Alaska Department of Environmental Conservation

Reuse & Redevelopment Initiative

Brownfield Assessment

PROPERTY ASSESSMENT AND CLEANUP PLAN

Noatak Dump Sites

Noatak, Alaska

Submitted to:
Department of Environmental Conservation
Reuse and Redevelopment Program

SLR

By:
SLR International Corp
June 2011

PROPERTY ASSESSMENT AND CLEANUP PLAN NOATAK DUMP SITES NOATAK, ALASKA

Prepared for:

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ACRONYMS

AAC	Alaska Administrative Code
ADOT&PF	Alaska Department of Transportation and Public Facilities
ANCSA	Alaska Native Claims Settlement Act
ATSDR	Agency for Toxic Substances and Disease Registry
AVEC	Alaska Village Electric Cooperative
bgs	below ground surface
CFR	Code of Federal Regulations
DBA	Department of Environmental Conservation Brownfield Assessment
DEC	Department of Environmental Conservation
DRO	diesel range organics
E&E	Ecology & Environment, Inc.
EWP	Emergency Watershed Program
HAZWOPER	Hazardous Waste Operations and Emergency Response
HUD	Department of Housing and Urban Development
IRA	Indian Reorganization Act
Maniilaq	Maniilaq Association
NANA	NANA Regional Corporation, Inc.
NRCS	Natural Resources Conservation Service
PACP	Property Assessment and Cleanup Plan
PCBs	polychlorinated biphenyls
PID	photoionization detector
ppm	parts per million
SLR	SLR International Corp
SVOC	semivolatile organic compound
USDA	United States Department of Agriculture
USEPA	U.S. Environmental Protection Agency
VOC	volatile organic compound

EXECUTIVE SUMMARY

SLR International Corp (SLR) prepared this Property Assessment and Cleanup Plan (PACP) for the Alaska Department of Environmental Conservation (DEC) for the Noatak Dump Sites (Old Dump Site and Current Dump Site) in Noatak, Alaska. Noatak is located on the west bank of the Noatak River, 55 miles north of Kotzebue. When referred to collectively, the Old Dump Site and Current Dump Site will be referred to as the Sites in this plan.

The objective of this PACP is to update the existing assessment work and recommend removal methods and explore reuse potential. Interested parties in this PACP, including the Native Village of Noatak, Noatak Indian Reorganization Act (IRA) Council, NANA Regional Corporation, Inc. (NANA), Maniilaq Association (Maniilaq), Agency for Toxic Substances and Disease Registry (ATSDR), DEC, and SLR, participated in a stakeholder meeting to discuss the Sites. Following the stakeholder meeting, SLR travelled to Noatak to visit the sites, interview persons, and document current site conditions. The information from the site visit and other available sources was then used to compile this PACP. The PACP focused on both Sites, which are described below.

The Old Dump Site, located on land owned by NANA, was used between the 1970s and 1995. An Emergency Watershed Program grant for $12,000 from the U.S. Department of Agriculture was awarded to Noatak in the fall of 2010. The grant was used to excavate the dump stockpile from the river bluff edge, remove most of the debris from the river, and add backfill. Additional work required at Old Dump Site includes stabilizing or removing the remaining refuse, final capping, and grading. The estimated cost to close the Old Dump Site in accordance with DEC guidance is $206,759 with the majority of the cost for labor, fuel, and provisions to cap and grade the dump site. The Native Village of Noatak stated that they would like to see the Old Dump Site cleaned up and used as a winter boat storage yard.

The Current Dump Site is also located on land owned by NANA and is currently utilized for refuse disposal by the community of Noatak. The Native Village of Noatak stated that the Current Dump Site is not in compliance with federal and state regulations and a new landfill is needed; a proposed reuse objective for the Current Dump Site has not been identified; however, interviews indicate that residents of the community would agree to closure of the landfill in-place. If the Current Dump Site were closed in-place, it could be used for equipment storage. In order to close the Current Dump Site, a new landfill must first be constructed. Currently, the new landfill construction is on hold pending construction of the new airport and road; this project already has funding earmarked for it, but is not yet scheduled. Technically, the new landfill can be constructed at any time; however, waiting until the new road is constructed will reduce the cost and take advantage of cost sharing opportunities. Until a new landfill is constructed, SLR recommends that the Village of Noatak follow the best management practices provided in the Solid Waste Procedures Manual for Municipal Class III Solid Waste Landfills (ADEC, 2006). These best management practices are summarized in this document along with the steps required to close the Current Dump Site.

1. INTRODUCTION

In February 2010, the Native Village of Noatak submitted an Alaska Department of Environmental Conservation (DEC) Brownfield Assessment (DBA) request form to DEC to address contamination and erosion concerns at the Old Dump Site in Noatak, Alaska (Figure 1). The DBA request form is included as Appendix A. The DBA form indicates that eroding debris is falling into the river from the Old Dump Site and that the community feels the Current Dump Site is not in compliance with federal and state regulations, and states the community's need for a new landfill. Thus, both the Old Dump Site and the Current Dump Site are included in the Property Assessment and Cleanup Plan (PACP). When referred to collectively, the Old Dump Site and Current Dump Site will be referred to as the Sites in this plan.

The approximate location of the Old Dump Site is 67 degrees, 33 minutes, 40.78 seconds north latitude and 162 degrees, 58 minutes, 27.2 seconds west longitude (Figure 2). The approximate location of the Current Dump Site is 67 degrees, 33 minutes, 30 seconds north latitude and 162 degrees, 59 minutes, 36.9 seconds west longitude (Figure 2). The Old Dump Site covers an area of approximately 321,000 square feet, and the Current Dump Site covers an area of approximately 163,000 square feet. Both Sites are located on land owned by NANA Regional Corporation, Inc. (NANA).

This PACP was written by SLR International Corp (SLR) on behalf of the DEC in response to the DBA request to conduct a property assessment and recommend cleanup actions with general cost estimates to enable sufficient and productive reuse of the property.

Funding for this work was provided by the U.S. Environmental Protection Agency (USEPA) through DEC, using a grant from the State and Tribal Response Program.

1.1 PURPOSE

The objective of this PACP is to update the existing assessment work and recommend removal methods and explore reuse potential. This project will be used to support a subsequent application(s) to the United States Department of Agriculture (USDA) or the USEPA for a solid waste management or technical assistance grant or other related services.

1.2 SCOPE OF SERVICES

SLR completed the following tasks to develop this PACP.

1.2.1 TASK 1 – STAKEHOLDER SCOPING AND PLANNING MEETING

In September 2010, SLR participated in a stakeholder and planning teleconference with stakeholders in the project. Attendees included representatives from the Native Village of Noatak, Noatak Indian Reorganization Act (IRA) Council, NANA, Maniilaq Association (Maniilaq), Agency for Toxic Substances and Disease Registry (ATSDR), DEC, and SLR. The purpose of the meeting was to define the project objectives, obtain site-specific information to assist with the project objectives, and for the consultant to solicit help setting up interviews and

logistical support for their site visit. SLR prepared a summary record of the meeting and provided it to DEC. A copy of this summary for the stakeholder meeting is included as Appendix B. A summary of the meeting is also provided in Section 2.4.1 of this report.

1.2.2 TASK 2 – CONDUCT A SITE VISIT

In October 2010, SLR staff travelled to Noatak to conduct a site visit, interview members of the community, inspect current site conditions, and gather information for the completion of this PACP. While in Noatak, SLR used still photographs, video, and field notes to document site conditions and other pertinent information. Information obtained during this site visit, including photographs, is presented throughout this document.

Appropriate still photographs are presented throughout this document where appropriate and a photograph log is included as Appendix C. Field notes compiled during the site visit are presented in Appendix D.

1.2.3 TASK 3 – COMPLETE A PROPERTY ASSESSMENT AND CLEANUP PLAN

This PACP, developed following SLR's site visit, is based on review of information gathered from the stakeholder meeting, DEC files, previous investigations conducted at the Sites, communication with individuals familiar with the community and the Sites, and observations made during the site visit. This plan includes a comprehensive summary of the existing site conditions and recommendations for property assessment and corrective actions. The intent of this report is that it should serve as a resource and reference document for the pursuit of additional financial resources and services to achieve the community's desired outcome of closing and relocating their problem dump sites.

1.3 OBJECTIVES

The objective of this PACP is to provide the following:

- A historical summary for the Sites including historical land use, environmental incidents, and assessment/response activities to date;
- A description of the proposed reuse of the properties;
- A qualitative assessment of risk to human receptors from potential contamination at the Sites;
- A summary of specific data gaps that are necessary to fill in order to fully evaluate cleanup requirements;
- A description of the steps necessary to make the property suitable to meet the reuse objectives; and
- A summary of practical remediation options for the Sites including cost estimates.

2. COMMUNITY OVERVIEW

This section provides information about the community of Noatak and the stakeholders and their involvement at the Sites.

2.1 LOCATION AND CLIMATE

The village of Noatak is located on the west bank of the Noatak River, 55 miles north of Kotzebue and 70 miles north of the Arctic Circle. Noatak is the only settlement on the 369-mile-long Noatak River. The community lies at approximately 67 degrees, 34 minutes, and 15.95 seconds north latitude and 162 degrees, 57 minutes, and 55.12 seconds west longitude (Section 16, Township 25 North, Range 19 West of the Kateel Meridian). Noatak is located in the Kotzebue Recording District.

Noatak is located in a transitional climate zone. The nearest weather station is located in Kotzebue, approximately 55 miles from Noatak. The average annual precipitation is 15.42 inches, and the average annual snowfall is 60.6 inches (WRCC, 2010).

There is an unnamed pond located near the Current Dump Site, but the nearest major surface water body to both Sites is the Noatak River. There is no recorded information regarding flooding in Noatak (USACE, 2010).

2.2 COMMUNITY DEMOGRAPHIC DATA

The population of Noatak is approximately 486 persons, who rely heavily on subsistence activities including fishing. A federally recognized tribe, the Native Village of Noatak, is located within the community. The population of Noatak is 96 percent Alaska Native or part Native. Noatak is an Inupiat Eskimo village with a strong subsistence focus, with families traveling to fish camps during the summer months (DCCED, 2010).

2.3 COMMUNITY RESOURCES AND INFRASTRUCTURE

Electricity in Noatak is provided by the Alaska Village Electric Cooperative (AVEC). There is one school located in the community, attended by 156 students. The local health clinic in Noatak is the Esther Barger Memorial Health Clinic, and emergency services are provided by a health aide (DCCED, 2010).

2.3.1 PUBLIC WATER SUPPLY INFORMATION

Search results for drinking water systems in Noatak indicated one registered drinking water system (AK2340159). Water derived from wells drilled on the island in the Noatak River is treated. A piped water system serves 77 homes, the school, and businesses in Noatak. However, over half the homes cannot use the system due to lack of plumbing. These residents haul water and honey buckets; there is no washeteria (DCCED, 2010).

The location of the wells used to derive drinking water for the community is shown on Figure 2.

Five well logs were found for wells drilled in the Noatak area. Well logs provide information about subsurface conditions. These well logs, described below, are provided in Appendix E.

- A hole was drilled in 1965 to a total depth of 271 feet below ground surface (bgs). The first 13 feet were noted as frozen, brown silt with organic material underlain by frozen clay, silt, and sand, which extended to 166 feet bgs. Non-frozen clay, sand, and gravel were noted in various compositions to a depth of 271 feet. Water was not noted during drilling and no well screen was installed. ,
- Another well was drilled in 1969 east of the school, near the Noatak River. This well was drilled to a total depth of 317 feet bgs. The top three feet were noted as muck underlain by frozen clay, sand, silt, and gravel extending to a depth of 165 feet bgs. The soils from 165 feet to 317 feet bgs comprised non-frozen sand and gravel. Water was encountered between 192 feet and 200 feet bgs; the driller noted there was minimal water at this depth, which quickly ran out. No water was present in the casing when the well was completed.
- A well log was found for Well #1, which was drilled in 1989 on an island within the Noatak River as part of water system improvements that took place in 1990. Well #1 was drilled to a total depth of 43.3 feet bgs; the static water level was measured at 6.8 feet bgs. No lithology was described. It is assumed Well #1 was one of the original Noatak drinking water wells.
- A well log was found for Well #2, which was drilled in 1990 on a sand and gravel island within the Noatak River. The soils logged comprised sands and gravels to a depth of 45 feet bgs, where a cohesive clay layer was encountered; the boring was advanced to a total depth of 45.5 feet bgs. The static water level was measured at 9 feet bgs. It is assumed Well #2 was one of the original Noatak drinking water wells.
- A well log was found for Well #3, which was drilled in 1990 on an island within the Noatak River. Well #3 was drilled to a total depth of 49 feet bgs. Silt was present from 0 to 6 feet bgs and was underlain by sand and gravel to a depth of 41 feet bgs. A sand layer was present from 41 feet to 49 feet bgs. The static water level was measured at 17 feet bgs. It is assumed Well #3 was one of the original Noatak drinking water wells.
- Wells #5 and #6 were drilled by the Native Village of Noatak in 2003 on an island within the Noatak River. The wells were drilled to a total depth of 40 feet bgs and are used to supply the drinking water system in Noatak (described below). These wells were installed to replace old wells that were lost to erosion. It was assumed these wells were installed in the same aquifer as the previous wells, which consists of an unconfined aquifer composed of river bed gravels and sands.

2.3.2 LANDFILL INFORMATION

The Old Dump Site (Photograph 1) is approximately 3 acres and was used by the community from the 1970s until 1995. When the Current Dump Site was installed, the Old Dump Site was

covered with approximately 18 inches of gravel. The location of the Old Dump Site is shown on Figure 2.

Photograph 1: Old Dump Site

Noatak's Current Dump Site (Photograph 2) is a Class III unpermitted landfill that is operated by the Noatak IRA Council. Class III landfills are defined as those receiving less than 5 tons of waste daily or less than 10 tons in a single batch. The Current Dump Site is reportedly not managed properly, and is not in compliance with Federal Aviation Administration regulations because it is located too close the airstrip, and doesn't adhere to DEC Solid Waste Program guidelines for proximity to the school and nearby residences. DEC Solid Waste Program guidelines are provided in the *Solid Waste Procedures Manual for Municipal Class III Solid Waste Landfills* (DEC, 2006). State solid waste regulations laid out in Title 18, Chapter 60 of the Alaska Administrative Code (18 AAC 60; DEC, 2010a), generally do not apply to Class III Landfills, such as the Current Dump Site in Noatak. The location of Current Dump Site is shown on Figure 2.

Photograph 2: Current Dump Site

2.3.3 CURRENT CONSTRUCTION OR INFRASTRUCTURE PROJECTS

During community interviews, an airport relocation project was identified. There is a grant for the new airport and money has been earmarked for this project. The new airport location, approximately 5 miles west of town, has been selected, ground studies have been done, a feasibility study is in place, and a gravel source has been selected. The project, however, is currently a low-priority project for the Alaska Department of Transportation and Public Facilities (ADOT&PF) because the existing runway is not yet eroding. No date has been set for this project.

Construction of a new landfill is currently tied to the airport construction project based on funding. The proposed new landfill location is located outside of the main village of Noatak off the road that will be built to the new airport. The new landfill could be constructed prior to the new airport, however additional funding would be required to build the road. It is SLR's understanding that the current proposed location outside of the main village of Noatak is the preferred site for the new landfill; alternative locations closer to the village would likely not adhere to DEC Solid Waste Program guidelines for proximity to the school and nearby residences. Also of note is SLR's understanding that the money that has been earmarked for the new airport also includes funding for construction of the new road.

