Client Sample ID: **E-11**

SGS Ref. #: 1094998005

Project ID: Village of Beaver Burned Gener

Matrix: Soil/Solid (dry weight)

Percent Solids: 87.8

Collection Date/Time: 09/10/09 17:00

Receipt Date/Time: 09/16/09 09:00

Volatile Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Benzene	ND	26.7	8.53	ug/Kg	1	VFC9656		
Toluene	ND	107	32.0	ug/Kg	1	VFC9656		
Ethylbenzene	ND	107	32.0	ug/Kg	1	VFC9656		
o-Xylene	ND	107	32.0	ug/Kg	1	VFC9656		
P & M -Xylene	ND	107	32.0	ug/Kg	1	VFC9656		
1,4-Difluorobenzene <sur>	98.8	80-120		%	1	VFC9656		

Batch Information

Analytical Batch: VFC9656

Analytical Method: SW8021B

Analysis Date/Time: 09/21/09 21:53

Dilution Factor: 1

Initial Prep Wt./Vol.: 30.682 g

Container ID:1094998005-A

Analyst: KPW



SLR Alaska-Fairbanks

Print Date: 10/12/2009 4:27 pm

Client Sample ID: **E-11**

SGS Ref. #: 1094998005

Project ID: Village of Beaver Burned Gener

Matrix: Soil/Solid (dry weight)

Percent Solids: 87.8

Collection Date/Time: 09/10/09 17:00

Receipt Date/Time: 09/16/09 09:00

Semivolatile Organic Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Diesel Range Organics	ND	22.4	6.96	mg/Kg	1	XFC8865	XXX21642	
Residual Range Organics	17.9 J	22.4	6.96	mg/Kg	1	XFC8865	XXX21642	
n-Triacontane-d62 <surr>	82.2	50-150		%	1	XFC8865	XXX21642	
5a Androstane <surr>	72.2	50-150		%	1	XFC8865	XXX21642	

Batch Information

Analytical Batch: XFC8865

Analytical Method: AK102

Analysis Date/Time: 09/20/09 03:18

Dilution Factor: 1

Prep Batch: XXX21642

Prep Method: SW3550C

Prep Date/Time: 09/16/09 17:00

Initial Prep Wt./Vol.: 30.444 g

Prep Extract Vol.: 1 mL

Container ID:1094998005-B

Analyst: HM

Analytical Batch: XFC8865

Analytical Method: AK103

Analysis Date/Time: 09/20/09 03:18

Dilution Factor: 1

Prep Batch: XXX21642

Prep Method: SW3550C

Prep Date/Time: 09/16/09 17:00

Initial Prep Wt./Vol.: 30.444 g

Prep Extract Vol.: 1 mL

Container ID:1094998005-B

Analyst: HM

**SLR Alaska-Fairbanks**

Print Date: 10/12/2009 4:27 pm

Client Sample ID: **E-11**

SGS Ref. #: 1094998005

Project ID: Village of Beaver Burned Gener

Matrix: Soil/Solid (dry weight)

Percent Solids: 87.8

Collection Date/Time: 09/10/09 17:00

Receipt Date/Time: 09/16/09 09:00

Solids

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Total Solids	87.8			%	1	SPT8008		

Batch Information

Analytical Batch: SPT8008

Analytical Method: SM20 2540G

Analysis Date/Time: 09/15/09 16:37

Dilution Factor: 1

Initial Prep Wt./Vol.: 1 mL

Container ID:1094998005-B

Analyst: HJ

**SLR Alaska-Fairbanks**

Print Date: 10/12/2009 4:27 pm

Client Sample ID: **D-2**

SGS Ref. #: 1094998006

Project ID: Village of Beaver Burned Gener

Matrix: Soil/Solid (dry weight)

Percent Solids: 91.7

Collection Date/Time: 09/10/09 17:10

Receipt Date/Time: 09/16/09 09:00

Volatile Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Benzene	ND	33.0	10.6	ug/Kg	1	VFC9656		
Toluene	ND	132	39.6	ug/Kg	1	VFC9656		
Ethylbenzene	ND	132	39.6	ug/Kg	1	VFC9656		
o-Xylene	ND	132	39.6	ug/Kg	1	VFC9656		
P & M -Xylene	ND	132	39.6	ug/Kg	1	VFC9656		
1,4-Difluorobenzene <sur>	99.1	80-120		%	1	VFC9656		

Batch Information

Analytical Batch: VFC9656

Analytical Method: SW8021B

Analysis Date/Time: 09/21/09 22:17

Dilution Factor: 1

Initial Prep Wt./Vol.: 22.142 g

Container ID:1094998006-A

Analyst: KPW



SLR Alaska-Fairbanks

Print Date: 10/12/2009 4:27 pm

Client Sample ID: **D-2**

SGS Ref. #: 1094998006

Project ID: Village of Beaver Burned Gener

Matrix: Soil/Solid (dry weight)

Percent Solids: 91.7

Collection Date/Time: 09/10/09 17:10

Receipt Date/Time: 09/16/09 09:00

Semivolatile Organic Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Diesel Range Organics	7.33 J	21.5	6.66	mg/Kg	1	XFC8865	XXX21642	
Residual Range Organics	31.4	21.5	6.66	mg/Kg	1	XFC8865	XXX21642	
n-Triacontane-d62 <surr>	83.5	50-150		%	1	XFC8865	XXX21642	
5a Androstane <surr>	70.5	50-150		%	1	XFC8865	XXX21642	

Batch Information

Analytical Batch: XFC8865

Analytical Method: AK102

Analysis Date/Time: 09/20/09 03:38

Dilution Factor: 1

Prep Batch: XXX21642

Prep Method: SW3550C

Prep Date/Time: 09/16/09 17:00

Initial Prep Wt./Vol.: 30.454 g

Prep Extract Vol.: 1 mL

Container ID:1094998006-B

Analyst: HM

Analytical Batch: XFC8865

Analytical Method: AK103

Analysis Date/Time: 09/20/09 03:38

Dilution Factor: 1

Prep Batch: XXX21642

Prep Method: SW3550C

Prep Date/Time: 09/16/09 17:00

Initial Prep Wt./Vol.: 30.454 g

Prep Extract Vol.: 1 mL

Container ID:1094998006-B

Analyst: HM

**SLR Alaska-Fairbanks**

Print Date: 10/12/2009 4:27 pm

Client Sample ID: **D-2**

SGS Ref. #: 1094998006

Project ID: Village of Beaver Burned Gener

Matrix: Soil/Solid (dry weight)

Percent Solids: 91.7

Collection Date/Time: 09/10/09 17:10

Receipt Date/Time: 09/16/09 09:00

Solids

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Total Solids	91.7			%	1	SPT8008		

Batch Information

Analytical Batch: SPT8008

Analytical Method: SM20 2540G

Analysis Date/Time: 09/15/09 16:37

Dilution Factor: 1

Initial Prep Wt./Vol.: 1 mL

Container ID:1094998006-B

Analyst: HJ



SLR Alaska-Fairbanks

Print Date: 10/12/2009 4:27 pm

Client Sample ID: **E-1**

SGS Ref. #: 1094998007

Project ID: Village of Beaver Burned Gener

Matrix: Soil/Solid (dry weight)

Percent Solids: 79.6

Collection Date/Time: 09/10/09 17:25

Receipt Date/Time: 09/16/09 09:00

Volatile Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Benzene	ND	30.1	9.64	ug/Kg	1	VFC9659		
Toluene	ND	120	36.1	ug/Kg	1	VFC9659		
Ethylbenzene	ND	120	36.1	ug/Kg	1	VFC9659		
o-Xylene	80.4 J	120	36.1	ug/Kg	1	VFC9659		
P & M -Xylene	127	120	36.1	ug/Kg	1	VFC9659		
1,4-Difluorobenzene <sur>	107	80-120		%	1	VFC9659		

Batch Information

Analytical Batch: VFC9659

Analytical Method: SW8021B

Analysis Date/Time: 09/23/09 20:08

Dilution Factor: 1

Initial Prep Wt./Vol.: 33.08 g

Container ID:1094998007-A

Analyst: KPW



SLR Alaska-Fairbanks

Print Date: 10/12/2009 4:27 pm

Client Sample ID: **E-1**

SGS Ref. #: 1094998007

Project ID: Village of Beaver Burned Gener

Matrix: Soil/Solid (dry weight)

Percent Solids: 79.6

Collection Date/Time: 09/10/09 17:25

Receipt Date/Time: 09/16/09 09:00

Semivolatile Organic Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Diesel Range Organics	40.7 J	44.9	13.9	mg/Kg	1	XFC8865	XXX21642	
Residual Range Organics	112	44.9	13.9	mg/Kg	1	XFC8865	XXX21642	
n-Triacontane-d62 <sur>	144	50-150		%	1	XFC8865	XXX21642	
5a Androstane <sur>	119	50-150		%	1	XFC8865	XXX21642	

Batch Information

Analytical Batch: XFC8865

Analytical Method: AK102

Analysis Date/Time: 09/20/09 03:59

Dilution Factor: 1

Prep Batch: XXX21642

Prep Method: SW3550C

Prep Date/Time: 09/16/09 17:00

Initial Prep Wt./Vol.: 30.221 g

Prep Extract Vol.: 1.8 mL

Container ID:1094998007-B

Analyst: HM

Analytical Batch: XFC8865

Analytical Method: AK103

Analysis Date/Time: 09/20/09 03:59

Dilution Factor: 1

Prep Batch: XXX21642

Prep Method: SW3550C

Prep Date/Time: 09/16/09 17:00

Initial Prep Wt./Vol.: 30.221 g

Prep Extract Vol.: 1.8 mL

Container ID:1094998007-B

Analyst: HM

**SLR Alaska-Fairbanks**

Print Date: 10/12/2009 4:27 pm

Client Sample ID: **E-1**

SGS Ref. #: 1094998007

Project ID: Village of Beaver Burned Gener

Matrix: Soil/Solid (dry weight)

Percent Solids: 79.6

Collection Date/Time: 09/10/09 17:25

Receipt Date/Time: 09/16/09 09:00

Solids

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Total Solids	79.6			%	1	SPT8008		

Batch Information

Analytical Batch: SPT8008

Analytical Method: SM20 2540G

Analysis Date/Time: 09/15/09 16:37

Dilution Factor: 1

Initial Prep Wt./Vol.: 1 mL

Container ID:1094998007-B

Analyst: HJ



SLR Alaska-Fairbanks

Print Date: 10/12/2009 4:27 pm

Client Sample ID: **Trip Blank**
SGS Ref. #: 1094998008
Project ID: Village of Beaver Burned Gener
Matrix: Soil/Solid (dry weight)

Collection Date/Time: 09/10/09 17:25

Receipt Date/Time: 09/16/09 09:00

Volatile Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Gasoline Range Organics	ND	2.59	0.776	mg/Kg	1	VFC9659		
Benzene	ND	12.9	4.14	ug/Kg	1	VFC9659		
Toluene	ND	51.7	15.5	ug/Kg	1	VFC9659		
Ethylbenzene	ND	51.7	15.5	ug/Kg	1	VFC9659		
o-Xylene	ND	51.7	15.5	ug/Kg	1	VFC9659		
P & M -Xylene	ND	51.7	15.5	ug/Kg	1	VFC9659		
4-Bromofluorobenzene <sur>	74.3	50-150		%	1	VFC9659		
1,4-Difluorobenzene <sur>	107	80-120		%	1	VFC9659		

Batch Information

Analytical Batch: VFC9659

Analytical Method: AK101

Analysis Date/Time: 09/23/09 15:28

Dilution Factor: 1

Initial Prep Wt./Vol.: 48.312 g

Container ID:1094998008-A

Analyst: KPW

Analytical Batch: VFC9659

Analytical Method: SW8021B

Analysis Date/Time: 09/23/09 15:28

Dilution Factor: 1

Initial Prep Wt./Vol.: 48.312 g

Container ID:1094998008-A

Analyst: KPW



SGS Ref.# 924168 Method Blank
Client Name SLR Alaska-Fairbanks
Project Name/# Village of Beaver Burned Gener
Matrix Soil/Solid (dry weight)

Printed Date/Time 10/12/2009 16:27
Prep Batch XXX21635
Method SW3550C
Date 09/15/2009

QC results affect the following production samples:
1094998003

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date
<u>Semivolatile Organic Fuels Department</u>					
Diesel Range Organics	ND	20.0	6.20	mg/Kg	09/19/09
Surrogates					
5a Androstane <surr>	83.5	60-120		%	09/19/09
Batch	XFC8862				
Method	AK102				
Instrument	HP 7890A	FID SV E F			
Residual Range Organics	ND	20.0	6.20	mg/Kg	09/19/09
Surrogates					
n-Triacontane-d62 <surr>	91.7	60-120		%	09/19/09
Batch	XFC8862				
Method	AK103				
Instrument	HP 7890A	FID SV E F			



SGS Ref.#	924252	Method Blank	Printed Date/Time	10/12/2009 16:27
Client Name	SLR Alaska-Fairbanks		Prep	Batch
Project Name/#	Village of Beaver Burned Gener			Method
Matrix	Soil/Solid (dry weight)			Date

QC results affect the following production samples:
1094998001, 1094998002, 1094998003, 1094998004, 1094998005, 1094998006, 1094998007

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date

Solids

Total Solids	100			%	09/15/09
Batch	SPT8008				
Method	SM20 2540G				
Instrument					



SGS Ref.# 924333 Method Blank
Client Name SLR Alaska-Fairbanks
Project Name/# Village of Beaver Burned Gener
Matrix Soil/Solid (dry weight)

Printed Date/Time 10/12/2009 16:27
Prep Batch XXX21640
Method SW3550C
Date 09/16/2009

QC results affect the following production samples:

1094998002, 1094998003

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date
<u>Polynuclear Aromatics GC/MS</u>					
Acenaphthylene	ND	5.00	1.50	ug/Kg	10/02/09
Acenaphthene	ND	5.00	1.50	ug/Kg	10/02/09
Fluorene	ND	5.00	1.50	ug/Kg	10/02/09
Phenanthrene	ND	5.00	1.50	ug/Kg	10/02/09
Anthracene	ND	5.00	1.50	ug/Kg	10/02/09
Fluoranthene	ND	5.00	1.50	ug/Kg	10/02/09
Pyrene	ND	5.00	1.50	ug/Kg	10/02/09
Benzo(a)Anthracene	ND	5.00	1.50	ug/Kg	10/02/09
Chrysene	ND	5.00	1.50	ug/Kg	10/02/09
Benzo[b]Fluoranthene	ND	5.00	1.50	ug/Kg	10/02/09
Benzo[k]fluoranthene	ND	5.00	1.50	ug/Kg	10/02/09
Benzo[a]pyrene	ND	5.00	1.50	ug/Kg	10/02/09
Indeno[1,2,3-c,d] pyrene	ND	5.00	1.50	ug/Kg	10/02/09
Dibenzo[a,h]anthracene	ND	5.00	1.50	ug/Kg	10/02/09
Benzo[g,h,i]perylene	ND	5.00	1.50	ug/Kg	10/02/09
Naphthalene	ND	5.00	1.50	ug/Kg	10/02/09
1-Methylnaphthalene	ND	5.00	1.50	ug/Kg	10/02/09
2-Methylnaphthalene	ND	5.00	1.50	ug/Kg	10/02/09
Surrogates					
Terphenyl-d14 <surr>	86.8	30-125		%	10/02/09
Batch	XMS5108				
Method	8270D SIMS				
Instrument	HP 6890/5973 MS SVQA				



SGS Ref.# 924337 Method Blank
Client Name SLR Alaska-Fairbanks
Project Name/# Village of Beaver Burned Gener
Matrix Soil/Solid (dry weight)

Printed Date/Time 10/12/2009 16:27
Prep Batch MXX22233
Method SW3050B
Date 09/16/2009

QC results affect the following production samples:

1094998001

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date

Metals by ICP/MS

Lead	ND	0.200	0.0620	mg/Kg	09/18/09
Batch	MMS6089				
Method	SW6020				
Instrument	Perkin Elmer Sciex ICP-MS P3				



SGS Ref.# 924447 Method Blank
Client Name SLR Alaska-Fairbanks
Project Name/# Village of Beaver Burned Gener
Matrix Soil/Solid (dry weight)

Printed Date/Time 10/12/2009 16:27
Prep Batch XXX21642
Method SW3550C
Date 09/16/2009

QC results affect the following production samples:

1094998001, 1094998002, 1094998004, 1094998005, 1094998006, 1094998007

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date
<u>Semivolatile Organic Fuels Department</u>					
Diesel Range Organics	ND	20.0	6.20	mg/Kg	09/19/09
Surrogates					
5a Androstane <surr>	69.8	60-120		%	09/19/09
Batch	XFC8864				
Method	AK102				
Instrument	HP 7890A	FID SV E F			
Residual Range Organics	ND	20.0	6.20	mg/Kg	09/19/09
Surrogates					
n-Triacontane-d62 <surr>	77.1	60-120		%	09/19/09
Batch	XFC8864				
Method	AK103				
Instrument	HP 7890A	FID SV E F			



SGS Ref.# 925957 Method Blank
Client Name SLR Alaska-Fairbanks
Project Name/# Village of Beaver Burned Gener
Matrix Soil/Solid (dry weight)

Printed Date/Time 10/12/2009 16:27
Prep Batch VXX19988
Method SW5035A
Date 09/21/2009

QC results affect the following production samples:

1094998001, 1094998002, 1094998003, 1094998004, 1094998005, 1094998006

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date

Volatile Fuels Department

Gasoline Range Organics	ND	2.50	0.750	mg/Kg	09/21/09

Surrogates

4-Bromofluorobenzene <surr>	99.5	50-150		%	09/21/09

Batch VFC9656

Method AK101

Instrument HP 5890 Series II PID+HECD VBA

Benzene	ND	12.5	4.00	ug/Kg	09/21/09

Toluene	ND	50.0	15.0	ug/Kg	09/21/09

Ethylbenzene	ND	50.0	15.0	ug/Kg	09/21/09

o-Xylene	ND	50.0	15.0	ug/Kg	09/21/09

P & M -Xylene	ND	50.0	15.0	ug/Kg	09/21/09

Surrogates

1,4-Difluorobenzene <surr>	102	80-120		%	09/21/09

Batch VFC9656

Method SW8021B

Instrument HP 5890 Series II PID+HECD VBA



SGS Ref.# 926481 Method Blank
Client Name SLR Alaska-Fairbanks
Project Name/# Village of Beaver Burned Gener
Matrix Soil/Solid (dry weight)

Printed Date/Time 10/12/2009 16:27
Prep Batch VXX19995
Method SW5035A
Date 09/23/2009

QC results affect the following production samples:

1094998007, 1094998008

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date

Volatile Fuels Department

Gasoline Range Organics	ND	2.50	0.750	mg/Kg	09/23/09

Surrogates

4-Bromofluorobenzene <surr>	107	50-150		%	09/23/09

Batch VFC9659

Method AK101

Instrument HP 5890 Series II PID+HECD VBA

Benzene	ND	12.5	4.00	ug/Kg	09/23/09

Toluene	ND	50.0	15.0	ug/Kg	09/23/09

Ethylbenzene	ND	50.0	15.0	ug/Kg	09/23/09

o-Xylene	ND	50.0	15.0	ug/Kg	09/23/09

P & M -Xylene	ND	50.0	15.0	ug/Kg	09/23/09

Surrogates

1,4-Difluorobenzene <surr>	107	80-120		%	09/23/09

Batch VFC9659

Method SW8021B

Instrument HP 5890 Series II PID+HECD VBA



SGS Ref.# 926488 Method Blank
Client Name SLR Alaska-Fairbanks
Project Name/# Village of Beaver Burned Gener
Matrix Soil/Solid (dry weight)

Printed Date/Time 10/12/2009 16:27
Prep Batch VXX19996
Method SW5035A
Date 09/23/2009

QC results affect the following production samples:

1094998002, 1094998003

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date

Volatile Fuels Department

Gasoline Range Organics	ND	2.50	0.750	mg/Kg	09/24/09

Surrogates

4-Bromofluorobenzene <surr>	106	50-150		%	09/24/09

Batch VFC9659

Method AK101

Instrument HP 5890 Series II PID+HECD VBA

Benzene	ND	12.5	4.00	ug/Kg	09/24/09

Toluene	ND	50.0	15.0	ug/Kg	09/24/09

Ethylbenzene	ND	50.0	15.0	ug/Kg	09/24/09

o-Xylene	ND	50.0	15.0	ug/Kg	09/24/09

P & M -Xylene	ND	50.0	15.0	ug/Kg	09/24/09

Surrogates

1,4-Difluorobenzene <surr>	105	80-120		%	09/24/09

Batch VFC9659

Method SW8021B

Instrument HP 5890 Series II PID+HECD VBA



SGS Ref.# 924253 Duplicate
Client Name SLR Alaska-Fairbanks
Project Name/# Village of Beaver Burned Gener
Original 1094853001
Matrix Soil/Solid (dry weight)

Printed Date/Time 10/12/2009 16:27
Prep Batch
Method
Date

QC results affect the following production samples:

1094998001, 1094998002, 1094998003, 1094998004, 1094998005, 1094998006, 1094998007

Parameter	Original Result	QC Result	Units	RPD	RPD Limits	Analysis Date

Solids

Total Solids	93.8	94.6	%	1	(< 15)	09/15/2009

Batch SPT8008
Method SM20 2540G
Instrument

SGS Ref.# 924169 Lab Control Sample
 924170 Lab Control Sample Duplicate
Client Name SLR Alaska-Fairbanks
Project Name/# Village of Beaver Burned Gener
Matrix Soil/Solid (dry weight)

Printed Date/Time 10/12/2009 16:27
Prep Batch XXX21635
Method SW3550C
Date 09/15/2009

QC results affect the following production samples:
 1094998003

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

Semivolatile Organic Fuels Department

Diesel Range Organics	LCS	151	91	(75-125)			167 mg/Kg	09/19/2009
	LCSD	158	95		4	(< 20)	167 mg/Kg	09/19/2009

Surrogates

5a Androstane <surr>	LCS		77	(60-120)				09/19/2009
	LCSD		80		4			09/19/2009

Batch XFC8862
Method AK102
Instrument HP 7890A FID SV E F

Residual Range Organics	LCS	163	98	(60-120)			167 mg/Kg	09/19/2009
	LCSD	170	102		4	(< 20)	167 mg/Kg	09/19/2009

Surrogates

n-Triacontane-d62 <surr>	LCS		85	(60-120)				09/19/2009
	LCSD		87		3			09/19/2009

Batch XFC8862
Method AK103
Instrument HP 7890A FID SV E F



SGS Ref.#	924334	Lab Control Sample	Printed Date/Time	10/12/2009	16:27
			Prep	Batch	XXX21640
Client Name	SLR Alaska-Fairbanks			Method	SW3550C
Project Name/#	Village of Beaver Burned Gener			Date	09/16/2009
Matrix	Soil/Solid (dry weight)				

QC results affect the following production samples:
1094998002, 1094998003

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

Polynuclear Aromatics GC/MS



SGS Ref.# 924334 Lab Control Sample

Client Name SLR Alaska-Fairbanks
Project Name/# Village of Beaver Burned Gener
Matrix Soil/Solid (dry weight)

Printed Date/Time 10/12/2009 16:27
Prep Batch XXX21640
Method SW3550C
Date 09/16/2009

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
Polynuclear Aromatics GC/MS							
Acenaphthylene	LCS 18.4	83	(45-102)			22.2 ug/Kg	10/02/2009
Acenaphthene	LCS 17.8	80	(45-99)			22.2 ug/Kg	10/02/2009
Fluorene	LCS 18.9	85	(50-107)			22.2 ug/Kg	10/02/2009
Phenanthrene	LCS 19.1	86	(50-110)			22.2 ug/Kg	10/02/2009
Anthracene	LCS 19.8	89	(28-103)			22.2 ug/Kg	10/02/2009
Fluoranthene	LCS 20.1	90	(55-115)			22.2 ug/Kg	10/02/2009
Pyrene	LCS 18.4	83	(45-120)			22.2 ug/Kg	10/02/2009
Benzo(a)Anthracene	LCS 20.7	93	(40-110)			22.2 ug/Kg	10/02/2009
Chrysene	LCS 20.5	92	(55-110)			22.2 ug/Kg	10/02/2009
Benzo[b]Fluoranthene	LCS 21.2	96	(45-115)			22.2 ug/Kg	10/02/2009
Benzo[k]fluoranthene	LCS 21.8	98	(45-120)			22.2 ug/Kg	10/02/2009
Benzo[a]pyrene	LCS 21.8	98	(10-102)			22.2 ug/Kg	10/02/2009
Indeno[1,2,3-c,d] pyrene	LCS 22.6	102	(40-120)			22.2 ug/Kg	10/02/2009
Dibenzo[a,h]anthracene	LCS 23.3	105	(40-125)			22.2 ug/Kg	10/02/2009
Benzo[g,h,i]perylene	LCS 21.6	97	(40-118)			22.2 ug/Kg	10/02/2009
Naphthalene	LCS 18.8	85	(40-92)			22.2 ug/Kg	10/02/2009
1-Methylnaphthalene	LCS 20.1	90	(30-97)			22.2 ug/Kg	10/02/2009
2-Methylnaphthalene	LCS 18.6	84	(45-96)			22.2 ug/Kg	10/02/2009
Surrogates							
Terphenyl-d14 <surr>	LCS	87	(30-125)				10/02/2009



SGS Ref.#	924334	Lab Control Sample	Printed Date/Time	10/12/2009	16:27
Client Name	SLR Alaska-Fairbanks		Prep	Batch	XXX21640
Project Name/#	Village of Beaver Burned Gener			Method	SW3550C
Matrix	Soil/Solid (dry weight)			Date	09/16/2009

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

Polynuclear Aromatics GC/MS

Batch XMS5108
Method 8270D SIMS
Instrument HP 6890/5973 MS SVQA



SGS Ref.#	924338	Lab Control Sample	Printed Date/Time	10/12/2009	16:27
Client Name	SLR Alaska-Fairbanks		Prep	Batch	MXX22233
Project Name/#	Village of Beaver Burned Gener		Method		SW3050B
Matrix	Soil/Solid (dry weight)		Date		09/16/2009

QC results affect the following production samples:
1094998001

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

Metals by ICP/MS

Lead	LCS	54.2	108	(80-120)		50 mg/Kg	09/18/2009

Batch	MMS6089
Method	SW6020
Instrument	Perkin Elmer Sciex ICP-MS P3

SGS Ref.# 924448 Lab Control Sample
 924449 Lab Control Sample Duplicate
Client Name SLR Alaska-Fairbanks
Project Name/# Village of Beaver Burned Gener
Matrix Soil/Solid (dry weight)

Printed Date/Time 10/12/2009 16:27
Prep Batch XXX21642
Method SW3550C
Date 09/16/2009

QC results affect the following production samples:

1094998001, 1094998002, 1094998004, 1094998005, 1094998006, 1094998007

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

Semivolatile Organic Fuels Department

Diesel Range Organics	LCS	160	96	(75-125)		167 mg/Kg	09/19/2009
	LCSD	156	94		3	(< 20)	167 mg/Kg 09/19/2009

Surrogates

5a Androstane <surr>	LCS		82	(60-120)			09/19/2009
	LCSD		80		2		09/19/2009

Batch XFC8864
Method AK102
Instrument HP 7890A FID SV E F

Residual Range Organics	LCS	181	109	(60-120)		167 mg/Kg	09/19/2009
	LCSD	173	104		5	(< 20)	167 mg/Kg 09/19/2009

Surrogates

n-Triacontane-d62 <surr>	LCS		94	(60-120)			09/19/2009
	LCSD		88		7		09/19/2009

Batch XFC8864
Method AK103
Instrument HP 7890A FID SV E F



SGS Ref.#	925958	Lab Control Sample	Printed Date/Time	10/12/2009	16:27
	925959	Lab Control Sample Duplicate	Prep	Batch	VXX19988
Client Name	SLR Alaska-Fairbanks		Method	SW5035A	
Project Name/#	Village of Beaver Burned Gener		Date	09/21/2009	
Matrix	Soil/Solid (dry weight)				

QC results affect the following production samples:

1094998001, 1094998002, 1094998003, 1094998004, 1094998005, 1094998006

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

Volatile Fuels Department

Benzene	LCS	1300	104	(80-125)			1250 ug/Kg	09/21/2009
	LCSD	1270	102		2	(< 20)	1250 ug/Kg	09/21/2009

Toluene	LCS	1280	103	(85-120)			1250 ug/Kg	09/21/2009
	LCSD	1260	101		1	(< 20)	1250 ug/Kg	09/21/2009

Ethylbenzene	LCS	1300	104	(85-125)			1250 ug/Kg	09/21/2009
	LCSD	1280	103		2	(< 20)	1250 ug/Kg	09/21/2009

o-Xylene	LCS	1280	102	(85-125)			1250 ug/Kg	09/21/2009
	LCSD	1250	100		2	(< 20)	1250 ug/Kg	09/21/2009

P & M -Xylene	LCS	2650	106	(85-125)			2500 ug/Kg	09/21/2009
	LCSD	2620	105		1	(< 20)	2500 ug/Kg	09/21/2009

Surrogates

1,4-Difluorobenzene <surr>	LCS		100	(80-120)				09/21/2009
	LCSD		100		0			09/21/2009