2.4 COMMUNITY INVOLVEMENT

The following entities are considered stakeholders for the Sites:

Native Village of Noatak – The Native Village of Noatak is a federally recognized tribe.

Noatak IRA Council – Noatak has no official city government, but the citizens and the Noatak IRA Council are responsible for making local decisions (Maniilaq, 2003).

Maniilaq Association – For over 30 years, Maniilaq has been providing extensive health, tribal, and social services to residents of rural northwest Alaska. A non-profit corporation, Maniilaq represents 12 federally recognized tribes located in northwest Alaska. The association manages social and health services for about 6,500 people within the Northwest Arctic Borough and the village of Pt. Hope. Maniilaq also coordinates tribal and traditional assistance programs, and environmental and subsistence protection services (Maniilaq, 2003).

NANA Regional Corporation Inc. – NANA is a regional Alaska Native corporation formed in 1971 under the Alaska Native Claims Settlement Act (ANCSA). NANA improves the quality of life for Alaska Natives by maximizing economic growth, protecting and enhancing Alaska's lands, and promoting healthy communities with decisions, actions, and behaviors inspired by the Iñupiat Ilitqusiat values consistent with honesty and integrity (NANA, 2010).

Agency for Toxic Substances and Disease Registry – The ATSDR is directed by congressional mandate to perform specific functions concerning the effect on public health of hazardous substances in the environment. These functions include public health assessments of waste sites, health consultations concerning specific hazardous substances, health surveillance and registries, response to emergency releases of hazardous substances, applied research in support of public health assessments, information development and dissemination, and education and training concerning hazardous substances (ATSDR, 2010).

Alaska Department of Environmental Conservation – DEC's Reuse and Redevelopment Program conducts limited assessment and cleanup projects on behalf of Alaskan communities and other state agencies. The program uses its DBA request process to identify appropriate projects and gather information to make a determination of a project's or applicant's eligibility for the use of federal or state funds.

2.4.1 STAKEHOLDER MEETING SUMMARY

In September 2010, a stakeholder and planning teleconference was held and included attendees from the Native Village of Noatak, Noatak IRA Council, NANA, Maniilaq, ATSDR, DEC, and SLR. The purpose of the meeting was to:

- Define the project objectives;
- Gather information from the stakeholders about site conditions, history, and planned future uses;
- Discuss SLR's planned site visit and schedule, and solicit the community's help with lodging, ground transportation, and setting up interviews; and

- Define the scope and limitations of DEC's Reuse and Redevelopment Program and explore potential resources that may be available to help make the Sites suitable for beneficial reuse.

A copy of the complete meeting minutes is included as Appendix B. During this meeting DEC and SLR learned that Noatak had been granted a USDA Emergency Watershed Program (EWP) grant to clean up the old landfill. Knowledge of this grant was not known when DEC hired SLR to conduct the site visit, participate in the stakeholder meeting, and prepare this PACP.

2.4.2 PROPOSED COMMUNITY DEVELOPMENT AND LAND REUSE

The Native Village of Noatak would like the Old Dump Site cleaned up and used as a winter boat storage yard; a clear reuse objective for the Current Dump Site has not been identified. Interviews indicate residents of the community would agree to closure of the landfill in-place; if closed in-place, the Site could be used for equipment storage.

2.4.3 INTERVIEWS AND INPUT

During SLR's site visit in October 2010, interviews were conducted with individuals knowledgeable about current and historic conditions of the property and other information necessary to prepare this PACP. Interviews were conducted with Stan Tomaszewski, Wanda Page, and Carol Wesley. These interviews are summarized below to provide the pertinent information gathered.

2.4.3.1 Stan Tomaszewski, Maniilaq Association Brownfield Coordinator

Stan Tomaszewski, the Maniilaq Association Brownfield Coordinator, was interviewed.

Mr. Tomaszewski had traveled to Noatak to observe the Old Dump Site and the Current Dump Site, as well as other sites in Noatak. Mr. Tomaszewski indicated the prior landfill operator left the village, but while in charge, he had limited hours for landfill maintenance, resulting in inadequate maintenance. Mr. Tomaszewski also indicated the prior operator wanted to move the honey bucket disposal location because the proximity of the honey bucket lagoon was too close to the entrance road and was easily accessible, which could result in the dumping of other materials into the lagoon.

Mr. Tomaszewski stated backhaul from Noatak is limited due to the lack of barge access (barges infrequently travel to Noatak). Backhaul is available via air for a rate of $0.25 per pound. Mr. Tomaszewski added that the village of Noorvik used an ice road for backhaul in the region, but he noted there has never been an ice road to Noatak. An ice road to Noatak would be approximately 75 miles and would only be justified by a large project.

The community water source is water wells in the river upstream from the village; water is obtained from 45 feet bgs. The wells ran dry once, but the village could pump water from the river if needed.

2.4.3.2 Wanda Page, Native Village of Noatak Environmental Coordinator and Carol Wesley, Native Village of Noatak Environmental Assistant

Wanda Page, the Native Village of Noatak Environmental Coordinator, and Carol Wesley, the Native Village of Noatak Environmental Assistant, were interviewed and provided information on the Sites and the community.

Ms. Page and Ms. Wesley indicated the Old Dump Site was first utilized in approximately 1976; prior to this, there was an older dump, which is now covered by the airstrip. NANA owns the land on which the Old Dump Site is located. According to Ms. Page and Ms. Wesley, in approximately 1999, portions of the Site began falling into the river. At that time, the material falling into the river was pulled back and the debris, along with the trash remaining in other portions of the dump, was placed into a large stockpile. The entire area was then covered with gravel.

Ms. Page and Ms. Wesley indicated the community wishes to remove the Old Dump Site and utilize the area for winter boat storage; they do not want an actual harbor at this location, but rather a place to store boats during the winter. Villagers can no longer park boats in front of the village due to erosion of the bank. The current boat launch is located immediately to the south of the Old Dump Site. Boats are lined up on the shoreline gravel bar throughout the summer but have to be pulled up at the onset of winter because the river bed area floods in the spring. The Old Dump Site is in close proximity to navigable river channels and would make an acceptable storage area.

A EWP grant for $12,000 from the USDA, awarded to Noatak in the fall of 2010, has already facilitated the cleanup of the Old Dump Site; most of the money used for the project ($6,800) went to pay for fuel. It should be noted here that at the time of the DBA request, this funding was not available. This grant was first learned about by DEC and SLR during the stakeholder meeting held in September of 2010. The equipment used for moving the Old Dump Site stockpile was an in-kind contribution with no charge to the project. The dump stockpile was excavated from the river bluff edge, with removal of most of the debris from the river. Some large debris that was too heavy to remove by hand remains in the river. There were no hazardous materials encountered during the debris removal, and no contaminated soil was encountered. Once the removal was complete, new gravel was added as backfill where dump soil was removed. Although a large area was covered with backfilled gravel, recent work did not include construction of the winter boat storage area, and only a small area near the river bluff at the Old Dump Site is leveled and compacted.

Ms. Page and Ms. Wesley stated they believe the cleanup of this area is adequate for now, and nearly complete. When asked if further investigation was necessary, Ms. Wesley was indifferent about the idea, stating that it could be done but was likely not necessary.

Ms. Wesley stressed there is a need for a new landfill. Smoke from burning at the Current Dump Site comes into nearby houses and the school and there is also blowing trash. When the Current Dump Site was built in the 1990s, the landfill was on the outskirts of town; however, since that time, the town has grown in that direction and is encroaching on the landfill.

The airport will likely have to be moved some day due to erosion, and relocation of the landfill is tied to the new airport road. Erosion has already taken most of the old sewage lagoon to the east of the airport, and graves by the airport have been moved to prevent them from eroding into the river. There is a grant for the new airport, and money has been earmarked. The proposed new airport is planned for approximately 5 miles out of town to the west. The airport location has been selected, ground studies have been done, feasibility studies are in place, and a gravel source has been selected. The project, however, is currently low priority for the ADOT&PF because the existing runway is not yet eroding. The members of the community have not been pushing for the airport relocation project because they have been told other villages have higher priority needs.

NANA owns the land on which the Current Dump Site is located; the village has a permit allowing them to use the land. Individual residents dump their own trash, and there is no permanent landfill operator. The current landfill is fenced. The Noatak IRA Council hires out cleanup of the Current Dump Site once a month and gravel is added occasionally to cover the trash. There is some burning of trash, and a burn box, but mostly open burning occurs. Burning is banned on windy days because smoke can waft toward the school and nearby houses. The honey bucket area is for private home use, and approximately five homes use the area. Ms. Page and Ms. Wesley stated they feel it is difficult to administer the landfill as a tribal government.

Soil and trash from the Old Dump Site was used as landfill cover at the Current Dump Site. Ms. Page and Ms. Wesley indicated the residents of Noatak are agreeable to closure of the landfill in-place. They suggested the area could be used as equipment storage in the future.

The old sewage lagoon was not addressed during the recent cleanup effort. A few items that were easy to remove by hand were cleaned up; however, the Native Village of Noatak has focused its efforts on the Old Dump Site. In addition, the bluff at the old sewage lagoon is vertical and the Native Village of Noatak did not want to place heavy equipment near the edge of the bluff. SLR suggested some debris could possibly be removed from the river during the winter. Ms. Wesley, however, expressed concern about the necessary permitting for placing equipment on the river bars. Debris remaining in the river is marked with buoys or fish floats to alert boaters.

Heavy equipment located in the village is owned by the Noatak IRA Council and the equipment operators are employed by the council. If residents need heavy equipment, they can use the council-owned equipment as long as they pay for the fuel.

Gravel is obtained from the river bar near the Old Dump Site. The gravel is owned by NANA, but there is no charge for its use. Residents obtain gravel themselves, as needed.

There have been no regular barges to Noatak since 1993, due to low water. Backhaul has been successfully used for electronics on Ryan Air/ATS. The community currently has a fish tote full of batteries ready to backhaul; however, there is no forklift or fork attachment for the loader in Noatak, which makes loading backhaul difficult.

Washers, dryers, refrigerators, and freezers are piled at the dump in a segregated area and could become possible backhaul.

There is no system in place for used oil collection, and Ms. Page and Ms. Wesley indicated they were unsure how oil is disposed. AVEC has an oil burner, and they allow the water/sewer plant use it, but they do not accept residential oil.

The main river has changed to different channels, with the main channel away from the village toward the east. The water in front of the village is becoming shallower and boats no longer park in front of the village.

Salmon spawning areas have also changed with changes in river channels. There is now an abundance of spawning salmon near the village in the fall, where, historically, there was none in this river section. There is now a 20-mile section of spawned out salmon. People fish mostly in the main channel to the east or in the Kelly River upstream, not in front of the village or directly downstream.

The community has received fuel from Citgo over the last couple years; residents received 75 gallons in 2009 and 150 gallons in 2010.

3. SITE OVERVIEW

This section provides a historical overview of the Sites, including the historical and current use of the properties. It also summarizes the records reviewed for this work.

3.1 SUBSURFACE CONDITIONS

Surficial soils at the Noatak Old Dump Site have been classified as well-drained and consist of dark gray stratified silty and sand sediment lenses with buried organic matter. Permafrost is present at approximately 2 to 3 feet bgs (E&E, 2000). Boring and well logs from Noatak indicate that the subsurface in this area is comprised of fluvial sediments.

3.2 CURRENT SITE USE

The Old Dump Site is currently not used and prior to the work conducted in 2010 the Site was eroding into the Noatak River. The Current Dump Site is active and is used for the disposal of household trash in the Native Village of Noatak.

3.3 HISTORICAL SITE USE

The Old Dump Site was used by residents in Noatak from the 1970s until 1995; in 1995 the Old Dump Site was abandoned and the Current Dump Site was created. It was reported that household refuse, including oils and lubricants, were disposed of at the Old Dump Site (E&E, 2000).

A review of aerial photographs of the Sites from 1975 to 2008 was conducted. The following observations were made during this review:

- The earliest visible photograph of the Old Dump Site was taken in 1975;
- The Old Dump Site where the Noatak River has eroded away part of the landfill, is shown in the photograph taken in 1991;
- The earliest available photograph of the Current Dump Site was taken in 2000; and,
- The most recent photograph of the Current Dump Site was taken in 2008.

Copies of the aerial photographs acquired for this PACP (1975, 1991, 2000, and 2008) are provided in Appendix F.

3.4 OWNERSHIP INFORMATION

Currently, the land on which the Old Dump Site and the Current Dump Site are located is owned by NANA and leased to the Native Village of Noatak.

NANA has owned the land on which the Old Dump Site is located since 1984 when they received it through Interim Conveyance No. 849. The Site was estimated at 3 acres (E&E, 2000).

3.5 RECORDS REVIEW

Records reviewed to prepare this PACP included an assessment conducted by Ecology & Environment, Inc. (E&E) in 2000 (E&E, 2000), and information provided by the DEC. Information from the E&E report is described in Section 5.1 of this document, and a copy of the report is presented in Appendix G.

3.6 ADJOINING PROPERTY USE

The adjoining properties to the Old Dump Site are used for the following:

- North of the Old Dump Site is undeveloped land and the Noatak River.
- East of the Old Dump Site is the boat launch and Noatak River.
- South of the Old Dump Site is the gravel pit and undeveloped land.
- West of the Old Dump Site is the airstrip.

The adjoining properties to the Current Dump Site are used for the following:

- North of the Current Dump Site is undeveloped land and the Noatak school.
- East of the Current Dump Site is undeveloped land and the airstrip.
- South of the Current Dump Site is undeveloped land.
- West of the Current Dump Site is undeveloped land.

4. SITE RECONNAISSANCE

On October 4 and 5, 2010, an SLR employee traveled to the Native Village of Noatak to assess the current condition of the Old Dump Site and the Current Dump Site, interview individuals familiar with the properties, and evaluate potential remedial strategies. Interviews conducted during the site visit are presented in Section 2.4.3. Evaluation of the properties' current conditions is discussed below. Photographic and written documentation of the site visit are included as Appendices D and E, respectively.

4.1 DEVIATIONS

The site work in the Native Village of Noatak did not require a work plan; therefore, no deviations were noted.

4.2 METHODOLOGY

To assess the conditions of the Sites, SLR traversed the properties in search of visual signs of contamination and other observations that could be potential environmental liabilities, including the types of waste material at the Sites.

SLR's assessment also included field screening, which is described further in Section 4.4.

4.3 OBSERVATIONS

The Old Dump Site stockpile was located at the end of an access road at the edge of the Noatak River; the bluff at this location is eroding. At the time of SLR's visit, the stockpile had been removed and the area was backfilled with clean gravel (Photograph 3); the backfilled area measured approximately 135 feet by 60 feet. Approximately 2 to 3 feet of backfill was present and had been graded and compacted. Isolated debris was visible in places.

Photograph 3: Backfilled Area at Old Dump Site

Trash was observed in the soil in the cut bank where excavation stopped (Photograph 4). The bank is mostly gravel with some debris including cans, bottles, plastic, and piping. The remainder of the unexcavated area is approximately 4 feet deep in the center of the old access road and there is no evidence of trash on the surface. Below the bluff, little trash remains. There are plastic bottles and cans in the cover gravel. There is evidence of debris cleanup activities, such as gouges in surface soil at the river edge.

Photograph 4: Cut Bank Adjacent to Old Dump Site

The remainder of the Old Dump Site has gravel cover, but it could not be determined if any trash was present underneath the gravel. Numerous pieces of trash and debris were observed during the site visit. It is suspected that these have been discarded recently.

North of the gravel-covered area and closer to the main road, there is a low, wet grassy area that appears unnatural and disturbed (Photograph 5); it is wet with interspersed gravel. In this area, there is old trash and debris including soda cans, glass, 5-gallon cans, one drum, and miscellaneous refuse. The area is quite overgrown with grass and the vegetation appears healthy.

Photograph 5: Wet Grassy Area Near Road Leading to Old Dump Site

The Current Dump Site is fenced and consists of three cells: a main refuse area, metal debris area, and honey bucket lagoon. The fence catches most of the blowing trash, although birds have scattered some trash outside of the fence. The fence is compromised in one area on the west side of the metal debris area, and the gate at the entrance is destroyed (Photograph 6). Residents haul their own refuse to the landfill.

Photograph 6: Entrance Gate at Current Dump Site

In the main refuse area, residential waste appears to be placed mostly around the perimeter; there is no cover gravel around the edges. There is an old burn box that appears inoperable (Photograph 7), and open burning occurs (Photograph 8). Soil from the stockpile at the Old Dump Site stockpile was used for cover in the center of Current Dump Site.

Photograph 7: Old Burn Box at Current Dump Site

Photograph 8: Open Burning Observed at Current Dump Site

The metal debris area (Photograph 9) is mostly full, with scrap metal piled on the sides. However, more room for metal could be made by crushing/compacting, and moving debris to the center of the cell. Many 55-gallon barrels were observed, and at least two barrels had liquid contents. Two truck batteries (possibly lead-acid) were observed. There are numerous appliances in the refuse, including freezers and refrigerators, primarily adjacent to the metal debris area. There is no area set aside for possible backhaul of refrigerants.

Photograph 9: Metal Debris Area at Current Dump Site

The honey bucket lagoon area is primarily used for refuse and is filled with refuse, 55-gallon barrels, appliances, and other debris.

Although not included in this PACP, the Old Sewage Lagoon was also visited (Photograph 10). The Old Sewage Lagoon area is approximately one-third of the runway length from the north end of the runway, off the road running past the apron, on the bluff of the Noatak River.

The impoundment area is mostly eroded. The northwest corner berm edge is visible, and the southwest area appears to have been filled with gravel. No refuse is visible in the upper area, except items that have been recently discarded. The northern half of gravel cap has been re-vegetated with willows.

Below the bluff face is an area approximately 20 feet wide that contains refuse and debris from the bluff. At least two batteries, at least three 55-gallon barrels, insulated pipe, and metal debris were observed in this area. There is no evidence of spilled oil or fuel. In the water adjacent to the Old Sewage Lagoon, piping, metal debris, and submerged debris (possibly concrete), were noted. These items are marked with buoys because they are considered navigation hazards.

Cleanup of the Old Sewage Lagoon area is not complete, although some items may have been cleaned up recently. Due to the uncertainty regarding the stability of the bluff, it is recommended

that if cleanup of this area is pursued by the community, the debris be accessed during winter from the river.

Photograph 10: Debris Area at the Old Sewage Lagoon

4.4 SOIL SCREENING

No environmental sampling was planned as part of the project; however, while at the Sites, SLR collected 14 soil field screening samples for heated headspace analysis using a photoionization detector (PID). Field screening results ranged from 0.0 parts per million (ppm) to 4.6 ppm, and none of these field screening results indicated the presence of petroleum hydrocarbons above applicable DEC cleanup levels in the soil. Field screening results are presented in Table 1.

5. ENVIRONMENTAL REVIEW AND SUMMARY OF FINDINGS

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

5.1 HISTORICAL ENVIRONMENTAL REVIEW

A preliminary assessment report of the Old Dump Site was prepared by E&E in 2000 (E&E, 2000); a copy of this report is included as Appendix G. During this assessment, two soil samples and one sediment sample were collected from 0 to 6 inches bgs. The samples were analyzed for diesel range organics (DRO), volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), metals, pesticides, and polychlorinated biphenyls (PCBs). DRO was detected in both soil samples, but at a maximum detected concentration of 59 milligrams per kilogram (mg/kg), which is below DEC Method Two soil cleanup levels. Toluene was detected in one of the two soil samples. Four SVOCs were detected in at least one of the two soil samples (bis[2-ethylbexyl]phthalate, phenol, 2-methylphenol, and 4-methylphenol); all SVOC concentrations are below DEC Method Two soil cleanup levels. Several metals were detected in soil samples (aluminum, barium, calcium, chromium, copper, iron, lead, magnesium, manganese, nickel, potassium, and sodium). Of the metals that have corresponding soil cleanup levels, none of the detected metals exceed the corresponding DEC Method Two soil cleanup levels. The only non-metal detected in the sediment sample was methylene chloride, which is a common laboratory contaminant. None of the metals detected in the sediment sample were above DEC Method Two soil cleanup levels. No pesticides or PCBs were detected in any of the samples (E&E, 2000).

At the time of the site assessment by E&E in 2000, one end of the Old Dump Site was beginning to erode into the Noatak River. A few years ago, the community worked to remove and stockpile debris from the Old Dump Site, but that debris also began falling into the river; debris in the bottom of the channel impedes boat traffic and is a safety hazard, especially during times of low water levels. With the help of an Emergency Watershed Program grant from the Natural Resources Conservation Service (NRCS), additional work was conducted by the community at the Old Dump Site in 2010. Using the grant funds, the dump stockpile was excavated from the river bluff edge, with most of debris removed from the river; no hazardous materials were encountered during the removal, and no contaminated soil was encountered. Once the removal was complete, new gravel was added as backfill where dump soil was removed.

5.2 KNOWN OR POTENTIAL SOURCE AREAS

Obvious source areas at the Current Dump Site include refuse that contains hazardous materials (i.e., lead-acid batteries, empty 55-gallon barrels, freezers, paint cans, fuel containers, and electrical equipment) that have the potential to leak and impact the surrounding soil.

5.3 KNOWN OR PERCEIVED DATA GAPS

The primary data gap at the Sites is determining whether soil has been impacted as a result of dumping activities. Information from the preliminary assessment at the Old Dump Site in 2000 revealed low concentrations of petroleum hydrocarbons, related compounds, and metals.

5.4 OLD DUMP SITE CONCEPTUAL SITE MODEL

SLR developed a conceptual site model (CSM) to qualitatively assess the ways in which potential human receptors may be exposed to contamination as a result of activities at the Old Dump Site. This CSM is based on information gathered from the 2000 assessment conducted by E&E and information collected during SLR's site visit in 2010.

The following sections describe key findings of the CSM and the CSM scoping form and graphic form are included as Appendix H.

5.4.1 POTENTIAL CONTAMINANTS OF CONCERN AND IMPACTED MEDIA

The potential contaminants of concern at the Old Dump Site are related to dumping at the Site. Based on analytical samples collected from the Old Dump Site in 2000, DRO, toluene, SVOCs, and metals have been detected in Site soils. None of these compounds were detected at concentrations above DEC Method Two soil cleanup levels.

Impacted media at the Old Dump Site are the environmental substances into which a contaminant is directly released (DEC, 2010). At the Old Dump Site, the impacted media are surface soil, surface water, and sediment.

5.4.2 TRANSPORT MECHANISMS AND EXPOSURE MEDIA

Transport mechanisms are the pathways through which contaminants may move from impacted media to other media, known as exposure media. Exposure media are the media to which contaminants are released or transported that may result in exposure by human receptors to the contaminants. Ten transport mechanisms were identified at the Old Dump Site, from soil, surface water, and/or sediment, including:

- Direct release to surface soil,
- Migration or leaching to subsurface soil,
- Migration or leaching to ground water,
- Volatilization,
- Runoff or erosion,
- Direct release to surface water,
- Sedimentation,
- Direct release to sediment,

- Resuspension, runoff, or erosion, and,
- Uptake by plants and animals.

Based on the impacted media and transport mechanisms, six exposure media (soil, ground water, air, surface water, sediment, and biota) are present.

Possible transport mechanisms and exposure media are depicted on the DEC Draft Human Health CSM Diagram included in Appendix H.

5.4.3 EXPOSURE PATHWAY DISCUSSION

Each potential exposure pathway was evaluated using the DEC Draft Human Health CSM Scoping Form. Based on this evaluation, nine potentially complete exposure pathways were identified for the Old Dump Site. These pathways include:

- Direct contact via 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,
- Inhalation of volatile contaminants in tap water, and
- Ingestion of wild foods.

A discussion of these exposure pathways is described below.

5.4.3.1 Potentially Complete Exposure Pathways

The direct contact exposure pathway via incidental soil ingestion is considered potentially complete because potential soil contamination exists between 0 and 15 feet bgs.

The dermal absorption of contaminants from soil exposure pathway is considered potentially complete because four SVOCs, which can permeate the skin, were detected in soil samples collected at the Old Dump Site in 2000.

The ingestion of ground water exposure pathway is considered potentially complete because although unlikely, potential contaminants could migrate to ground water and the future use of ground water at the Old Dump Site as drinking water has not been eliminated by DEC pursuant to 18 AAC 75.350. Both the potential migration of contaminants to ground water and the use of ground water at the Old Dump Site for drinking water are considered unlikely.

The inhalation of outdoor air exposure pathway is considered potentially complete because of the presence of potentially volatile contaminants in soil between 0 and 15 feet bgs.

The ingestion of surface water pathway is considered potentially complete. The Old Dump Site has the potential to flood, resulting in overland migration of contaminants, and a portion of the Old Dump Site is eroding into the Noatak River, which is used for subsistence fishing and hunting and may result in incidental ingestion of surface water. Some members of the community may also choose to use surface water for household purposes, including as a drinking water source.

The dermal exposure to contaminants in ground water and surface water pathway and the inhalation of volatile compounds in tap water pathway are all considered potentially complete because, although DEC water quality standards may be applied as cleanup levels at the Old Dump Site, ground water and surface water are still considered exposure media and their use by members of the community in the vicinity of the Old Dump Site for household purposes cannot be eliminated.

The ingestion of wild foods exposure pathway is considered potentially complete because of contamination present in the top 6 feet of soil, where it is available for uptake, and the proximity of the Old Dump Site to potential subsistence hunting areas. In addition, copper, lead, and nickel, which have the potential to bioaccumulate, have been detected at the Old Dump Site.

5.4.3.2 Incomplete Exposure Pathways

The remaining exposure pathways were concluded to be incomplete based on site data, features, or other pertinent information in accordance with the DEC Draft Human Health CSM Scoping Form (Appendix H).

The inhalation of indoor air pathway is not considered complete because there are no buildings within 100 feet of the Old Dump Site, nor are there expected to be in the future. In addition, the majority of buildings in the Native Village of Noatak, including all those that have been constructed recently, are located on pilings, 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 inhalation of fugitive dust exposure pathway is not considered complete because DEC soil ingestion cleanup levels, which are applied at the Old Dump Site, are protective of this pathway for all analytes except chromium. Since chromium is a naturally occurring metal, the detected concentrations of chromium at the Site were compared to regional background concentrations. Results show that chromium concentrations at the Site are below background levels, which are generally elevated in Alaskan soils relative to other locations in the United States. The maximum detected chromium concentration at the Site of 20.5 mg/kg is less than the mean background concentration for Alaska soils of 50 mg/kg (Gough et al., 1988). It is also not likely that chromium would be released in large quantities from dumping at the Site. Therefore, chromium was not considered a contaminant of potential concern in soil at the Site; thus, this pathway is considered incomplete.

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 there are no known activities likely to result in sediment contact.

5.4.3.3 Current and Future Receptors

The Old Dump Site consists of a former dump site that is no longer in use; however, it is in close proximity to the boat launch and the Noatak River. Based on the location of the Old Dump Site, and the current and proposed future use as a winter boat storage area, 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).

5.5 CURRENT DUMP SITE CONCEPTUAL SITE MODEL

SLR developed a CSM to qualitatively assess the ways in which potential human receptors may be exposed to contamination as a result of activities at the Current Dump Site. The CSM is based on observations made during SLR's site visit in 2010.

The following sections describe key findings of the CSM and the CSM scoping form and graphic form are included as Appendix H.

5.5.1 POTENTIAL CONTAMINANTS OF CONCERN AND IMPACTED MEDIA

The potential contaminants of concern at the Current Dump Site are related to dumping at the Site. No analytical samples have been collected from the Current Dump Site but there is the potential for petroleum hydrocarbon compounds, VOCs, SVOCs, metals, and PCBs.

Impacted media at the Current Dump Site are the environmental substances into which a contaminant is directly released (DEC, 2010). Based on the nature of the Current Dump Site, the only impacted media is surface soil. Subsurface soil is not considered an impacted media because, although the dump may extend into the subsurface soil interval, all impact is expected to occur to the first soil encountered, which is defined as surface soil.

5.5.2 TRANSPORT MECHANISMS AND EXPOSURE MEDIA

Transport mechanisms are the pathways through which contaminants may move from impacted media to other media, known as exposure media. Exposure media are the media to which contaminants are released or transported that may result in exposure by human receptors to the contaminants. Ten transport mechanisms were identified at the Current Dump Site, from surface soil, including:

- Direct release to surface soil,

- Migration or leaching to subsurface soil,
- 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 CSM Diagram included in Appendix H.

5.5.3 EXPOSURE PATHWAY DISCUSSION

Each potential exposure pathway was evaluated using the DEC Draft Human Health CSM Scoping Form. Based on this evaluation, nine potentially complete exposure pathways were identified for the Current Dump Site. These pathways include:

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

A discussion of these exposure pathways is described below.

5.5.3.1 Potentially Complete Exposure Pathways

The direct contact exposure pathway via incidental soil ingestion is considered potentially complete because potential soil contamination exists between 0 and 15 feet bgs.

The dermal absorption of contaminants from soil exposure pathway is considered potentially complete because compounds that can permeate the skin may be present at the Current Dump Site. Because no analytical sampling has been performed at the Current Dump Site, it is not possible to determine if this pathway is complete and/or significant.

The ingestion of ground water exposure pathway is considered potentially complete because, although unlikely, potential contaminants could migrate to ground water and the future use of ground water at the Current Dump Site as drinking water has not been eliminated by DEC pursuant to 18 AAC 75.350. Both the potential migration of contaminants to ground water and the use of ground water at the Current Dump Site for drinking water are considered unlikely.

The inhalation of outdoor air exposure pathway is considered potentially complete because volatile contaminants may be present in soil between 0 and 15 feet bgs. Although no analytical sampling has been performed at the Current Dump Site, it should be noted here that open burning at the Current Dump Site was observed during SLR's site visit in 2010. Open burning can result in the release of toxic smoke, which would likely make the inhalation of outdoor air pathway both complete and significant. It is recommended that open burning cease, in an effort to limit exposure to volatile contaminants resulting from open burning.

The ingestion of surface water pathway is considered potentially complete. The Current Dump Site has the potential to flood, resulting in the potential for overland migration of contaminants, and the Noatak River is used for subsistence fishing and hunting, which may result in incidental ingestion of surface water. Some members of the community may also choose to use surface water for household purposes, including as a drinking water source.

The dermal exposure to contaminants in ground water and surface water pathway, and the inhalation of volatile compounds in tap water pathway, are considered potentially complete. Although DEC water quality standards may be applied as cleanup levels at the Current Dump Site, ground water and surface water are still considered exposure media and their use by members of the community in the vicinity of the Current Dump Site for household purposes cannot be eliminated.