Batch	VFC9656
Method	SW8021B
Instrument	HP 5890 Series II PID+HECD VBA



SGS Ref.#	925960	Lab Control Sample	Printed Date/Time	10/12/2009	16:27
	925961	Lab Control Sample Duplicate	Prep	Batch	VXX19988
Client Name	SLR Alaska-Fairbanks		Method	SW5035A	
Project Name/#	Village of Beaver Burned Gener		Date	09/21/2009	
Matrix	Soil/Solid (dry weight)				

QC results affect the following production samples:

1094998001, 1094998002, 1094998003, 1094998004, 1094998005, 1094998006

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

Volatile Fuels Department

Gasoline Range Organics	LCS	11.9	106	(60-120)		11.3 mg/Kg	09/21/2009
	LCSD	12.1	107		1	(< 20)	11.3 mg/Kg 09/21/2009

Surrogates

4-Bromofluorobenzene <surr>	LCS		108	(50-150)			09/21/2009
	LCSD		107		2		09/21/2009

Batch	VFC9656
Method	AK101
Instrument	HP 5890 Series II PID+HECD VBA



SGS Ref.# 926482 Lab Control Sample
926483 Lab Control Sample Duplicate
Client Name SLR Alaska-Fairbanks
Project Name/# Village of Beaver Burned Gener
Matrix Soil/Solid (dry weight)

Printed Date/Time 10/12/2009 16:27
Prep Batch VXX19995
Method SW5035A
Date 09/23/2009

QC results affect the following production samples:

1094998007, 1094998008

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

Volatile Fuels Department

Benzene	LCS	1300	104	(80-125)			1250 ug/Kg	09/23/2009
	LCSD	1320	105		1	(< 20)	1250 ug/Kg	09/23/2009
Toluene	LCS	1310	104	(85-120)			1250 ug/Kg	09/23/2009
	LCSD	1320	106		1	(< 20)	1250 ug/Kg	09/23/2009
Ethylbenzene	LCS	1330	106	(85-125)			1250 ug/Kg	09/23/2009
	LCSD	1350	108		2	(< 20)	1250 ug/Kg	09/23/2009
o-Xylene	LCS	1310	104	(85-125)			1250 ug/Kg	09/23/2009
	LCSD	1320	105		1	(< 20)	1250 ug/Kg	09/23/2009
P & M -Xylene	LCS	2700	108	(85-125)			2500 ug/Kg	09/23/2009
	LCSD	2740	110		2	(< 20)	2500 ug/Kg	09/23/2009

Surrogates

1,4-Difluorobenzene <surr>	LCS		105	(80-120)				09/23/2009
	LCSD		105		0			09/23/2009

Batch VFC9659
Method SW8021B
Instrument HP 5890 Series II PID+HECD VBA



SGS Ref.# 926484 Lab Control Sample
926485 Lab Control Sample Duplicate
Client Name SLR Alaska-Fairbanks
Project Name/# Village of Beaver Burned Gener
Matrix Soil/Solid (dry weight)

Printed Date/Time 10/12/2009 16:27
Prep Batch VXX19995
Method SW5035A
Date 09/23/2009

QC results affect the following production samples:

1094998007, 1094998008

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

Volatile Fuels Department

Gasoline Range Organics	LCS	12.1	108	(60-120)		11.3 mg/Kg	09/23/2009
	LCSD	12.5	111		3	(< 20)	11.3 mg/Kg 09/23/2009

Surrogates

4-Bromofluorobenzene <surr>	LCS		109	(50-150)			09/23/2009
	LCSD		110		1		09/23/2009

Batch VFC9659
Method AK101
Instrument HP 5890 Series II PID+HECD VBA



SGS Ref.# 926489 Lab Control Sample
926490 Lab Control Sample Duplicate
Client Name SLR Alaska-Fairbanks
Project Name/# Village of Beaver Burned Gener
Matrix Soil/Solid (dry weight)

Printed Date/Time 10/12/2009 16:27
Prep Batch VXX19996
Method SW5035A
Date 09/23/2009

QC results affect the following production samples:

1094998002, 1094998003

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

Volatile Fuels Department

Benzene	LCS	1330	106	(80-125)			1250 ug/Kg	09/24/2009
	LCSD	1290	103		3	(< 20)	1250 ug/Kg	09/24/2009
Toluene	LCS	1320	106	(85-120)			1250 ug/Kg	09/24/2009
	LCSD	1300	104		2	(< 20)	1250 ug/Kg	09/24/2009
Ethylbenzene	LCS	1340	107	(85-125)			1250 ug/Kg	09/24/2009
	LCSD	1320	106		2	(< 20)	1250 ug/Kg	09/24/2009
o-Xylene	LCS	1310	105	(85-125)			1250 ug/Kg	09/24/2009
	LCSD	1290	103		2	(< 20)	1250 ug/Kg	09/24/2009
P & M -Xylene	LCS	2720	109	(85-125)			2500 ug/Kg	09/24/2009
	LCSD	2680	107		1	(< 20)	2500 ug/Kg	09/24/2009

Surrogates

1,4-Difluorobenzene <surr>	LCS		105	(80-120)				09/24/2009
	LCSD		104		0			09/24/2009

Batch VFC9659
Method SW8021B
Instrument HP 5890 Series II PID+HECD VBA



SGS Ref.# 926491 Lab Control Sample
926492 Lab Control Sample Duplicate
Client Name SLR Alaska-Fairbanks
Project Name/# Village of Beaver Burned Gener
Matrix Soil/Solid (dry weight)

Printed Date/Time 10/12/2009 16:27
Prep Batch VXX19996
Method SW5035A
Date 09/23/2009

QC results affect the following production samples:
1094998002, 1094998003

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

Volatile Fuels Department

Gasoline Range Organics	LCS	11.8	105	(60-120)		11.3 mg/Kg	09/24/2009
	LCSD	12.0	107		2	(< 20)	11.3 mg/Kg 09/24/2009

Surrogates

4-Bromofluorobenzene <surr>	LCS		110	(50-150)			09/24/2009
	LCSD		113		2		09/24/2009

Batch VFC9659
Method AK101
Instrument HP 5890 Series II PID+HECD VBA

SGS Ref.#	924335	Matrix Spike	Printed Date/Time	10/12/2009 16:27
	924336	Matrix Spike Duplicate	Prep	Batch
			Method	Sonication Extraction Soil 8270
			Date	09/16/2009
Original	1094998002			
Matrix	Soil/Solid (dry weight)			

QC results affect the following production samples:

1094998002, 1094998003

Parameter	Qualifiers	Original Result	QC Result	Pct Recov	MS/MSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
Polynuclear Aromatics GC/MS									
Acenaphthylene	MS	ND	0.00	0* (45-102)				24.1 ug/Kg	10/08/2009
	MSD		0.00	0*		0 (< 30)		24.2 ug/Kg	10/08/2009
Acenaphthene	MS	3370	3410	172* (45-99)				24.1 ug/Kg	10/08/2009
	MSD		3421	219*		0 (< 30)		24.2 ug/Kg	10/08/2009
Fluorene	MS	ND	0.00	0* (50-107)				24.1 ug/Kg	10/08/2009
	MSD		0.00	0*		0 (< 30)		24.2 ug/Kg	10/08/2009
Phenanthrene	MS	738 J	784	190* (50-110)				24.1 ug/Kg	10/08/2009
	MSD		900	668*		14 (< 30)		24.2 ug/Kg	10/08/2009
Anthracene	MS	ND	0.00	0* (28-103)				24.1 ug/Kg	10/08/2009
	MSD		0.00	0*		0 (< 30)		24.2 ug/Kg	10/08/2009
Fluoranthene	MS	ND	0.00	0* (55-115)				24.1 ug/Kg	10/08/2009
	MSD		0.00	0*		0 (< 30)		24.2 ug/Kg	10/08/2009
Pyrene	MS	ND	0.00	0* (45-120)				24.1 ug/Kg	10/08/2009
	MSD		0.00	0*		0 (< 30)		24.2 ug/Kg	10/08/2009
Benzo(a)Anthracene	MS	ND	0.00	0* (40-110)				24.1 ug/Kg	10/08/2009
	MSD		0.00	0*		0 (< 30)		24.2 ug/Kg	10/08/2009
Chrysene	MS	ND	0.00	0* (55-110)				24.1 ug/Kg	10/08/2009
	MSD		0.00	0*		0 (< 30)		24.2 ug/Kg	10/08/2009
Benzo[b]Fluoranthene	MS	ND	0.00	0* (45-115)				24.1 ug/Kg	10/08/2009
	MSD		0.00	0*		0 (< 30)		24.2 ug/Kg	10/08/2009
Benzo[k]fluoranthene	MS	ND	0.00	0* (45-120)				24.1 ug/Kg	10/08/2009
	MSD		0.00	0*		0 (< 30)		24.2 ug/Kg	10/08/2009
Benzo[a]pyrene	MS	ND	0.00	0* (10-102)				24.1 ug/Kg	10/08/2009
	MSD		0.00	0*		0 (< 30)		24.2 ug/Kg	10/08/2009
Indeno[1,2,3-c,d] pyrene	MS	ND	0.00	0* (40-120)				24.1 ug/Kg	10/08/2009
	MSD		0.00	0*		0 (< 30)		24.2 ug/Kg	10/08/2009
Dibenzo[a,h]anthracene	MS	ND	0.00	0* (40-125)				24.1 ug/Kg	10/08/2009
	MSD		0.00	0*		0 (< 30)		24.2 ug/Kg	10/08/2009
Benzo[g,h,i]perylene	MS	ND	0.00	0* (40-118)				24.1 ug/Kg	10/08/2009
	MSD		0.00	0*		0 (< 30)		24.2 ug/Kg	10/08/2009
Naphthalene	MS	62900	75768	53,400* (40-92)				24.1 ug/Kg	10/08/2009
	MSD		52961	-41,300*		36 * (< 30)		24.2 ug/Kg	10/08/2009
1-Methylnaphthalene	MS	219000	221491	10,000* (30-97)				24.1 ug/Kg	10/08/2009
	MSD		209430	-36,500*		5 (< 30)		24.2 ug/Kg	10/08/2009
2-Methylnaphthalene	MS	223000	246711	97,400* (45-96)				24.1 ug/Kg	10/08/2009
	MSD		240132	69,200*		3 (< 30)		24.2 ug/Kg	10/08/2009

SGS Ref.# 924335 Matrix Spike
924336 Matrix Spike Duplicate

Printed Date/Time 10/12/2009 16:27
Prep Batch XXX21640
Method Sonication Extraction Soil 8270
Date 09/16/2009

Original 1094998002
Matrix Soil/Solid (dry weight)

Parameter	Qualifiers	Original Result	QC Result	Pct Recov	MS/MSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date

Polynuclear Aromatics GC/MS

Terphenyl-d14 <sur>	MS	53.0	220* (30-125)					10/08/2009
	MSD	55.8	230*	5				10/08/2009

Batch XMS5120
Method 8270D SIMS
Instrument HP 6890/5973 MS SVQA



SGS Ref.# 924339 Matrix Spike
924340 Matrix Spike Duplicate

Printed Date/Time 10/12/2009 16:27
Prep Batch MXX22233
Method Soils/Solids Digest for Metals b
Date 09/16/2009

Original 1094853001
Matrix Soil/Solid (dry weight)

QC results affect the following production samples:

1094998001

Parameter	Qualifiers	Original Result	QC Result	Pct Recov	MS/MSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date

Metals by ICP/MS

Lead	MS	34.9	80.7	93	(80-120)			49.1	mg/Kg 09/18/2009
	MSD		84.2	99		4	(< 20)	49.9	mg/Kg 09/18/2009

Batch MMS6089
Method SW6020
Instrument Perkin Elmer Sciex ICP-MS P3



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[illegible]



SAMPLE RECEIPT FORM

SGS WO#:

Yes No NA

☐ ☒ ☐ Are samples **RUSH**, priority or w/in 72 hrs of hold time?
☐ ☒ ☐ If yes, have you done e-mail ALERT notification?
☐ ☒ ☐ Are samples *within 24 hrs.* of hold time or due date?
☐ ☒ ☐ If yes, have you also *spoken with supervisor*?
☐ ☒ ☐ Archiving bottles: Are lids marked w/ red "X"?
☒ ☐ ☐ Were samples collected with proper preservative?
☐ ☒ ☐ **Any problems (ID, cond'n, HT, etc)? Explain:**
NPT checked in the fairbanks
office

☐ ☒ ☐ If this is for PWS, provide **PWSID**: _____
☐ ☒ ☐ Payment received: \$ _____ by Check or Credit Card
☐ ☒ ☐ Will courier charges apply?
☒ ☐ ☐ Data package required? (Level: 1 / 2 / 3 / 4)
Notes: _____
☐ ☒ ☐ Is this a DoD project? (USACE, Navy, AFCEE)

This section must be filled out for DoD projects (USACE, Navy, AFCEE):

Yes	No	
☐	☐	Is received temperature $\leq 6^{\circ}\text{C}$?
☐	☐	Were containers ice-free? <i>Notify PM immediately of any ice in samples.</i> If some cooler temperatures are non-compliant, see form FS-0029 (attached) for samples/analyses affected.
☐	☐	Was there an airbill? (If "yes," see attached.)
☐	☐	Was cooler sealed with custody seals & were they intact? # / where: _____
☐	☐	Was there a COC with cooler?
☐	☐	Was COC sealed in plastic bag & taped inside lid of cooler?
☐	☐	Was the COC filled out properly? Did labels correspond?
☐	☐	Did the COC indicate USACE / Navy / AFCEE project?
☐	☐	Samples were packed to prevent breakage with (circle one): Bubble Wrap Vermiculite Other (specify): _____
☐	☐	Were all samples sealed in separate plastic bags?
☐	☐	Were all VOCs free of headspace and/or MeOH preserved?
☐	☐	Were correct container / sample sizes submitted?
☐	☐	Was the PM notified of arrival so they can send Sample Receipt Acknowledgement to client?

TAT (circle one): ~~Standard~~ -or- RushReceived Date: 9/14/09Received Time: 1355

Cooler ID	Temperature	Measured w/ (Therm/IR ID#)
<u>1</u>	<u>3.8</u> °C	<u>89D</u>
_____	_____ °C	_____
_____	_____ °C	_____
_____	_____ °C	_____

Note: Temperature readings include thermometer correction factors

Delivery method (circle all that apply):

☒ Client / ☐ Alert Courier / ☐ Lynden / ☐ SGS
☐ UPS / ☐ FedEx / ☐ USPS / ☐ DHL / ☐ Carlisle
☐ AkAir Goldstreak / ☐ NAC / ☐ ERA / ☐ PenAir
 Other: _____

Additional Sample Remarks: (✓ if applicable)

☐ Extra Sample Volume?
☐ Limited Sample Volume?
☐ Multi-Incremental Samples?
☐ Lab-filtered for dissolved _____
☐ Ref Lab required for _____
☐ Foreign Soil?

This section must be completed if problems are noted.

Was client notified of problems? Yes / No

By (SGS PM): _____

Individual contacted: _____

Via: Phone / Fax / E-mail (circle one)

Date/Time: _____

Reason for contact: _____

Change Order Required? Yes / No

Notes:

Completed by (sign): Carmen Beene (print): CARMEN BEENELogin proof: Self-check completed 1/10 Peer-reviewer's Initials AGH

[illegible]

Date: 9/5/09

Completed by:



SAMPLE RECEIPT FORM FOR TRANSFERS

From
FAIRBANKS, ALASKA
To
ANCHORAGE, AK

TO BE COMPLETED IN ANCHORAGE UPON ARRIVAL FROM FAIRBANKS.

NOTES RECORDED BELOW ARE ACTIONS NEEDED UPON ARRIVAL IN ANCHORAGE.

Notes: _____

Receipt Date / Time: 9-15-09 0900

Delivery method to Anchorage (circle all that apply):

Alert Courier / UPS / FedEx / USPS / AA Goldstreak / NAC / ERA / PenAir / Carlile / Lynden / SGS

Other: _____

Airbill # _____

COOLER AND TEMP BLANK READINGS*

#6

Cooler ID	Temp Blank (°C)	Cooler (°C)	Cooler ID	Temp Blank (°C)	Cooler (°C)
<u>1</u>	<u>0.7</u>	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

CUSTODY SEALS INTACT: YES / NO

/ WHERE: 2 FRONT & BACK TOP LIN

COMPLETED BY: [Signature]

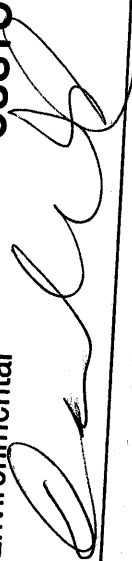
*Temperature readings include thermometer correction factors.

SGS

Environmental

CUSTODY SEAL

Signature: _____



Date/Time: _____

9/14/09 1345

1094998

LABORATORY DATA QUALITY ASSURANCE SUMMARY

ADEC BEAVER GENERATOR BUILDING FIRE

ADEC Contaminated Site Number: 790.57.001

This report summarizes a review of analytical results for work order numbers 1094998 (soil samples) and 1094996 (water sample), for samples collected on 9/10/09 and 9/11/09. Samples were collected by SLR International Corp (SLR), and submitted to SGS Environmental Services (SGS), Alaska. Samples were analyzed for the following parameters:

- Gasoline Range Organics (GRO), using Alaska Method 101
- Diesel Range Organics (DRO), using Alaska Method 102
- Residual Range Organics (RRO), using Alaska Method 103
- Lead, using EPA Method 6020
- Polynuclear Aromatic Hydrocarbons (PAHs), using EPA Methods 8270D
- Benzene, Toluene, Ethylbenzene, Xylenes, using EPA Methods 8021B
- Percent Solids, using Standard Method 2540
- Volatile Organics, using EPA Method 524.2

Quality Assurance Program

A quality assurance (QA) program was followed that addressed project administration, sampling protocols, data review, and data QA. Sample QA was provided by SLR through strict adherence to sampling protocols. Chain-of-custody (COC) procedures were followed as an integral part of the QA program.

Data validation consisted of the following:

- Verifying that quality control (QC) blanks were properly prepared, identified, and analyzed.
- Reviewing COC records for completeness, signatures, and dates.
- Verifying that surrogate analyses (when applicable) are within recovery acceptance limits.
- Verifying that Laboratory Control Samples (LCS) and Laboratory Control Sample Duplicates (LCSD) are within recovery acceptance limits.

- Reviewing the Continuing Calibration Verification (CCV) recoveries are within recovery acceptance levels.
- Evaluating the result RPD between original and duplicate (QC) samples.
- Providing an overall assessment of laboratory data quality and qualifying sample results if necessary.

Data Qualifications

The comments presented in this report refer to the field procedures and the laboratory's performance in meeting the QC specifications. The sample results were reviewed using the following documents:

- ADEC, 18 AAC 75 Oil and Other Hazardous Substances Pollution Control (ADEC, Revised as of October 9, 2008).
- ADEC, 2009 18 AAC 70 Water Quality Standards (ADEC, as amended through September 19).
- ADEC, Underground Storage Tanks Procedure Manual Guidance for Treatment of Petroleum – Contaminated Soil and Water and Standard Sampling Procedures (ADEC, November 2002).
- ADEC, Technical Memorandum – 06-002, Environmental Laboratory Data and Quality Assurance Requirements (ADEC, March 2009).
- EPA Document 530/SW-846, Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, fourth edition (EPA, November 1991).
- EPA Document 540//R-94/012, EPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (EPA, February 1994).

Data Validation

Data Package

The data packages were checked for transcription errors, omissions, or other anomalies. No anomalies were found except as noted below.

Work order 1094998

- Transcription error: PAHs using EPA Method 8270C was requested on the COC. The correct analysis is EPA Method 8270D. The samples were analyzed with the correct method, 8270D.

Work order 1094996

- Semi Volatile Organic Compounds (SVOCs) is requested on the COC, however, it was later determined and documented as a change order to analyze for EPA Method 8270D instead. The sample was analyzed for EPA Method 8270D, the correct analysis.

Holding Times and Preservation

Samples were appropriately preserved upon collection and were submitted to SGS. Sample analysis was conducted within holding time criteria. Issues with regard to sample preservation are noted below.

Work order 1094996

- Limited volume for EPA Method 8270D and AK Method 102 was noted on the COC. The reason for limited volume was due to sample containers originally submitted for SVOCs. After the samples were submitted to the laboratory, a change order was written to replace the SVOC analysis with the EPA Method 8270D analysis. Enough sample volume was submitted from other appropriately preserved containers to analyze the samples for the EPA Method 8270D analysis.

Work order 1094998

- The temperature blank was slightly out of the acceptable range of 4 degrees Celsius +/- 2 degrees Celsius. The temperature blank had a reading of .2 degrees Celsius and the cooler temperature had a reading of 3.8 Celsius. No ice was noted in the sample containers and the cooler was within acceptable range, therefore sample preservation should not be affected.

Laboratory Method Blanks

Laboratory method blanks were analyzed at the appropriate frequencies. No analytes were detected in method blanks at or above the method reporting limits (MRL) for either work order.

Trip Blanks

One trip blank was included with each work order, 1094998 and 1094996. No analytes were detected in the trip blanks at or above the method reporting limits (MRL). Each COC indicated one cooler was used for each work order, and therefore it is assumed each trip blank traveled with the same samples submitted with each work order.

Surrogate Recovery Results

Surrogate analyses were performed at the required frequencies, and the results were within EPA and SGS percent recovery acceptance limits for work order 1094996. Issues regarding surrogate recovery for work order 1094998 are noted below.

Work order 1094998

- 4-Bromofluorobenzene surrogate recovery did not meet QC criteria (biased high) due to hydrocarbon interference using EPA Method 8021B. Surrogate recovery failure was associated with field samples E-4 and E-14. Analytical results for samples E-4 and E-14 using EPA Method 8021B may be biased high because of this QC failure.

- Terphenyl-d14 surrogate recovery did not meet QC criteria (biased high) due to sample dilution using EPA Method 8270D. Surrogate recovery failure was associated with field samples E-4 and E-14 and Matrix Spike (MS) and Matrix Spike Duplicate (MSD) sample 1094998002. Analytical results for samples E-4 and E-14 using EPA Method 8270D may be biased high because of this QC failure.

Continuing Calibration Verification

Continuing calibration verifications (CCV) were performed at the required frequencies, and percent recoveries were within EPA and SGS percent recovery acceptance limits except as noted below.

Work order 1094996

- According to the Case Narrative, ICV recovery for dichlorodifluoromethane, chloromethane and vinyl chloride did not meet QC criteria (biased high). These analytes were not detected above the PQL in associated samples, and therefore should not be affected by this QC failure.

Field Duplicates

A total of seven primary field samples were submitted between work orders 1094998, and 1094996. One duplicate soil sample was collected and submitted to the laboratory blind. Since one water sample was collected, there were no duplicates collected for water. The soil duplicate samples are in compliance with regulatory requirements because a minimum of one per every ten field samples, for each matrix, for each target analyte was achieved.

The following field duplicates were collected:

- E-14 is the duplicate to parent sample E-4

For analytes detected above the MRL, duplicate/parent relative percent differences (RPD) are summarized below.

RELATIVE PERCENT DIFFERENCES		
Parent sample (Duplicate sample)	Analyte	RPD (%)
E-4 (E-14)	GRO	8.46
E-4 (E-14)	Benzene	13.83
E-4 (E-14)	Toluene	62.91
E-4 (E-14)	Ethylbenzene	6.43
E-4 (E-14)	o-Xylene	1.65
E-4 (E-14)	P & M Xylene	0.69
E-4 (E-14)	DRO	0.33
E-4 (E-14)	RRO	4.10
E-4 (E-14)	Acenaphthene**	**170.33
E-4 (E-14)	Phenanthrene**	**56.47
E-4 (E-14)	Naphthalene	199.42
E-4 (E-14)	1-Methylnaphthalene	71.21
E-4 (E-14)	2-Methylnaphthalene	68.67
E-4 (E-14)	Total Solids	0

** One sample result is an estimate (below PQL), and the other is ND

Toluene, Naphthalene, 1-Methylnaphthalene and 2-Methylnaphthalene did not meet the required 50% RPD for parent soil samples and their duplicates. These four analytes are out of compliance. The remainder of the analytes were below the 50% RPD for soil. Analytes with one sample result of ND are noted in the table.

Laboratory Control Samples/Laboratory Control Duplicate Samples

Laboratory Control Samples (LCS) and Laboratory Control Duplicate Samples (LCSD) were analyzed at the appropriate frequencies and all LCS/LCSD results met percent recovery and RPD limits for both work orders.

Laboratory Duplicate Samples

One laboratory duplicate was analyzed for total solids for work order 1094998. The duplicate was within QC criteria. A duplicate was not analyzed, or required for work order 1094996.

Matrix Spike/Matrix Spike Duplicate Samples

MS/MSD samples were analyzed for work order 1094998. MS/MSD samples were not analyzed, or required for work order 1094996. Several issues were noted with regard to MS/MSD results using EPA Method 8270D.

Work order 1094998 using EPA Method 8270D

- MS/MSD PQLs are elevated due to sample dilution. The sample was analyzed at a dilution due to matrix interference with internal standards.
- MS/MSD recovery for several compounds was outside of QC criteria. Accuracy was correctly measured by LCS.
- MS results were estimated for 2-methylnaphthalene due to the concentration exceeding the upper calibration range.
- MS/MSD RPD for naphthalene did not meet QC criteria. Results for this analyte are estimated in the original sample.

Reporting Limits

Method reporting limits (MRLs) were compared to applicable cleanup levels for the site. The analytes with results of ND had MRLs below applicable cleanup levels except as noted below.

- The benzene result for sample E-12 was ND. The MRL for this analyte and sample was set by the laboratory at .0484 mg/Kg. The ADEC site cleanup level for benzene is .03 mg/Kg, therefore the benzene result of ND is not a measurable result when comparing site cleanup levels.

Overall Assessment

The data are judged to be acceptable for use.

Precision, Accuracy, and Completeness

- Precision: Precision goals were met except as noted in the MS/MSD and Field Duplicates section.
- Accuracy: Accuracy goals were met except as noted in the MS/MSD, Surrogate Recovery and CCV section.
- Completeness: Completeness goals were met.

Laboratory Data Review Checklist

Completed by:	Kirsten Hoppe
Title:	Geologist
Date:	October 12, 2009
CS Report Name:	Beaver Generator Building Fire
Report Date:	October 12, 2009
Consultant Firm:	SLR International Corp.
Laboratory Name:	SGS North America Inc.
Laboratory Report Number:	1094998
ADEC File Number:	790.57.001
ADEC RecKey Number:	NA

1. Laboratory

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

☒ Yes

☐ No

Comments:

SGS North America Inc.

- 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:

NA

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:

Transcription error: PAHs using EPA Method 8270C was requested on the COC. The correct analysis is EPA Method 8270D. The samples were analyzed with the correct method, 8270D.

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:

The temperature blank was slightly out of the acceptable range of 4 degrees Celsius +/- 2 degrees Celsius. The temperature blank had a reading of .2 degrees Celsius and the cooler temperature had a reading of 3.8 Celsius. No ice was noted in the sample containers and the cooler was within acceptable range, therefore sample preservation should not be affected.

- 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:

No issues needed to be noted.

- 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:

All issues were noted.

- e. Data quality or usability affected? Explain.

Comments:

No. No ice was noted in the sample containers and the cooler was within acceptable range, therefore data quality should not be affected.

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:

No corrective actions needed to be taken. Issues and explanations regarding data quality were presented in the Case Narrative.

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

Comments:

Affects on data quality were explained for each sample with QC failure. For example, it was noted if results may be biased high, or alternate QC data should be reviewed for accuracy and precision. See the QC section of this checklist for specific issues relating to QC results and issues.

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:

One sample and analyte: The benzene result for sample E-12 was ND. The MRL for this analyte and sample was set by the laboratory at .0484 mg/Kg. The ADEC site cleanup level for benzene is .03 mg/Kg, therefore the benzene result of ND is not a measurable result when comparing site cleanup levels.

e. Data quality or usability affected?

Comments:

Yes, for one sample and analyte: E-12, benzene cannot be used to demonstrate compliance with ADEC site cleanup levels chosen for this site.

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:

No samples were affected. Method blank results were above the PQL.

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

☒ Yes ☐ No Comments:

No affected samples.

v. Data quality or usability affected? Explain.

Comments:

No samples were affected. Method blank results were above the PQL.

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 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:

Yes. % recoveries were reported.

No. MS/MSD recovery for several compounds was outside of QC criteria. Accuracy was correctly measured by LCS.

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

☒ Yes ☐ No Comments:

Yes. RPDs were reported.

No. MS/MSD RPD for naphthalene did not meet QC criteria. Results for this analyte are estimated in the original sample.

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

Comments:

E-14 and E-4

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

☒ Yes ☐ No Comments:

Clearly marked in the Case Narrative and within the laboratory report.

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

Comments:

Yes:

MS/MSD RPD for naphthalene did not meet QC criteria. Results for this analyte are estimated in the original sample.

MS results were estimated for 2-methylnaphthalene due to the concentration exceeding the upper calibration range.

MS/MSD recovery for several compounds was outside of QC criteria. Accuracy was correctly measured by LCS.

MS/MSD PQLs are elevated due to sample dilution. The sample was analyzed at a dilution due to matrix interference with internal standards

- 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:

Yes: % recoveries were reported.

No:

1. 4-Bromofluorobenzene surrogate recovery did not meet QC criteria (biased high) due to hydrocarbon interference using EPA Method 8021B. Surrogate recovery failure was associated with field samples E-4 and E-14. Analytical results for samples E-4 and E-14 using EPA Method 8021B may be biased high because of this QC failure.
2. Terphenyl-d14 surrogate recovery did not meet QC criteria (biased high) due to sample dilution using EPA Method 8270D. Surrogate recovery failure was associated with field samples E-4 and E-14 and Matrix Spike (MS) and Matrix Spike Duplicate (MSD) sample 1094998002. Analytical results for samples E-4 and E-14 using EPA Method 8270D may be biased high because of this QC failure

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

☒ Yes ☐ No Comments:

Surrogate recovery failure was associated with field samples E-4 and E-14 and MS/MSD sample 1094998002.

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

Comments:

Analytical results for samples E-4 and E-14 using EPA Method 8021B may be biased high because of these QC failures.

- 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 Comments:

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

☒ Yes ☐ No Comments:

All samples and the trip blank were contained in one cooler for this work order.

- iii. All results less than PQL?

☒ Yes ☐ No Comments:

All results are below the PQL.

iv. If above PQL, what samples are affected?

Comments:

No samples were affected. All trip blank results were below the PQL.

v. Data quality or usability affected? Explain.

Comments:

No. All trip blank results were below the PQL.

e. Field Duplicate

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

☒ Yes ☐ No

Comments:

Yes: A total of seven primary field samples were submitted between work orders 1094998, and 1094996 (both work orders are part of the same project). One duplicate soil sample was collected and submitted to the laboratory blind. The soil duplicate samples are in compliance with regulatory requirements because a minimum of one per every ten field samples, for each matrix, for each target analyte was achieved.

No: Since one water sample was collected, there were no duplicates collected for water.

ii. Submitted blind to lab?

☒ Yes ☐ No

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

Comments:

Work order 1094998: Toluene, Naphthalene, 1-Methylnaphthalene and 2-Methylnaphthalene did not meet the required 50% RPD for parent soil samples and their duplicates. These four analytes are out of compliance. The remainder of the analytes were below the 50% RPD for soil.

Work order 1094996 (the water sample that is also part of the project with the soil samples from work order 1094998) did not have a duplicate sample. There was only one water sample collected.

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

Comments:

Project water sample: Field precision can not be measured for work order 1094996.

Project soil samples: Toluene, Naphthalene, 1-Methylnaphthalene and 2-Methylnaphthalene did not meet the required 50% RPD for parent soil samples and their duplicates. These four analytes are out of compliance.

f. Decontamination or Equipment Blank (If not applicable, a comment stating why must be entered below.)

☒ Yes ☐ No ☒ Not Applicable

i. All results less than PQL?

☒ Yes ☐ No Comments:

Disposable sampling equipment was used.

ii. If above PQL, what samples are affected?

Comments:

NA

iii. Data quality or usability affected? Explain.

Comments:

NA

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

a. Defined and appropriate?

☒ Yes ☐ No Comments:

APPENDIX G-3

VILLAGE OF BEAVER – DRINKING WATER SAMPLE ANALYTICAL RESULTS



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

Project:	Village of Beaver 005006509008
Client:	SLR Alaska-Fairbanks
SGS Work Order:	1094996

Released by:

Contents:

Cover Page
Case Narrative
Final Report Pages
Quality Control Summary Forms
Chain of Custody/Sample Receipt Forms

Note:

Unless otherwise noted, all quality assurance/quality control criteria is in compliance with the standards set forth by the proper regulatory authority, the SGS Quality Assurance Program Plan, and the National Environmental Accreditation Conference.



CASE NARRATIVE

Print Date: 10/5/2009

Client Name: SLR Alaska-Fairbanks

Project Name: Village of Beaver 005006509008

Workorder No.: 1094996

Sample Comments

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

<u>Lab Sample ID</u>	<u>Sample Type</u>	<u>Client Sample ID</u>
925503	CCV	CCV for HBN 220328 [VMS/10843]
524 - ICV recovery for dichlorodifluoromethane, chloromethane and vinyl chloride does not meet QC criteria (biased high). These analytes were not detected above the PQL in the associated samples.		



Laboratory Analytical Report

Client: **SLR Alaska-Fairbanks**
3455 Rewak Dr, Suite 103
Fairbanks, AK 99709

Attn: **David Puchrik**
T: (907)455-9005 F:(907)455-9015

Project: **Village of Beaver 005006509008**
Workorder No.: **1094996**

Certification:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, other than the conditions noted on the sample data sheet(s) and/or the case narrative. This certification applies only to the tested parameters and the specific sample(s) received at the laboratory.

If you have any questions regarding this report, or if we can be of further assistance, please contact your SGS Project Manager.

Carmon Beene

Project Manager

Enclosed are the analytical results associated with this workorder.

As required by the state of Alaska and the USEPA, a formal Quality Assurance/Quality Control Program is maintained by SGS. A copy of our Quality Assurance Plan (QAP), which outlines this program is available at your request.

The Laboratory certification numbers are AK971-05 (DW), UTS-005 (CS) and AK00971 (Micro) for ADEC and AK100001 for NELAP (RCRA methods: 1020A, 1311, 6010B, 7470A, 7471A, 9040B, 9045C, 9056, 9060, 8015B, 8021B, 8081A/8082, 8260B, 8270C).

Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP, the National Environmental Laboratory Accreditation Program and, when applicable, other regulatory authorities.

If you have any questions regarding this report or if we can be of any assistance, please contact your SGS Project Manager at 907-562-2343. All work is being provided under SGS general terms and conditions (http://www.sgs.com/terms_and_conditions.htm)

The following descriptors may be found on your report which will serve to further qualify the data.

MDL	Method Detection Limit
PQL	Practical Quantitation Limit (reporting limit).
CL	Control Limit
U	Indicates the analyte was analyzed for but not detected.
F	Indicates value that is greater than or equal to the MDL.
J	The quantitation is an estimation.
ND	Indicates the analyte is not detected
B	Indicates the analyte is found in a blank associated with the sample.
*	The analyte has exceeded allowable regulatory or control limits.
D	The analyte concentration is the result of dilution.
GT	Greater Than
LT	Less Than
Q	QC parameter out of acceptance range.
M	A matrix effect was present.
E	The analyte result is above the calibrated range.
R	Rejected
DF	Analytical Dilution Factor
JL	The analyte was positively identified, but the quantitation is a low estimation.
<Surr>	Surrogate QC spiked standard
<Surr/IS>	Surrogate / Internal Standard QC spiked standard
QC	Quality Control
QA	Quality Assurance
MB	Method Blank
LCS (D)	Laboratory Control Sample (Duplicate)
MS(D)	Matrix Spike (Duplicate)
BMS(D)	Site Specific Matrix Spike (Duplicate)
RPD	Relative Percent Difference
ICV	Initial Calibration Verification
CCV	Continuous Calibration Verification
MSA	Method of Standard Addition

Notes: Soil samples are reported on a dry weight basis unless otherwise specified

All DRO/RRO analyses are integrated per SOP.



SAMPLE SUMMARY

Print Date: 10/5/2009 8:37 am

Client Name: SLR Alaska-Fairbanks

Project Name: Village of Beaver 005006509008

Workorder No.: 1094996

Analytical Methods

Method Description

8270 PAH SIM Semi-Vol GC/MS Liq/Liq ext.

DRO/RRO Low Volume Water

DRO/RRO Low Volume Water

Gasoline Range Organics (W)

Volatile Organics by 524.2 (DW)

Analytical Method

8270D SIMS

AK102

AK103

AK101

EPA 524.2

Sample ID Cross Reference

Lab Sample ID

1094996001

1094996002

Client Sample ID

WS-1

TRIP BLANK

**SLR Alaska-Fairbanks**

Print Date: 10/5/2009 8:37 am

Client Sample ID: **WS-1**

SGS Ref. #: 1094996001

Project ID: Village of Beaver 005006509008

Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 09/11/09 11:15

Receipt Date/Time: 09/15/09 09:00

Volatile Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Gasoline Range Organics	ND	100	31.0	ug/L	1	VFC9658	VXX19992	
4-Bromofluorobenzene <sur>	109	50-150		%	1	VFC9658	VXX19992	

Batch Information

Analytical Batch: VFC9658

Analytical Method: AK101

Analysis Date/Time: 09/22/09 22:12

Dilution Factor: 1

Prep Batch: VXX19992

Prep Method: SW5030B

Prep Date/Time: 09/22/09 13:09

Initial Prep Wt./Vol.: 5 mL

Prep Extract Vol.: 5 mL

Container ID:1094996001-B

Analyst: KPW



SLR Alaska-Fairbanks

Print Date: 10/5/2009 8:37 am

Client Sample ID: **WS-1**

SGS Ref. #: 1094996001

Project ID: Village of Beaver 005006509008

Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 09/11/09 11:15

Receipt Date/Time: 09/15/09 09:00

Semivolatile Organic Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Diesel Range Organics	ND	714	223	ug/L	1	XFC8889	XXX21652	
Residual Range Organics	ND	446	134	ug/L	1	XFC8889	XXX21652	
5a Androstane <surr>	86.4	50-150		%	1	XFC8889	XXX21652	
n-Triacontane-d62 <surr>	92.2	50-150		%	1	XFC8889	XXX21652	

Batch Information

Analytical Batch: XFC8889

Analytical Method: AK102

Analysis Date/Time: 09/26/09 06:56

Dilution Factor: 1

Prep Batch: XXX21652

Prep Method: SW3520C

Prep Date/Time: 09/18/09 09:00

Initial Prep Wt./Vol.: 280 mL

Prep Extract Vol.: 1 mL

Container ID:1094996001-J

Analyst: KDC

Analytical Batch: XFC8889

Analytical Method: AK103

Analysis Date/Time: 09/26/09 06:56

Dilution Factor: 1

Prep Batch: XXX21652

Prep Method: SW3520C

Prep Date/Time: 09/18/09 09:00

Initial Prep Wt./Vol.: 280 mL

Prep Extract Vol.: 1 mL

Container ID:1094996001-J

Analyst: KDC



SLR Alaska-Fairbanks

Print Date: 10/5/2009 8:37 am

Client Sample ID: **WS-1**

SGS Ref. #: 1094996001

Project ID: Village of Beaver 005006509008

Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 09/11/09 11:15

Receipt Date/Time: 09/15/09 09:00

Volatile Gas Chromatography/Mass Spectroscopy

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
1,1,1,2-Tetrachloroethane	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
1,1,1-Trichloroethane	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
1,1,2,2-Tetrachloroethane	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
1,1,2-Trichloroethane	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
1,1-Dichloroethene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
1,1-Dichloroethane	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
1,1-Dichloropropene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
1,2,3-Trichlorobenzene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
1,2,4-Trichlorobenzene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
1,2,3-Trichloropropane	ND	0.500	0.180	ug/L	1	VMS10843	VXX19978	
1,2,4-Trimethylbenzene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
1,2-Dibromo-3-chloropropane	ND	2.00	0.620	ug/L	1	VMS10843	VXX19978	
1,2-Dibromoethane	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
1,2-Dichlorobenzene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
1,2-Dichloroethane	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
1,3,5-Trimethylbenzene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
1,2-Dichloropropane	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
1,3-Dichlorobenzene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
1,3-Dichloropropane	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
2,2-Dichloropropane	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
1,4-Dichlorobenzene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
2-Chlorotoluene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
4-Chlorotoluene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
4-Isopropyltoluene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
Benzene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
Bromobenzene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
Bromodichloromethane	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
Bromochloromethane	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
Bromoform	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
Bromomethane	ND	1.00	0.310	ug/L	1	VMS10843	VXX19978	
Carbon tetrachloride	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
Chlorobenzene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
Chloroethane	ND	1.00	0.310	ug/L	1	VMS10843	VXX19978	
Chloroform	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
Chloromethane	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
cis-1,3-Dichloropropene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	



SLR Alaska-Fairbanks

Print Date: 10/5/2009 8:37 am

Client Sample ID: **WS-1**

SGS Ref. #: 1094996001

Project ID: Village of Beaver 005006509008

Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 09/11/09 11:15

Receipt Date/Time: 09/15/09 09:00

Volatile Gas Chromatography/Mass Spectroscopy

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
cis-1,2-Dichloroethene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
Dibromochloromethane	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
Dibromomethane	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
Dichlorodifluoromethane	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
Ethylbenzene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
Hexachlorobutadiene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
Isopropylbenzene (Cumene)	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
Methylene chloride	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
Methyl-t-butyl ether	ND	1.00	0.500	ug/L	1	VMS10843	VXX19978	
n-Butylbenzene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
n-Propylbenzene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
o-Xylene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
Naphthalene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
P & M -Xylene	ND	0.500	0.180	ug/L	1	VMS10843	VXX19978	
sec-Butylbenzene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
Styrene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
tert-Butylbenzene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
Tetrachloroethene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
Toluene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
Total Trihalomethanes	ND	2.00	0.600	ug/L	1	VMS10843	VXX19978	
trans-1,2-Dichloroethene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
trans-1,3-Dichloropropene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
Trichloroethene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
Trichlorofluoromethane	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
Vinyl chloride	ND	0.400	0.120	ug/L	1	VMS10843	VXX19978	
Xylenes (total)	ND	1.00	0.310	ug/L	1	VMS10843	VXX19978	
1,2-Dichloroethane-D4 <surr>	106	70-130		%	1	VMS10843	VXX19978	
4-Bromofluorobenzene <surr>	104	70-130		%	1	VMS10843	VXX19978	
Toluene-d8 <surr>	103	70-130		%	1	VMS10843	VXX19978	

Batch Information

Analytical Batch: VMS10843

Analytical Method: EPA 524.2

Analysis Date/Time: 09/18/09 22:39

Dilution Factor: 1

Prep Batch: VXX19978

Prep Method: SW5030B

Prep Date/Time: 09/18/09 12:41

Initial Prep Wt./Vol.: 15 mL

Prep Extract Vol.: 15 mL

Container ID:1094996001-D

Analyst: DSH



SLR Alaska-Fairbanks

Print Date: 10/5/2009 8:37 am

Client Sample ID: **WS-1**

SGS Ref. #: 1094996001

Project ID: Village of Beaver 005006509008

Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 09/11/09 11:15

Receipt Date/Time: 09/15/09 09:00

Polynuclear Aromatics GC/MS

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Acenaphthylene	ND	0.179	0.0536	ug/L	1	XMS5106	XXX21646	
Acenaphthene	ND	0.179	0.0536	ug/L	1	XMS5106	XXX21646	
Fluorene	ND	0.179	0.0536	ug/L	1	XMS5106	XXX21646	
Phenanthrene	ND	0.179	0.0536	ug/L	1	XMS5106	XXX21646	
Anthracene	ND	0.179	0.0536	ug/L	1	XMS5106	XXX21646	
Fluoranthene	ND	0.179	0.0536	ug/L	1	XMS5106	XXX21646	
Pyrene	ND	0.179	0.0536	ug/L	1	XMS5106	XXX21646	
Benzo(a)Anthracene	ND	0.179	0.0536	ug/L	1	XMS5106	XXX21646	
Chrysene	ND	0.179	0.0536	ug/L	1	XMS5106	XXX21646	
Benzo[b]Fluoranthene	ND	0.179	0.0536	ug/L	1	XMS5106	XXX21646	
Benzo[k]fluoranthene	ND	0.179	0.0536	ug/L	1	XMS5106	XXX21646	
Benzo[a]pyrene	ND	0.179	0.0536	ug/L	1	XMS5106	XXX21646	
Indeno[1,2,3-c,d] pyrene	ND	0.179	0.0536	ug/L	1	XMS5106	XXX21646	
Dibenzo[a,h]anthracene	ND	0.179	0.0536	ug/L	1	XMS5106	XXX21646	
Benzo[g,h,i]perylene	ND	0.179	0.0536	ug/L	1	XMS5106	XXX21646	
Naphthalene	ND	0.357	0.111	ug/L	1	XMS5106	XXX21646	
1-Methylnaphthalene	ND	0.179	0.0536	ug/L	1	XMS5106	XXX21646	
2-Methylnaphthalene	ND	0.179	0.0536	ug/L	1	XMS5106	XXX21646	
Terphenyl-d14 <sur>	80.8	50-135		%	1	XMS5106	XXX21646	

Batch Information

Analytical Batch: XMS5106

Analytical Method: 8270D SIMS

Analysis Date/Time: 10/01/09 16:46

Dilution Factor: 1

Prep Batch: XXX21646

Prep Method: SW3520C

Prep Date/Time: 09/17/09 10:40

Initial Prep Wt./Vol.: 280 mL

Prep Extract Vol.: 1 mL

Container ID:1094996001-K

Analyst: MCM

**SLR Alaska-Fairbanks**

Print Date: 10/5/2009 8:37 am

Client Sample ID: **TRIP BLANK**
SGS Ref. #: 1094996002
Project ID: Village of Beaver 005006509008
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 09/11/09 11:15
Receipt Date/Time: 09/15/09 09:00

Volatile Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Gasoline Range Organics	ND	100	31.0	ug/L	1	VFC9655	VXX19981	
4-Bromofluorobenzene <sur>	106	50-150		%	1	VFC9655	VXX19981	

Batch Information

Analytical Batch: VFC9655
Analytical Method: AK101
Analysis Date/Time: 09/20/09 07:11
Dilution Factor: 1

Prep Batch: VXX19981
Prep Method: SW5030B
Prep Date/Time: 09/20/09 02:55

Initial Prep Wt./Vol.: 5 mL
Prep Extract Vol.: 5 mL
Container ID:1094996002-B
Analyst: KPW



SLR Alaska-Fairbanks

Print Date: 10/5/2009 8:37 am

Client Sample ID: **TRIP BLANK**

SGS Ref. #: 1094996002

Project ID: Village of Beaver 005006509008

Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 09/11/09 11:15

Receipt Date/Time: 09/15/09 09:00

Volatile Gas Chromatography/Mass Spectroscopy

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
1,1,1,2-Tetrachloroethane	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
1,1,1-Trichloroethane	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
1,1,2,2-Tetrachloroethane	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
1,1,2-Trichloroethane	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
1,1-Dichloroethene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
1,1-Dichloroethane	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
1,1-Dichloropropene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
1,2,3-Trichlorobenzene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
1,2,4-Trichlorobenzene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
1,2,3-Trichloropropane	ND	0.500	0.180	ug/L	1	VMS10843	VXX19978	
1,2,4-Trimethylbenzene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
1,2-Dibromo-3-chloropropane	ND	2.00	0.620	ug/L	1	VMS10843	VXX19978	
1,2-Dibromoethane	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
1,2-Dichlorobenzene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
1,2-Dichloroethane	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
1,3,5-Trimethylbenzene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
1,2-Dichloropropane	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
1,3-Dichlorobenzene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
1,3-Dichloropropane	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
2,2-Dichloropropane	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
1,4-Dichlorobenzene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
2-Chlorotoluene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
4-Chlorotoluene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
4-Isopropyltoluene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
Benzene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
Bromobenzene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
Bromodichloromethane	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
Bromochloromethane	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
Bromoform	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
Bromomethane	0.650 J	1.00	0.310	ug/L	1	VMS10843	VXX19978	
Carbon tetrachloride	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
Chlorobenzene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
Chloroethane	ND	1.00	0.310	ug/L	1	VMS10843	VXX19978	
Chloroform	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
Chloromethane	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
cis-1,3-Dichloropropene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	



SLR Alaska-Fairbanks

Print Date: 10/5/2009 8:37 am

Client Sample ID: **TRIP BLANK**

SGS Ref. #: 1094996002

Project ID: Village of Beaver 005006509008

Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 09/11/09 11:15

Receipt Date/Time: 09/15/09 09:00

Volatile Gas Chromatography/Mass Spectroscopy

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>MDL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
cis-1,2-Dichloroethene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
Dibromochloromethane	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
Dibromomethane	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
Dichlorodifluoromethane	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
Ethylbenzene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
Hexachlorobutadiene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
Isopropylbenzene (Cumene)	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
Methylene chloride	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
Methyl-t-butyl ether	ND	1.00	0.500	ug/L	1	VMS10843	VXX19978	
n-Butylbenzene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
n-Propylbenzene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
o-Xylene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
Naphthalene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
P & M -Xylene	ND	0.500	0.180	ug/L	1	VMS10843	VXX19978	
sec-Butylbenzene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
Styrene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
tert-Butylbenzene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
Tetrachloroethene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
Toluene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
Total Trihalomethanes	ND	2.00	0.600	ug/L	1	VMS10843	VXX19978	
trans-1,2-Dichloroethene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
trans-1,3-Dichloropropene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
Trichloroethene	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
Trichlorofluoromethane	ND	0.500	0.150	ug/L	1	VMS10843	VXX19978	
Vinyl chloride	ND	0.400	0.120	ug/L	1	VMS10843	VXX19978	
Xylenes (total)	ND	1.00	0.310	ug/L	1	VMS10843	VXX19978	
1,2-Dichloroethane-D4 <sur>	104	70-130		%	1	VMS10843	VXX19978	
4-Bromofluorobenzene <sur>	103	70-130		%	1	VMS10843	VXX19978	
Toluene-d8 <sur>	101	70-130		%	1	VMS10843	VXX19978	

Batch Information

Analytical Batch: VMS10843

Analytical Method: EPA 524.2

Analysis Date/Time: 09/18/09 18:44

Dilution Factor: 1

Prep Batch: VXX19978

Prep Method: SW5030B

Prep Date/Time: 09/18/09 12:41

Initial Prep Wt./Vol.: 15 mL

Prep Extract Vol.: 15 mL

Container ID:1094996002-A

Analyst: DSH



SGS Ref.# 924568 Method Blank
Client Name SLR Alaska-Fairbanks
Project Name/# Village of Beaver 005006509008
Matrix Water (Surface, Eff., Ground)

Printed Date/Time 10/05/2009 8:37
Prep Batch XXX21646
Method SW3520C
Date 09/17/2009

QC results affect the following production samples:

1094996001

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date
<u>Polynuclear Aromatics GC/MS</u>					
Acenaphthylene	ND	0.0500	0.0150	ug/L	10/01/09
Acenaphthene	ND	0.0500	0.0150	ug/L	10/01/09
Fluorene	ND	0.0500	0.0150	ug/L	10/01/09
Phenanthrene	ND	0.0500	0.0150	ug/L	10/01/09
Anthracene	ND	0.0500	0.0150	ug/L	10/01/09
Fluoranthene	ND	0.0500	0.0150	ug/L	10/01/09
Pyrene	ND	0.0500	0.0150	ug/L	10/01/09
Benzo(a)Anthracene	ND	0.0500	0.0150	ug/L	10/01/09
Chrysene	ND	0.0500	0.0150	ug/L	10/01/09
Benzo[b]Fluoranthene	ND	0.0500	0.0150	ug/L	10/01/09
Benzo[k]fluoranthene	ND	0.0500	0.0150	ug/L	10/01/09
Benzo[a]pyrene	ND	0.0500	0.0150	ug/L	10/01/09
Indeno[1,2,3-c,d] pyrene	ND	0.0500	0.0150	ug/L	10/01/09
Dibenzo[a,h]anthracene	ND	0.0500	0.0150	ug/L	10/01/09
Benzo[g,h,i]perylene	ND	0.0500	0.0150	ug/L	10/01/09
Naphthalene	ND	0.100	0.0310	ug/L	10/01/09
1-Methylnaphthalene	ND	0.0500	0.0150	ug/L	10/01/09
2-Methylnaphthalene	ND	0.0500	0.0150	ug/L	10/01/09
Surrogates					
Terphenyl-d14 <surr>	88.7	50-135		%	10/01/09
Batch	XMS5106				
Method	8270D SIMS				
Instrument	HP 6890/5973 MS SVQA				



SGS Ref.# 924817 Method Blank
Client Name SLR Alaska-Fairbanks
Project Name/# Village of Beaver 005006509008
Matrix Water (Surface, Eff., Ground)

Printed Date/Time 10/05/2009 8:37
Prep Batch XXX21652
Method SW3520C
Date 09/18/2009

QC results affect the following production samples:

1094996001

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date
<u>Semivolatile Organic Fuels Department</u>					
Diesel Range Organics	ND	800	250	ug/L	09/26/09
Surrogates					
5a Androstane <surr>	93.4	60-120		%	09/26/09
Batch	XFC8889				
Method	AK102				
Instrument	HP 6890 Series II FID SV D R				
Residual Range Organics	158J	500	150	ug/L	09/26/09
Surrogates					
n-Triacontane-d62 <surr>	98.3	60-120		%	09/26/09
Batch	XFC8889				
Method	AK103				
Instrument	HP 6890 Series II FID SV D R				



SGS Ref.#	925499	Method Blank	Printed Date/Time	10/05/2009 8:37
Client Name	SLR Alaska-Fairbanks		Prep	Batch
Project Name/#	Village of Beaver 005006509008			Method
Matrix	Drinking Water			Date
				SW5030B
				09/18/2009

QC results affect the following production samples:
1094996001, 1094996002

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date

Volatile Gas Chromatography/Mass Spectroscopy



SGS Ref.# 925499 Method Blank
Client Name SLR Alaska-Fairbanks
Project Name/# Village of Beaver 005006509008
Matrix Drinking Water

Printed Date/Time 10/05/2009 8:37
Prep Batch VXX19978
Method SW5030B
Date 09/18/2009

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date

Volatile Gas Chromatography/Mass Spectroscopy

1,1,1,2-Tetrachloroethane	ND	0.500	0.150	ug/L	09/18/09
1,1,1-Trichloroethane	ND	0.500	0.150	ug/L	09/18/09
1,1,2,2-Tetrachloroethane	ND	0.500	0.150	ug/L	09/18/09
1,1,2-Trichloroethane	ND	0.500	0.150	ug/L	09/18/09
1,1-Dichloroethene	ND	0.500	0.150	ug/L	09/18/09
1,1-Dichloroethane	ND	0.500	0.150	ug/L	09/18/09
1,1-Dichloropropene	ND	0.500	0.150	ug/L	09/18/09
1,2,3-Trichlorobenzene	ND	0.500	0.150	ug/L	09/18/09
1,2,4-Trichlorobenzene	ND	0.500	0.150	ug/L	09/18/09
1,2,3-Trichloropropane	ND	0.500	0.180	ug/L	09/18/09
1,2,4-Trimethylbenzene	ND	0.500	0.150	ug/L	09/18/09
1,2-Dibromo-3-chloropropane	ND	2.00	0.620	ug/L	09/18/09
1,2-Dibromoethane	ND	0.500	0.150	ug/L	09/18/09
1,2-Dichlorobenzene	ND	0.500	0.150	ug/L	09/18/09
1,2-Dichloroethane	ND	0.500	0.150	ug/L	09/18/09
1,3,5-Trimethylbenzene	ND	0.500	0.150	ug/L	09/18/09
1,2-Dichloropropane	ND	0.500	0.150	ug/L	09/18/09
1,3-Dichlorobenzene	ND	0.500	0.150	ug/L	09/18/09
1,3-Dichloropropane	ND	0.500	0.150	ug/L	09/18/09
2,2-Dichloropropane	ND	0.500	0.150	ug/L	09/18/09
1,4-Dichlorobenzene	ND	0.500	0.150	ug/L	09/18/09
2-Chlorotoluene	ND	0.500	0.150	ug/L	09/18/09
4-Chlorotoluene	ND	0.500	0.150	ug/L	09/18/09
4-Isopropyltoluene	ND	0.500	0.150	ug/L	09/18/09
Benzene	ND	0.500	0.150	ug/L	09/18/09
Bromobenzene	ND	0.500	0.150	ug/L	09/18/09
Bromodichloromethane	ND	0.500	0.150	ug/L	09/18/09
Bromochloromethane	ND	0.500	0.150	ug/L	09/18/09
Bromoform	ND	0.500	0.150	ug/L	09/18/09
Bromomethane	ND	1.00	0.310	ug/L	09/18/09
Carbon tetrachloride	ND	0.500	0.150	ug/L	09/18/09
Chlorobenzene	ND	0.500	0.150	ug/L	09/18/09
Chloroethane	ND	1.00	0.310	ug/L	09/18/09
Chloroform	ND	0.500	0.150	ug/L	09/18/09
Chloromethane	ND	0.500	0.150	ug/L	09/18/09
cis-1,3-Dichloropropene	ND	0.500	0.150	ug/L	09/18/09
cis-1,2-Dichloroethene	ND	0.500	0.150	ug/L	09/18/09
Dibromochloromethane	ND	0.500	0.150	ug/L	09/18/09
Dibromomethane	ND	0.500	0.150	ug/L	09/18/09



SGS Ref.# 925499 Method Blank
Client Name SLR Alaska-Fairbanks
Project Name/# Village of Beaver 005006509008
Matrix Drinking Water

Printed Date/Time 10/05/2009 8:37
Prep Batch VXX19978
Method SW5030B
Date 09/18/2009