The ingestion of wild foods exposure pathway is considered potentially complete because of the potential for contaminants in the top 6 feet of soil where, if present, they would be available for uptake and to potential subsistence hunting areas in the proximity of the Current Dump Site. Because no analytical sampling has been performed at the Current Dump Site, it is not possible to determine if this pathway is complete and/or significant.

The inhalation of fugitive dust exposure pathway is considered potentially complete because although DEC soil ingestion cleanup levels applied at the Current Dump Site are protective of this pathway for all analytes except chromium, it is unlikely chromium would be released in large quantities from dumping at the Current Dump Site; however, no analytical samples have been collected to confirm this.

5.5.3.2 Incomplete Exposure Pathways

The remaining exposure pathways were concluded to be incomplete based on Site data, features, or other pertinent information in accordance with the DEC Draft Human Health CSM Scoping Form (Appendix H).

The inhalation of indoor air pathway is not considered complete because there are no buildings within 100 feet of the Current Dump Site, nor are there expected to be in the future. In addition, the majority of buildings in the Native Village of Noatak, including all those that have been

constructed recently, are located on pilings, 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 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 there are also no known activities likely to result in sediment contact.

5.5.3.3 Current and Future Receptors

The Current Dump Site consists of a dump site that is currently in use; however, the community plans to close this dump once a new road and airport are constructed, which will facilitate the construction of a new landfill outside of the town. The Current Dump Site is in close proximity to the school, clinic, and residential properties. Based on the location of the Current Dump Site and the current and proposed future use as an equipment staging area, the following human receptors are considered to be potentially exposed to site contaminants:

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

5.6 CLEANUP CRITERIA

This section describes the cleanup or site closure criteria that would apply to the Sites. However, based on the future use of the property, site-specific cleanup levels may be developed as determined by the risk of exposure to human health and the environment.

5.6.1 SOIL CLEANUP LEVELS AND LANDFILL CLOSURE PROCEDURES

DEC soil cleanup levels specified in 18 AAC 75, *Oil and Other Hazardous Substances Pollution Control,* Tables B1 and B2, for Method Two, in the under 40-inch zone (DEC, 2008) may be applicable to the Sites, if the Sites pose environmental concerns pertaining to petroleum hydrocarbons, metals, and VOCs.

Solid Waste Program guidelines for landfill closure and post-closure procedures should be applied to closure of the Current Dump Site (DEC, 2006).

5.6.1.1 Landfill Closure Requirements

Closure requirements for Class III Landfills include:

- Submitting a closure plan,
- Final cover,
- Written notification, and

- Establishing permanent markers or survey monuments.

5.6.1.2 Landfill Post-Closure Requirements

Post-closure requirements for Class III Landfills include:

- Visual inspections,
- Surface water and/or ground water monitoring,
- Deed notations, and
- Closure report.

5.6.2 NON-REGULATED CLEANUP CRITERIA

For non-hazardous, non-regulated waste material, the acquisition of a DEC solid waste permit is not required. Material including, but not limited to, cement, rebar, crushed glass, brick, and mortar are usually not regulated.

5.7 GENERAL ENVIRONMENTAL OVERVIEW

Based on the concerns expressed by the community, the CSM developed for this PACP, previous investigation work, and the plan to reuse the land at the Sites, action is necessary.

6. RECOMMENDED ACTIONS AND OPTIONS

The following sections summarize the actions recommended to reuse the land at the Old Dump Site, close the Current Dump Site, and build a new landfill.

6.1 RECOMMENDED ACTIONS BY SOURCE AREA

SLR will treat the two Sites individually for the purpose of recommending remedial actions for the Old Dump Site and the Current Dump Site.

6.1.1 OLD DUMP SITE

Based on SLR's site visit in 2010 and interviews conducted, the community appears to be pleased with the work that has been conducted at the Old Dump Site and little to no additional work is required. As such, SLR recommends removing or stabilizing the remaining refuse, capping, and grading be completed at the Old Dump Site, after which the site can be reused.

6.1.2 CURRENT DUMP SITE

SLR recommends the following actions for reuse of the land at Current Dump Site:

- Backhaul non-household hazardous refuse or large items that may require special disposal (such as batteries, drums, refrigerators, freezers, etc.),
- Close dump, and
- Final capping and grading.

Work at the Current Dump Site is contingent upon construction of a new landfill outside of town. As such, SLR has identified the following additional tasks that will be required to move forward with closing the Current Dump Site:

- Selection and approval of location for the new landfill;
- Construction of new road leading to the proposed location of the new landfill; and
- Landfill design and construction.

In order to maximize efficiency and minimize costs, SLR recommends the following:

- Best management practices be put into place at the Current Dump Site to prolong its lifetime, until the new landfill is constructed (best management practices are described in Section 6.7);
- The Native Village of Noatak coordinate an arrangement with AVEC to burn used oil using their used oil burner;
- Local equipment and labor be used to the extent possible; and

- The Current Dump Site be closed in place to substantially reduce the overall cost of the project when compared to transporting the contents of the Current Dump Site to the new landfill. In addition, in-place closure will also extend the life of the new landfill.

Due to the uncertain timeframe for construction of the new airport and road, which provide the most cost-effective means to move forward with a new landfill and allow for closure of the Current Dump Site, no costs have been provided for closing the Current Dump Site. Costs for this project will increase as the project is delayed and cost-sharing opportunities cannot be fully evaluated at this time. Additional information regarding the steps to move forward with construction of a new landfill has been provided in the next section to assist the community in planning for this project in the future.

6.2 GENERAL STRATEGIES FOR FUTURE WORK

This section provides general strategies recommended for future work in the Native Village of Noatak. SLR has also prepared a *Noatak Landfill Facilities Conceptual Plan* for the community of Noatak that addresses work to be completed at all three landfills. This plan is provided as Appendix I.

6.2.1 OLD DUMP SITE

The Old Dump Site should be closed in accordance with DEC Solid Waste Program's best management practices (DEC, 2006). The remaining refuse should be stabilized and/or removed and additional gravel should be brought in to cap the area and bring it to a level grade.

6.2.2 CURRENT DUMP SITE

The steps necessary to close out the Current Dump Site cannot occur until after a new landfill is constructed. The guidelines for closing a Class III Landfill are listed in Section 5.6.1 and detailed in 18 AAC 60 (ADEC, 2010a).

The construction of a new landfill that complies with DEC permitting requirements is a major project and outside funding will be needed. Section 6.2.3 describes work needed to move forward with planning a new landfill.

6.2.3 NEW LANDFILL

This project is a major undertaking if accomplished in compliance with current state regulations and best management practices for Class III Landfills as outlined in the *Solid Waste Procedures Manual for Municipal Class III Solid Waste Landfills* (ADEC, 2006). Generally, projects like this are part of an established strategic plan. Oftentimes these strategic plans start from the end with a vision of what a community wants to accomplish, and work backwards to the existing condition resulting in a description of what steps need to be accomplished to get to 'Point Z' from 'Point A.'

In order to help obtain funding, it is recommended the community of Noatak develop a strategic plan for the proposed project. The plan should include a clear vision statement and a plan for accomplishing that vision. An example is provided here:

- Vision: Construct and maintain a sustainable solid waste management system in compliance with current best management practices that maximizes reuse and recycling opportunities while minimizing waste generation and onsite waste disposal and operation and maintenance costs.

- Steps Needed to Accomplish Vision:
  - Obtain Funding.
    - Create a working group of interested organizations.
    - Identify available funding sources. Some potential funding sources are described in Section 6.3.2 of this PACP, and a more comprehensive list is provided as Appendix J.
    - Develop concepts and conceptual cost estimates to be used as documentation for grants.
    - Write grant applications.
    - Apply and lobby for funding.
    - Determine a phased-work approach, assuming that funding will be obtained in smaller increments over time rather than all at once.
  - Select appropriate site for the new landfill.
    - Identify potential sites.
    - Get community input and buyoff on potential sites. This could be accomplished through a series of public meetings in the Native Village of Noatak.
    - Identify and resolve landownership issues.
  - Design and obtain permits to build and operate the new landfill.
    - Solicit services for design and permitting.
    - Write environmental reports that address all state and federal agency concerns.

6.3 SOIL MANAGEMENT STRATEGIES

No contaminated soil is anticipated to be encountered during future work at the Old Dump Site or the Current Dump Site. However, if encountered, contaminated soil will need to be managed. Two methods of contaminated soil management that could be used in Noatak, if needed, are use as daily landfill cover or landfarming. Both of these methods are less expensive than offsite shipment or other treatments.

6.4 WATER MANAGEMENT STRATEGIES

Ground water is not expected to be encountered during any onsite activities.

6.5 OTHER MATERIALS MANAGEMENT

Debris located in and around the Site may pose a physical hazard to members of the community. This material includes, but is not limited to household refuse, 55-gallon barrels, batteries, refrigerators and freezers, and metal debris.

6.6 COMMUNITY RESOURCES

This section describes the equipment currently available in the Native Village of Noatak.

The Noatak IRA Council owns an excavator, a loader, two dump trucks, and two bulldozers. Photographs of the available equipment are included in the Photograph Log (Appendix C).

Personnel working on the field component of this project must be trained to the Hazardous Waste Operations and Emergency Response (HAZWOPER) standard per the Occupational Safety and Health Administration requirement at Code of Federal Regulations (CFR) Title 29, Section 1910.120 (29 CFR 1910.120). Equipment operators must be able to verify their training and experience to operate equipment required for this project.

There is a local backfill source in the Native Village of Noatak. Gravel is obtained from the river bar near the Old Dump Site. The gravel is owned by NANA, but there is no charge for it.

6.6.1 RESOURCE LEVERAGING OPPORTUNITIES

The Noatak IRA Council owns the heavy equipment in the village. The equipment used for completing the recent work at the Old Dump Site (described in Section 5.1) was provided as an in-kind contribution from the village, with no charge to the project. If agreeable to the village, an in-kind contribution of this nature would greatly decrease the overall costs necessary for a remediation project in the village and may allow the village to obtain funding more easily and sooner than if they were to rent it out.

The construction of a new landfill for the Native Village of Noatak and closing the Current Dump Site is linked to the construction of a new road leading to the proposed new airport because of the potential cost savings. If construction of the new landfill occurs after the new airport and road are built or if the projects are scheduled to coincide, the community could take advantage of potential resource leveraging opportunities which would decrease the overall cost of the landfill project.

Although there is a grant for the new airport, money earmarked, a site selected, ground studies done, a feasibility study in place, and gravel source selected, the project is currently a low priority with ADOT&PF because the existing airport is not eroding. It should be noted here that construction of a new landfill and closing the Current Dump Site could be scheduled to occur before the construction of a new airport; however, the cost would be higher. DEC noted that some grants may also provide funding for road construction.

6.6.2 FUNDING SOURCES

The Alaska Funding Spreadsheet developed by the Center for Creative Land Recycling was provided to the DEC project manager (CCLR, 2011). This spreadsheet was reviewed for potential funding sources to assist the community of Noatak to identify grants, loans, or other services that may aid in cleaning up and reusing the Sites. The complete spreadsheet is provided as Appendix J.

Funding sources that may be available to assist with remedial actions at the Sites and/or the planning and construction of a new landfill for the Native Village of Noatak include:

- Community Development Block Grant from the U.S. Department of Housing and Urban Development (HUD),
- Section 108 Loan from HUD,
- Brownfield Economic Development Initiative from HUD,
- Alaska Office of Native American Programs from HUD,
- Local Technical Assistance Grant from the U.S. Department of Commerce, Economic Development Administration (this grant only covers 50 to 80 percent of project costs and thus the community of Noatak would be required to provide partial funding),
- Community Facilities Grant or Loan from the USDA
- Waste Management from Rural Alaska Community Action Program,
- Community Giving from British Petroleum, and,
- Community Giving from Conoco.

6.7 GENERAL OUTLINE OF REMEDIAL REQUIREMENTS

SLR recommends the following environmental actions for reuse of the land at the Sites:

- Limited investigation at the Old Dump Site to confirm all refuse was satisfactorily removed,
- Soil sample collection to ensure soils at the Old Dump Site meet DEC cleanup levels and do not require any treatment or removal prior to reuse,
- Backhaul non-household refuse from the Current Dump Site that may require special disposal,
- Close dump at both Sites, and
- Final capping and grading at both Sites.

In addition, SLR recommends best management practices be put into place at the Current Dump Site until the new landfill is constructed. Best management practices are described in detail in *DEC's Solid Waste Procedures Manual for Municipal Class III Solid Waste Landfills* (DEC, 2006) and are listed here:

- Use the "trench and fill" technique where possible,
- Restrict burning to burn barrels, burn boxes, or incinerators,
- Keep prohibited items out of the landfill (regulated hazardous waste, drums with liquid, or industrial waste),
- Keep water out of the landfill to prevent leachate,

- Compact the working face as often as possible,
- Cover waste to control liter, deter insect and animal attractions, and protect human health and the environment,
- Stockpile cover mater near the working face,
- Dust disposed animal carcasses with lime and cover immediately,
- Dispose of honey bucket waste and septage in a separate trench away from the solid waste disposal area,
- Gather scattered and windblown litter,
- Inspect the landfill monthly,
- Record the location of individual cells and/or trenches as they are filled and covered, and
- Do not accept demolition wastes from large construction and/or demolition projects.

6.8 GENERAL COST ESTIMATE INFORMATION

In order to allow the community of Noatak to reuse the Sites, SLR has outlined a series of tasks in the preceding sections. Because work at the Current Dump Site is contingent upon other projects and will require substantial planning, a general cost estimate has not been completed for this Site; any cost for the completion of work at the Current Dump Site would rely heavily on assumptions and cannot be fully evaluated at this time.

A general cost has been completed for the Old Dump Site and is broken down into a series of tasks required to close the Site. Because the work is broken down into steps, it allows the community to address the various actions as funding allows; not all the work must be completed at the same time. A breakdown of the tasks and the associated cost for each task is provided here. The complete cost estimate, broken down on a line-item basis, is provided as Appendix K.

- Task 1 – Detailed Closure Plan and Cost Estimate for DEC - $8,270
- Task 2 – DEC Required Litter Collection, Cover, Grading, Seeding, Fertilizing, and Marking - $141,738
- Task 3 – Landfill Closure Reporting - $12,640
- Tasks 4 through 8 – Annual Inspections for 5 Years - $12,675
- Task 9 – DEC Request for Retired Facility - $12,640

The estimated cost for this entire project, including a ten percent contingency is $206,759. The majority of the project costs are for labor, fuel, and provisions for landfill cover and grading.

7. CONCLUSIONS

Based on SLR's site visit in 2010 and interviews conducted, the community appears pleased with the work that has been conducted at the Old Dump Site and as a result, SLR recommends that minimal work is needed at the Old Dump Site in order to allow for the reuse. The recommended work at this site includes removal or stabilization of remaining refuse, capping, and grading. ,

The estimated cost to complete work and close the Old Dump Site in accordance with DEC guidelines is $206,759. The majority of the project costs are for labor, fuel, and provisions for landfill cover and grading.

Work at the Current Dump Site cannot be undertaken until a new landfill is constructed. The proposed location of the new landfill is on the road that will lead to the new airport. Construction of the new airport is not yet scheduled, although money has been earmarked for the project. It is SLR's understanding that this funding includes construction of the road leading to the new airport. As such, in order to minimize the cost of a new landfill for the community, SLR recommends that the new landfill construction be done in conjunction with the new airport or after the road is built. Construction of a new landfill prior to the airport road would increase the cost of the project.