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date

Volatile Gas Chromatography/Mass Spectroscopy

Dichlorodifluoromethane	ND	0.500	0.150	ug/L	09/18/09
Ethylbenzene	ND	0.500	0.150	ug/L	09/18/09
Hexachlorobutadiene	ND	0.500	0.150	ug/L	09/18/09
Isopropylbenzene (Cumene)	ND	0.500	0.150	ug/L	09/18/09
Methylene chloride	ND	0.500	0.150	ug/L	09/18/09
Methyl-t-butyl ether	ND	1.00	0.500	ug/L	09/18/09
n-Butylbenzene	ND	0.500	0.150	ug/L	09/18/09
n-Propylbenzene	ND	0.500	0.150	ug/L	09/18/09
o-Xylene	ND	0.500	0.150	ug/L	09/18/09
Naphthalene	ND	0.500	0.150	ug/L	09/18/09
P & M -Xylene	ND	0.500	0.180	ug/L	09/18/09
sec-Butylbenzene	ND	0.500	0.150	ug/L	09/18/09
Styrene	ND	0.500	0.150	ug/L	09/18/09
tert-Butylbenzene	ND	0.500	0.150	ug/L	09/18/09
Tetrachloroethene	ND	0.500	0.150	ug/L	09/18/09
Toluene	ND	0.500	0.150	ug/L	09/18/09
trans-1,2-Dichloroethene	ND	0.500	0.150	ug/L	09/18/09
trans-1,3-Dichloropropene	ND	0.500	0.150	ug/L	09/18/09
Trichloroethene	ND	0.500	0.150	ug/L	09/18/09
Trichlorofluoromethane	ND	0.500	0.150	ug/L	09/18/09
Vinyl chloride	ND	0.400	0.120	ug/L	09/18/09

Surrogates

1,2-Dichloroethane-D4 <surr>	96.2	70-130	%	09/18/09
4-Bromofluorobenzene <surr>	100	70-130	%	09/18/09
Toluene-d8 <surr>	100	70-130	%	09/18/09

Batch VMS10843
Method EPA 524.2
Instrument HP 5890 Series II MS3 VNA



SGS Ref.# 925583 Method Blank
Client Name SLR Alaska-Fairbanks
Project Name/# Village of Beaver 005006509008
Matrix Water (Surface, Eff., Ground)

Printed Date/Time 10/05/2009 8:37
Prep Batch VXX19981
Method SW5030B
Date 09/20/2009

QC results affect the following production samples:
1094996002

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date

Volatile Fuels Department

Gasoline Range Organics	ND	100	31.0	ug/L	09/20/09

Surrogates

4-Bromofluorobenzene <surr>	105	50-150		%	09/20/09

Batch VFC9655
Method AK101
Instrument HP 5890 Series II PID+HECD VBA



SGS Ref.# 926103 Method Blank
Client Name SLR Alaska-Fairbanks
Project Name/# Village of Beaver 005006509008
Matrix Water (Surface, Eff., Ground)

Printed Date/Time 10/05/2009 8:37
Prep Batch VXX19992
Method SW5030B
Date 09/22/2009

QC results affect the following production samples:

1094996001

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date

Volatile Fuels Department

Gasoline Range Organics	ND	100	31.0	ug/L	09/22/09

Surrogates

4-Bromofluorobenzene <surr>	103	50-150		%	09/22/09

Batch VFC9658

Method AK101

Instrument HP 5890 Series II PID+FID VCA

SGS Ref.# 924569 Lab Control Sample
 924570 Lab Control Sample Duplicate
Client Name SLR Alaska-Fairbanks
Project Name/# Village of Beaver 005006509008
Matrix Water (Surface, Eff., Ground)

Printed Date/Time 10/05/2009 8:37
Prep Batch XXX21646
Method SW3520C
Date 09/17/2009

QC results affect the following production samples:

1094996001

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
<u>Polynuclear Aromatics GC/MS</u>							
Acenaphthylene	LCS 0.366	73	(50-105)			0.5 ug/L	10/01/2009
	LCSD 0.365	73		0	(< 30)	0.5 ug/L	10/01/2009
Acenaphthene	LCS 0.370	74	(45-110)			0.5 ug/L	10/01/2009
	LCSD 0.363	73		2	(< 30)	0.5 ug/L	10/01/2009
Fluorene	LCS 0.388	78	(50-110)			0.5 ug/L	10/01/2009
	LCSD 0.381	76		2	(< 30)	0.5 ug/L	10/01/2009
Phenanthrene	LCS 0.397	80	(50-115)			0.5 ug/L	10/01/2009
	LCSD 0.388	78		2	(< 30)	0.5 ug/L	10/01/2009
Anthracene	LCS 0.398	80	(55-110)			0.5 ug/L	10/01/2009
	LCSD 0.396	79		1	(< 30)	0.5 ug/L	10/01/2009
Fluoranthene	LCS 0.462	92	(55-125)			0.5 ug/L	10/01/2009
	LCSD 0.469	94		2	(< 30)	0.5 ug/L	10/01/2009
Pyrene	LCS 0.434	87	(50-130)			0.5 ug/L	10/01/2009
	LCSD 0.443	89		2	(< 30)	0.5 ug/L	10/01/2009
Benzo(a)Anthracene	LCS 0.453	91	(55-120)			0.5 ug/L	10/01/2009
	LCSD 0.460	92		1	(< 30)	0.5 ug/L	10/01/2009
Chrysene	LCS 0.438	88	(55-120)			0.5 ug/L	10/01/2009
	LCSD 0.440	88		0	(< 30)	0.5 ug/L	10/01/2009
Benzo[b]Fluoranthene	LCS 0.476	95	(46-130)			0.5 ug/L	10/01/2009
	LCSD 0.469	94		1	(< 30)	0.5 ug/L	10/01/2009
Benzo[k]fluoranthene	LCS 0.447	89	(60-125)			0.5 ug/L	10/01/2009
	LCSD 0.459	92		3	(< 30)	0.5 ug/L	10/01/2009
Benzo[a]pyrene	LCS 0.467	93	(55-120)			0.5 ug/L	10/01/2009
	LCSD 0.467	93		0	(< 30)	0.5 ug/L	10/01/2009
Indeno[1,2,3-c,d] pyrene	LCS 0.413	83	(45-125)			0.5 ug/L	10/01/2009
	LCSD 0.416	83		1	(< 30)	0.5 ug/L	10/01/2009

SGS Ref.#	924569	Lab Control Sample	Printed Date/Time	10/05/2009	8:37
	924570	Lab Control Sample Duplicate	Prep	XXX21646	
Client Name	SLR Alaska-Fairbanks		Batch	SW3520C	
Project Name/#	Village of Beaver 005006509008		Method		
Matrix	Water (Surface, Eff., Ground)		Date	09/17/2009	

Parameter		QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
<u>Polynuclear Aromatics GC/MS</u>								
Dibenzo[a,h]anthracene	LCS	0.401	80	(41-140)			0.5 ug/L	10/01/2009
	LCSD	0.397	80		1	(< 30)	0.5 ug/L	10/01/2009
Benzo[g,h,i]perylene	LCS	0.427	86	(46-125)			0.5 ug/L	10/01/2009
	LCSD	0.427	85		0	(< 30)	0.5 ug/L	10/01/2009
Naphthalene	LCS	0.356	71	(42-100)			0.5 ug/L	10/01/2009
	LCSD	0.352	70		1	(< 30)	0.5 ug/L	10/01/2009
1-Methylnaphthalene	LCS	0.366	73	(46-115)			0.5 ug/L	10/01/2009
	LCSD	0.354	71		3	(< 30)	0.5 ug/L	10/01/2009
2-Methylnaphthalene	LCS	0.344	69	(45-105)			0.5 ug/L	10/01/2009
	LCSD	0.334	67		3	(< 30)	0.5 ug/L	10/01/2009
<u>Surrogates</u>								
Terphenyl-d14 <surr>	LCS		87	(50-135)				10/01/2009
	LCSD		88		0			10/01/2009

Batch XMS5106
Method 8270D SIMS
Instrument HP 6890/5973 MS SVQA



SGS Ref.# 924818 Lab Control Sample
924819 Lab Control Sample Duplicate
Client Name SLR Alaska-Fairbanks
Project Name/# Village of Beaver 005006509008
Matrix Water (Surface, Eff., Ground)

Printed Date/Time 10/05/2009 8:37
Prep Batch XXX21652
Method SW3520C
Date 09/18/2009

QC results affect the following production samples:

1094996001

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

Semivolatile Organic Fuels Department

Diesel Range Organics	LCS	19200	96	(75-125)		20000 ug/L	09/26/2009
	LCSD	19200	96		0	(< 20)	20000 ug/L 09/26/2009

Surrogates

5a Androstane <surr>	LCS		97	(60-120)			09/26/2009
	LCSD		97		0		09/26/2009

Batch XFC8889
Method AK102
Instrument HP 6890 Series II FID SV D R

Residual Range Organics	LCS	21100	105	(60-120)		20000 ug/L	09/26/2009
	LCSD	21600	108		3	(< 20)	20000 ug/L 09/26/2009

Surrogates

n-Triacontane-d62 <surr>	LCS		91	(60-120)			09/26/2009
	LCSD		92		1		09/26/2009

Batch XFC8889
Method AK103
Instrument HP 6890 Series II FID SV D R



SGS Ref.#	925500	Lab Control Sample	Printed Date/Time	10/05/2009	8:37
	925501	Lab Control Sample Duplicate	Prep	Batch	VXX19978
Client Name		SLR Alaska-Fairbanks		Method	SW5030B
Project Name/#		Village of Beaver 005006509008		Date	09/18/2009
Matrix		Drinking Water			

QC results affect the following production samples:

1094996001, 1094996002

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

Volatile Gas Chromatography/Mass Spectroscopy



SGS Ref.# 925500 Lab Control Sample
925501 Lab Control Sample Duplicate
Client Name SLR Alaska-Fairbanks
Project Name/# Village of Beaver 005006509008
Matrix Drinking Water

Printed Date/Time 10/05/2009 8:37
Prep Batch VXX19978
Method SW5030B
Date 09/18/2009

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
<u>Volatile Gas Chromatography/Mass Spectroscopy</u>							
1,1,1,2-Tetrachloroethane	LCS 33.2	111	(70-130)			30 ug/L	09/18/2009
	LCSD 35.3	118		6	(< 30)	30 ug/L	09/18/2009
1,1,1-Trichloroethane	LCS 31.6	105	(70-130)			30 ug/L	09/18/2009
	LCSD 32.6	109		3	(< 30)	30 ug/L	09/18/2009
1,1,2,2-Tetrachloroethane	LCS 32.4	108	(70-130)			30 ug/L	09/18/2009
	LCSD 35.1	117		8	(< 30)	30 ug/L	09/18/2009
1,1,2-Trichloroethane	LCS 32.0	107	(70-130)			30 ug/L	09/18/2009
	LCSD 34.2	114		7	(< 30)	30 ug/L	09/18/2009
1,1-Dichloroethene	LCS 29.2	97	(70-130)			30 ug/L	09/18/2009
	LCSD 30.2	101		3	(< 30)	30 ug/L	09/18/2009
1,1-Dichloroethane	LCS 31.0	103	(70-130)			30 ug/L	09/18/2009
	LCSD 32.5	108		5	(< 30)	30 ug/L	09/18/2009
1,1-Dichloropropene	LCS 32.4	108	(70-130)			30 ug/L	09/18/2009
	LCSD 33.7	112		4	(< 30)	30 ug/L	09/18/2009
1,2,3-Trichlorobenzene	LCS 29.6	99	(70-130)			30 ug/L	09/18/2009
	LCSD 31.8	106		7	(< 30)	30 ug/L	09/18/2009
1,2,4-Trichlorobenzene	LCS 29.5	98	(70-130)			30 ug/L	09/18/2009
	LCSD 31.1	104		5	(< 30)	30 ug/L	09/18/2009
1,2,3-Trichloropropane	LCS 31.8	106	(70-130)			30 ug/L	09/18/2009
	LCSD 33.5	112		5	(< 30)	30 ug/L	09/18/2009
1,2,4-Trimethylbenzene	LCS 33.4	111	(70-130)			30 ug/L	09/18/2009
	LCSD 34.2	114		2	(< 30)	30 ug/L	09/18/2009
1,2-Dibromo-3-chloropropane	LCS 29.5	98	(70-130)			30 ug/L	09/18/2009
	LCSD 33.2	111		12	(< 30)	30 ug/L	09/18/2009
1,2-Dibromoethane	LCS 33.3	111	(70-130)			30 ug/L	09/18/2009
	LCSD 35.7	119		7	(< 30)	30 ug/L	09/18/2009
1,2-Dichlorobenzene	LCS 30.6	102	(70-130)			30 ug/L	09/18/2009
	LCSD 32.1	107		5	(< 30)	30 ug/L	09/18/2009



SGS Ref.#	925500	Lab Control Sample	Printed Date/Time	10/05/2009	8:37
	925501	Lab Control Sample Duplicate	Prep	Batch	VXX19978
Client Name	SLR Alaska-Fairbanks		Method	SW5030B	
Project Name/#	Village of Beaver 005006509008		Date	09/18/2009	
Matrix	Drinking Water				

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

Volatile Gas Chromatography/Mass Spectroscopy

1,2-Dichloroethane	LCS	29.9	100	(70-130)			30 ug/L	09/18/2009
	LCSD	31.1	104		4	(< 30)	30 ug/L	09/18/2009
1,3,5-Trimethylbenzene	LCS	33.5	112	(70-130)			30 ug/L	09/18/2009
	LCSD	34.3	114		2	(< 30)	30 ug/L	09/18/2009
1,2-Dichloropropane	LCS	32.9	110	(70-130)			30 ug/L	09/18/2009
	LCSD	34.4	115		4	(< 30)	30 ug/L	09/18/2009
1,3-Dichlorobenzene	LCS	31.5	105	(70-130)			30 ug/L	09/18/2009
	LCSD	32.4	108		3	(< 30)	30 ug/L	09/18/2009
1,3-Dichloropropane	LCS	31.6	105	(70-130)			30 ug/L	09/18/2009
	LCSD	33.8	113		7	(< 30)	30 ug/L	09/18/2009
2,2-Dichloropropane	LCS	33.1	110	(70-130)			30 ug/L	09/18/2009
	LCSD	35.0	117		6	(< 30)	30 ug/L	09/18/2009
1,4-Dichlorobenzene	LCS	32.3	108	(70-130)			30 ug/L	09/18/2009
	LCSD	33.5	112		4	(< 30)	30 ug/L	09/18/2009
2-Chlorotoluene	LCS	32.1	107	(70-130)			30 ug/L	09/18/2009
	LCSD	33.0	110		3	(< 30)	30 ug/L	09/18/2009
4-Chlorotoluene	LCS	32.6	109	(70-130)			30 ug/L	09/18/2009
	LCSD	33.3	111		2	(< 30)	30 ug/L	09/18/2009
4-Isopropyltoluene	LCS	34.5	115	(70-130)			30 ug/L	09/18/2009
	LCSD	35.2	117		2	(< 30)	30 ug/L	09/18/2009
Benzene	LCS	30.7	102	(70-130)			30 ug/L	09/18/2009
	LCSD	31.8	106		3	(< 30)	30 ug/L	09/18/2009
Bromobenzene	LCS	31.8	106	(70-130)			30 ug/L	09/18/2009
	LCSD	32.8	109		3	(< 30)	30 ug/L	09/18/2009
Bromodichloromethane	LCS	34.0	113	(70-130)			30 ug/L	09/18/2009
	LCSD	35.8	119		5	(< 30)	30 ug/L	09/18/2009
Bromochloromethane	LCS	32.2	107	(70-130)			30 ug/L	09/18/2009



SGS Ref.# 925500 Lab Control Sample
925501 Lab Control Sample Duplicate
Client Name SLR Alaska-Fairbanks
Project Name/# Village of Beaver 005006509008
Matrix Drinking Water

Printed Date/Time 10/05/2009 8:37
Prep Batch VXX19978
Method SW5030B
Date 09/18/2009

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
<u>Volatile Gas Chromatography/Mass Spectroscopy</u>							
	LCSD 34.1	114		6	(< 30)	30 ug/L	09/18/2009
Bromoform	LCS 29.7	99	(70-130)			30 ug/L	09/18/2009
	LCSD 32.0	107		8	(< 30)	30 ug/L	09/18/2009
Bromomethane	LCS 28.6	96	(70-130)			30 ug/L	09/18/2009
	LCSD 34.4	115		18	(< 30)	30 ug/L	09/18/2009
Carbon tetrachloride	LCS 27.2	91	(70-130)			30 ug/L	09/18/2009
	LCSD 28.6	95		5	(< 30)	30 ug/L	09/18/2009
Chlorobenzene	LCS 32.1	107	(70-130)			30 ug/L	09/18/2009
	LCSD 33.3	111		4	(< 30)	30 ug/L	09/18/2009
Chloroethane	LCS 38.9	130	(70-130)			30 ug/L	09/18/2009
	LCSD 37.3	124		4	(< 30)	30 ug/L	09/18/2009
Chloroform	LCS 29.6	99	(70-130)			30 ug/L	09/18/2009
	LCSD 30.9	103		4	(< 30)	30 ug/L	09/18/2009
Chloromethane	LCS 32.7	109	(70-130)			30 ug/L	09/18/2009
	LCSD 33.4	111		2	(< 30)	30 ug/L	09/18/2009
cis-1,3-Dichloropropene	LCS 29.2	97	(70-130)			30 ug/L	09/18/2009
	LCSD 32.1	107		9	(< 30)	30 ug/L	09/18/2009
cis-1,2-Dichloroethene	LCS 32.5	108	(70-130)			30 ug/L	09/18/2009
	LCSD 34.2	114		5	(< 30)	30 ug/L	09/18/2009
Dibromochloromethane	LCS 29.8	99	(70-130)			30 ug/L	09/18/2009
	LCSD 31.7	106		6	(< 30)	30 ug/L	09/18/2009
Dibromomethane	LCS 32.8	109	(70-130)			30 ug/L	09/18/2009
	LCSD 34.5	115		5	(< 30)	30 ug/L	09/18/2009
Dichlorodifluoromethane	LCS 35.0	117	(70-130)			30 ug/L	09/18/2009
	LCSD 35.1	117		0	(< 30)	30 ug/L	09/18/2009
Ethylbenzene	LCS 32.2	107	(70-130)			30 ug/L	09/18/2009
	LCSD 33.6	112		4	(< 30)	30 ug/L	09/18/2009



SGS Ref.# 925500 Lab Control Sample
 925501 Lab Control Sample Duplicate
Client Name SLR Alaska-Fairbanks
Project Name/# Village of Beaver 005006509008
Matrix Drinking Water

Printed Date/Time 10/05/2009 8:37
Prep Batch VXX19978
Method SW5030B
Date 09/18/2009

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
<u>Volatile Gas Chromatography/Mass Spectroscopy</u>							
Hexachlorobutadiene	LCS 28.8	96	(70-130)			30 ug/L	09/18/2009
	LCSD 30.1	100		4	(< 30)	30 ug/L	09/18/2009
Isopropylbenzene (Cumene)	LCS 33.7	112	(70-130)			30 ug/L	09/18/2009
	LCSD 34.6	115		3	(< 30)	30 ug/L	09/18/2009
Methylene chloride	LCS 29.2	97	(70-130)			30 ug/L	09/18/2009
	LCSD 30.8	103		5	(< 30)	30 ug/L	09/18/2009
Methyl-t-butyl ether	LCS 44.4	99	(70-130)			45 ug/L	09/18/2009
	LCSD 47.4	105		7	(< 30)	45 ug/L	09/18/2009
n-Butylbenzene	LCS 35.4	118	(70-130)			30 ug/L	09/18/2009
	LCSD 36.5	122		3	(< 30)	30 ug/L	09/18/2009
n-Propylbenzene	LCS 33.0	110	(70-130)			30 ug/L	09/18/2009
	LCSD 33.7	112		2	(< 30)	30 ug/L	09/18/2009
o-Xylene	LCS 33.9	113	(70-130)			30 ug/L	09/18/2009
	LCSD 35.4	118		4	(< 30)	30 ug/L	09/18/2009
Naphthalene	LCS 31.8	106	(70-130)			30 ug/L	09/18/2009
	LCSD 34.2	114		7	(< 30)	30 ug/L	09/18/2009
P & M -Xylene	LCS 66.6	111	(70-130)			60 ug/L	09/18/2009
	LCSD 68.8	115		3	(< 30)	60 ug/L	09/18/2009
sec-Butylbenzene	LCS 33.4	111	(70-130)			30 ug/L	09/18/2009
	LCSD 34.4	115		3	(< 30)	30 ug/L	09/18/2009
Styrene	LCS 35.0	117	(70-130)			30 ug/L	09/18/2009
	LCSD 36.1	120		3	(< 30)	30 ug/L	09/18/2009
tert-Butylbenzene	LCS 33.5	112	(70-130)			30 ug/L	09/18/2009
	LCSD 34.3	114		2	(< 30)	30 ug/L	09/18/2009
Tetrachloroethene	LCS 32.8	109	(70-130)			30 ug/L	09/18/2009
	LCSD 33.8	113		3	(< 30)	30 ug/L	09/18/2009
Toluene	LCS 30.6	102	(70-130)			30 ug/L	09/18/2009
	LCSD 31.3	104		2	(< 30)	30 ug/L	09/18/2009



SGS Ref.#	925500	Lab Control Sample	Printed Date/Time	10/05/2009	8:37
	925501	Lab Control Sample Duplicate	Prep	Batch	VXX19978
Client Name	SLR Alaska-Fairbanks		Method	SW5030B	
Project Name/#	Village of Beaver 005006509008		Date	09/18/2009	
Matrix	Drinking Water				

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

Volatile Gas Chromatography/Mass Spectroscopy

trans-1,2-Dichloroethene	LCS	30.8	103	(70-130)			30 ug/L	09/18/2009
	LCSD	32.1	107		4	(< 30)	30 ug/L	09/18/2009
trans-1,3-Dichloropropene	LCS	27.9	93	(70-130)			30 ug/L	09/18/2009
	LCSD	31.2	104		11	(< 30)	30 ug/L	09/18/2009
Trichloroethene	LCS	31.8	106	(70-130)			30 ug/L	09/18/2009
	LCSD	32.9	110		3	(< 30)	30 ug/L	09/18/2009
Trichlorofluoromethane	LCS	34.5	115	(70-130)			30 ug/L	09/18/2009
	LCSD	35.8	119		4	(< 30)	30 ug/L	09/18/2009
Vinyl chloride	LCS	35.5	118	(70-130)			30 ug/L	09/18/2009
	LCSD	36.5	122		3	(< 30)	30 ug/L	09/18/2009

Surrogates

1,2-Dichloroethane-D4 <surr>	LCS		93	(70-130)				09/18/2009
	LCSD		95		2			09/18/2009
4-Bromofluorobenzene <surr>	LCS		101	(70-130)				09/18/2009
	LCSD		98		3			09/18/2009
Toluene-d8 <surr>	LCS		101	(70-130)				09/18/2009
	LCSD		101		0			09/18/2009

Batch	VMS10843
Method	EPA 524.2
Instrument	HP 5890 Series II MS3 VNA



SGS Ref.# 925586 Lab Control Sample
925587 Lab Control Sample Duplicate
Client Name SLR Alaska-Fairbanks
Project Name/# Village of Beaver 005006509008
Matrix Water (Surface, Eff., Ground)

Printed Date/Time 10/05/2009 8:37
Prep Batch VXX19981
Method SW5030B
Date 09/20/2009

QC results affect the following production samples:
1094996002

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

Volatile Fuels Department

Gasoline Range Organics	LCS 201	100	(60-120)			200 ug/L	09/20/2009
	LCSD 202	101		1	(< 20)	200 ug/L	09/20/2009

Surrogates

4-Bromofluorobenzene <surr>	LCS	103	(50-150)				09/20/2009
	LCSD	104		1			09/20/2009

Batch VFC9655
Method AK101
Instrument HP 5890 Series II PID+HECD VBA



SGS Ref.# 926106 Lab Control Sample
926107 Lab Control Sample Duplicate
Client Name SLR Alaska-Fairbanks
Project Name/# Village of Beaver 005006509008
Matrix Water (Surface, Eff., Ground)

Printed Date/Time 10/05/2009 8:37
Prep Batch VXX19992
Method SW5030B
Date 09/22/2009

QC results affect the following production samples:

1094996001

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

Volatile Fuels Department

Gasoline Range Organics	LCS	220	110	(60-120)		200 ug/L	09/22/2009
	LCSD	217	108		2	(< 20)	200 ug/L 09/22/2009

Surrogates

4-Bromofluorobenzene <surr>	LCS		108	(50-150)			09/22/2009
	LCSD		113		4		09/22/2009

Batch VFC9658
Method AK101
Instrument HP 5890 Series II PID+FID VCA

Hall, Heather (Anchorage)

1094996 Change Order

From: Hall, Heather (Anchorage)
Sent: Wednesday, September 16, 2009 11:52 AM
To: 'Carl Benson'
Subject: RE: 1094996

Will do. ☺ Thank you.

From: Carl Benson [mailto:Cbenson@slrcorp.com]
Sent: Wednesday, September 16, 2009 11:17 AM
To: Hall, Heather (Anchorage)
Subject: Phone message

Heather,

I was on the phone with the ADEC PM when you called. My feeling is we should go with 8270SIM for the lowest reporting limits possible for COPCs associated with a diesel release. If this is the case, please run using 8270SIM in Anchorage.

Carl Benson

SLR International Corp
3455 Rewak Drive, Suite 103
Fairbanks, Alaska 99709
(907) 455-9005 (office)
(907) 455-9015 (fax)
(907) 460-2342 (cell)
cbenson@slrcorp.com

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SAMPLE RECEIPT FORM

SGS WO#:

1094996



Yes No NA

☐ ☒ ☐ Are samples **RUSH**, priority or w/in 72 hrs of hold time?
☐ ☐ ☒ If yes, have you done e-mail ALERT notification?
☐ ☒ ☐ Are samples *within 24 hrs.* of hold time or due date?
☐ ☒ ☐ If yes, have you also *spoken with supervisor*?
☒ ☐ ☐ Archiving bottles: Are lids marked w/ red "X"?
☐ ☐ ☒ Were samples collected with proper preservative?
☐ ☐ ☒ **Any problems (ID, cond'n, HT, etc)? Explain:**
not checked in fairbanks office

☐ ☒ ☐ If this is for PWS, provide PWSID: _____
☐ ☐ ☒ Payment received: \$ _____ by Check or Credit Card
☐ ☒ ☐ Will courier charges apply?
☒ ☐ ☐ Data package required? (Level: 1 / 2 / 3 / 4)
Notes: _____
☐ ☒ ☐ Is this a DoD project? (USACE, Navy, AFCEE)

This section must be filled out for DoD projects (USACE, Navy, AFCEE):

Yes No
☐ ☐ Is received temperature $\leq 6^{\circ}\text{C}$?
☐ ☐ Were containers ice-free? *Notify PM immediately of any ice in samples.*
 If some cooler temperatures are non-compliant, see
 form FS-0029 (attached) for samples/analyses affected.
☐ ☐ Was there an airbill? (If "yes," see attached.)
☐ ☐ Was cooler sealed with custody seals & were they intact?
 # / where: _____
☐ ☐ Was there a COC with cooler?
☐ ☐ Was COC sealed in plastic bag & taped inside lid of cooler?
☐ ☐ Was the COC filled out properly? Did labels correspond?
☐ ☐ Did the COC indicate USACE / Navy / AFCEE project?
☐ ☐ Samples were packed to prevent breakage with (circle one):
 Bubble Wrap Vermiculite Other (specify): _____
☐ ☐ Were all samples sealed in separate plastic bags?
☐ ☐ Were all VOCs free of headspace and/or MeOH preserved?
☐ ☐ Were correct container / sample sizes submitted?
☐ ☐ Was the PM notified of arrival so they can send
 Sample Receipt Acknowledgement to client?

TAT (circle one): Standard -or- RushReceived Date: 9/14/09Received Time: 1355

Cooler ID	Temperature	Measured w/ (Therm/IR ID#)
<u>1</u>	<u>2.4</u> °C	<u>FOX71D</u>
	°C	
	°C	
	°C	

Note: Temperature readings include thermometer correction factors

Delivery method (circle all that apply):

☒ Client / ☐ Alert Courier / Lynden / SGS
☐ UPS / ☐ FedEx / USPS / DHL / Carlie
☐ AkAir Goldstreak / NAC / ERA / PenAir
 Other: _____

Additional Sample Remarks: (✓ if applicable)

☐ Extra Sample Volume?
☐ Limited Sample Volume?
☐ Multi-Incremental Samples?
☐ Lab-filtered for dissolved
☐ Ref Lab required for
☐ Foreign Soil?

This section must be completed if problems are noted.Was client notified of problems? ☒ Yes / NoBy (SGS PM): ASHIndividual contacted: M. RiesenVia: ☒ Phone / ☐ Fax / ☐ E-mail (circle one)Date/Time: 9-15 @ 1500

Reason for contact:

Inappropriate
containers for SIM.

Change Order Required? Yes / No

Notes:

~~Hold all tests pending client response. ASH~~
 See attached change order. ASH 9/16/9 9.15.
 NOTE: SIM + DRO LIMITED volume
and SIM is HCL-preserved.

Completed by (sign): Carmon Beene (print): CARMON BEENELogin proof: Self-check completed ASH Peer-reviewer's Initials ASH



SGS WO#:-

SAMPLE RECEIPT FORM (page 2)

[illegible]

Completed by:

Date:

4

* Note: Containers which require (additional) chemical preservation upon receipt must be documented per SOP#106.



SGS WC

1094996



SAMPLE RECEIPT FORM FOR TRANSFERS

From
FAIRBANKS, ALASKA
To
ANCHORAGE, AK

TO BE COMPLETED IN ANCHORAGE UPON ARRIVAL FROM FAIRBANKS.

NOTES RECORDED BELOW ARE ACTIONS NEEDED UPON ARRIVAL IN ANCHORAGE.

Notes:

Receipt Date / Time: 9-15-09 0900

Delivery method to Anchorage (circle all that apply):

Alert Courier / UPS / FedEx / USPS / AA Goldstreak / NAC / ERA / PenAir / Carlisle / Lynden / SGS

Other:

Airbill #

COOLER AND TEMP BLANK READINGS*

#6

Cooler ID	Temp Blank (°C)	Cooler (°C)	Cooler ID	Temp Blank (°C)	Cooler (°C)
<u>1</u>	<u>0.7</u>				

CUSTODY SEALS INTACT: YES / NO# / WHERE: 2 FRONT & BACK TOP LIN

COMPLETED BY:

*Temperature readings include thermometer correction factors.

SGS

Environmental

CUSTODY SEAL

Signature: _____

[Handwritten Signature]

Date/Time: _____

1345 9/14/09

1094996

Laboratory Data Review Checklist

Completed by:	Kirsten Hoppe
Title:	Geologist
Date:	October 5, 2009
CS Report Name:	Beaver Generator Building Fire
Report Date:	October 5, 2009
Consultant Firm:	SLR International Corp.
Laboratory Name:	SGS North America Inc.
Laboratory Report Number:	1094996
ADEC File Number:	790.57.001
ADEC RecKey Number:	NA

1. Laboratory

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

☒ Yes

☐ No

Comments:

SGS North America Inc.

- 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:

NA

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:

Change Order submitted: Semi Volatile Organic Compounds (SVOCs) is requested on the COC, however, it was later determined and documented as a change order to analyze for EPA Method 8270D instead. The sample was analyzed for EPA Method 8270D, the correct analysis.

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:

Limited volume for EPA Method 8270D and AK Method 102 was noted on the COC. The reason for limited volume was due to sample containers originally submitted for SVOCs. After the samples were submitted to the laboratory, a change order was written to replace the SVOC analysis with the EPA Method 8270D analysis. Enough sample volume was submitted from other appropriately preserved containers to analyze the samples for the EPA Method 8270D analysis.

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:

Limited volume for EPA Method 8270D and AK Method 102 was noted on the COC. The reason for limited volume was due to sample containers originally submitted for SVOCs. After the samples were submitted to the laboratory, a change order was written to replace the SVOC analysis with the EPA Method 8270D analysis. Enough sample volume was submitted from other appropriately preserved containers to analyze the samples for the EPA Method 8270D analysis.

e. Data quality or usability affected? Explain.

Comments:

No. All analyses were analyzed as requested.

4. Case Narrative

a. Present and understandable?

☒ Yes ☐ No

Comments:

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

☒ Yes

☐ No

Comments:

One CCV issue was noted.

c. Were all corrective actions documented?

☒ Yes

☐ No

Comments:

No corrective actions needed to be noted.

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

Comments:

According to the Case Narrative, ICV recovery for dichlorodifluoromethane, chloromethane and vinyl chloride did not meet QC criteria (biased high). These analytes were not detected above the PQL in associated samples, and therefore should not be affected by this QC failure.

5. Samples Results

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

☒ Yes

☐ No

Comments:

After the samples were submitted to the laboratory, a change order was written to replace the SVOC analysis with the EPA Method 8270D analysis. Enough sample volume was submitted from other appropriately preserved containers to analyze the samples for the EPA Method 8270D analysis.

b. All applicable holding times met?

☒ Yes

☐ No

Comments:

c. All soils reported on a dry weight basis?

☒ Yes

☐ No

Comments:

NA-Water only for this work order.

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?

Comments:

No. All samples were analyzed as requested.

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:

NA

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

☒ Yes

☐ No

Comments:

NA-no affected samples.

v. Data quality or usability affected? Explain.

Comments:

No. All method blank results were less than the PQL.

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

Comments:

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

☒ Yes

☐ No

Comments:

NA-organics only

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. RPD reported from

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

☒ Yes ☐ No Comments:

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

Comments:

No samples were affected. All QC samples were within acceptable QC criteria.

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

☒ Yes ☐ No Comments:

No samples were affected.

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

Comments:

No. All QC samples were within acceptable QC criteria.

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:

No samples had failed surrogate recoveries.

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

Comments:

No. All surrogate recoveries were within acceptable QC criteria.

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 Comments:

One cooler was used for the water sample, and the trip blank was contained in the cooler during transport.

- 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 Comments:

One cooler was used to transport all sample containers for the water sample. It is assumed the trip blank traveled in the solitary cooler used for this work order.

- iii. All results less than PQL?

☒ Yes ☐ No Comments:

- iv. If above PQL, what samples are affected?

Comments:

NA

- v. Data quality or usability affected? Explain.

Comments:

No. All trip blank results were less than the PQL.

e. Field Duplicate

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

☒ Yes ☐ No Comments:

Yes: A total of seven primary field samples were submitted between work orders 1094998, and 1094996 (both work orders are part of the same project). One duplicate soil sample was collected and submitted to the laboratory blind. The soil duplicate samples are in compliance with regulatory requirements because a minimum of one per every ten field samples, for each matrix, for each target analyte was achieved.

No: Since one water sample was collected, there were no duplicates collected for water.

ii. Submitted blind to lab?

☒ Yes ☐ No

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

Comments:

Work order 1094998 (soil samples that are part of the project): Toluene, Naphthalene, 1-Methylnaphthalene and 2-Methylnaphthalene did not meet the required 50% RPD for parent soil samples and their duplicates. These four analytes are out of compliance. The remainder of the analytes were below the 50% RPD for soil. .

Work order 1094996 (the water sample that is also part of the project with the soil samples from work order 1094998) did not have a duplicate sample. There was only one water sample collected.

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

Comments:

Project water sample: Field precision can not be measured for work order 1094996.

Project soil samples: Toluene, Naphthalene, 1-Methylnaphthalene and 2-Methylnaphthalene did not meet the required 50% RPD for parent soil samples and their duplicates. These four analytes are out of compliance.

f. Decontamination or Equipment Blank (If not applicable, a comment stating why must be entered below.)

☒ Yes ☐ No ☒ Not Applicable

i. All results less than PQL?

☒ Yes ☐ No

Comments:

Disposable sampling equipment was used.

ii. If above PQL, what samples are affected?

Comments:

NA

iii. Data quality or usability affected? Explain.

Comments:

NA

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

a. Defined and appropriate?

☒ Yes ☐ No

Comments:

Public Water System Summary For

BEAVER WATER SYSTEM

AK2360230

Public Water System Information

Local Name	City Served	County Served	Active	Primary Source	Facility Count	PWS Type	Service Connections
	BEAVER	YUKON-KOYUKUK	A	GW	5	C	4
Sanitary Survey Date:	06/19/2006	Surveyor:	WRIGHT, KYLE			Last CCR:	2008
Comments							

Estimated Use by Population Type for

AK2360230 BEAVER WATER SYSTEM

Average Daily Count	Population Type	Annual Operating Period Starts	Annual Operating Period Ends	Effective Begin Date	Effective End Date
99	R	1 / 1	12 / 31	01/01/1997	

Public Water System Facilities for

AK2360230 BEAVER WATER SYSTEM

Facility Name	Facility Code	Active	Water Type	Available
DS BEAVER WATER SYSTEM	DS001	A	GW	P
ST BEAVER WATER SYSTEM	SF001	A	GW	P
SS BEAVER WATER SYSTEM	SS001	A	GW	P
TP FOR BEAVER WATER SYSTEM	TP001	A	GW	P
WL BEAVER WATER SYSTEM	WL001	A	GW	P

Facility Treatment Information for

AK2360230 BEAVER WATER SYSTEM

PWS Facility: TP001

Objective: DISINFECTION

Treatment Process

HYPOCHLORINATION, PRE

Objective: IRON REMOVAL

Treatment Process

FILTRATION, GREENSAND

PERMANGANATE

Administrative / Owner Information for

AK2360230 BEAVER WATER SYSTEM

Owner Type	Owner Name	Address	Phone Number	Fax Number
OP	WINER, ALVIN	P.O. BOX 24029	BEAVER AK 99724	907-628-6126 907-628-6815
AC	PETRUSKA, SELINA	P.O. BOX 24029	BEAVER AK 99724-0029	907-628-6126 907-628-6815

Last Sample Date by Analyte Group For Compliance for

AK2360230 BEAVER WATER SYSTEM

Coliform	Old Inorganics	New Inorganics	Nitrates	Nitrites	Arsenic	VOC	Gross Alpha
03/01/2010	01/25/1994	11/24/2004	02/24/2009	05/17/2004	06/23/2009	03/24/2009	12/19/2008
Lead / Copper	Asbestos	SOC	TTHM	HAA5	TOC	DPRE	
09/09/2009	**NSF	**NSF	03/24/2009	03/24/2009	**NSF	**NSF	

Sample Schedule for

AK2360230 BEAVER WATER SYSTEM							
Facility Number	Analyte Group	Analyte Code	Begin Date	End Date	Sample Type	Sample Frequency	Sample Count
AK2360230	COLIFORM (TCR)	3100	07/01/2004		RT	MN	1
DS001	ASBESTOS - SINGLE	ASBS	01/01/2011	12/31/2011	RT	3Y	1
DS001	LEAD & COPPER	PBCU	01/01/2007		RT	3Y	5
DS001	TTHM & HAA5 GROUP	DBP1	01/01/2009		RT	YR	1
TP001	ARSENIC - SINGLE	ARSN	01/01/2002		RT	3Y	1
TP001	INORGANIC PHASE 2	INP2	01/01/2002		RT	9Y	1
TP001	INORGANIC PHASE 5	INP5	01/01/2002		RT	9Y	1
TP001	NITRATE - SINGLE	NIT3	01/01/2002		RT	YR	1
TP001	PESTICIDES PHASE 2&5	SO25	01/01/2010	12/31/2010	RT	QT	1
TP001	RAD 226/228 COMBINED	RADC	01/01/2008		RT	9Y	1
TP001	RAD-TOTAL GROSS ALPH	RAD3	01/01/2008		RT	9Y	1
TP001	VOC P2/P5 W/ VCL	VC25	01/01/2004		RT	YR	1

Facility Analyte Levels (FANLs) for

AK2360230 BEAVER WATER SYSTEM							
PWS Facility: DS001							
Analyte Name	Summary Type Code	Control Level Type	UOM	Days to Monitor Per Month	Samples Required per Day	Effective Begin Date	
TTHM		MAX	0.080 MG/L	0	0	01/01/2004	
TOTAL HALOACETIC ACIDS (HAA5)		MAX	0.060 MG/L	0	0	01/01/2004	
CHLORINE	MRDL	MAX	4.0 MG/L	0	0	01/01/2004	
PWS Facility: TP001							
Analyte Name	Summary Type Code	Control Level Type	UOM	Days to Monitor Per Month	Samples Required per Day	Effective Begin Date	
CHLORINE	SERD	MIN	0.2 MG/L	0	0	01/01/2003	

Compliance Schedules for

AK2360230 BEAVER WATER SYSTEM			
Schedule Type	Effective Date	Closed Date	Status
SRVY	7/1/94		
Activities			
Name		Due Date	Achieved Date
SANITARY SURVEY		12/31/2011	
Schedule Type	Effective Date	Closed Date	Status
NOV	3/16/07	1/23/09	S
Activities			
Name		Due Date	Achieved Date
NOTICE OF VIOLATION		01/28/2008	
Schedule Type	Effective Date	Closed Date	Status
NOV	1/30/09		
Activities			
Name		Due Date	Achieved Date
SAMPLING - TCR		05/31/2009	
CORRECTIVE ACTIONS		01/31/2010	

Old Inorganics Sample Results for

AK2360230 BEAVER WATER SYSTEM

Lab Assigned ID	Analyte Name	Sample Type*	Comp	Code	Concentration	UOM	Collection Date
F185261	BARIUM	SP	N	1010	1050.00000	UG/L	06/24/1999
F185261	CADMIUM	SP	N	1015	0.00000		06/24/1999
F185261	CHROMIUM	SP	N	1020	0.00000		06/24/1999
F185261	FLUORIDE	SP	N	1025	0.00000		06/24/1999
F185261	MERCURY	SP	N	1035	0.00000		06/24/1999
F185261	SELENIUM	SP	N	1045	0.00000		06/24/1999
F133537	BARIUM	RT	Y	1010	424.00000	UG/L	01/25/1994
F133537	CADMIUM	RT	Y	1015	0.00000		01/25/1994
F133537	CHROMIUM	RT	Y	1020	0.00000		01/25/1994
F133537	FLUORIDE	RT	Y	1025	50.00000	UG/L	01/25/1994
F133537	MERCURY	RT	Y	1035	0.00000		01/25/1994
F133537	SELENIUM	RT	Y	1045	5.00000	UG/L	01/25/1994

New Inorganics Sample Results for

AK2360230 BEAVER WATER SYSTEM

Lab Assigned ID	Analyte Name	Sample Type*	Comp	Code	Concentration	UOM	Collection Date
II*F0412059-01A	CYANIDE	RT	Y	1024	0.00000	UG/L	11/24/2004
I5*F0410335-01B	NICKEL	RT	Y	1036	0.00000	UG/L	10/27/2004
I5*F0410335-01B	ANTIMONY, TOTAL	RT	Y	1074	0.00000	UG/L	10/27/2004
I5*F0410335-01B	BERYLLIUM, TOTAL	RT	Y	1075	0.00000		10/27/2004
I5*F0410335-01B	THALLIUM, TOTAL	RT	Y	1085	0.00000		10/27/2004
F185261	CYANIDE	SP	N	1024	0.00000	UG/L	06/24/1999
F185261	NICKEL	SP	N	1036	0.00000		06/24/1999
F185261	ANTIMONY, TOTAL	SP	N	1074	0.00000		06/24/1999
F185261	BERYLLIUM, TOTAL	SP	N	1075	0.00000		06/24/1999
F185261	THALLIUM, TOTAL	SP	N	1085	0.00000		06/24/1999
F175675	CYANIDE	RT	Y	1024	0.00000		12/22/1997
F175675	NICKEL	RT	Y	1036	0.00000	UG/L	12/22/1997
F175675	ANTIMONY, TOTAL	RT	Y	1074	0.00000		12/22/1997
F175675	BERYLLIUM, TOTAL	RT	Y	1075	0.00000		12/22/1997
F175675	THALLIUM, TOTAL	RT	Y	1085	0.00000		12/22/1997

Nitrate Sample Results for

AK2360230 BEAVER WATER SYSTEM

Lab Assigned ID	Analyte Name	Sample Type*	Comp	Code	Concentration	UOM	Collection Date
IN*F0903021-01A	NITRATE	RT	Y	1040	0.00000	UG/L	02/24/2009
IN*F0709435-01A	NITRATE	RT	Y	1040	0.00000		09/24/2007
IN*F0604171-07A	NITRATE	RT	Y	1040	0.00000		04/10/2006
IN*F0405264-01B	NITRATE-NITRITE	RT	Y	1038	0.00000		05/17/2004
IN*F0405264-01B	NITRATE	RT	Y	1040	0.00000		05/17/2004
F202340	NITRATE	RT	Y	1040	30.00000		02/19/2001
F189355	NITRATE	RT	Y	1040	0.00000	UG/L	01/06/2000
F185261	NITRATE	SP	N	1040	0.00000		06/24/1999
F181440	NITRATE	RT	Y	1040	30.00000		11/17/1998
F175675	NITRATE	RT	Y	1040	0.00000		12/22/1997
F161219	NITRATE	RT	Y	1040	110.00000		05/24/1996
F150527	NITRATE-NITRITE	RT	Y	1038	160.00000		06/21/1995
F150527	NITRATE	RT	Y	1040	160.00000	UG/L	06/21/1995
F149438	NITRATE-NITRITE	RT	Y	1038	820.00000		05/25/1995
F149438	NITRATE	RT	Y	1040	820.00000		05/25/1995
F133537	NITRATE-NITRITE	RT	Y	1038	300.00000		01/25/1994
F133537	NITRATE	RT	Y	1040	300.00000		01/25/1994
F131334	NITRATE	RT	Y	1040	400.00000		11/22/1993

Nitrite Sample Results for

AK2360230 BEAVER WATER SYSTEM

Lab Assigned ID	Analyte Name	Sample Type*	Comp	Code	Concentration	UOM	Collection Date
IN*F0405264-01B	NITRITE	RT	Y	1041	0.00000	UG/L	05/17/2004
F150527	NITRITE	RT	Y	1041	0.00000		06/21/1995

F149438	NITRITE	RT	Y	1041	0.00000	05/25/1995
F133537	NITRITE	RT	Y	1041	0.00000	01/25/1994

Arsenic Sample Results for

AK2360230 BEAVER WATER SYSTEM

Lab Assigned ID	Analyte Name	Sample Type*	Comp	Code	Concentration	UOM	Collection Date
IA*F0907198-01A	ARSENIC	RT	Y	1005	0.30900	UG/L	06/23/2009
IA*F0604171-07B	ARSENIC	RT	Y	1005	0.62800	UG/L	04/10/2006
F185261	ARSENIC	SP	N	1005	8.00000	UG/L	06/24/1999
F133537	ARSENIC	RT	Y	1005	0.00000		01/25/1994

Volatile Organic Compound (VOC) Sample Results for

AK2360230 BEAVER WATER SYSTEM

Lab Assigned ID	Analyte Name	Sample Type*	Comp	Code	Concentration	UOM	Collection Date
VO*F0903294-03A	1,2,4-TRICHLOROBENZENE	RT	Y	2378	0.00000		03/24/2009
VO*F0903294-03A	CIS-1,2-DICHLOROETHYLENE	RT	Y	2380	0.00000		03/24/2009
VO*F0903294-03A	XYLENES, TOTAL	RT	Y	2955	0.00000		03/24/2009
VO*F0903294-03A	DICHLOROMETHANE	RT	Y	2964	0.00000		03/24/2009
VO*F0903294-03A	O-DICHLOROBENZENE	RT	Y	2968	0.00000		03/24/2009
VO*F0903294-03A	P-DICHLOROBENZENE	RT	Y	2969	0.00000		03/24/2009
VO*F0903294-03A	VINYL CHLORIDE	RT	Y	2976	0.00000		03/24/2009
VO*F0903294-03A	1,1-DICHLOROETHYLENE	RT	Y	2977	0.00000		03/24/2009
VO*F0903294-03A	TRANS-1,2-DICHLOROETHYLENE	RT	Y	2979	0.00000		03/24/2009
VO*F0903294-03A	1,2-DICHLOROETHANE	RT	Y	2980	0.00000		03/24/2009
VO*F0903294-03A	1,1,1-TRICHLOROETHANE	RT	Y	2981	0.00000		03/24/2009
VO*F0903294-03A	CARBON TETRACHLORIDE	RT	Y	2982	0.00000		03/24/2009
VO*F0903294-03A	1,2-DICHLOROPROPANE	RT	Y	2983	0.00000		03/24/2009
VO*F0903294-03A	TRICHLOROETHYLENE	RT	Y	2984	0.00000		03/24/2009
VO*F0903294-03A	1,1,2-TRICHLOROETHANE	RT	Y	2985	0.00000		03/24/2009
VO*F0903294-03A	TETRACHLOROETHYLENE	RT	Y	2987	0.00000		03/24/2009
VO*F0903294-03A	CHLOROBENZENE	RT	Y	2989	0.00000		03/24/2009
VO*F0903294-03A	BENZENE	RT	Y	2990	0.00000		03/24/2009
VO*F0903294-03A	TOLUENE	RT	Y	2991	0.00000		03/24/2009
VO*F0903294-03A	ETHYLBENZENE	RT	Y	2992	0.00000		03/24/2009
VO*F0903294-03A	STYRENE	RT	Y	2996	0.00000		03/24/2009
VO*F0709435-04A	1,2,4-TRICHLOROBENZENE	RT	Y	2378	0.00000		09/24/2007
VO*F0709435-04A	CIS-1,2-DICHLOROETHYLENE	RT	Y	2380	0.00000		09/24/2007
VO*F0709435-04A	XYLENES, TOTAL	RT	Y	2955	2.33000	UG/L	09/24/2007
VO*F0709435-04A	DICHLOROMETHANE	RT	Y	2964	0.00000		09/24/2007
VO*F0709435-04A	O-DICHLOROBENZENE	RT	Y	2968	0.00000		09/24/2007
VO*F0709435-04A	P-DICHLOROBENZENE	RT	Y	2969	0.00000		09/24/2007
VO*F0709435-04A	VINYL CHLORIDE	RT	Y	2976	0.00000		09/24/2007
VO*F0709435-04A	1,1-DICHLOROETHYLENE	RT	Y	2977	0.00000		09/24/2007
VO*F0709435-04A	TRANS-1,2-DICHLOROETHYLENE	RT	Y	2979	0.00000		09/24/2007
VO*F0709435-04A	1,2-DICHLOROETHANE	RT	Y	2980	0.00000		09/24/2007
VO*F0709435-04A	1,1,1-TRICHLOROETHANE	RT	Y	2981	0.00000		09/24/2007
VO*F0709435-04A	CARBON TETRACHLORIDE	RT	Y	2982	0.00000		09/24/2007
VO*F0709435-04A	1,2-DICHLOROPROPANE	RT	Y	2983	0.00000		09/24/2007
VO*F0709435-04A	TRICHLOROETHYLENE	RT	Y	2984	0.00000		09/24/2007
VO*F0709435-04A	1,1,2-TRICHLOROETHANE	RT	Y	2985	0.00000		09/24/2007
VO*F0709435-04A	TETRACHLOROETHYLENE	RT	Y	2987	0.00000		09/24/2007
VO*F0709435-04A	CHLOROBENZENE	RT	Y	2989	0.00000		09/24/2007
VO*F0709435-04A	BENZENE	RT	Y	2990	0.00000		09/24/2007
VO*F0709435-04A	TOLUENE	RT	Y	2991	0.00000		09/24/2007
VO*F0709435-04A	ETHYLBENZENE	RT	Y	2992	0.00000		09/24/2007
VO*F0709435-04A	STYRENE	RT	Y	2996	0.00000		09/24/2007
VO*F0604171-07C	1,2,4-TRICHLOROBENZENE	RT	Y	2378	0.00000		04/10/2006
VO*F0604171-07C	CIS-1,2-DICHLOROETHYLENE	RT	Y	2380	0.00000	UG/L	04/10/2006
VO*F0604171-07C	XYLENES, TOTAL	RT	Y	2955	0.00000		04/10/2006
VO*F0604171-07C	DICHLOROMETHANE	RT	Y	2964	0.00000		04/10/2006
VO*F0604171-07C	O-DICHLOROBENZENE	RT	Y	2968	0.00000	UG/L	04/10/2006
VO*F0604171-07C	P-DICHLOROBENZENE	RT	Y	2969	0.00000	UG/L	04/10/2006
VO*F0604171-07C	VINYL CHLORIDE	RT	Y	2976	0.00000	UG/L	04/10/2006
VO*F0604171-07C	1,1-DICHLOROETHYLENE	RT	Y	2977	0.00000		04/10/2006

VO*F0604171-07C	TRANS-1,2-DICHLOROETHYLENE	RT	Y	2979	0.00000	UG/L	04/10/2006
VO*F0604171-07C	1,2-DICHLOROETHANE	RT	Y	2980	0.00000	UG/L	04/10/2006
VO*F0604171-07C	1,1,1-TRICHLOROETHANE	RT	Y	2981	0.00000	UG/L	04/10/2006
VO*F0604171-07C	CARBON TETRACHLORIDE	RT	Y	2982	0.00000	UG/L	04/10/2006
VO*F0604171-07C	1,2-DICHLOROPROPANE	RT	Y	2983	0.00000	UG/L	04/10/2006
VO*F0604171-07C	TRICHLOROETHYLENE	RT	Y	2984	0.00000	UG/L	04/10/2006
VO*F0604171-07C	1,1,2-TRICHLOROETHANE	RT	Y	2985	0.00000		04/10/2006
VO*F0604171-07C	TETRACHLOROETHYLENE	RT	Y	2987	0.00000	UG/L	04/10/2006
VO*F0604171-07C	CHLOROBENZENE	RT	Y	2989	0.00000	UG/L	04/10/2006
VO*F0604171-07C	BENZENE	RT	Y	2990	0.00000	UG/L	04/10/2006
VO*F0604171-07C	TOLUENE	RT	Y	2991	0.00000	UG/L	04/10/2006
VO*F0604171-07C	ETHYLBENZENE	RT	Y	2992	0.00000	UG/L	04/10/2006
VO*F0604171-07C	STYRENE	RT	Y	2996	0.00000	UG/L	04/10/2006
VO*F0405264-01A	1,2,4-TRICHLOROBENZENE	RT	Y	2378	0.00000	UG/L	05/17/2004
VO*F0405264-01A	CIS-1,2-DICHLOROETHYLENE	RT	Y	2380	0.00000	UG/L	05/17/2004
VO*F0405264-01A	XYLENES, TOTAL	RT	Y	2955	0.00000		05/17/2004
VO*F0405264-01A	DICHLOROMETHANE	RT	Y	2964	0.00000	UG/L	05/17/2004
VO*F0405264-01A	O-DICHLOROBENZENE	RT	Y	2968	0.00000	UG/L	05/17/2004
VO*F0405264-01A	P-DICHLOROBENZENE	RT	Y	2969	0.00000	UG/L	05/17/2004
VO*F0405264-01A	VINYL CHLORIDE	RT	Y	2976	0.00000	UG/L	05/17/2004
VO*F0405264-01A	1,1-DICHLOROETHYLENE	RT	Y	2977	0.00000	UG/L	05/17/2004
VO*F0405264-01A	TRANS-1,2-DICHLOROETHYLENE	RT	Y	2979	0.00000	UG/L	05/17/2004
VO*F0405264-01A	1,2-DICHLOROETHANE	RT	Y	2980	0.00000	UG/L	05/17/2004
VO*F0405264-01A	1,1,1-TRICHLOROETHANE	RT	Y	2981	0.00000	UG/L	05/17/2004
VO*F0405264-01A	CARBON TETRACHLORIDE	RT	Y	2982	0.00000	UG/L	05/17/2004
VO*F0405264-01A	1,2-DICHLOROPROPANE	RT	Y	2983	0.00000	UG/L	05/17/2004
VO*F0405264-01A	TRICHLOROETHYLENE	RT	Y	2984	0.00000	UG/L	05/17/2004
VO*F0405264-01A	1,1,2-TRICHLOROETHANE	RT	Y	2985	0.00000	UG/L	05/17/2004
VO*F0405264-01A	TETRACHLOROETHYLENE	RT	Y	2987	0.00000	UG/L	05/17/2004
VO*F0405264-01A	CHLOROBENZENE	RT	Y	2989	0.00000	UG/L	05/17/2004
VO*F0405264-01A	BENZENE	RT	Y	2990	0.00000	UG/L	05/17/2004
VO*F0405264-01A	TOLUENE	RT	Y	2991	0.00000	UG/L	05/17/2004
VO*F0405264-01A	ETHYLBENZENE	RT	Y	2992	0.00000	UG/L	05/17/2004
VO*F0405264-01A	STYRENE	RT	Y	2996	0.00000	UG/L	05/17/2004
A171022	1,2,4-TRICHLOROBENZENE	RT	Y	2378	0.00000		02/18/2001
A171022	CIS-1,2-DICHLOROETHYLENE	RT	Y	2380	0.00000		02/18/2001
A171022	XYLENES, TOTAL	RT	Y	2955	0.00000		02/18/2001
A171022	DICHLOROMETHANE	RT	Y	2964	0.00000		02/18/2001
A171022	O-DICHLOROBENZENE	RT	Y	2968	0.00000		02/18/2001
A171022	P-DICHLOROBENZENE	RT	Y	2969	0.00000		02/18/2001
A171022	VINYL CHLORIDE	RT	Y	2976	0.00000		02/18/2001
A171022	1,1-DICHLOROETHYLENE	RT	Y	2977	0.00000		02/18/2001
A171022	TRANS-1,2-DICHLOROETHYLENE	RT	Y	2979	0.00000		02/18/2001
A171022	1,2-DICHLOROETHANE	RT	Y	2980	0.00000		02/18/2001
A171022	1,1,1-TRICHLOROETHANE	RT	Y	2981	0.00000		02/18/2001
A171022	CARBON TETRACHLORIDE	RT	Y	2982	0.00000		02/18/2001
A171022	1,2-DICHLOROPROPANE	RT	Y	2983	0.00000		02/18/2001
A171022	TRICHLOROETHYLENE	RT	Y	2984	0.00000		02/18/2001
A171022	1,1,2-TRICHLOROETHANE	RT	Y	2985	0.00000		02/18/2001
A171022	TETRACHLOROETHYLENE	RT	Y	2987	0.00000		02/18/2001
A171022	CHLOROBENZENE	RT	Y	2989	0.00000		02/18/2001
A171022	BENZENE	RT	Y	2990	0.00000		02/18/2001
A171022	TOLUENE	RT	Y	2991	0.00000		02/18/2001
A171022	ETHYLBENZENE	RT	Y	2992	0.00000		02/18/2001
A171022	STYRENE	RT	Y	2996	0.00000		02/18/2001
A165241	1,2,4-TRICHLOROBENZENE	RT	Y	2378	0.00000		01/16/2000
A165241	CIS-1,2-DICHLOROETHYLENE	RT	Y	2380	0.00000		01/16/2000
A165241	XYLENES, TOTAL	RT	Y	2955	0.00000		01/16/2000
A165241	DICHLOROMETHANE	RT	Y	2964	0.00000		01/16/2000
A165241	O-DICHLOROBENZENE	RT	Y	2968	0.00000		01/16/2000
A165241	P-DICHLOROBENZENE	RT	Y	2969	0.00000		01/16/2000
A165241	VINYL CHLORIDE	RT	Y	2976	0.00000		01/16/2000
A165241	1,1-DICHLOROETHYLENE	RT	Y	2977	0.00000		01/16/2000
A165241	TRANS-1,2-DICHLOROETHYLENE	RT	Y	2979	0.00000		01/16/2000
A165241	1,2-DICHLOROETHANE	RT	Y	2980	0.00000		01/16/2000