Due to the limited capacity at the Current Dump Site, SLR recommends that best management practices, used oil burning, and backhauling programs be utilized to prolong the lifetime of the Current Dump Site.

Due to the uncertainty regarding the timeframe for the construction of the new airport and road necessary to move forward with a new landfill, and thus allow for closure of the Current Dump Site, no costs have been provided for closing the Current Dump Site because the costs for this project will increase as the project is delayed, and cost-sharing opportunities cannot be fully evaluated at this time. Additional information regarding the steps to move forward with construction of a new landfill has been provided in this PACP to assist the community in planning for this project in the future.

8. ADDITIONAL SERVICES

No amendments or tasks were identified following the stakeholder meeting.

9. QUALIFICATIONS OF QUALIFIED PERSONNEL

DEC requires that persons preparing reports or making an interpretation regarding field data, or exercising onsite control over work requiring assessment, investigation, characterization, reporting, or interpretation meet certain qualifications.

In 18 AAC 75 and 18 AAC 78, a "qualified person" means a person who actively practices environmental science or engineering, geology, physical science, hydrology, or a related field, and has the following minimum education and experience:

- A bachelor's degree, or equivalent, from a nationally or internationally accredited post-secondary institution in environmental science or engineering, geology, hydrology, physical science, or a related field; for purposes of this subparagraph, "equivalent" means the person earned at least 128 semester hours, 168 trimester hours, or 192 quarter hours at an accredited post-secondary institution, and with at least 18 percent of those hours in a science major and at least 13 percent of those hours in upper division-level courses; and
- At least one year of professional experience in environmental science or engineering, geology, physical science, or a related field, completed after the degree described above was obtained.

A brief summary of the qualified individuals who performed key functions for this project, and their corresponding qualifications, are listed below:

ANDY LARSON – CONTRACT MANAGER

- Bachelor of Science in Geology, Kansas State University, 1994
- Master of Science in Environmental Systems Engineering, Clemson University, 1996
- Over 13 years of professional experience

BRENT VELTKAMP – FIELD TEAM LEAD

- Bachelor of Science in Biological Science, Colorado State University, 1991
- 14 years of professional experience

CHRISTINA BENTZ – PACP PRIMARY AUTHOR

- Bachelor of Science in Geosciences, Pacific Lutheran University, 2001
- Masters of Science in Geology, The University of Michigan, 2003
- Over seven years of professional experience

10. REFERENCES

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U.S. Army Corps of Engineers (USACE), 2010. http://www.poa.usace.army.mil/en/cw/fld_haz/noatak.htm, October.

LIMITATIONS

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

Opinions and recommendations contained in this work product are based on conditions that existed at the time the services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. The data reported and the findings, observations, and conclusions expressed are limited by the scope of work. 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 work product.

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 appropriate level of analysis for each conceivable issue of potential concern. The following paragraphs discuss the assumptions and parameters under which such an opinion is rendered.

No investigation can be 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, practical limitations, and cost of the work performed.

Environmental conditions that are not apparent may exist at the site. Our professional opinions are based in part on interpretation of data from a limited number of discrete sampling locations and therefore may not be representative of the actual overall site environmental conditions

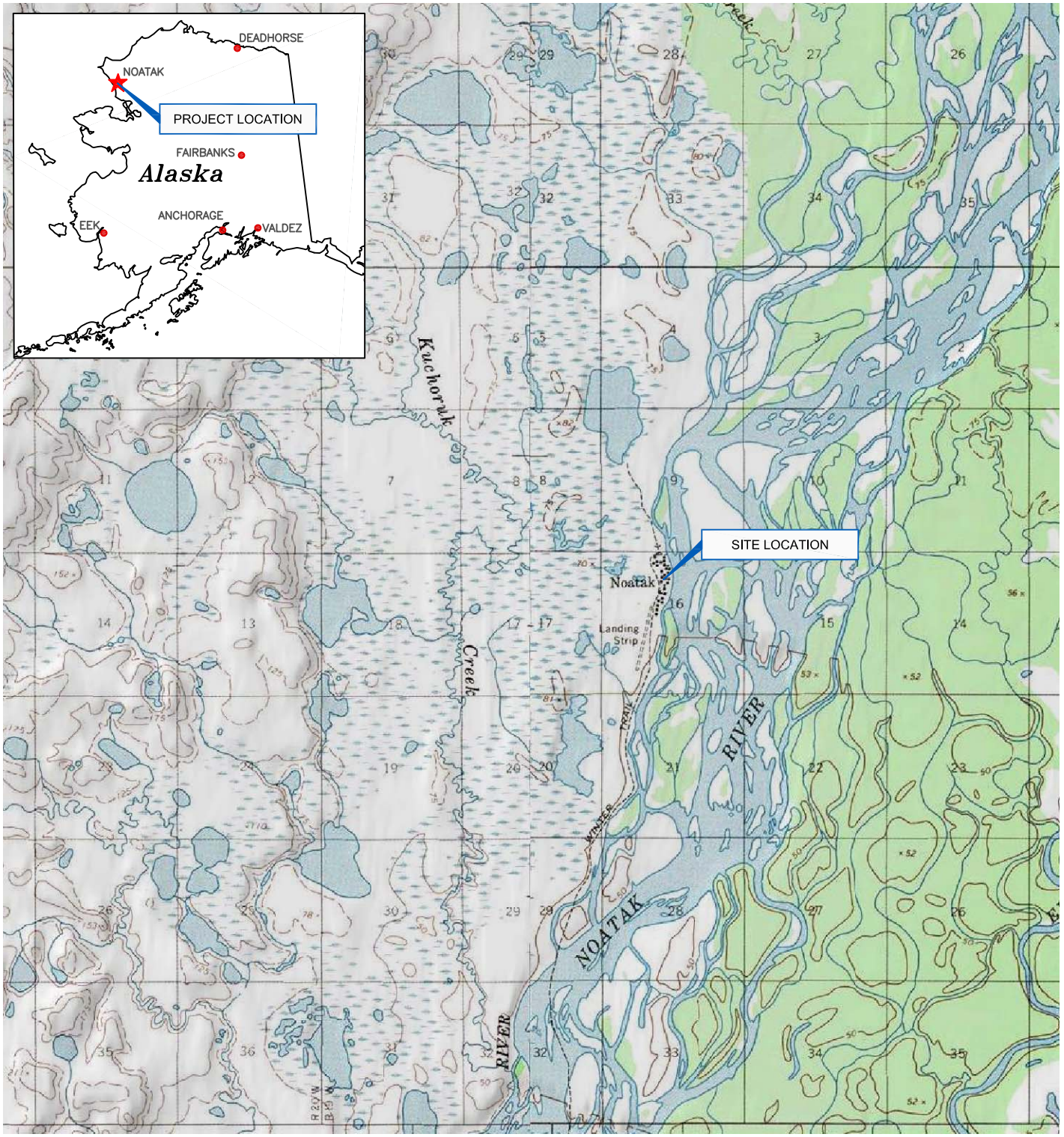
The passage of time, manifestation of latent conditions, or occurrence of future events may require further study at the site, analysis of the data, and/or reevaluation of the findings, observations, and conclusions in the work product.

This work product presents professional opinions and findings of a scientific and technical nature. The work product shall not be construed to offer legal opinion or representations as to the requirements of, nor the compliance with, environmental laws rules, regulations, or policies of federal, state or local governmental agencies.

FIGURES

Figure 1 **Site Location Map**

Figure 2 **Site Vicinity Map**



REFERENCED FROM : Noatak (C–2) Quadrangle, 63K, U.S. Geological Survey

N

SCALE: 1" = 1mi

WHEN PLOTTED AT 8.5 x 11 PAGE SIZE

0 1 2 3mi

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

SLR

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
555 CORDOVA STREET
ANCHORAGE, AK 99501

Report
PROPERTY ASSESSMENT AND CLEANUP PLAN
NOATAK DUMP SITES

Drawing
SITE LOCATION MAP

Date	October 8, 2010
Scale	1" = 1mi

Project No. 105.00065.10007

Fig. No. 1

REFERENCED FROM : GOOGLE EARTH©

N

SCALE: 1" = 1000'

WHEN PLOTTED AT 8.5 x 11 PAGE SIZE

0 1000 FT 2000 FT 3000 FT

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

SLR

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Report
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NOATAK DUMP SITES

Drawing
SITE VICINITY MAP

Date October 8, 2010

Scale 1" = 1000 FT

Project No. 105.00065.10007

Fig. No. 2

TABLE

Table 1 2010 PID Field Screening Results

Table 1
Soil Heated Headspace Field Screening Results
Noatak Property Assessment and Cleanup Plan

Sample Location	Site	PID Result (ppm)	Observations
1	Old Dump	4.6	Dark brown gravel, damp, no odor
2	Old Dump	0.0	Dark brown gravel, damp, no odor
3	Old Dump	0.1	Dark brown gravel, damp, no odor
4	Old Dump	0.1	Dark brown gravel, damp, no odor
5	Old Dump	0.0	Dark brown gravel, damp, no odor
6	Old Dump	0.2	Dark brown gravel, damp, no odor
7	Current Dump	0.1	Dark brown sand with gravel, damp, trash, no odor
8	Current Dump	0.1	Dark brown sand with gravel, damp, trash, no odor
9	Current Dump	0.2	Dark brown sandy gravel, damp, trash, no odor
10	Current Dump	0.2	Dark brown sandy gravel, damp, trash, no odor
11	Current Dump	0.1	Dark brown sand with gravel, roots, and peat, damp, no odor
12	Current Dump	0.0	Dark brown gravel, damp, trash, no odor
13	Current Dump	0.0	Dark brown gravel, damp, trash, no odor
14	Current Dump	0.0	Dark brown gravel, damp, trash, no odor

Abbreviations:
PID - photoionization detector
ppm - parts per million

APPENDIX A

DBA REQUEST FORM

DEC's Reuse and Redevelopment Program

DEC Brownfields Assessment Request Form – 2010

Please check the appropriate box for each question at the top of this page, and then answer questions 1–7 by inserting text in the blank area under each question, using as much space as you need. Forms with questions left blank will be returned to the applicant.
The deadline for receipt of requests is February 19, 2010.

Site Name: Old Dumpsite Clean-up Project

Eligibility Determination—General Questions:

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

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

☒ Yes ☐ No

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 ☒ Tribe ☒ 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:

RANKING CRITERIA

1. **Project Summary** - Explain in your own words what you are hoping to obtain through this effort (what would you like to see *in place* of the site for which you are requesting assessment, and how will this project help you achieve your goals for the site?):

   Eroding river bank causing our old dumpsite (stockpiled) debris to fall into our river bank and into the water. The bigger items are a danger to boaters during low/shallow river times. Cleanup of this site will create a safe boat harbor for Noatak.

2. **Applicant/Owner**

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

Native Village of Noatak	Alvin Ashby Sr., Administrator
PO Box 89	Phone: (907) 485-2173, Fax: (907) 485-2137
Noatak, AK 99761	email: tribeadmin@nautaaq.org

   b) ***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.*)

If Applicant is IGAP staff, please provide name and contact of EPA Project Officer:

Susie Page, EPA Coordinator, N. Carol Wesley, EPA Assistant, (907) 485-2236/2021
environmental@nautaaq.org/environmentalasst@nautaaq.org

3. **Project Team** - We request that you form a *project team* (three or more individuals or organizations) to ensure continuity beyond this DBA and coordination for success of the overall project. Attach a letter of support from each team member. (Team members may include: city or village government representatives, tribal council members, environmental managers, elders or other community leaders, local non-profit or community development organizations, and other interested parties.)

6 team member consists of: Alvin Ashby-Tribal Administrator, Susie Page – EPA Coordinator, N. Carol Wesley – EPA Assistant, Enoch Mitchell, Gerald Walton and Hannah Onalik – IRA Council

4. **Site Information**

a) ***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 and adjacent land use. Identify any areas of known or suspected contamination (for Question 5). Identify approximate property boundaries.

See google map for curruent site. No buildings. Old dumpsite will convert to Southside Boat Harbor for the people of Noatak, a much safer place to park due to low river water last few years.

b) ***Historical Site Use*** - Describe, to the best of your ability, the previous known uses of the site since development, and when the different activities occurred. Summarize 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 any contamination is likely to be found.

The site was the first organized dumpsite for Noatak for many years, before creating a new landfill in 1995. Adjacent to this very site was our first Noatak Cemetery which had to be relocated to the North-end of the community due to erosion, old graves were literally falling into the river.

5. **Environmental Information**

a) ***Prior Environmental Assessments*** - Please describe any prior site assessment or cleanup activities at the site and briefly state what you know about the findings of that work. Provide an electronic copy of the report if possible, or 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.

EPA staff coordinated a volunteer project to stockpile old debris into one pile. That very pile is now falling into the river due to erosion. We've tried several times to obtain a cleanup grant – all unsuccessful. DEC rep Linda Demientieff came to Noatak in July 2009 and took pictures of the falling dumpsite from both sides of the site, we also took her to the current landfill as well for more photos.

b) ***Reason for Concern*** - What is the reason for concern? Please discuss community concerns in general, and identify any specific problems if possible.

Stockpiled debris now falling into the river due to erosion. Fallen debris in river poses danger to all boaters as we are now facing low river water.

c) ***Project Need*** - Describe to the best of your ability what your project team believes are the needed environmental 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.).

Assessment was done by taking pictures of the falling debris. We are in need of funds to do the actual clean up of that site. Funds to fuel equipment, pay for operators to haul material to proper site. Funds to gravel cleaned up site for future use – boat harbor.

6. Community Planning and Reuse

a) ***Reuse or Redevelopment Plans*** - Does the community have well defined plans for reuse of this site if it were not for the 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.

We are planning to use the cleaned up site for a much needed boat harbor. As stated, we are facing low river water and the fallen debris (old 55 gallon drums, old w/s cement blocks, old w/s pipes) poses a safety hazard to all boaters during low waters, we are currently parking our boats just below the site, and parking boats at this old dumpsite before freeze up to avoid ice damages to boats.

b) ***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 upgrades, a new landfill, road or airport construction, a new school or addition, fuel-storage tank farms, new housing, or other facilities.

Erosion study on file. A new landfill is needed, we are not complying with federal and state laws of our current landfill not being at least 10,000 feet from the airport, residential, clinic and new school subdivision.

7. 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 or infrastructure, cost savings to the community, or increased property values.)

All of Noatak will benefit from this cleaned up site as we are in need of a secured boat harbor (free from river ice) as the low river water poses a threat to boaters trying to go up to the original boat harbor in front of town.

b) ***Community Support and Resources*** - Is the community strongly *supportive* of this project? Have resolutions been approved by city or tribal councils in support of it? Our assessment often requires local assistance with site visits, lodging, excavation equipment, and local transportation. Describe local *resources* that are available to assist with this project. (It is helpful to include copies of resolutions or community letters of support, as well as cost-sheets for equipment and labor that may be needed.)

We presented this at our general membership meeting in December 2009, and presented this proposal to the January 15, 2010 village council meeting for non-objection (see copy of support letter). Site visit made in July 2009 with local EPA staff and Linda Demientieff from the DEC office in Fairbanks, Noatak IRA have some heavy equipment such as a excavator and some loaders/dozers that can help make this clean up project a success, also, we can use their equipment as a in-kind match towards any and all clean up grants.

c) ***Community Resources for Other Phases of the Revitalization Project*** - Does the community have financial or other resources for other phases of the project, such as equipment, labor, in-kind services, or funding for cleanup or new construction? Can this DBA be used to leverage

other funding or services for the project?