A165241	1,1,1-TRICHLOROETHANE	RT	Y	2981	0.00000	01/16/2000
A165241	CARBON TETRACHLORIDE	RT	Y	2982	0.00000	01/16/2000
A165241	1,2-DICHLOROPROPANE	RT	Y	2983	0.00000	01/16/2000
A165241	TRICHLOROETHYLENE	RT	Y	2984	0.00000	01/16/2000
A165241	1,1,2-TRICHLOROETHANE	RT	Y	2985	0.00000	01/16/2000
A165241	TETRACHLOROETHYLENE	RT	Y	2987	0.00000	01/16/2000
A165241	CHLOROBENZENE	RT	Y	2989	0.00000	01/16/2000
A165241	BENZENE	RT	Y	2990	0.00000	01/16/2000
A165241	TOLUENE	RT	Y	2991	0.00000	01/16/2000
A165241	ETHYLBENZENE	RT	Y	2992	0.00000	01/16/2000
A165241	STYRENE	RT	Y	2996	0.00000	01/16/2000
A159104	1,2,4-TRICHLOROBENZENE	RT	Y	2378	0.00000	11/17/1998
A159104	CIS-1,2-DICHLOROETHYLENE	RT	Y	2380	0.00000	11/17/1998
A159104	XYLENES, TOTAL	RT	Y	2955	0.00000	11/17/1998
A159104	DICHLOROMETHANE	RT	Y	2964	0.00000	11/17/1998
A159104	O-DICHLOROBENZENE	RT	Y	2968	0.00000	11/17/1998
A159104	P-DICHLOROBENZENE	RT	Y	2969	0.00000	11/17/1998
A159104	VINYL CHLORIDE	RT	Y	2976	0.00000	11/17/1998
A159104	1,1-DICHLOROETHYLENE	RT	Y	2977	0.00000	11/17/1998
A159104	TRANS-1,2-DICHLOROETHYLENE	RT	Y	2979	0.00000	11/17/1998
A159104	1,2-DICHLOROETHANE	RT	Y	2980	0.00000	11/17/1998
A159104	1,1,1-TRICHLOROETHANE	RT	Y	2981	0.00000	11/17/1998
A159104	CARBON TETRACHLORIDE	RT	Y	2982	0.00000	11/17/1998
A159104	1,2-DICHLOROPROPANE	RT	Y	2983	0.00000	11/17/1998
A159104	TRICHLOROETHYLENE	RT	Y	2984	0.00000	11/17/1998
A159104	1,1,2-TRICHLOROETHANE	RT	Y	2985	0.00000	11/17/1998
A159104	TETRACHLOROETHYLENE	RT	Y	2987	0.00000	11/17/1998
A159104	CHLOROBENZENE	RT	Y	2989	0.00000	11/17/1998
A159104	BENZENE	RT	Y	2990	0.00000	11/17/1998
A159104	TOLUENE	RT	Y	2991	0.00000	11/17/1998
A159104	ETHYLBENZENE	RT	Y	2992	0.00000	11/17/1998
A159104	STYRENE	RT	Y	2996	0.00000	11/17/1998
A153645	1,2,4-TRICHLOROBENZENE	RT	Y	2378	0.00000	12/22/1997
A153645	CIS-1,2-DICHLOROETHYLENE	RT	Y	2380	0.00000	12/22/1997
A153645	XYLENES, TOTAL	RT	Y	2955	0.00000	12/22/1997
A153645	DICHLOROMETHANE	RT	Y	2964	0.00000	12/22/1997
A153645	O-DICHLOROBENZENE	RT	Y	2968	0.00000	12/22/1997
A153645	P-DICHLOROBENZENE	RT	Y	2969	0.00000	12/22/1997
A153645	VINYL CHLORIDE	RT	Y	2976	0.00000	12/22/1997
A153645	1,1-DICHLOROETHYLENE	RT	Y	2977	0.00000	12/22/1997
A153645	TRANS-1,2-DICHLOROETHYLENE	RT	Y	2979	0.00000	12/22/1997
A153645	1,2-DICHLOROETHANE	RT	Y	2980	0.00000	12/22/1997
A153645	1,1,1-TRICHLOROETHANE	RT	Y	2981	0.00000	12/22/1997
A153645	CARBON TETRACHLORIDE	RT	Y	2982	0.00000	12/22/1997
A153645	1,2-DICHLOROPROPANE	RT	Y	2983	0.00000	12/22/1997
A153645	TRICHLOROETHYLENE	RT	Y	2984	0.00000	12/22/1997
A153645	1,1,2-TRICHLOROETHANE	RT	Y	2985	0.00000	12/22/1997
A153645	TETRACHLOROETHYLENE	RT	Y	2987	0.00000	12/22/1997
A153645	CHLOROBENZENE	RT	Y	2989	0.00000	12/22/1997
A153645	BENZENE	RT	Y	2990	0.00000	12/22/1997
A153645	TOLUENE	RT	Y	2991	0.00000	12/22/1997
A153645	ETHYLBENZENE	RT	Y	2992	0.00000	12/22/1997
A153645	STYRENE	RT	Y	2996	0.00000	12/22/1997
A144716	1,2,4-TRICHLOROBENZENE	RT	Y	2378	0.00000	05/29/1996
A144716	CIS-1,2-DICHLOROETHYLENE	RT	Y	2380	0.00000	05/29/1996
A144716	XYLENES, TOTAL	RT	Y	2955	0.00000	05/29/1996
A144716	DICHLOROMETHANE	RT	Y	2964	0.00000	05/29/1996
A144716	O-DICHLOROBENZENE	RT	Y	2968	0.00000	05/29/1996
A144716	P-DICHLOROBENZENE	RT	Y	2969	0.00000	05/29/1996
A144716	VINYL CHLORIDE	RT	Y	2976	0.00000	05/29/1996
A144716	1,1-DICHLOROETHYLENE	RT	Y	2977	0.00000	05/29/1996
A144716	TRANS-1,2-DICHLOROETHYLENE	RT	Y	2979	0.00000	05/29/1996
A144716	1,2-DICHLOROETHANE	RT	Y	2980	0.00000	05/29/1996
A144716	1,1,1-TRICHLOROETHANE	RT	Y	2981	0.00000	05/29/1996
A144716	CARBON TETRACHLORIDE	RT	Y	2982	0.00000	05/29/1996

A144716	1,2-DICHLOROPROPANE	RT	Y	2983	0.00000		05/29/1996
A144716	TRICHLOROETHYLENE	RT	Y	2984	0.00000		05/29/1996
A144716	1,1,2-TRICHLOROETHANE	RT	Y	2985	0.00000		05/29/1996
A144716	TETRACHLOROETHYLENE	RT	Y	2987	0.00000		05/29/1996
A144716	CHLOROBENZENE	RT	Y	2989	0.00000		05/29/1996
A144716	BENZENE	RT	Y	2990	0.00000		05/29/1996
A144716	TOLUENE	RT	Y	2991	0.32000	UG/L	05/29/1996
A144716	ETHYLBENZENE	RT	Y	2992	0.23000	UG/L	05/29/1996
A144716	STYRENE	RT	Y	2996	0.00000		05/29/1996

Gross Alpha Sample Results for

AK2360230 BEAVER WATER SYSTEM

Lab Assigned ID	Analyte Name	Sample Type*	Comp	Code	Concentration	UOM	Collection Date
GA*L73811-01	GROSS ALPHA, EXCL. RADON & U	RT	Y	4000	0.00000	PCI/L	12/19/2008
GA*L73811-01	GROSS ALPHA, INCL. RADON & U	RT	Y	4002	0.25000	PCI/L	12/19/2008
GA*L73811-01	COMBINED URANIUM	RT	Y	4006	0.20000	UG/L	12/19/2008
GA*L73811-01	RADIUM-226	RT	Y	4020	0.24000	PCI/L	12/19/2008
GA*L73811-01	RADIUM-228	RT	Y	4030	0.23000	PCI/L	12/19/2008
GA*L73811-01	GROSS BETA PARTICLE ACTIVITY	RT	Y	4100	5.80000	PCI/L	12/19/2008

Lead / Copper Sample Result for

AK2360230 BEAVER WATER SYSTEM

Analyte Name	Code	Comp	Sample Count	Lab ID	Concentration	UOM	Compliance Begin Date	Compliance End Date	Collection Date
LEAD SUMMARY	PB90	Y	5	CO00050	0.00678	MG/L	01/01/2007	12/31/2009	09/09/2009
LEAD SUMMARY	PB90	Y	5	CO00050	0.00745	MG/L	01/01/2007	12/31/2009	09/09/2009
LEAD SUMMARY	PB90	Y	0	CO00050			01/01/2007	12/31/2009	09/09/2009
COPPER SUMMARY	CU90	Y	5	CO00050	0.52500	MG/L	01/01/2007	12/31/2009	09/09/2009
COPPER SUMMARY	CU90	Y	5	CO00050	0.54250	MG/L	01/01/2007	12/31/2009	09/09/2009
COPPER SUMMARY	CU90	Y	0	CO00050			01/01/2007	12/31/2009	09/09/2009
LEAD SUMMARY	PB90	Y	5	CO00050	0.00560	MG/L	01/01/2006	12/31/2006	04/10/2006
COPPER SUMMARY	CU90	Y	5	CO00050	0.47550	MG/L	01/01/2006	12/31/2006	04/10/2006
LEAD SUMMARY	PB90	Y	5	AK00968	0.00250	MG/L	07/01/2004	12/31/2004	10/27/2004
COPPER SUMMARY	CU90	Y	5	AK00968	0.20000	MG/L	07/01/2004	12/31/2004	10/27/2004
LEAD SUMMARY	PB90	Y	5	AK00968	0.00380	MG/L	01/01/2004	06/30/2004	05/11/2004
COPPER SUMMARY	CU90	Y	5	AK00968	0.36900	MG/L	01/01/2004	06/30/2004	05/11/2004
LEAD SUMMARY	PB90	Y	5	MIG	0.01200	MG/L	01/01/2001	06/30/2001	01/01/2001
COPPER SUMMARY	CU90	Y	5	MIG	1.00000	MG/L	01/01/2001	06/30/2001	01/01/2001

Asbestos Sample Results for

Lab Assigned ID	Analyte Name	Sample Type*	Comp	Code	Concentration	UOM	Collection Date

Synthetic and Other Organic Compounds (SOC) Sample Results for

Lab Assigned ID	Analyte Name	Sample Type*	Comp	Code	Concentration	UOM	Collection Date

Secondary Compounds Sample Results for

AK2360230 BEAVER WATER SYSTEM

Lab Assigned ID	Analyte Name	Sample Type*	Comp	Code	Concentration	UOM	Collection Date
PC*F0909221-05A	COPPER, FREE	RT	Y	1022	80.80000	UG/L	09/09/2009
PC*F0909221-04A	COPPER, FREE	RT	Y	1022	560.00000	UG/L	09/09/2009
PC*F0909221-03A	COPPER, FREE	RT	Y	1022	490.00000	UG/L	09/09/2009
PC*F0909221-02A	COPPER, FREE	RT	Y	1022	342.00000	UG/L	09/09/2009
PC*F0909221-01A	COPPER, FREE	RT	Y	1022	390.00000	UG/L	09/09/2009

Total Organic Compounds (TOC) And Alkalinity Sample Results - Raw Water for

Lab Assigned ID	Analyte Name	Sample Type*	Comp	Code	Concentration	UOM	Collection Date

Total Organic Compounds (TOC) for

Lab Assigned ID	Analyte Name	Sample Type*	Comp	Code	Concentration	UOM	Collection Date

Bromide and Bromate Sample Results for

Lab Assigned ID	Analyte Name	Sample Type*	Comp	Code	Concentration	UOM	Collection Date

Total Trihalomethanes (TTHM) and Total Haloacetic Acids (HAA5) Sample Results for

AK2360230 BEAVER WATER SYSTEM

Lab Assigned ID	Analyte Name	Sample Type*	Comp	Code	Concentration	UOM	Collection Date
DT*F0903294-02A	TTHM	RT	Y	2950	0.00000		03/24/2009
DH*F0903294-02B	TOTAL HALOACETIC ACIDS (HAA5)	RT	Y	2456	10.40000	UG/L	03/24/2009
DT*F0709435-03A	TTHM	RT	Y	2950	12.20000	UG/L	09/24/2007
DH*2709280291	TOTAL HALOACETIC ACIDS (HAA5)	RT	Y	2456	9.62000	UG/L	09/24/2007
DB*F0604171-06A	TTHM	RT	Y	2950	0.00000		04/10/2006
DB*F0604171-06A	TOTAL HALOACETIC ACIDS (HAA5)	RT	Y	2456	9.22000	UG/L	04/10/2006
DT*2411230252	TTHM	RT	Y	2950	2.30000	UG/L	11/16/2004
DH*F0410335-07A	TOTAL HALOACETIC ACIDS (HAA5)	RT	Y	2456	6.54000	UG/L	10/27/2004
VO*F0405264-01A	TTHM	RT	Y	2950	2.00000	UG/L	05/17/2004
A171022	TTHM	RT	Y	2950	12.10000	UG/L	02/18/2001
A165241	TTHM	RT	Y	2950	1.73000	UG/L	01/16/2000
A159104	TTHM	RT	Y	2950	0.00000		11/17/1998
A153645	TTHM	RT	Y	2950	0.00000		12/22/1997
A144716	TTHM	RT	Y	2950	6.66000	UG/L	05/29/1996

*Sample Type
RT = Routine CO = Confirmation
SP = Special PE = Performance Evaluation

APPENDIX H-1

OLD BIA SCHOOL CONCEPTUAL SITE MODEL

OLD SCHOOL TANK FARM CONCEPTUAL SITE MODEL

This Conceptual Site Model (CSM) was developed to qualitatively assess the risk to potential human and ecological receptors from petroleum hydrocarbons in soil at the Old School Tank Farm site, hereafter referred to as the Site. Data and information gathered from the nearby Washeteria fuel line area is also used to support this CSM. This CSM is based upon available site data collected by Oasis Environmental in 2001 (OASIS, 2002) and SLR in 2009 and describes the potential exposure scenarios for current and future site receptors. This CSM was prepared in accordance with the DEC *Draft Guidance on Developing Conceptual Site Models* (DEC, 2005) using the DEC Draft Human Health Conceptual Site Model Scoping Form. The DEC Draft Human Health Conceptual Site Model Diagram was used to summarize the results of the checklist. All cleanup levels referenced in this CSM are with respect to DEC Method Two cleanup levels (DEC, 2008).

1.1 Impacted Media

Impacted media at the Site are the environmental compartments into which a contaminant is directly released (DEC, 2005). Analytical results from the 2001 Village of Beaver site assessment project (OASIS, 2002) and the 2009 property assessment conducted by SLR were reviewed in order to determine what media have been impacted as a result of historic activities at the Site. The entire data set from 2001 was not provided to SLR and thus, this information will not be used to support this CSM; however, based on a review of available information, concentrations from 2009 exceed previously documented concentrations, so the exclusion of this information will not change the conclusions reached in this CSM. Soil data collected at a depth of 2 feet are discussed in the surface soil section of this CSM. Field screening and analytical data used to support this CSM are presented on Table 2 and Figures 2 and 3 of the Village of Beaver School Tank Farm Property Assessment and Cleanup Report.

1.1.1 Surface Soil

Surface soil is defined as the interval from 0 foot to 2 feet below ground surface (bgs) (DEC, 2005). A release or discharge associated with the historic activities would directly affect surface soil. Therefore, for this CSM, surface soil is considered an impacted medium.

Twenty-six field screening and two analytical samples were collected from the surface soil interval in 2009. Field screening results ranged from 1.0 parts per million (ppm) to 694 ppm with two samples having results greater than 100 ppm. The analytical samples collected from this interval were analyzed for gasoline range organics (GRO); diesel range organics (DRO); residual range organics (RRO); and benzene, toluene, ethylbenzene, and xylenes (BTEX). GRO was detected in one sample at an estimated concentration of 5.5 milligrams per kilogram (mg/kg). DRO and RRO were detected in both samples at maximum concentrations of 13.2 mg/kg (estimated) and 41.1 mg/kg, respectively. Xylenes were the only BTEX compound detected at an estimate concentration of 0.1539 mg/kg. None of the analytes detected were above DEC Method Two soil cleanup levels.

1.1.2 Subsurface Soil

Subsurface soil is defined as the interval from 2 feet to 15 feet bgs (DEC, 2005); soil below 15 feet bgs is not considered in this CSM because it is below the depth interval considered for direct contact by human or ecological receptors. Subsurface soil contamination has been confirmed to be present at the Site, so subsurface soil is confirmed to be an impacted medium in this CSM.

Forty-eight field screening and eight analytical (plus one duplicate) samples were collected from this interval in 2009. Field screening results ranged from 1.1 ppm to 1,390 ppm with 17 samples having results greater than 100 ppm. Analytical samples from this interval were all analyzed for GRO, DRO, RRO, and BTEX, and selectively analyzed for volatile organic compounds (VOCs), polynuclear aromatic hydrocarbons (PAHs), and lead. Analytical results for GRO indicated a maximum detected concentration of 4,620 mg/kg, with five samples (including the duplicate) having concentrations greater than the DEC Method Two soil cleanup level of 300 mg/kg. DRO concentrations were also detected in excess of applicable cleanup levels in six samples, including the duplicate, at up to 31,100 mg/kg. All BTEX compounds were also detected above their respective DEC cleanup levels in one or more samples with concentrations up to 0.491 mg/kg, 31.7 mg/kg, 53.9 mg/kg, and 385 mg/kg, respectively.

Five PAH compounds (1-methylnaphthalene, 2-methylnaphthalene, fluorene, naphthalene, and phenanthrene) were also detected in one or more samples. Concentrations of 1-methylnaphthalene and 2-methylnaphthalene were detected above DEC Method Two soil cleanup levels. Five VOCs (1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 4-isopropyltoluene, naphthalene, and total xylenes) were also detected in one or more samples. Concentrations of 1,3,5-trimethylbenzene, naphthalene, and total xylenes were detected above DEC Method Two soil cleanup levels.

Lead was detected in three samples at concentrations up to 6.62 mg/kg, which is 60 times less than the cleanup level of 400 mg/kg. As a naturally occurring metal, lead was additionally compared to regional background concentrations. Results show that lead concentrations are below background levels, which are generally elevated in Alaskan soils relative to other locations in the United States. The mean lead concentration at the site of 6.23 mg/kg is less than the mean background concentration for Alaska soils of 12 mg/kg (Gough et al., 1988). The site data show a uniform distribution with no outliers, indicating the lack of a source or “hotspot” associated with any historical releases. It is also not likely that lead would be released in large quantities from site activities, and the only potential source of lead at the Site would have been leaded gasoline. Therefore this metal was not considered a contaminant of potential concern (COPC) in soil.

1.1.3 Ground Water

The community relies upon a washeteria for its water; there is no piped water and water is hauled from the washeteria. The washeteria, which derives its water from the community well, is located approximately 200 feet from the closest site boundary. The well was drilled to approximately 64 feet bgs. A sample collected in 2007 from this well for the DEC Drinking Water Program detected xylenes at a low concentration (2.33 micrograms per liter). The well is sampled annually for volatile organic compounds (VOCs) (SLR, 2009).

In addition, the community well was sampled by SLR in September 2009. The sample was analyzed for GRO, DRO, RRO, VOCs, and PAHs; none of these analytes were detected in community well. The results are presented in Table 4 of the Village of Beaver School Tank Farm Property Assessment and Cleanup Report.

It is not anticipated that ground water would be used from the Site since the community has a well located approximately 750 feet away, which supplies water to the community. The well log for the closest well drilled to the Site indicates frozen soil to a depth of 55 feet bgs with ground encountered just below the frozen soil in a sand unit which extends from 55 feet bgs to 58 feet bgs.

No known ground water samples have been collected from the Site. For the purposes of this CSM, ground water is considered an exposure medium; exposure media are discussed in Section 1.2.

1.1.4 Surface Water

A release at the Site would not directly affect surface water since the receiving media would be soil rather than surface water. For this CSM, surface water is not considered an impacted medium however surface water is an exposure medium based on the potential for overland or subsurface migration of contaminants to surface water.

The nearest surface water to the Site is the Yukon River, which is located approximately 250 feet to the south. The Yukon River is subject to flooding, with recorded events in 1948 and 1992 (USACE, 2009), increasing the risk of overland migration of contaminants from the Site.

No known surface water samples have been collected from the Site.

1.1.5 Sediment

A release at the Site would not directly affect sediments associated with nearby surface water for the same reasons as discussed above. Therefore, for this CSM, sediment is not considered an impacted medium.

No known sediment samples have been collected from the Site.

1.2 Transport Mechanisms and Exposure Media

Transport mechanisms are the pathways through which contaminants may move from impacted media to other exposure media. Exposure media are the media to which contaminants are transported that may result in exposure by human receptors to the contaminants. Six transport mechanisms were identified at the Site including direct release to soil, migration or leaching to subsurface, migration or leaching to ground water, volatilization, runoff or erosion, and uptake by plants and animals. Based on the impacted media and transport mechanisms, five exposure media (soil, ground water, air, surface water, and biota) are present.

Possible transport mechanisms and exposure media are depicted on the ADEC Draft Human Health Conceptual Site Model Diagram included at the end of this CSM.

1.3 Exposure Pathways

Each potential exposure pathway was evaluated using the DEC Draft Human Health Conceptual Site Model Scoping Form. Based on this evaluation, four potentially complete exposure pathways were identified. These pathways include incidental soil ingestion, dermal absorption of contaminants from soil, inhalation of outdoor air, and ingestion of surface water. The determination of complete or incomplete exposure pathways is explained in the following sections.

1.3.1 Potentially Complete Exposure Pathways

The direct contact exposure pathway via incidental soil ingestion is considered potentially complete because soil contamination exists between 0 feet and 15 feet bgs and the Site is expected to be used by human receptors.

The dermal absorption of contaminants from soil pathway is potentially complete because PAH compounds (1-methylnaphthalene, 2-methylnaphthalene, fluorene, naphthalene, and phenanthrene), which can permeate the skin, are present in the soil between 0 foot and 15 feet bgs.

The ingestion of ground water pathway is considered potentially complete because ground water has not been ruled out as a future drinking water source by DEC in accordance with 18 AAC 75.350. However, the potential for exposure via this pathway is considered to be low because there is already a community well, located approximately 200 feet from the Site. In addition, no VOCs have been detected in the well and the migration of contaminants from the Site to ground water would be limited based on the presence of frozen soils observed to a depth of 55 feet bgs.

The inhalation of outdoor air exposure pathway is considered potentially complete because of the presence of volatile contaminants in soil between 0 feet and 15 feet bgs and the use of the Site by human receptors. Volatile contaminants (as described in Appendix B of the Scoping Form) that make this pathway complete include GRO, DRO, BTEX, and naphthalene.

The ingestion of surface water pathway is considered potentially complete because the Site has the potential to flood resulting in overland migration of contaminants. In addition, nearby surface water, the Yukon River, is used for subsistence fishing and recreational activities.

The dermal exposure to contaminants in ground water and surface water pathway and the inhalation of volatile compounds in household water pathway are all considered potentially complete because although DEC water quality standards may be applied as cleanup levels at the Site, ground water and surface water are still considered exposure media and could be used by residents in the vicinity of the Site for household purposes in the future. VOCs have not been detected in ground water from the community well, located approximately 750 feet from the Site and with no other known wells it is not considered a current exposure pathway. SLR is unaware of any household surface water usage.

1.3.2 Incomplete Exposure Pathways

The remaining exposure pathways were determined to be incomplete based on site data, features, or other pertinent information in accordance with the DEC Draft Human Health Conceptual Site Model Scoping Form. These incomplete pathways of note are discussed briefly below.

The inhalation of indoor air pathway is not considered complete because buildings in Beaver are located on pilings with no skirting, which eliminates any preferential or direct pathways for soil contaminant vapors to migrate into indoor air. Any soil contaminant vapors would be released into outdoor air, making the inhalation of indoor pathway incomplete.

The ingestion of wild foods exposure pathway is not considered complete because although lead, which can bioaccumulate, has been detected at the Site, the concentrations of lead are significantly below the cleanup level and at the detected concentrations lead are below the mean background concentration for Alaska soils and as such, lead is not considered a COPC for this Site. No additional analytes that can bioaccumulate (per Appendix A of the Scoping Form) were detected at the Site and therefore, this pathway is not considered complete.

The inhalation of fugitive dust exposure pathway is not considered complete. Normally this pathway requires further evaluation based on the presence of chromium in site soils however chromium is not considered a contaminant of potential concern in surface soil at this Site.

The direct contact with sediment pathway is not considered complete because DEC soil ingestion cleanup levels are assumed to also be protective of this pathway and no known activities that result in direct contact with sediment are undertaken at the Site.

1.4 Current and Future Receptors

The old school building has been abandoned and boarded up, the school shop building is currently in use, the old school generator is still functional and is maintained as an emergency generator, and the tank farm is still in use. The Site is in the middle of town and current use from visitors, trespassers, recreational users, or subsistence harvesters and consumers cannot be ruled out. The Site is also the proposed location for housing or a multipurpose community building. Any future work at the Site (environmental or construction) will require construction workers. Based on current development plans, the following human receptors are considered to be potentially exposed to site contaminants:

- Residents (future);
- Commercial or industrial workers (future);
- Construction workers (future);
- Site visitors, trespassers, or recreational users (current and future); and,
- Subsistence harvesters and consumers (current and future).

1.5 Exposure Tracking Model

DEC's Contaminated Sites Program developed the exposure tracking model (ETM) to prioritize which sites need the most attention. The ETM is a revision to the Alaska Hazard Ranking Model, historically used to prioritize all contaminated sites. The ETM is a preliminary evaluation of all sites and ranks each site according to possibility of human and ecosystem exposure to the contaminants that are present. Prioritization for a site can change over time.

DEC has provided an ETM for this Site. The results summary of the model found that, for the Old BIA School site, there is one pathway with current exposure (direct contact with surface soil), four exposure pathways with high potential (direct contact with subsurface soil, outdoor air inhalation, surface water ingestion, and indoor air inhalation), and one exposure pathway with low potential (ground water ingestion) for human receptors. There is low potential for ecological impact. A hazard ranking was assigned to this Site on December 25, 2008. On a scale of 1 to 10, with 10 representing highest priority, the ETM ranked the Old BIA School site with a score of 6. The ETM for this site is included in Appendix H.

1.6 References

- Alaska Department of Environmental Conservation (DEC), 2005. *Draft Guidance on Developing Conceptual Site Models*. Alaska Department of Environmental Conservation, Division of Spill Prevention and Response. November 30.
- DEC, 2008. Title 18 of the Alaska Administrative Code (AAC), Chapter 75 (18 AAC 75) *Oil and Other Hazardous Substances Pollution Control* as amended through October 9.
- Gough, L.P., Severson, R.C., and Shaklette, H.T., 1988. *Element Concentrations in Soils and Other Surficial Materials of Alaska*, U.S. Geological Survey Professional Paper 1458, United States Government Printing Office, Washington.
- OASIS Environmental (OASIS), 2002. *Village of Beaver Site Assessment Project Report*. January 4.
- SLR International Corp (SLR), 2009. *Work Plan for Preparation of a Property Assessment and Cleanup Plan, Village of Beaver School Tank Farm and Burned Generator Building, Beaver, Alaska*. September 8.
- U.S. Army Corps of Engineers (USACE), 2009.
http://www.poa.usace.army.mil/en/cw/fld_haz/beaver.htm, November.

Human Health Conceptual Site Model Scoping Form

Site Name: Old School Tank Farm, Beaver, AK
File Number: 790.38.002
Completed by: SLR International Corp

Introduction

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

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

1. General Information:

Sources (*check potential sources at the site*)

☐ USTs	☐ Vehicles
☒ ASTs	☐ Landfills
☐ Dispensers/fuel loading racks	☐ Transformers
☐ Drums	☒ Other: <u>Generators, Fuel Pipelines</u>

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

☒ Spills	☒ Direct discharge
☒ Leaks	☐ Burning
	☐ Other: _____

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

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

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

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

* bgs – below ground surface

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

a) Direct Contact –

1 Incidental Soil Ingestion

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

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

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

2 Dermal Absorption of Contaminants from Soil

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

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

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

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

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

b) Ingestion –

1 Ingestion of Groundwater

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

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

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

2 Ingestion of Surface Water

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

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

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

3 Ingestion of Wild Foods

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

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

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

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

c) Inhalation

1 Inhalation of Outdoor Air

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

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

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

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

2 Inhalation of Indoor Air

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

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

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

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

Dermal Exposure to Contaminants in Groundwater and Surface Water

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

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

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

☒

Comments:

Potentially complete

Inhalation of Volatile Compounds in Household Water

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

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

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

☒

Comments:

Potentially complete

Inhalation of Fugitive Dust

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

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

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

☐

Comments:

No further evaluation is necessary because DEC soil ingestion cleanup levels are protective of this pathway and chromium is not considered a contaminant of concern at this Site.

Direct Contact with Sediment

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

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

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

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

☐

Comments:

No further evaluation of this pathway is necessary as DEC soil ingestion cleanup levels are protective of this pathway and there are no known activities that would result in exposure to sediment.

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

APPENDIX A

BIOACCUMULATIVE COMPOUNDS

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

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

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

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

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

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

APPENDIX B

VOLATILE COMPOUNDS

Table B-1: List of Volatile Compounds of Potential Concern

Common volatile contaminants of concern at contaminated sites. A chemical is defined as volatile if the Henry's Law constant is 1×10^{-5} atm-m³/mol or greater and the molecular weight less than 200 g/mole (g/mole; EPA 2004a). Those compounds in Table X of 18 AAC 75.345 that are volatile, based on the definition above, are listed below.

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

APPENDIX C

COMPOUNDS OF CONCERN FOR VAPOR MIGRATION

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

A chemical is considered sufficiently toxic if the vapor concentration of the pure component poses an incremental lifetime cancer risk greater than 10^{-6} or a non-cancer hazard index greater than 1. A chemical is considered sufficiently volatile if it's Henry's Law constant is 1×10^{-5} atm-m³/mol or greater.

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

Source: EPA 2002.

Guidance on Developing Conceptual Site Models
January 31, 2005

HUMAN HEALTH CONCEPTUAL SITE MODEL

Site: Old School Tank Farm
Beaver, Alaska

Completed By: SLR International Corp
Date Completed: April 2010

Follow the directions below. Do not consider engineering or land use controls when describing pathways.

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

(4)
Check exposure pathways that are complete or need further evaluation. The pathways identified must agree with Sections 2 and 3 of the CSM Scoping Form.

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

(2)
For each medium identified in (1), follow the top arrow and check possible transport mechanisms. Briefly list other mechanisms or reference the report for details.

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

Residents or children (adults or children)	Commercial or industrial workers	Site visitors, trespassers, or recreational users	Construction workers	Farmers or subsistence harvesters	Subsistence consumers	Other

Current & Future Receptors

Exposure Pathways

Exposure Media

Transport Mechanisms

Media

☒	☒ Direct release to surface soil	☐ check soil
Surface Soil (0-2 ft bgs)	☒ Migration or leaching to subsurface	☐ check soil
	☒ Migration or leaching to groundwater	☐ check groundwater
	☒ Volatilization	☐ check air
	☒ Runoff or erosion	☐ check surface water
	☒ Uptake by plants or animals	☐ check biota
Other (list):		

☒	☒ Direct release to subsurface soil	☐ check soil
Subsurface Soil (2-15 ft bgs)	☒ Migration to groundwater	☐ check groundwater
	☒ Volatilization	☐ check air
	Other (list):	

☐	☐ Direct release to groundwater	☐ check groundwater
Ground-water	☐ Volatilization	☐ check air
	☐ Flow to surface water body	☐ check surface water
	☐ Flow to sediment	☐ check sediment
	☐ Uptake by plants or animals	☐ check biota
	Other (list):	

☐	☐ Direct release to surface water	☐ check surface water
Surface Water	☐ Volatilization	☐ check air
	☐ Sedimentation	☐ check sediment
	☐ Uptake by plants or animals	☐ check biota
	Other (list):	

☐	☐ Direct release to sediment	☐ check sediment
Sediment	☐ Resuspension, runoff, or erosion	☐ check surface water
	☐ Uptake by plants or animals	☐ check biota
	Other (list):	

☒ soil

☒ groundwater

☒ air

☒ surface water

☐ sediment

☒ biota

☒ Incidental Soil Ingestion	F	F	C/F	F	C/F	C/F	
☒ Dermal Absorption of Contaminants from Soil	F	F	C/F	F	C/F	C/F	

☒ Ingestion of Groundwater	F						
☒ Dermal Absorption of Contaminants in Groundwater	F						
☒ Inhalation of Volatile Compounds in Tap Water	F						

☒ Inhalation of Outdoor Air	F	F	C/F	F	C/F	C/F	
☐ Inhalation of Indoor Air							
☐ Inhalation of Fugitive Dust							

☒ Ingestion of Surface Water	F	F	F	F			
☒ Dermal Absorption of Contaminants in Surface Water	F						
☐ Inhalation of Volatile Compounds in Tap Water	F						

☐ Direct Contact with Sediment							

☐ Ingestion of Wild Foods							

APPENDIX H-2

BURNED GENERATOR BUILDING CONCEPTUAL SITE MODEL

BURNED GENERATOR BUILDING AREA CONCEPTUAL SITE MODEL

This Conceptual Site Model (CSM) was developed to qualitatively assess the risk to potential human and ecological receptors from petroleum hydrocarbons in soil at the Burned Generator Building site, hereafter referred to as the Site. This CSM is based upon available site data collected by Oasis Environmental in 2001 (OASIS, 2002) and SLR in 2009 and describes the potential exposure scenarios for current and future site receptors. This CSM was prepared in accordance with the DEC *Draft Guidance on Developing Conceptual Site Models* (DEC, 2005) using the DEC Draft Human Health Conceptual Site Model Scoping Form. The DEC Draft Human Health Conceptual Site Model Diagram was used to summarize the results of the checklist. All cleanup levels referenced in this CSM are with respect to DEC Method Two cleanup levels (DEC, 2008).

1.1 Impacted Media

Impacted media at the Site are the environmental compartments into which a contaminant is directly released (DEC, 2005). Analytical results from the 2001 Village of Beaver site assessment project (OASIS, 2002) and the 2009 property assessment conducted by SLR were reviewed in order to determine what media have been impacted as a result of historic activities at the Site. Contaminant concentrations from 2001 are assumed to be unchanged since the time the samples were collected for development of this CSM. Soil data collected at a depth of 2 feet are discussed in the surface soil section of this CSM. Field screening and analytical data used to support this CSM are presented on Figure 4 of the 2001 site assessment report (OASIS, 2002) and Table 3 and Figure 4 of the Village of Beaver School Tank Farm Property Assessment and Cleanup Report.

1.1.1 Surface Soil

Surface soil is defined as the interval from 0 feet to 2 feet below ground surface (bgs) (DEC, 2005). A release or discharge associated with the historic activities would directly affect surface soil. Therefore, for this CSM, surface soil is considered an impacted medium.

Five analytical samples were collected from the surface soil interval in 2001; of these samples, four have reported results for diesel range organics (DRO) and residual range organics (RRO) and one samples has reported results for DRO; RRO; gasoline range organics (GRO); and benzene, toluene, ethylbenzene, and xylenes (BTEX). DRO concentrations ranged from 19.3 milligrams per kilogram (mg/kg) to 36,400 mg/kg with two concentrations above the DEC cleanup level of 250 mg/kg. RRO concentrations ranged from non-detect to 59,200 mg/kg with one concentration above the DEC Method Two soil cleanup level (10,000 mg/kg). GRO and xylenes were the only other analytes detected at concentrations of 770 mg/kg and 68 mg/kg, respectively; both of these concentrations are in excess of DEC Method Two soil cleanup levels (OASIS, 2002).

Sixteen field screening and one analytical sample were collected from the surface soil interval in 2009. Field screening results ranged from 0.2 parts per million (ppm) to 1,019 ppm with seven samples having results greater than 100 ppm. The single analytical sample from this interval was

analyzed for GRO, DRO, RRO, BTEX, and lead. The analytical result for DRO was detected above the DEC Method Two soil cleanup level at a concentration of 3,020 mg/kg. RRO was also detected at a concentration of 4,110 mg/kg, but below DEC cleanup levels. GRO, toluene, and xylenes were detected at estimated concentrations of 4.32 mg/kg, 0.0621 mg/kg, and 0.1856 mg/kg, all well below their respective DEC Method Two soil cleanup levels.

1.1.2 Subsurface Soil

Subsurface soil is defined as the interval from 2 feet to 15 feet bgs (DEC, 2005); soil below 15 feet bgs is not considered in this CSM because it is below the depth interval considered for direct contact by human or ecological receptors. Subsurface soil contamination has been confirmed to be present at the Site, so subsurface soil is confirmed to be an impacted medium in this CSM.

Four analytical samples were collected from the subsurface soil interval in 2001; these samples, have reported results for DRO and RRO. Maximum detected concentrations of DRO and RRO were 51.8 mg/kg and 165 mg/kg, respectively with all concentrations below DEC Method Two soil cleanup levels (OASIS, 2002).

Thirty-four field screening and five analytical (plus one duplicate) samples were collected from this interval in 2009. Field screening results ranged from 0.0 ppm to 1,483 ppm with 14 samples having results greater than 100 ppm. Analytical samples from this interval were all analyzed for DRO, RRO, and BTEX, and selectively analyzed for GRO and polynuclear aromatic hydrocarbons (PAHs). Analytical results for GRO indicated a maximum detected concentration of 10,100 mg/kg, which is more than 30 times greater than the DEC Method Two soil cleanup level of 300 mg/kg. DRO concentrations were also detected in excess of applicable cleanup levels in three samples, including the duplicate, at up to 30,100 mg/kg. All BTEX compounds were also detected above their respective DEC cleanup levels in one or more samples with concentrations up to 0.518 mg/kg, 6.54 mg/kg, 33.7 mg/kg, and 531 mg/kg, respectively.

Five PAH compounds (1-methylnaphthalene, 2-methylnaphthalene, acenaphthene, naphthalene, and phenanthrene) were also detected in one or more samples. Concentrations of 1-methylnaphthalene, 2-methylnaphthalene, and naphthalene were detected above DEC Method Two soil cleanup levels.

1.1.3 Ground Water

The community relies upon a washeteria for its water; there is no piped water and water is hauled from the washeteria. The washeteria, which derives its water from the community well, is located approximately 750 feet from the closest site boundary. The well was drilled to approximately 64 feet bgs. A sample collected in 2007 from this well for the DEC Drinking Water Program detected xylenes at a low concentration (2.33 micrograms per liter). The well is sampled annually for volatile organic compounds (VOCs) (SLR, 2009).

In addition, the community well was sampled by SLR in September 2009. The sample was analyzed for GRO, DRO, RRO, VOCs, and PAHs; none of these analytes were detected in community well. The results are presented in Table 4 of the Village of Beaver School Tank Farm Property Assessment and Cleanup Report.

It is not anticipated that ground water would be used from the Site since the community has a well located approximately 750 feet away, which supplies water to the community. The well log for the closest well drilled to the Site indicates frozen soil to a depth of 55 feet bgs with ground encountered just below the frozen soil in a sand unit which extends from 55 feet bgs to 58 feet bgs.

No known ground water samples have been collected from the Site. For the purposes of this CSM, ground water is considered an exposure medium; exposure media are discussed in Section 1.2.

1.1.4 Surface Water

A release at the Site would not directly affect surface water since the receiving media would be soil rather than surface water. For this CSM, surface water is not considered an impacted medium however surface water is an exposure medium based on the potential for overland or subsurface migration of contaminants to surface water.

The nearest surface water to the Site is the Yukon River, which is located approximately 750 feet to the south. The Yukon River is subject to flooding, with recorded events in 1948 and 1992 (USACE, 2009), increasing the risk of overland migration of contaminants from the Site.

No known surface water samples have been collected from the Site.

1.1.5 Sediment

A release at the Site would not directly affect sediments associated with nearby surface water for the same reasons as discussed above. Therefore, for this CSM, sediment is not considered an impacted medium.

No known sediment samples have been collected from the Site.

1.2 Transport Mechanisms and Exposure Media

Transport mechanisms are the pathways through which contaminants may move from impacted media to other exposure media. Exposure media are the media to which contaminants are transported that may result in exposure by human receptors to the contaminants. Six transport mechanisms were identified at the Site including direct release to soil, migration or leaching to subsurface, migration or leaching to ground water, volatilization, runoff or erosion, and uptake by plants and animals. Based on the impacted media and transport mechanisms, five exposure media (soil, ground water, air, surface water, and biota) are present.

Possible transport mechanisms and exposure media are depicted on the DEC Draft Human Health Conceptual Site Model Diagram included at the end of this CSM.

1.3 Exposure Pathways

Each potential exposure pathway was evaluated using the DEC Draft Human Health Conceptual Site Model Scoping Form. Based on this evaluation, four potentially complete exposure

pathways were identified. These pathways include incidental soil ingestion, dermal absorption of contaminants from soil, inhalation of outdoor air, and ingestion of surface water. The determination of complete or incomplete exposure pathways is explained in the following sections.

1.3.1 Potentially Complete Exposure Pathways

The direct contact exposure pathway via incidental soil ingestion is considered potentially complete because soil contamination exists between 0 feet and 15 feet bgs and the Site is expected to be used by human receptors.

The dermal absorption of contaminants from soil pathway is potentially complete because PAH compounds (1-methylnaphthalene, 2-methylnaphthalene, acenaphthene, naphthalene, and phenanthrene), which can permeate the skin, are present in the soil between 0 feet and 15 feet bgs.

The ingestion of ground water pathway is considered potentially complete because ground water has not been ruled out as a future drinking water source by DEC in accordance with 18 AAC 75.350. However, the potential for exposure via this pathway is considered to be low because there is already a community well, located approximately 750 feet from the Site. In addition, no VOCs have been detected in the well and the migration of contaminants from the Site to ground water would be limited based on the presence of frozen soils observed to a depth of 55 feet bgs.

The inhalation of outdoor air exposure pathway is considered potentially complete because of the presence of volatile contaminants in soil between 0 feet and 15 feet bgs and the use of the Site by human receptors. Volatile contaminants (as described in Appendix B of the Scoping Form) that make this pathway complete include GRO, DRO, BTEX, acenaphthene, and naphthalene.

The ingestion of surface water pathway is considered potentially complete because the Site has the potential to flood resulting in overland migration of contaminants. In addition, nearby surface water, the Yukon River, is used for subsistence fishing and recreational activities.

The dermal exposure to contaminants in ground water and surface water pathway and the inhalation of volatile compounds in household water pathway are all considered potentially complete because although DEC water quality standards may be applied as cleanup levels at the Site, ground water and surface water are still considered exposure media and could be used by residents in the vicinity of the Site for household purposes in the future. VOCs have not been detected in ground water from the community well, located approximately 750 feet from Site and with no other known wells it is not considered a current exposure pathway. SLR is unaware of any household surface water usage.

1.3.2 Incomplete Exposure Pathways

The remaining exposure pathways were determined to be incomplete based on site data, features, or other pertinent information in accordance with the DEC Draft Human Health Conceptual Site Model Scoping Form. These incomplete pathways of note are discussed briefly below.

The inhalation of indoor air pathway is not considered complete because buildings in Beaver are located on pilings with no skirting, which eliminates any preferential or direct pathways for soil contaminant vapors to migrate into indoor air. Any soil contaminant vapors would be released into outdoor air, making the inhalation of indoor pathway incomplete.

The ingestion of wild foods exposure pathway is not complete because contaminants that bioaccumulate have not been detected at the Site.

The inhalation of fugitive dust exposure pathway is not considered complete. Normally this pathway requires further evaluation based on the presence of chromium in site soils however chromium is not considered a contaminant of potential concern in surface soil at this Site.

The direct contact with sediment pathway is not considered complete because DEC soil ingestion cleanup levels are assumed to also be protective of this pathway and no known activities that result in direct contact with sediment are undertaken at the Site.

1.4 Current and Future Receptors

The main portion of the Site is has not been used since the Generator Building burned in 2007; the area across the street (the village tank farm), also part of this CSM, remains an active tank farm. The Site at the edge of town and current use from visitors, trespassers, recreational users, or subsistence harvesters and consumers cannot be ruled out. The Site is also the proposed location for an expanded tank farm, a location to store equipment, or for the placement of storage buildings and is expected to have part-time workers, but no permanent residences. Any future work at the Site (environmental or construction) will require construction workers. Based on current development plans, the following human receptors are considered to be potentially exposed to site contaminants:

- Commercial or industrial workers (future);
- Construction workers (future);
- Site visitors, trespassers, or recreational users (current and future); and,
- Subsistence harvesters and consumers (current and future).

1.5 Exposure Tracking Model

DEC's Contaminated Sites Program developed the exposure tracking model (ETM) to prioritize which sites need the most attention. The ETM is a revision to the Alaska Hazard Ranking Model, historically used to prioritize all contaminated sites. The ETM is a preliminary evaluation of all sites and ranks each site according to possibility of human and ecosystem exposure to the contaminants that are present. Prioritization for a site can change over time.

DEC has provided an ETM for this site. The results summary of the model found that, for the Burned Generator Building site, there is one pathway with current exposure (direct contact with surface soil), four exposure pathways with high potential (direct contract with subsurface soil, outdoor air inhalation, ground water ingestion, and surface water ingestion), and one exposure pathway with low potential (indoor air inhalation) for human receptors. There is low potential for

ecological impact. A hazard ranking was assigned to this Site on November 9, 2009. On a scale of 1 to 10, with 10 representing highest priority, the ETM ranked the Burned Generator Building site with a score of 4. The ETM for this site is included in Appendix H.

1.6 References

Alaska Department of Environmental Conservation (DEC), 2005. *Draft Guidance on Developing Conceptual Site Models*. Alaska Department of Environmental Conservation, Division of Spill Prevention and Response. November 30.

DEC, 2008. Title 18 of the Alaska Administrative Code (AAC), Chapter 75 (18 AAC 75) *Oil and Other Hazardous Substances Pollution Control* as amended through October 9.

OASIS Environmental (OASIS), 2002. *Village of Beaver Site Assessment Project Report*. January 4.

SLR International Corp (SLR), 2009. *Work Plan for Preparation of a Property Assessment and Cleanup Plan, Village of Beaver School Tank Farm and Burned Generator Building, Beaver, Alaska*. September 8.

U.S. Army Corps of Engineers (USACE), 2009.
http://www.poa.usace.army.mil/en/cw/fld_haz/beaver.htm, November.

Human Health Conceptual Site Model Scoping Form

Site Name: Burned Generator Building Area, Beaver, AK
File Number: 790.57.001
Completed by: SLR International Corp

Introduction

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

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

1. General Information:

Sources (*check potential sources at the site*)

☐ USTs	☐ Vehicles
☒ ASTs	☐ Landfills
☐ Dispensers/fuel loading racks	☐ Transformers
☐ Drums	☒ Other: <u>Generators, Fuel Pipelines</u>

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

☒ Spills	☒ Direct discharge
☒ Leaks	☒ Burning
	☐ Other: _____

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

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

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

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

* bgs – below ground surface

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

a) Direct Contact –

1 Incidental Soil Ingestion

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

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

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

2 Dermal Absorption of Contaminants from Soil

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

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

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

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

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

b) Ingestion –

1 Ingestion of Groundwater

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

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

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

2 Ingestion of Surface Water

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

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

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

3 Ingestion of Wild Foods

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

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

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

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

c) Inhalation

1 Inhalation of Outdoor Air

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

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

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

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

2 Inhalation of Indoor Air

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

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

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

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

Dermal Exposure to Contaminants in Groundwater and Surface Water

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

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

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

☒

Comments:

Potentially complete

Inhalation of Volatile Compounds in Household Water

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

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

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

☒

Comments:

Potentially complete

Inhalation of Fugitive Dust

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

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

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

☐

Comments:

No further evaluation is necessary because DEC soil ingestion cleanup levels are protective of this pathway and chromium is not considered a contaminant of concern at this Site.

Direct Contact with Sediment

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

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

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

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

☐

Comments:

No further evaluation of this pathway is necessary as DEC soil ingestion cleanup levels are protective of this pathway and there are no known activities that would result in exposure to sediment.

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

APPENDIX A

BIOACCUMULATIVE COMPOUNDS

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

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

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

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

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

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

APPENDIX B

VOLATILE COMPOUNDS

Table B-1: List of Volatile Compounds of Potential Concern

Common volatile contaminants of concern at contaminated sites. A chemical is defined as volatile if the Henry's Law constant is 1×10^{-5} atm-m³/mol or greater and the molecular weight less than 200 g/mole (g/mole; EPA 2004a). Those compounds in Table X of 18 AAC 75.345 that are volatile, based on the definition above, are listed below.

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

APPENDIX C

COMPOUNDS OF CONCERN FOR VAPOR MIGRATION

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

A chemical is considered sufficiently toxic if the vapor concentration of the pure component poses an incremental lifetime cancer risk greater than 10^{-6} or a non-cancer hazard index greater than 1. A chemical is considered sufficiently volatile if it's Henry's Law constant is 1×10^{-5} atm-m³/mol or greater.

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

Source: EPA 2002.

Guidance on Developing Conceptual Site Models
January 31, 2005

HUMAN HEALTH CONCEPTUAL SITE MODEL

Site: Burned Generator Building Area
Beaver, Alaska

Completed By: SLR International Corp
Date Completed: April 2010

Follow the directions below. Do not consider engineering or land use controls when describing pathways.

(1)

Check the media that could be directly affected by the release.

(2)

For each medium identified in (1), follow the top arrow and check possible transport mechanisms. Briefly list other mechanisms or reference the report for details.

(3)

Check exposure media identified in (2).

(4)

Check exposure pathways that are complete or need further evaluation. The pathways identified must agree with Sections 2 and 3 of the CSM Scoping Form.

(5)

Identify the receptors potentially affected by each exposure pathway. Enter "C" for current receptors, "F" for future receptors, or "C/F" for both current and future receptors.

Current & Future Receptors

Residents or children (adults or children)	Commercial or industrial workers	Site visitors, trespassers, or recreational users	Construction workers	Farmers or subsistence harvesters	Subsistence consumers	Other

Exposure Pathways

Exposure Media

Transport Mechanisms

Media

☒	☐ Direct release to surface soil	☐ check soil
Surface Soil (0-2 ft bgs)	☒ Migration or leaching to subsurface	☐ check soil
	☒ Migration or leaching to groundwater	☐ check groundwater
	☒ Volatilization	☐ check air
	☒ Runoff or erosion	☐ check surface water
	☒ Uptake by plants or animals	☐ check biota
☐	Other (list):	

☒	☐ Direct release to subsurface soil	☐ check soil
Subsurface Soil (2-15 ft bgs)	☒ Migration to groundwater	☐ check groundwater
	☒ Volatilization	☐ check air
	☐ Other (list):	

☐	☐ Direct release to groundwater	☐ check groundwater
Ground-water	☐ Volatilization	☐ check air
	☐ Flow to surface water body	☐ check surface water
	☐ Flow to sediment	☐ check sediment
	☐ Uptake by plants or animals	☐ check biota
	☐ Other (list):	

☐	☐ Direct release to surface water	☐ check surface water
Surface Water	☐ Volatilization	☐ check air
	☐ Sedimentation	☐ check sediment
	☐ Uptake by plants or animals	☐ check biota
	☐ Other (list):	

☐	☐ Direct release to sediment	☐ check sediment
Sediment	☐ Resuspension, runoff, or erosion	☐ check surface water
	☐ Uptake by plants or animals	☐ check biota
	☐ Other (list):	

☒ soil

☒ groundwater

☒ air

☒ surface water

☐ sediment

☒ biota

☒ Incidental Soil Ingestion	F	C/F	F	C/F	C/F	C/F
☒ Dermal Absorption of Contaminants from Soil	F	C/F	F	C/F	C/F	C/F

☒ Ingestion of Groundwater						
☒ Dermal Absorption of Contaminants in Groundwater						
☒ Inhalation of Volatile Compounds in Tap Water						

☒ Inhalation of Outdoor Air	F	C/F	F	C/F	C/F	C/F
☐ Inhalation of Indoor Air						
☐ Inhalation of Fugitive Dust						

☒ Ingestion of Surface Water	F	F	F			
☒ Dermal Absorption of Contaminants in Surface Water						
☐ Inhalation of Volatile Compounds in Tap Water						

☐ Direct Contact with Sediment						

☐ Ingestion of Wild Foods						

APPENDIX I-1

OLD BIA SCHOOL DEC EXPOSURE TRACKING MODEL

Exposure Tracking Model - Evaluation Summary

[Navigation](#)[Save Results](#)[Add CSP Action](#)**Site Information:****Site:** Beaver School Tank Farm**Source:** Tank Farm**Evaluation Date:** 8/15/2008 9:57:43 AM**Initial/Updated:** Updated**Results Summary:****Human Health Exposure Category:** Current Exposure**Controlling Pathway(s):** Surface Soil**Score:** 6**Ecological Site Exposure Category:** Low Potential Exposure**Potentially-Contaminated Media:** Surface Soil, Subsurface Soil, Groundwater, Surface Water**Other Site Concerns:** None**Exposure Assessment:**

Pathway	<u>Exposure Categories</u>	
	Initial Ranking	Updated Ranking
	5/23/2008 1:47:29 PM	12/25/2008 12:00:00 AM
Direct Contact with Surface Soil:	Current Exposure	Current Exposure
Direct Contact with Subsurface Soil:	High Potential Exposure	High Potential Exposure
Outdoor Air Inhalation:	High Potential Exposure	High Potential Exposure
Groundwater Ingestion:	Low Potential Exposure	Low Potential Exposure
Surface Water Ingestion:	High Potential Exposure	High Potential Exposure
Wild or Farmed Foods Ingestion:	Pathway Incomplete	Pathway Incomplete
Indoor Air Inhalation (Vapor Intrusion):	High Potential Exposure	High Potential Exposure
Other Human Health:	Pathway Incomplete	Pathway Incomplete
Ecological:	Low Potential Exposure	Low Potential Exposure

Initial Ranking Comments**: (comments - source)**

Diesel contamination identified at 7 sites, most widespread at Cruikshank School Tank Farm and old school generator building. DRO contamination levels at the surface exceed 10,000 ppm and at 8.5 feet below ground surface reach 19,000 ppm. About 5,600 square feet of surface contamination documented, volume estimated at 1,640 cubic yards. Another 400 square feet of surface contamination identified along the washeteria pipeline and is estimated to extend to at least 7.5 feet below ground surface for a volume of 110 cubic yards. Recommended depth for remediation effort is 15 feet.

Direct Contact With Surface Soil: (comments - page)

Site #2 has DRO up to 36,400 mg/kg in soil at 1.5'. Widespread contamination from surface spills and releases. Recommend excavation.

Direct Contact With Subsurface Soil: (comments - page)

Widespread subsurface contamination exists among 7 sites in village. Recommend excavation.

Groundwater Ingestion: (comments - page)

The village drinking water well appears 200' from nearest Contaminated site. It is 64' bgs and 35' from Yukon River. This well serves school, council bldg and washeteria. Residents haul water from washeteria.

Surface Water Ingestion: (comments - page)

The Yukon River is within a 1/4 mile of sites. The gw gradient is unknown.

Indoor Air Inhalation (Vapor Intrusion): (comments - page)

There may be several bldgs affected by vapor intrusion. Some bldgs are built on pilings. A site visit is needed to verify which bldgs may be affected.

Updated Ranking Comments**: (comments - source)**

Diesel contamination identified at 7 sites, most widespread at Cruikshank School Tank Farm and old school generator building. DRO contamination levels at the surface exceed 10,000 ppm and at 8.5 feet below ground surface reach 19,000 ppm. About 5,600 square feet of surface contamination documented, volume estimated at 1,640 cubic yards. Another 400 square feet of surface contamination identified along the washeteria pipeline and is estimated to extend to at least 7.5 feet below ground surface for a volume of 110 cubic yards. Recommended depth for remediation effort is 15 feet.

Direct Contact With Surface Soil: (comments - page)

Site #2 has DRO up to 36,400 mg/kg in soil at 1.5'. Widespread contamination from surface spills and releases. Recommend excavation.

Direct Contact With Subsurface Soil: (comments - page)

Widespread subsurface contamination exists among 7 sites in village. Recommend excavation.

Groundwater Ingestion: (comments - page)

The village drinking water well appears 200' from nearest Contaminated site. It is 64' bgs and 35' from Yukon River. This well serves school, council bldg and washeteria. Residents haul water from washeteria.

Surface Water Ingestion: (comments - page)

The Yukon River is within a 1/4 mile of sites. The gw gradient is unknown.

Indoor Air Inhalation (Vapor Intrusion): (comments - page)

There may be several bldgs affected by vapor intrusion. Some bldgs are built on pilings. A site visit is needed to verify which bldgs may be affected.