Noatak IRA have equipment – excavator, dozer and loader to use as in-kind match towards this program. We have qualified members that can operate the equipment.

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 February 19, 2010, 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.

Native Village of Noatak/EPA Dept.
PO Box 89
Noatak, AK 99761
Phone: (907) 485-2173
Fax: (907) 485-2137

February 5, 2010

Sonya Benson
Department of Environmental Conservation
610 University Avenue
Fairbanks, AK 99709

RE: DEC's Reuse and Redevelopment Program

Dear Ms. Benson:

Enclosed please find the DEC Reuse and Redevelopment assessment request form.
Also, attached is a support letter from the Noatak IRA Council, a map showing where the site is.

We have requested and still awaiting from NANA Corporation Lands department documentation if the site was leased to the IRA, if not, we also requested permission to clean the site.

If you should have any questions, please feel free to call me at (907) 485-2236, work.

Sincerely,

S. Wanda Page

S. Wanda Page,
Environmental Coordinator

Cc: file

Native Village of Noatak
PO Box 89
Noatak, AK 99761
Phone: (907) 485-2173
Fax: (907) 485-2137

February 5, 2010

Sonja Benson
Department of Environmental Conservation
610 University Avenue
Fairbanks, AK 99709

RE: Village Council Letter of Support

Dear Ms. Benson:

Please accept this as a letter of support by our Village Council whom met on January 15, 2010 and discussed this DEC Reuse and Redevelopment Program's Brownsfield's Assessment Request Form – 2010. Our Village Council fully supports this assessment request on behalf of Noatak especially all those that have boats, use boats and their need for a boat harbor due to erosion of debris to our shallow river.

Fallen debris pose a safety threat as the river at 'low' water times is dangerous to travel to existing boat harbor, there are old water and sewer cement blocks, old water and sewer pipes, old 55 gallon drums at the bottom of the river.

Clean up of the old dumpsite and reclaiming the land with gravel will make a safe and suitable boat harbor. Although site is above the river level on the bank, boats are hauled to that site before winter to avoid boats being damaged by river ice.

If you should have any questions, please feel free to call our office at the above number.

Sincerely,

Alvin Ashby Sr.,
Village Administrator

cc: file


162°59'24"
W162°58'58.08"
W162°58'32.16"
N67°33'40.32"
W162°58'6.24"
W162°57'40.32"
1060 ft
Image © 2010 DigitalGlobe
Imagery Date: Jul 7, 2007
67°33'40.78" N 162°58'21.66" W elev 0 ft
Eye alt 3767 ft
Google

APPENDIX B

STAKEHOLDER MEETING MINUTES

Meeting Summary

Date: Tuesday, September 7, 2010 at 2:00 p.m.

Subject: Noatak PACP Meeting (conference call)

Attendees: Deborah Williams, Brownfield Project Manager, DEC (Fairbanks)
Sonja Benson, Brownfield Program Specialist, DEC (Fairbanks)
Abraham Snyder, NANA Lands Assistant Director (Kotzebue)
Jeff Nelson, NANA Lands Director (Anchorage)
Maude Blair, Staff Attorney, NANA (Anchorage)
Susie Page, Environmental Coordinator, Native Village of Noatak
Carol Wesley, Environmental Assistant, Native Village of Noatak
Mary Lou Sours, Tribal Administrator, Native Village of Noatak
Enoch Mitchell, Noatak IRA Council President
Gerald Walton, Noatak IRA Council Vice President
Stanley Tomaszewski, Brownfield Coordinator Maniilaq Association (Kotzebue)
Mary Goolie, Brownfield Project Officer, USEPA Region 10 (Anchorage)
Joe Sarcone, Agency for Toxic Substances and Disease Registry (ATSDR, Anchorage)
Andy Larson, SLR
Simon Mawson, SLR
Anna Burke, SLR
Brent Veltkamp, SLR

The planning meeting opened with brief introductions from each of the meeting attendees.

Sonja Benson, with the Alaska Department of Environmental Conservation (DEC), gave a brief overview of the EPA-funded Brownfield, or Reuse and Redevelopment (R&R) Program, and how the DEC receives a limited amount of funding through the State and Tribal Response Program (STRP) every year to conduct assessments like this one. The goal of the program is to complete assessment into the possible reuse or redevelopment of the sites in question. The goal is sustainable reuse with minimal cleanup completed if possible. Partnerships are important and the inclusion of NANA and Maniilaq in the process will be beneficial.

A general overview of the current project and conditions in Noatak was presented. The old landfill is eroding into the river. The current landfill was poorly placed and is too close to the clinic and housing. The overall goals of the project are to excavate and remove the waste in the old landfill, close the current landfill, and select a location for a new landfill to be built in the future. Our work is to support these goals.

The next agenda item was community input provided by Noatak.

Carol Wesley stated that Noatak had applied for a DEC Brownfield Assessment (DBA) in February. She stated there were three issues:

- The old, closed landfill is eroding into the river
- The current landfill is too close to the clinic and the school, and
- The community desires a new landfill.

Noatak has been approved for a United States Department of Agriculture (USDA) Emergency Watershed Program (EWP) grant to clean up the old landfill. Noatak is working on the final details of implementing the scope of the project which plans to remove as much of the debris as funding will support from the old landfill site to the current landfill. There are no erosion prevention provisions in the grant, which totals $12,000. It was reported that erosion control efforts have not been successful in the past.

Stanley Tomaszewski (Maniilaq) is familiar with problems in Noatak and has been involved from the beginning with Carol and Susie. However, he has not seen the old landfill. Wes Goodwin, planning coordinator for Maniilaq, has an oversight role and has visited the site. A goal would be to complete backhauling or recycling to the existing landfill, keeping items segregated where possible by removing inappropriate materials. It is important to address segregation/backhaul upfront. He is working on setting up a program to keep items out of the landfill by backhauling white goods and batteries. He is up for assisting on any level and would like to attend the site visit with SLR and believes it is timely to look at the big picture in Noatak and incorporate landfill repair and relocation into that picture.

Jeff Nelson from NANA stated that 122 acres for the current landfill and sewage lagoon is scheduled to be transferred to the community of Noatak through the 14(c)(3) provisions of the Alaska Native Claims Settlement Act (ANCSA). Currently there is a 14(c)(3) interim lease for the site. If the active landfill is closed, it is not yet decided whether a new lease will be required or if a portion of the land will remain with NANA. Concern was raised over potential impacts to the airport related to erosion following removal of materials from the old landfill. The EWP grant does not address erosion issues.

It was brought up at this time that new airport plans have been developed. Four potential sites for a new airport have been identified and presented to the community in a general meeting. The new airport construction project is awaiting funding from AK DOT. In conjunction with the airport construction, the community has an idea for location of the new landfill on the road to the airport, about five miles out of town.

Sonja said the landfill needs to have a minimum separation of 5,000 feet from the airport and Simon Mawson of SLR said the separations were either 5,000 feet or 10,000 feet, depending on the type of aircraft that would be using the runway.

Abraham Snyder of NANA stated that monitoring of erosion control is taking place at the current airport and that the apron may need to be relocated.

Carol stated that DOT is monitoring erosional losses.

Abraham replied that what is happening could influence how soon to relocate. He stated that part of the old landfill was in use before NANA was established in 1972 and only known by Noatak residents. NANA Regional Corporation was established by ANCSA in 1972.

Mary Goolie of EPA referenced the preliminary report completed by EPA. Abraham and Carol requested a copy of the preliminary report

Abraham stated that as the landowner, NANA needed time to review the document and consider liability issues and requested an additional meeting.

Carol stated that they are planning to do work this season and hoped to begin landfill removal the week of September 13. Sonja stated that SLR will complete a fact-finding mission and SLR stated that their schedule had been pushed to late September and asked Noatak whether snow would be on the ground by then and were told that would not be a problem.

The point of contact for Noatak was established. It will be either Carol or Susie Page, phone number - (907) 485-2236. Lodging is available at the school or there is a Bed and Breakfast in Noatak operated by Bernice Munroe. Carol will email contact information. Carol will have maps available showing the proposed airport and landfill locations during SLR's site visit.

Sonja asked SLR to summarize their scope and what they will be doing while on site. Andy Larson summarized SLR's approach. It was suggested that SLR personnel spend some time at the IRA council office in order to complete interviews and interact with people of the community. No road has been constructed to the new airport site.

Simon then provided his expertise. He stated there is much potential in Noatak and that with planning and a schedule in mind, all the goals could be achieved. He stressed that closing the old landfill may have an impact on the proposed new landfill.

There are three areas under consideration:

- Old landfill - where the $12,000 will be applied. It is hoped that this work will be completed before SLR field personnel are on site,
- Current landfill, and
- New landfill

For the current project, it was suggested that as much as possible be done at the old landfill prior to the visit by SLR. Care should be taken to not accelerate erosion. Noatak should explore the ties to DOT and the new landfill and preliminary siting work is beneficial. The focus can then shift to how to get funding for the design, construction, and operation of the new landfill.

Sonja mentioned the interrelationship of the projects going on in Noatak and possible funding options.

The general layout of the landfill was discussed. Joe Sarcone of ATSDR stated that site control was important including a fenced perimeter and buffer. Simon suggested considering moving the sewage lagoon from the landfill as they serve different purposes. The plan now needs to be

a long term one so that future generations don't have to do the work again. Joe stated that he was available as a resource for contaminant or disease questions. Joe also suggested that Noatak consult the environmental staff in Kwigillingok and Nightmute, where eroding dumpsite contents have been removed to new landfill locations using community resources and labor.

NANA personnel expressed concerns that liability issues are addressed prior to landfill work and suggested another meeting might be necessary.

The meeting was concluded with SLR to provide minutes soon.

APPENDIX C

SITE PHOTOGRAPHS

Photo 1 – Old Dump Site covered with fill.

Photo 2 – Old Dump Site side wall adjacent to Noatak river.

Photo 3 – Old Dump Site berm on Noatak river; trash visible through fill.

Photo 4 – Old Dump Site berm of fill in middle of site; trash visible.

Photo 5 – Old Dump Site edge of fill; trash visible.

Photo 6 – Old Dump Site bluff next to Noatak river.

Photo 7 – Old Dump Site river bank with trash visible.

Photo 8 – 55-gallong barrel observed at Old Dump Site.

Photo 9 – Current Dump Site entrance.

Photo 10 – Current Dump Site with a pile of trash; 55-gallons barrels visible.

Photo 11 – Current Dump Site debris.

Photo 12 – Current Dump Site signage.

Photo 13 – 55-gallon barrels at Current Dump Site.

Photo 14 – Car batteries at Current Dump Site.

Photo 15 – Scrap metal at Current Dump Site.

Photo 16 – Current Dump Site filled with Old Dump Site soils.

Photo 17 – Available equipment: dump truck.

Photo 18 – Available equipment: excavator.

Photo 19 – Available equipment: bull dozers.

APPENDIX D

FIELD NOTES

"Rite in the Rain"®

ALL-WEATHER

JOURNAL

No. 393-MX

Noatak PACP

Contacts
Andy Larsen - home 696-6008 cell 250-8111

Larise 485-2173 IRA Council office

Wanda 485-2236 (Susie)

Carol 485-2021

Stanley Tomaszewski 442-7639
Manilaq

BtB Bernice 485-2209

10/4/10 Brent Veltkamp

Noatek PACP Field work

0500 At ANC Airport
0600 Flight to Kotzebue

0730 Arrive in Kotz

Meet w/ Stan T. Manilaq brownsfield coordinator

Stan will be looking at both dump sites, as well as other sites in Noatek.

- Hes info on recycling / backhaul issues.
  - need to ask

He is unsure how much of the old landfill was removed,

He is unsure if current landfill, desire is to close in-place, or excavate / move.

He states prior landfill operator is no longer in village. Prior operator had only limited hours for landfill maintenance, so maintenance was inadequate, (Find out what "inadequate" is) Prior operator had wanted to move honey bucket disposal. Honey bucket lagoon was too close to entrance road, too easily accessible, and people would put other material in honey bucket lagoon.

Paul - Manilaq Water issues Sewer issues
Eatar Env. Heath Manager

John - RMW remote maintenance worker
w/ Manilaq

Stan stakes not much backhaul comes from Noatak better in other villages with barge access,

Barges infrequent in Noatak

Backhaul rate on Ryan Air .55¢/lb.

Pauls # 412-1345

1020 in Noatak

Meet w Wanda Rose + Carol

Get settled into school, return to IRA office

$12K went a long way excavation at old landfill complete (or almost) Dump stockpile excavated from river bluff edge

Mostly went to fuel

spent 50 hrs 2 drivers, dozer, Utani (Huey)

2 days boat driver, laborer

most debris out at river,
some too heavy
mark the rest w/ buoys - at Area I Jescar
Marked w fish floats
50 hrs on hoe. 80 hrs others? was budget
In new landfill - looks nice, used as landfill cover
Old - pile removed.
In 90s - landfill was by itself outside of town
now town has grown in that direction
New gravel added. - where added as backfill where
dump soil removed
White goods piled at dump. Washers/dryers. Now segregated
Possible backhaul someday
Ryan / ATS air .25¢/lb
No forklift here
Fish tote full of batteries ready to ship for backhaul
No fork or loader.
Stan - last year was ice road to Nenana - used for backhaul.
No ice road here, ever
Would be over 75 miles here & would need a large project to justify ice road
Water here getting lower ? slumps - Carol upstream
lots of dead Salmon
Main river changed to different channels, is away
from village now
No regular barges since 1993
Carol - recent dig not enough to make harbor area. Covered over with gravel.
(What they are calling "harbor" is winter boat storage yard near the river access, boat ramp.)

Fuel

Citgo 75gal - last year / 150 this year to each resident
Hugo Chaves / Venezuela
fuel to residents

Diesel for equipment now $8.99/gal

Recent work used $6,800 for fuel

IRA - owned equipment. In kind contribution
Operators - work for IRA no charge to project

Carol - stress need for new landfill. Smoke from burning
Proposed new sites are approx. 5mi. out. comes into houses + school, blowing trash

Current landfill - (Wade)
residents OK with close in place.

Airport plans - move due to erosion. Currently low priority with ADOT
Graves moved down by airport
by old lagoon, due to erosion

New airport - is Grant for new airport. Money earmarked already
DOT is putting it off
Option is selected. FS in place, gravel
source, ground studies.
village Not pushing for it as much, lately
told other villages have priority needs now.

Site: west across creek, about 5 miles out.

No new landfill until new road / airport.

Stuck with landfill for now

Residents self dump now, no landfill operator

No landfill operator permanent.
Hire somebody to clean once a month.
Some gravel added to cover trash occasionally.

Some burning - burn box, but mostly open burn
no burning on windy days. Smoke can waft
toward school and nearby houses.
1230-1315 Lunch

Wanda- difficult to administer landfill as a tribal
government. Other villages that are incorporated
"cities" have landfill operator, where only one
person accesses the dump.

From old landfill excavation - no hazmat to set
aside, no contaminated soil encountered.

☆ Tomorrow - set Wandas pictures on laptop

Current landfill is fenced, keeps bears out pretty well

Gravel owned by NANA. NANA does not charge
for gravel. Source is river bar at boat launch.

Residents use IRA equipment, just pay for fuel
and help themselves to gravel.

From Wandas photos, looks like 30×60× 10' high
pile was moved from old Landfill.
(Is there more in the ground?)

1400 Tour sites - more notes later

At current dump- Honey bucket area is private homes,
only ~ 5 homes use it, as per Carol.
City disposal is elsewhere.

Metal segregated
Gate open, broken, looks unfunctional

At old dumpsite
Residents want to turn area into boat storage, using term "harbor" loosely.
Not actual harbor down to water, but a place to store all the village boats for the winter.

Currently, boats are lined up on the shoreline on a gravel bar near the gravel extraction/pit area. The area floods in the spring, and at freeze-up all boats are pulled up high.

Old dump area is in close proximity to navigible river, and makes good storage area. Not possible to park boats in front of village anymore.

Salmon spawning has changed with changes in river channels. Wanda/Carol say that there didn't used to be many dead salmon along this section of river in the fall. Now there is 20-mile section of spawned out salmon.

Big question so far: How much of the old dump is still in the gravel area? Is there trash under several acres of gravel as per EPA 2000? Was most of the dump moved to large stockpile? or was this pulled back from the edge - more likely, BU - Stockpile contained most of dump as per Carol.

From Carol: In 1999 or so, dump that was falling into the river was pulled back and put in the stockpile. Also - trash from the ~~western~~ northern area was bulldozed into the pile as well.
Most trash was compiled as per Carol.
Then area was covered by gravel.
As per Carol, shouldn't be much trash left in the ground in the area noted as landfill in the EPA 2000 report.

Large stockpile must have been made after EPA 2000 report, there is no mention of stockpile in EPA 2000.

Seems that village feels that cleanup at this area is complete.

Site Details

1630 Area 1 – Old Lagoon.
Approx 1/3 runway length from N end of runway. Off road past apron, and on river bluff.

Impoundment area graded, mostly
North west corner berm edge visible.
No trash seen in upper area, except recently discarded.
Below bluff there is one area approx 20' wide with trash and debris coming out of the bluff.
Remainder of debris is 2 tires, 2 doors, at least 2 drums and metal debris. Not extensive - isolated items
piping and some debris in the water

At least 2 batteries visible.

3 items of heavy debris are marked with buoys.
1 section of concrete? insulated 6" pipe is coming out of the upper bluff.

No evidence of spilled ~~oil~~ oil or fuel.

Northern half of gravel cap is revegetated with willows. Southern half lagoon edge has been filled with gravel
Cover over trash area is approx 4.5' thick.

Area 2

At former dump stockpile, end of road, waters edge
Stockpile has been removed, backfilled with clean gravel.
Isolated debris visible in places.
Still some trash in the bank where excavation stopped.
minor amount, ~~Several~~ cans, bottles, plastic, piping
more gravel than trash

Backfilled area is 135' x 60' at widest dimensions
Backfill 2-3' deep, leveled off

Old access road / remainder of dump is 24' deep
in road center, no evidence of trash on surface,

Below bluff, Not much trash remains. Some plastic,
bottles, cans, in cover gravel
Evidence of debris cleanup, grooves in surface soil

At cut bank / end of excavation, collect 6 PID
boss for headspace screening, approx 8-10 ft
spacing across face, in soil containing trash
and debris.

North of the gravel stockpile area, there is a low,
wet, grassy area that appears unnatural and disturbed,
is wet with gravel interspersed.
In this area is old trash and debris, auto cans
from 70s, old glass, 5 gal cans, 1 drum seen
various trash. Obviously associated with old dump.
Area is quite overgrown w/ grass.
Vegetation appears healthy, though.

Remainder of old dump area has gravel cover,
cannot tell if there is trash underneath or not.
Numerous items of trash and debris are in the area,
but can not determine if these are landfill debris,
or discarded more recently.
Residents use this area as winter boat storage
and wish to improve it.

EPA 2000 mentions several areas where debris was
observed protruding from the gravel, this was not
observed, only observed isolated items of debris
in gravel area.

Questions for Carol / Wanda for 10/5

- Do you consider the old dump cleanup complete? Is it worthwhile to remove remaining debris? Is it worthwhile to investigate the remaining gravel area?
  They feel like area is pretty adequately cleaned up, still trash at Area 1. Carol thinks cleanup at Area 2 is good for now.

★ Nicky Asbaby - moved trash ~~at~~ old dump

- Carol: When a new landfill is available, would the community like to see the current landfill closed in-place? Or is moving the waste desired.

  (Wanda thinks closure in-place is good. The area could be used for equipment storage.)

  (Didn't ask)

- Community water source, location, 45' deep as per Paul Eaton Manilaq
  Water wells in river, upstream from village ran dry once, could pump water if needed
- Who owns old dump site land? NANA?
- Who owns the current dump? NANA, currently permitted to village.
- Are there residents with 40-hr HAZWOPER?
  (didn't ask)
- What are the operators wages?
  Operator $21/hr
  Driver $18-19/hr
  they would like more

  Laborer $15-18/hr

How is used oil handled? Is it kept out of the landfill?
AVEC has oil burner for themselves + water/sewer plant
personal oil unaccounted, not sure how disposed,

Do people fish close to village? Downstream?
Fish mostly in main channel or Kelly R. - seining upstream
not in front of village

Old Landfill started around '76 - Carol

2130 Check PID boss

Sample	PID	Comment
1	~~35~~ BV	> no odor 4.6 on 2nd try > replaced sensor
2	~~22~~ BV	0.0 on 2nd try
3	0.1	no odor
4	0.1	
5	0.0	
6	0.2	

All soil dk brown, damp, gravel, no odor

Instrument gives erroneous readings at first, Replaced sensor. Re-check calibration in Arch.

Earlier - as per Wade and Carol, during dump excavation no hazmat was encountered. No hazardous materials were set aside or segregated. Soil did not appear oily or fuel-contaminated.

10/5/10
0730 Review notes, documents.

☆ Need historical photos of Area 2.
- 80's while dump is active
- Early 2000s following stockpile creation?

- Check contaminated sites database for Noatak

Volumes

Stockpile dimensions in NRCS grant application
30×60×10 = ? 670 if rectangle cube
listed as 680 in grant
would be ~475 yds possibly.

Possibly stockpile dimensions are estimated,
backfilled area is much larger than 30×60,
max dimensions 135×60.

If old dump covered w/ 18" gravel,
pile should be larger? if all consolidated.

3 acre site, w debris/trash, covered w 18" gravel
is much more than 680 CY.
Is remainder still in place? or dimensions
incorrect?

Review NRCS Grant Permit

Area 1 not removed from bank.
Remains unfinished. Unsure if any debris
was removed from the water.

Review RFP

Data gap – old dump volume discrepancy, possible missing debris?

★ Return to look at/photo drainages, leaching
possibility. More video of wetland/trash area.

Community re-use objectives not met, as the
only area leveled/compacted for boat storage
is at waters edge.

→ Suggest test pits in remaining old dump area to
determine if landfill debris still exists, and
screen for soil contamination.

Today - count drums

1000 - Travel to current landfill

Gate destroyed.
Residents convey own garbage to landfill.

Honey bucket area mostly used for trash
Carol - only a handful (5) houses haul own honey buckets here
filled w/ trash, drums, appliances, debris.

Metal debris area full - metal piled up on the sides. Many drums - too numerous to count, at least 2 found with contents.
Numerous appliances, incl. freezers, refrigerators, mixed in with landfill. No set aside area for possible buckhaul.
fence compromised on west side of metal debris area.
2 batteries

Main landfill area. Soil stockpile used for landfill cover in center of landfill.
Residential waste appears to be placed mostly around perimeter
Residential trash and debris.
No cover around edges.
Open burning in places. no burn box
old burn chamber inoperable

Collect 8 PID bags from old dump soils

Area where old dump stockpile soil was added is at least 100' x 130+, and 2-3' deep.
-see aerial photo.
Hard to tell on west side how much cover was placed from old dump.

- Ask carol how many truck loads

1135 Off site from current dump.

1220 Read PID boss (zeros at 0.1)

Sample	PID	Comment
7	0.1	Sand w gravel, dk brown, trash no odor, damp
8	0.1	same as above, no odor
9	0.2	sandy gravel, damp, no odor, dk brown w/ trash
10	0.2	Sandy gravel same as above
11	0.1	Sand w gravel/roots, peat, no odor, damp, dk brown
12	0.0	gravel, damp, dk brown, no odor trace trash
13	0.0	
14	0.0	

Soil clean - no evidence of fuel contamination.

1300 At IRA office

Questions with Carol

~~loads hauled 30-35 loads today~~ ?

Possible interview:
Mickey Ashby - has info on how old dump was bulldozed and piled up. He would know if there is still trash in the gravel area. He did some of the bulldozing and site work.

loads hauled - trying to figure volume

7-8 / driver

30-35 loads - 2 drivers

8 days + 15-20 loads gravel

65 hrs / 55 hrs

Bed is 7x18x6 ft^3 756 ft^3 28 yd^3 ?
- no need to look up truck size

8-10 loads / driver / day 2 drivers

× 5 days for 1 driver
6 days for other

5 loads pipe only

At new landfill, whole raised area, Mickey? is relocated old dump. Hs per equip operator

Earlier: Suggested test pits to Carol for determining if old dump has trash under gravel, she didn't seem to think it was necessary.

1400 At Area 1 confirm 3 old drums. 2 crushed at river edge, one in bluff.

At Area 2 old dump, look for drainage patterns detailed in EPA 2000 report. Only found one that would drain area (likely drainage 3)
Drainage 1 likely eroded
Drainage 2 w/ culvert not found
Drainage 4 not inspected.

1600 Era flight to Kotzebue
1930 AK Airlines to Anchorage
arrive 2230

Note: On EPA2000 figure road to river is configured differently, dump side by side with access road.
All appears as one road now. Inspect aerial photos for old dump area.


water well 3
School
Noatak, AK
Health Clinic
New Neighborhood
Nearest resident to Area 1 + 2
Current Landfill
Area 1 Old Lagoon
Dump Stockpile Removed Area
Area 2 - Old Dump
Boat Launch
Gravel Pit
© 2010 Google
© 2010 Europa Technologies
Image © 2010 DigitalGlobe
©2009 Google
2722 ft
Imagery Date: Jul 7, 2007
lat 67.564857° lon -162.978481° elev 0 ft
Eye alt 9401 ft

Old → limited characterization

* New ⇒ moving


N
Former Pile Removed Sept '10
2-3' Clean Backfill
4' thick, trash at edge
1-2' cover
Trash and Debris in grassy area
Drums
2" cover
Dump truck
Stockpile
6'+ cover
621 ft
© 2010 Google
© 2010 Europa Technologies
Image © 2010 DigitalGlobe
©2009 Google
Imagery Date: Jul 7, 2007
lat 67.560038° lon -162.972644° elev 0 ft
Eye alt 2145 ft


Scrap Metal
Tires
Barrel
5' berm
290
Household
Waste
100
130+
8-10' berm
290'
8-10' berm
Possibly fem old dump stockpile? Possibly only a portion of old dump soil
Old dump stockpile placed here appears fresh tracks w bulldozer ~2-3' thick


Current Shoreline
Current Bluff Edge
Old Sewage Lagoon
All eroded.
Mostly eroded
Filled w Gravel
Trash in bluff face
N


Area 1
(Sewage Lagoon)
Informal dumping
Drum
~20'


Anexo 1


Area 1


Stockpile
at Area 2

APPENDIX E

NOATAK BORING AND WELL LOGS

12015

WATER SUPPLY WELL LOG

PROJECT NO. LE00-029 WORK ORDER NO. 4026 602 LOCATION Noatak DATE STARTED 25 Apr 65

DATE Abandoned 18 Aug 65 DRILLER Frisley & Boiler TYPE OF RIG Cable

TOTAL DEPTH 271 FT. CASING INSTALLED 264 Casing Salvaged 60'

SCREEN MATERIAL None LENGTH No Screen Set DIAMETER —

PRODUCTION: HRS PUMPED — STATIC WATER LEVEL — FT. AVAILABLE DRAWDOWN — FT.

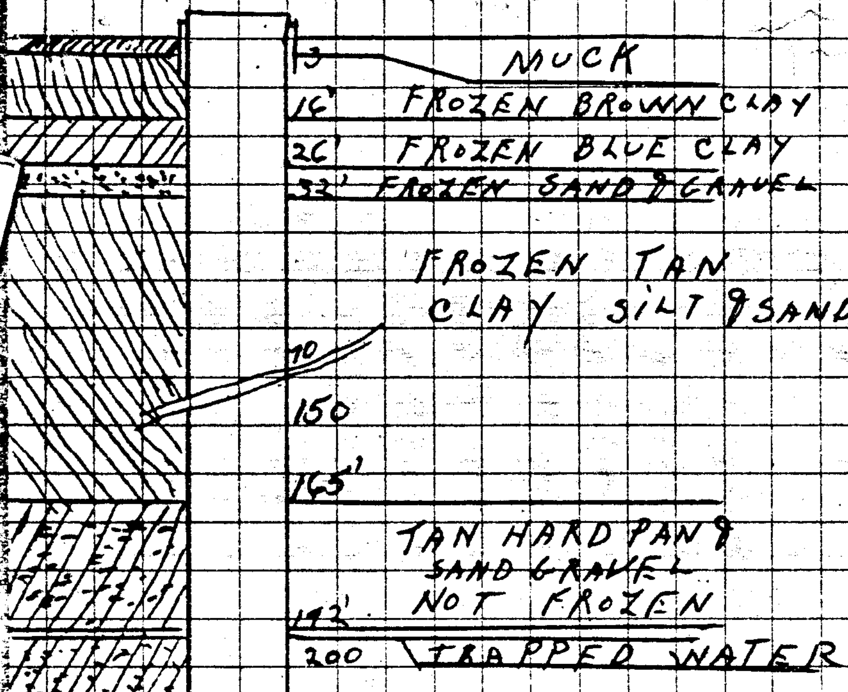
YIELD — GPM. DRAWDOWN — FT SPECIFIC CAPACITY — GPM

3 Holes Drilled, None Successful

DATE	DEPTH IN FEET FROM	DEPTH IN FEET TO	FORMATION	DRILLER
	0'	13'	Frozen Brown, Silt With Organic Material	
	13'	14'	Gray, Medium Gravel	None
	14'	166'	Frozen Tan, Clay, Silt And Fine Sand	
	166'	178'	Gray, Gravel With Some Tan Clay	
	178'	187'	Gray, Clay And Coarse Sand	
	187'	205'	Gray, Coarse Sand With Tan Clay	
	205'	222'	Gray, Clay And Sand	
	222'	258'	Tan, Clay And Gray Coarse Sand & Gravel	
	258'	265'	Gray, Fine Sand With Some Clay	
	265'	267'	Gray, Gravel With Some Clay	
	267'	271'	Tan Clay And Sand	
			Top 66' of Casing Removed	

KB 25-19-16

12015



STARTED DRILLING 8/7 FINISHED DRILLING 8/29/69.

THIS HOLE HAS 7 [illegible] OF 6" CASING 318 ft. OF 4" CASING. HOLE WAS DRILLED TO 317 ft. CASED TO 316 ft. NO WATER AT ALL.

AT 192' THERE WA[illegible] A SMALL TRINKLE OF TRAPPED WATER WHI[illegible] SOON RUN OUT.

HAVE A CAP WELDE[illegible] ON TOP OF THE CASIN[illegible] HOLE WAS ABANDONE[illegible] CASING IS STILL FRE[illegible] & IN GOOD CONDITION WHICH WOULD BE POSSIBLE TO GO DEE[illegible] AT ANOTHER TIME.