APPENDIX I-2

BURNED GENERATOR BUILDING DEC EXPOSURE TRACKING MODEL

Exposure Tracking Model - Evaluation Summary

[Navigation](#)[Save Results](#)[Add CSP Action](#)**Site Information:****Site:** Beaver Generator Building Fire**Source:** Tank Farm**Evaluation Date:** 11/9/2009 4:42:29 PM**Initial/Updated:** Updated**Results Summary:****Human Health Exposure Category:** Current Exposure**Controlling Pathway(s):** Surface Soil**Score:** 4**Ecological Site Exposure Category:** Low Potential Exposure**Potentially-Contaminated Media:** Surface Soil, Subsurface Soil, Groundwater, Surface Water**Other Site Concerns:** None**Exposure Assessment:**

Pathway	Exposure Categories	
	Initial Ranking 6/20/2008 12:27:24 PM	Updated Ranking 11/9/2009 4:42:29 PM
Direct Contact with Surface Soil:	Current Exposure	Current Exposure
Direct Contact with Subsurface Soil:	High Potential Exposure	High Potential Exposure
Outdoor Air Inhalation:	High Potential Exposure	High Potential Exposure
Groundwater Ingestion:	High Potential Exposure	High Potential Exposure
Surface Water Ingestion:	High Potential Exposure	High Potential Exposure
Wild or Farmed Foods Ingestion:	Pathway Incomplete	Pathway Incomplete
Indoor Air Inhalation (Vapor Intrusion):	Low Potential Exposure	Low Potential Exposure
Other Human Health:	Pathway Incomplete	Pathway Incomplete
Ecological:	Low Potential Exposure	Low Potential Exposure

Initial Ranking Comments**: (comments - source)**

Beaver generator building was destroyed by fire July 28, 2007. Village environmental (IGAP) coordinator contacted DEC brownfield program, later submitted spill report to PERP. Site transferred from PERP to be worked under brownfields program, but no follow-up came from village IGAP. Reportedly 150 gallons of fuel spilled and is believed to have burned, but it is unknown how much fuel was actually lost, and the volume could be higher. Fuel-contaminated soil already existed around the tank farm supplying the generator building. Site is also known as the Beaver Joint Utilities (BJU) Tank Farm. Report from a 2001 assessment stated that analytical sample results from test pits in the area of the BJU-E tank farm indicated DRO concentrations ranging from non-detect to 36,400 mg/kg. RRO concentrations ranged from non-detect to 59,200 mg/kg. The single GRO/BTEX sample concentration was 770 mg/kg. BTEX results showed non-detect for all contaminants except for Xylenes, with concentration of 68 mg/kg. Stained areas were noted near the pump where residents filled fuel containers, below a leaking joint in piping and connections to the generator building, and an area reportedly used to store 55-gallon drums of used oil. The report recommended additional assessment, removal of about 4 cubic yards of contaminated soil, possible in-situ remediation of soil near the generator building structure (which is now gone), and replacement of threaded piping with welded piping. See also 790.38.002.

Direct Contact With Surface Soil: (comments - page)

People walk through area, which is centrally located in the village, and tank farm still present although current status of old generator building debris and site unknown. Data are from 2001 investigation, current site conditions unknown. Generator building fire may have caused new release. Recommend following excavation recommendations in 2001 report.

Direct Contact With Subsurface Soil: (comments - page)

Data available are from 2001 investigation. Generator fire since then may have caused new release, but current site conditions unknown. Plans for excavation unknown, but it is recommended.

Outdoor Air Inhalation: (comments - page)

Data available are from 2001 investigation. Generator fire since then may have caused new release, but current site conditions unknown. Excavation recommended.

Groundwater Ingestion: (comments - page)

PWS well 64' bgs and located 35' from Yukon River, site is 800-1000 feet inland from river; unknown whether private wells in area.

Surface Water Ingestion: (comments - page)

Most likely not a significant pathway for exposure, but unknown current site conditions and location within 1/4 mile of Yukon River make it difficult to rule out. Uncertainties as to overland migration (unlikely) or through the aquifer. Well located near river, 64' bgs. Possible that some people may draw drinking water from river. Other contaminated source areas located between this site and river.

Indoor Air Inhalation (Vapor Intrusion): (comments - page)

Locations of residences or commercial structures within 100 feet uncertain but unlikely, Xylenes (only one sample) were detected in soil but no soil gas data available. Many structures built on pilings in village. Deemed an unlikely exposure pathway because unlikely people spend much time in the area but further data collection is needed to verify.

Aquatic and Terrestrial: (comments - page)

Limited area of contamination, approximately 800-1000 feet from Yukon River (anadromous salmon stream), but chronic ecological exposure considered very unlikely.

Updated Ranking Comments**: (comments - source)**

Beaver generator building was destroyed by fire July 28, 2007. Village environmental (IGAP) coordinator contacted DEC brownfield program, later submitted spill report to PERP. Site transferred from PERP to be worked under brownfields program, but no follow-up came from village IGAP. Reportedly 150 gallons of fuel spilled and is believed to have burned, but it is unknown how much fuel was actually lost, and the volume could be higher. Fuel-contaminated soil already existed around the tank farm supplying the generator building. Site is also known as the Beaver Joint Utilities (BJU) Tank Farm. Report from a 2001 assessment stated that analytical sample results from test pits in the area of the BJU-E tank farm indicated DRO concentrations ranging from non-detect to 36,400 mg/kg. RRO concentrations ranged from non-detect to 59,200 mg/kg. The single GRO/BTEX sample concentration was 770 mg/kg. BTEX results showed non-detect for all contaminants except for Xylenes, with concentration of 68 mg/kg. Stained areas were noted near the pump where residents filled fuel containers, below a leaking joint in piping and connections to the generator building, and an area reportedly used to store 55-gallon drums of used oil. The report recommended additional assessment, removal of about 4 cubic yards of contaminated soil, possible in-situ remediation of soil near the generator building structure (which is now gone), and replacement of threaded piping with welded piping. See also 790.38.002.

Direct Contact With Surface Soil: (comments - page)

People walk through area, which is centrally located in the village, and tank farm still present although current status of old generator building debris and site unknown. Data are from 2001 investigation, current site conditions unknown. Generator building fire may have caused new release. Recommend following excavation recommendations in 2001 report.

Direct Contact With Subsurface Soil: (comments - page)

Data available are from 2001 investigation. Generator fire since then may have caused new release, but current site conditions unknown. Plans for excavation unknown, but it is recommended.

Outdoor Air Inhalation: (comments - page)

Data available are from 2001 investigation. Generator fire since then may have caused new release, but current site conditions unknown. Excavation recommended.

Groundwater Ingestion: (comments - page)

PWS well 64' bgs and located 35' from Yukon River, site is 800-1000 feet inland from river; unknown whether private wells in area.

Surface Water Ingestion: (comments - page)

Most likely not a significant pathway for exposure, but unknown current site conditions and location within 1/4 mile of Yukon River make it difficult to rule out. Uncertainties as to overland migration (unlikely) or through the aquifer. Well located near river, 64' bgs. Possible that some people may draw drinking water from river. Other contaminated source areas located between this site and river.

Indoor Air Inhalation (Vapor Intrusion): (comments - page)

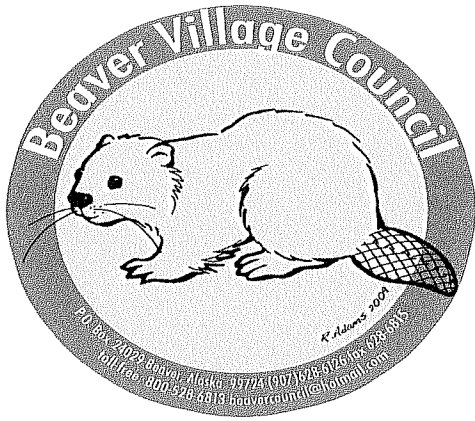
Locations of residences or commercial structures within 100 feet uncertain but unlikely, Xylenes (only one sample) were detected in soil but no soil gas data available. Many structures built on pilings in village. Deemed an unlikely exposure pathway because unlikely people spend much time in the area but further data collection is needed to verify.

Aquatic and Terrestrial: (comments - page)

Limited area of contamination, approximately 800-1000 feet from Yukon River (anadromous salmon stream), but chronic ecological exposure considered very unlikely.

APPENDIX J

HEAVY EQUIPMENT RENTAL RATES



P.O. Box 24029
Beaver, Alaska 99724
(907)628-6126 Fax 628-6815 Toll-Free: 800-528-6813
beavercouncil@hotmail.com

Beaver Village Council

Equipment Rental Rates

<u>Equipment</u>	<u>Rate per Day</u>
Loader	\$200
Dump Truck	\$200
Chain Saw	\$50
Axe	\$15
Shovel	\$15
Four Wheeler	\$75.00
Trailer	\$15
Labor	\$25/hr.

*Gas can be purchased from Cliff Adams at (907) 628-6622.

Selina Petruska, Chief
Paul Williams Sr., 2nd Chief
Rebecca Fisher, Secretary
Kimberly Andon, Bertha Billy, Richard Williams, D. Thomas Adams

APPENDIX K

COST ESTIMATE SPREADSHEETS

Cost Estimate for Proposed Cleanup Action, Village of Beaver OLD BIA School and Burned Generator Building Sites Area Soils, Alaska

	Clerical	Drafting	Environmental Scientist	Project Manager	Project Director	Total		Comments / Backup
1. Labor (including salary and indirect overhead)	\$55.00	\$90.00	\$90.00	\$100.00	\$130.00	Hours	Cost	
Task 1 - Remedial Work Plan Preparation		24	72	24	16	136	\$13,120.00	40 hours for plan prep plus one-day site visit of two 12-hour days including coordination with Village representatives.
Task 2A - Construction Landfarm Area Decommission Tanks and Haul Debris to Landfill		8	96	16	8	128	\$12,000.00	Will require up to seven days on site for cell construction (avg. 12-hour days), + 12 hrs mob. This time is needed to prep the roughly 280-foot square area for the landfarm. In addition, all solid waste debris will be hauled to the land fill in dump trucks. All liquid wastes will be managed through the Village Solid Waste Coordinator. Contractor will inert and cut tanks to clean. Contractor will will cut tanks small enough to haul to landfill.
Task 2B - Excavation of Contaminated Soils, Spreading Landfarm Soils		12	96	16	8	132	\$12,360.00	Assumes two 10-yard trucks are operational. Thirty minute turn time for each 10-yard load from excavation of contaminated soil will be the rate-limiting step. Assumes the truck will travel 5-mile round trip at 20 mph with five minutes on each end for loading and dumping. Total 10-hour operating daily rate of hauling is 400 cubic yards (assume 10 hour production in 12-hour day due to refueling, etc.) Assumes both 10-cy trucks make 20 trips each day. Seven days needed for excavation and hauling. One contingency day added for equipment maintenance. Excavation floor sampling/mapping will take place during excavation. Dump trucks will dump soils in an area next to the landfill and the loader will require two days to spread after initial spreading by trucks is complete.
Task 2C - Backfilling Excavations (3,000 cubic yards)		8	96	16	8	128	\$12,000.00	Assume 30-minute turn time for 10-yard load from backfill source area Two trucks running. Seven days required to load and haul material to excavation site. One contingency day added for equipment maintenance. Compaction will require one additional day. Purchase of compactor to compact backfill gravel in 1-foot lifts.
Task 2D - Tilling and Fertilizing Landfarm	6	24	96	24	8		\$14,570.00	Set up equipment and start tilling and fertilizing process to be performed by local labor. This task also assumes time to purchase and ship the rototiller, fertilizer spreader, and fertilizer to Beaver. Project report for excavation and backfill, and landfarm construction.
Task 3 - Landfarm Maintenance 2011		8	60	8	2	78	\$7,180.00	Assume one trip for sample collection and village labor to do three rounds of tilling and fertilizing (assumes two 12 hour days and 12-hours travel time) 24 hours for environmental scientist to prepare letter interim report.
Task 4 - Landfarm Maintenance 2012		4	60	8	2	74	\$6,820.00	Assume one trip for sample collection and village labor to do three rounds of tilling and fertilizing (assumes two 12 hour day and 12-hours travel time for consultant). Twenty-four hours for environmental scientist to prepare letter interim report.
Task 5 - Decommission Landfarm 2013		4	72	40	4	120	\$11,360.00	Will require up to one day for cell confirmation sampling, four days for creating landfill cover stockpile (October 2013), and 12 hours of travel.
Task 6 - Reporting	4	24	80	60	8	176	\$16,620.00	Final report of landfarm sampling and decommissioning.
Total Hours	10	116	728	212	64	1,130		
Labor Cost	\$550	\$10,440	\$65,520	\$21,200	\$8,320	Labor Cost Total	\$106,030	

Cost Estimate for Proposed Cleanup Action, Village of Beaver OLD BIA School and Burned Generator Building Sites Area Soils, Alaska

2. Direct Costs

Task 1 - Remedial Work Plan Preparation					
	No. of Units	Unit	Cost Per Unit	Subtotal	
Phone/FAX	1	estimate	\$50	\$50	
lead soil using SW-846 Method 3050B/6020	6	estimate	\$50	\$300	Collection of soil and paint samples to characterize the paint and ground immediately surrounding the decommissioned ASTs at the Site
Reproduction	1	estimate	\$250.00	\$250	
Per Diem	2	estimate	\$65.00	\$130	
Lodging	1	estimate	\$100.00	\$100	
Consultant RT Airfare, Fairbanks to Beaver	1	each	\$262.00	\$262	
				SubTotal Task 1 (ODC)	\$1,092
				SubTotal Task 1 (Labor)	\$13,120
				Task 1 - Total Costs	\$14,212
Task 2A - Construction Landfarm Area Decommission Tanks and Haul Debris to Landfill					
	No. of Units	Unit	Cost Per Unit	Subtotal	
Consultant RT Airfare, Fairbanks to Beaver	1	each	\$262	\$262	Warbelows Air Taxi as of December 7, 2009
Pickup Truck Rental (with fuel)	5	12-hr days	\$334	\$1,670	Based on Village of Hughes Equipment rates provided by City Administrator
Loader (with fuel)	5	12-hr days	\$564	\$2,820	"" loader with fuel
Excavator with thumb for building demolition	5	12-hr days	\$564	\$2,820	"" excavator with fuel
10-yard dump truck (with fuel)	10	12-hr days	\$564	\$5,640	"" Two 10-yard dump trucks with fuel
Tipping Fees for 10-yard loads to landfill	20	10/Yards	\$900	\$18,000	Assumes Tipping fee for rural landfill and 2 loads per day of debris
Operator #1	60	Hour	\$52	\$3,128	Assume five days for preparation of landfarm area and hauling debris to landfill. Davis Bacon wage rates for Group I Operator and Group I Laborer. Rate includes Fringe Costs.
Operator #2	60	Hour	\$52	\$3,128	
Operator #3	60	Hour	\$52	\$3,128	
Laborer #1	60	Hour	\$43	\$2,606	Assume five days for preparation of landfarm area and hauling debris to landfill. Davis Bacon wage rates for Group I Operator and Group I Laborer. Rate includes Fringe Costs.
Laborer #2	60	Hour	\$43	\$2,606	
Liquid Waste Management Backhaul to Fairbanks	2200	pounds	\$2	\$4,400	Estimated cost to fly drums to Fairbanks if energy recovery not feasible
Liquid Waste Incineration at OIT, plus pickup at airport and haul to Moose Creek (including up to one drum of PCB-free mineral oil from transformers)	6	drums	\$277	\$1,662	Quote from OIT for drummed POL liquids 5/20/2009 @\$3/gallon plus \$95 per drum from Arctic Fire and Safety in Fairbanks. Assume one drum per tank and buried pipeline. Recovered fuel will have high value in the village and this assumption is for tank sludges after evaporation of wash water.
Certified Tank Contractor	1	estimate	\$35,000	\$35,000	Contractor to cut and clean out tanks. Purge buried pipeline. Liquids will be profiled by local solid waste coordinator and shipped to OIT for treatment. Vertical fuel tanks may be reused as storage space after cleaning and cutting man way doors.
Transportation of Consultant Equip/Materials to Beaver	1	estimate	\$2,000	\$2,000	Includes seed, fertilizer, instruments, etc. (may ship fertilizer w/liners).
Lodging	7	man-day	\$100	\$700	
Meals	7	man-day	\$65	\$455	Estimated daily cost for food and meals.
Surveying equipment	1	weeks	\$300	\$300	Surveyor's Exchange: laser level that can be operated by one person.
Digital Camera	7	days	\$15	\$105	
PPE / Consumables	30	days	\$20	\$600	Based upon costs of Level D PPE during the effort.
				SubTotal Task 2A (ODC)	\$91,032
				SubTotal Task 2A (Labor)	\$12,000
				Task 2A - Total Costs	\$103,032

Cost Estimate for Proposed Cleanup Action, Village of Beaver OLD BIA School and Burned Generator Building Sites Area Soils, Alaska

Task 2B - Excavation of Contaminated Soils, Spreading Landfarm Soils					
Excavator (with fuel)	8	12-hr days	\$564.00	\$4,512	Village equipment rate at Hughes for 8 hour day times 1.5.
Loader (with fuel)	8	12-hr days	\$564.00	\$4,512	""
5-yard dump truck (with fuel)	8	12-hr days	\$564.00	\$4,512	""
10-yard dump truck (with fuel)	16	12-hr days	\$564.00	\$9,024	""
Pickup Truck (with fuel)	6	12-hr days	\$334.00	\$2,004	""
Equipment Operator #1	96	Hour	\$52	\$5,005	Excavator operator
Equipment Operator #2	96	Hour	\$52	\$5,005	Loader operator
Equipment Operator #3	96	Hour	\$52	\$5,005	"" 10-yard dump truck operator
Equipment Operator #4	96	Hour	\$52	\$5,005	"" Second 10-yard dump truck operator
Laborer #1	72	Hour	\$43	\$3,128	Davis bacon laborer rate
Laborer #2	72	Hour	\$43	\$3,128	""
Soil Sample Analysis (Floor Characterization) - GRO/BTEX AK101/EPA 8021B	55	samples	\$85	\$4,675	Needed to characterize excavation floor levels, assumes a 5-foot excavation depth and 2048 cubic yards excavated. Five separate excavations. Assuming one large excavation area, the footprint will be approximately 55 samples including two for the first 250 square feet of excavation area on each of five excavations. Sample total includes a 10% QC duplicate sample rate.
Soil Sample Analysis (Floor Characterization) - DRO/RRO AK101/AK102	55	sample	\$85.00	\$4,675	As above for excavation floor.
Soil Sample Analysis (Sidewall Characterization) - GRO/BTEX AK101/SW 8021B	24	samples	\$85	\$2,040	Sidewall characterization based on one sample per 20 linear feet with 10% QC duplicate frequency. Assumes a 420-foot excavation perimeter
Soil Sample Analysis (Sidewall Characterization) - DRO/RRO AK101/AK102	24	sample	\$85.00	\$2,040	As above for excavation sidewall.
Soil Sample Analysis (Sidewall and Floor) PAH SIM SW 8270	6	sample	\$185.00	\$1,110	PAH analysis on selected sidewall and floor samples exhibiting highest screening results.
Soil Sample Analysis (Sidewall Characterization) - GRO/BTEX Travel Blanks	5	trip blank	\$42.50	\$213	Trip blanks for GRO/BTEX analyses.
Water Sample Analysis (Public Well Sample) - DRO/RRO AK102/AK103	1	sample	\$85.00	\$85	Well Water Sample
Water Sample Analysis (Public Well Sample) - GRO/BTEX AK101/SW 8021B	1	samples	\$85.00	\$85	Well Water Sample
Water Sample Analysis (Public Well Sample) - VOC EPA 524.2	1	sample	\$200.00	\$200	Well Water Sample
Water Trip Blank Analysis (Public Well Sample) - GRO/BTEX	1	trip blank	\$42.50	\$43	Well Water Sample Travel Blank
Water Trip Blank Analysis (Public Well Sample) - EPA 524.2	1	trip blank	\$100.00	\$100	Well Water Sample Travel Blank
Lodging	8	days	\$100	\$800	
Meals	8	days	\$65	\$520	
PPE	48	days	\$20	\$960	
Digital Camera	8	days	\$10	\$80	
PID Rental	8	days	\$50	\$400	
Consultant RT Airfare, Fairbanks to Beaver	2	each	\$262	\$524	
				SubTotal Task 2B (ODC)	\$69,390
				SubTotal Task 2B (Labor)	\$12,360
				Task 2B - Total Costs	\$81,750

Cost Estimate for Proposed Cleanup Action, Village of Beaver Old BIA School and Burned Generator Building Sites Area Soils, Alaska

Task 2C - Backfilling Excavations (3,000 cubic yards)

Excavator (with fuel)	8	12-hr days	\$564.00	\$4,512	Assumes eight days to backfill and compact excavation areas.
Loader (with fuel)	8	12-hr days	\$564.00	\$4,512	""
10-yard dump truck (with fuel)	16	12-hr days	\$564.00	\$9,024	""
Pickup Truck (with fuel)	8	12-hr days	\$334.00	\$2,672	""
Equipment Operator #1	96	Hour	\$52	\$5,005	""
Equipment Operator #2	96	Hour	\$52	\$5,005	""
Equipment Operator #3	96	Hour	\$52	\$5,005	""
Equipment Operator #4	96	Hour	\$52	\$5,005	""
Laborer #1	96	Hour	\$43	\$4,170	Assume a total of eight days to complete compaction of excavation areas
20-mil HDPE Liner Material (11,000 square feet)	11000	sq ft	\$0.35	\$3,850	Polar Supply quote 5/19/2009 with 1,500 square feet as contingency to cutting losses and excavation expansion.
Purchase of small plate compactor and shipping with liner material	1	estimate	\$2,500	\$2,500	16" by 21" plate compactor is \$1,995 at CMI in Fairbanks May 2009
Lodging	8	day	\$100	\$800	Assuming ten days on site to backfill (again, limited by truck turn time) and additional day to demob at village (coordinate equipment removal, etc.).
Meals	8	day	\$65	\$520	
PPE	48	day	\$20	\$960	
Digital Camera	8	day	\$10	\$80	
Backfill gravel for Excavations	3000	yards	\$2	\$4,500	\$1.5/yard to DNR for gravel permit and no assumed per yard rate paid to Beaver Tribal Council

SubTotal Task 2C (ODC)	\$58,122
SubTotal Task 2C (Labor)	\$12,000
Task 2B - Total Costs	\$70,122

Task 2D - Tilling and Fertilizing Landfarm

Rototiller	1	estimate	\$3,000	\$3,000	
Laborer #1	168	hours	\$43	\$7,224	Assume seven days to spread fertilizer and till soil using local labor. This will be performed twice annually.
Transportation of Equip/Materials to Beaver	1	estimate	\$1,000	\$1,000	Ship fertilizer and rototiller from Anchorage.
Fertilizer Spreader	1	estimate	\$150	\$150	Purchase of broadcast spreader.
Fertilizer	1	estimate	\$800	\$800	350 pounds of 8-32-16 fertilizer for approximate 10-12 pounds per 1,000 square feet. Two applications per summer season.
Vehicle Rental	14	vehicle-day	\$223	\$3,122	Vehicle rental for laborer to drive to and from landfill landfarm area.
Rototiller Fuel	30	gallons	\$8	\$240	Vehicle - ATV fuel.
Lodging	1	man-day	\$100	\$100	
Meals	2	man-day	\$65	\$130	Based upon worker for three days in the field.
PID	1	instr-day	\$50	\$50	
PPE	15	day	\$20	\$300	
Digital Camera	1	day	\$15	\$15	Based upon one Digital Camera
Miscellaneous	1	estimate	\$1,000.00	\$1,000	Confirmation sampling: frequency based upon one sample per 50 cubic yards, plus 6 samples for screening.

SubTotal Task 2C (ODC)	\$17,131
SubTotal Task 2C (Labor)	\$14,570
Task 2B - Total Costs	\$31,701

Cost Estimate for Proposed Cleanup Action, Village of Beaver OIA BIA School and Burned Generator Building Sites Area Soils, Alaska

Task 3 - Landfarm Maintenance 2011					
Consultant RT Airfare, Anchorage to Beaver	1	each	\$262	\$262	Warbelows Air Taxi as of December 7, 2009
Laborer #1	168	hours	\$43	\$7,224	Assume seven days to spread fertilizer and till soil using local labor. This will be performed twice annually.
Transportation of Equip/Materials to Beaver	1	estimate	\$200	\$200	Ship fertilizer and rototiller from Anchorage
Fertilizer	1	estimate	\$800	\$800	350 pounds of 8-32-16 fertilizer for approximate 10-12 pounds per 1,000 square feet. Two applications per summer season.
Vehicle Rental	14	vehicle-day	\$223	\$3,122	Vehicle rental for laborer to drive to and from landfill landfarm area.
Rototiller Fuel	30	gallons	\$8	\$240	Rototiller fuel
Lodging	1	man-day	\$100	\$100	
Soil Sample Analysis (Landfarm Characterization) - GRO/BTEX	14	samples	\$85	\$1,190	Fourteen samples, includes two duplicates, for 3,000 cubic yards (ex situ volume) per Table C of 18 AAC 78.605(b).
Soil Sample Analysis (Landfarm Characterization) - DRO/RRO	14	sample	\$95.00	\$1,330	Fourteen samples, includes two duplicates, for 3,000 cubic yards (ex situ volume) per Table C of 18 AAC 78.605(b).
Meals	2	man-day	\$65	\$130	Based upon worker for 3 days in the field.
PID	1	instr-day	\$50	\$50	
PPE	15	day	\$20	\$300	
Digital Camera	1	day	\$15	\$15	Based upon one Digital Camera.
Miscellaneous	1	estimate	\$1,000.00	\$1,000	
SubTotal Task 3 (ODC)				\$15,963	
SubTotal Task 3 (Labor)				\$7,180	
Task 3 - Total Costs				\$23,143	

Cost Estimate for Proposed Cleanup Action, Village of Beaver OID BIA School and Burned Generator Building Sites Area Soils, Alaska

Task 4 - Landfarm Maintenance 2012					
Consultant RT Airfare, Anchorage to Beaver	1	each	\$867	\$867	Warbelows Air Taxi as of December 7, 2009
Laborer #1	168	hours	\$43	\$7,224	Assume seven days to spread fertilizer and till soil using local labor. This will be performed twice annually.
Transportation of Equip/Materials to Beaver	1	estimate	\$200	\$200	Ship fertilizer and rototiller from Anchorage.
Fertilizer	1	estimate	\$800	\$800	350 pounds of 8-32-16 fertilizer for approximate 10-12 pounds per 1,000 square feet. Two applications per summer season.
Vehicle Rental	14	vehicle-day	\$223	\$3,122	Vehicle rental for laborer to drive to and from landfill landfarm area.
Rototiller Fuel	30	gallons	\$8	\$240	Rototiller fuel
Lodging	1	man-day	\$100	\$100	
Soil Sample Analysis (Landfarm Characterization) - GRO/BTEX	14	samples	\$85	\$1,190	Fourteen samples, includes two duplicates, for 3,000 cubic yards (ex situ volume) per Table C of 18 AAC 78.605(b).
Soil Sample Analysis (Landfarm Characterization) - DRO/RRO	14	sample	\$95.00	\$1,330	Fourteen samples, includes two duplicates, for 3,000 cubic yards (ex situ volume) per Table C of 18 AAC 78.605(b).
Meals	2	man-day	\$65	\$130	Based upon worker for three days in the field.
PID	1	instr-day	\$50	\$50	
PPE	15	day	\$20	\$300	
Digital Camera	1	day	\$15	\$15	Based upon one Digital Camera.
Miscellaneous	1	estimate	\$1,000.00	\$1,000	
SubTotal Task 4 (ODC)				\$16,568	
SubTotal Task 4 (Labor)				\$6,820	
Task 4 - Total Costs				\$23,388	
Task 5 - Decommission Landfarm 2013					
Consultant RT Airfare, Fairbanks to Beaver	1	each	\$262	\$262	Warbelows Air Taxi as of December 7, 2009
Loader (with fuel)	6	12-hr days	\$564	\$3,384	Assumes six days of loader time to assemble use stockpile at landfill.
10-yard dump truck (with fuel)	4	12-hr days	\$564	\$2,256	Assumes four days of dump truck time to move soils closer to landfill.
Pickup Truck (with fuel)	6	12-hr days	\$334	\$2,004	Vehicle rental for laborer to drive to and from landfill landfarm area.
Operator #1 (Loader)	72	hour	\$52	3754.08	Davis Bacon Operator 1 rate as above
Operator #2 (Dump Truck)	48	hour	\$52	2502.72	Davis Bacon Operator 1 rate as above
Laborer	72	hour	\$43	\$3,128	Davis Bacon Laborer 1 rate as above
Transportation of Equip/Materials to Beaver	2	estimate	\$200	\$400	
Lodging	4	man-day	\$100	\$400	
Meals	6	man-day	\$65	\$390	Based upon worker for three days in the field.
PID	6	instr-day	\$50	\$300	
Digital Camera	5	day	\$15	\$75	
Soil Sample Analysis (Landfarm Characterization) - GRO/BTEX	14	samples	\$85	\$1,190	Fourteen samples, includes two duplicates, for 3,000 cubic yards (ex situ volume) per Table C of 18 AAC 78.605(b).
Soil Sample Analysis (Landfarm Characterization) - DRO/RRO	14	sample	\$95.00	\$1,330	Fourteen samples, includes two duplicates, for 3,000 cubic yards (ex situ volume) per Table C of 18 AAC 78.605(b).
PPE	21	days	\$20.00	\$420	
Phone/FAX	1	estimate	\$50	\$50	
Reproduction - B&W	1000	each	\$0.10	\$100	
Reproduction - Color	100	each	\$1.00	\$100	
SubTotal Task 5 (ODC)				\$22,045	
SubTotal Task 5 (Labor)				\$16,620	
Task 5 - Total Costs				\$38,665	
Total, Labor				\$94,670	
Total, Other Direct Costs				\$291,344	
10% Contingency				\$38,601	
TOTAL PROJECT COST (Beaver Remediation)					\$424,615