CHARLES W. BORDNER
DRILLER

SKETCHED BY Roy C. Longbottom Jr.
Jr. Driller

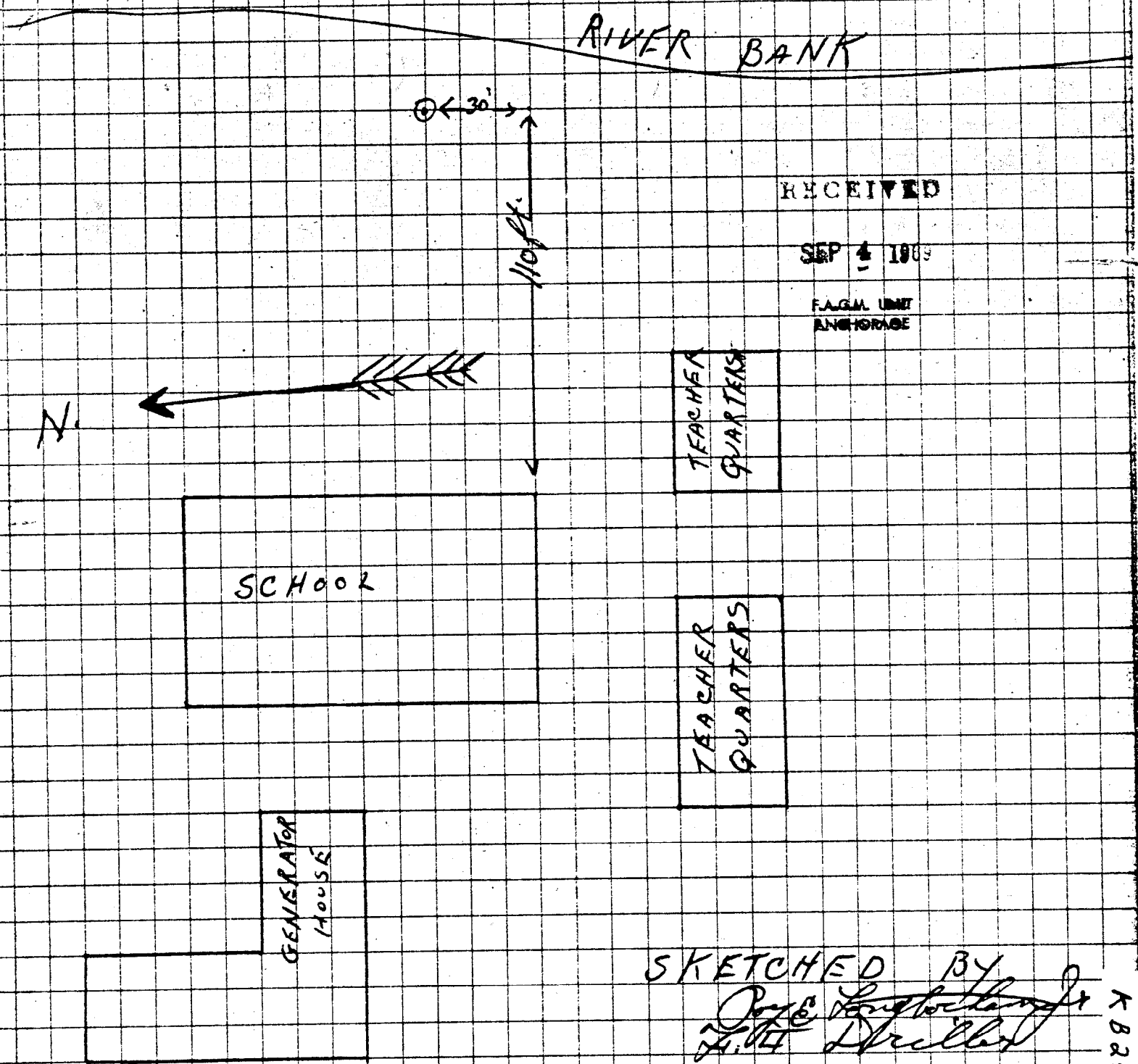
KB25-19-16

LE 04

Nome Field Office

12015

LOCATION OF 317 ft. HOLE



RECEIVED

SEP 4 1969

F.A.G.M. UNIT
ANCHORAGE

SKETCHED BY

Pete Engebretsen Jr.
Field Drafter

KB25-1916

~~LAS~~ 23204
ADL 42907
K2D 12-20-95
KRM, T 25N R19W Sec 16
Ch. NG3 W38
NW¼NE¼ Sec 16

...SION LINE BURIED 2FT. BELOW BED

* WEIGHTS @ 10' OC. BENEATH RIVER * STARTING 15' WEST OF WEST BANK) DETAIL ABOVE)

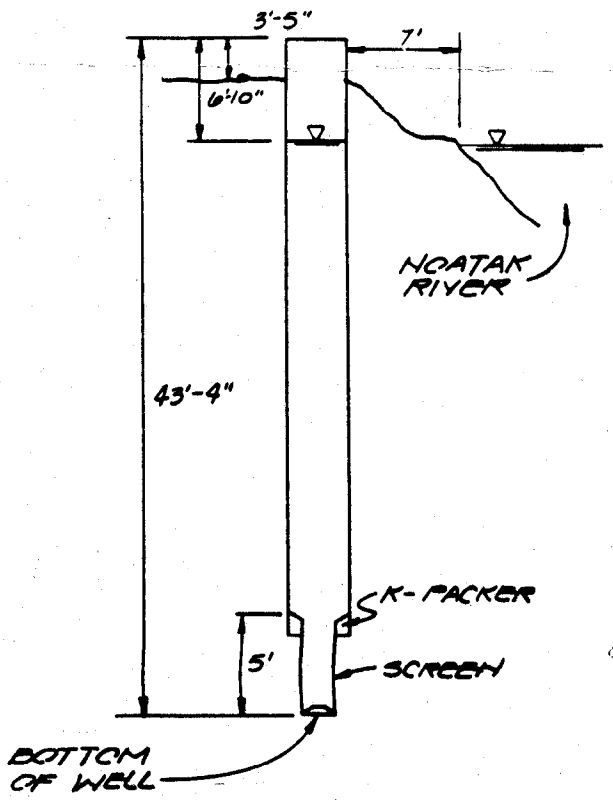
VE VAULT (SEE DETAIL LEFT)

TERMINAL POWER POLE FROM OVERHEAD POWER LINE

8" SPRUCE LOG BOLLARDS

WELL #2
LL #1

7" CASING W/ 4" SCREEN



WELL #1 AS-BUILT
PER PHS FIELD WORK
7/89

SITE ID

LOCAL NO. KB25-19-16AB

...UCTION

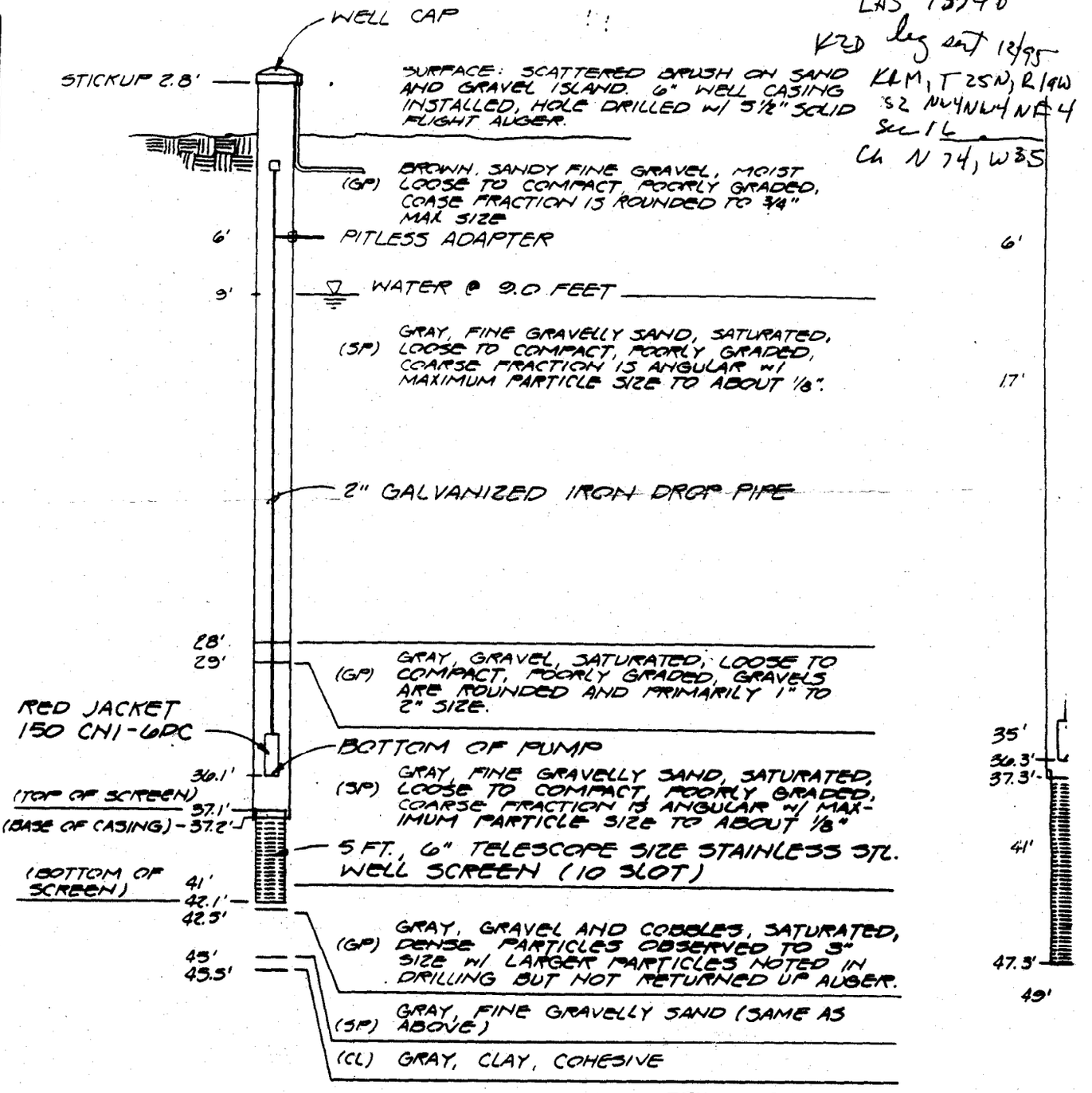
SCALE:
AS NOTED

1990 WATER SYSTEM IMPROVEMENTS

LAS 13948 98-3205

KED log sent 12/95

KLM, T25N, R19W
S2 NW¼NW¼NE¼
Sec 16
Ck N 74, W 85



WELL LOG
WELL #2 ON ISLAND IN NOATAK RIVER

N.T.S.

- DRILLED BY: AMBLER EXPLORATION, INC.
  STEVE WOODSTOCK
  ENOCH MITCHELL
- DATE DRILLED: 10-16-90 TO 10-22-90

WEL
WEL
RIVE
N.T.

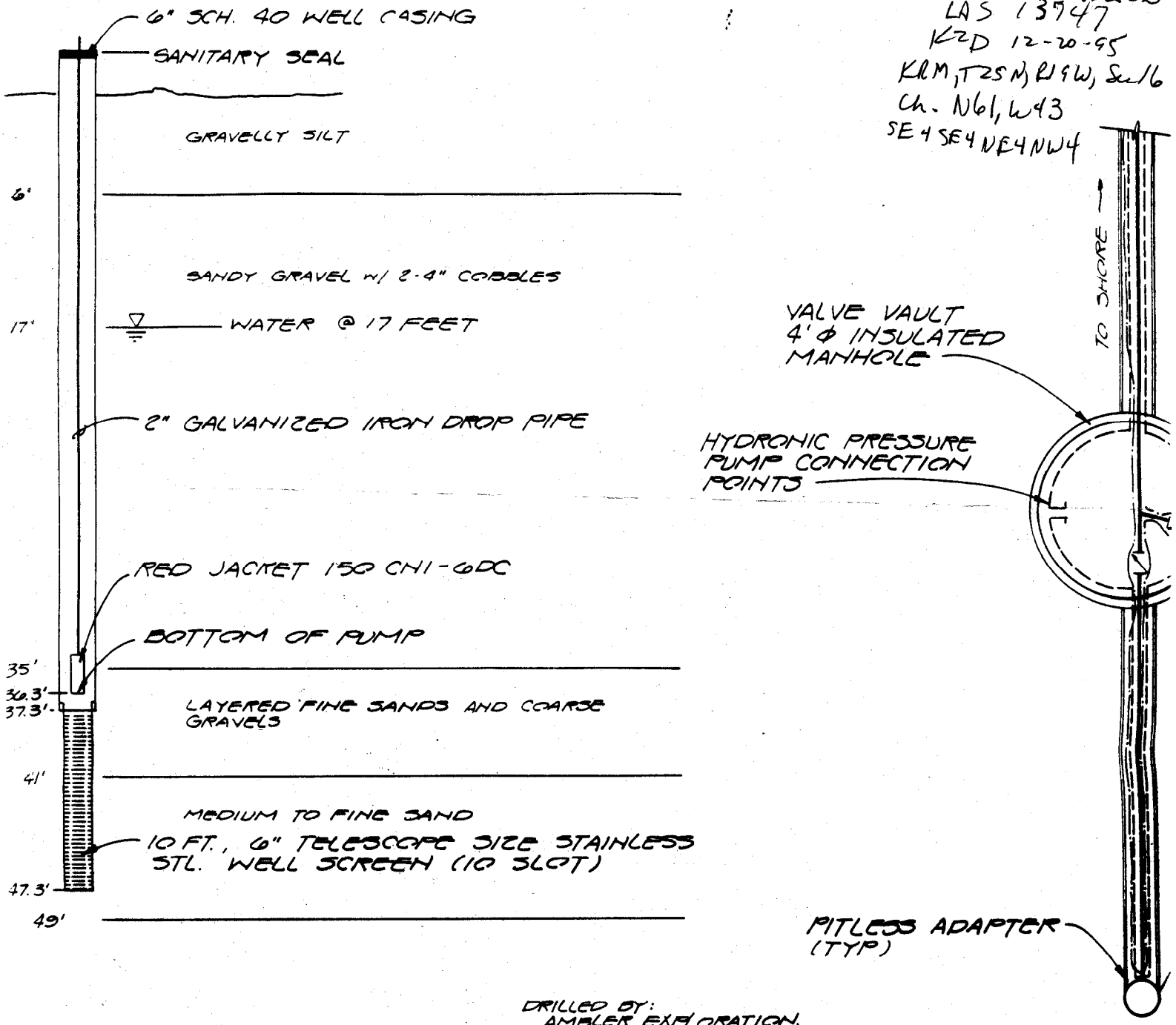
FIELD BOOKS	TBM NO.	LOCATION	ELEV.	DATE
DESIGN				
STAKING				
ASBUILT				
CONTRACTOR	BASIS OF THIS DATUM			
INSPECTOR				
CONSTRUCTION RECORD	**VERTICAL DATUM**			

A/E SUPPLIES 134235

NO. KB 85-19-16ABB

23206

LAS 13747
KZD 12-20-95
KRM, T25N, R9W, Sec 16
Ch. N61, W43
SE¼ SE¼ NE¼ NW¼



DRILLED BY:
AMBLER EXPLORATION, INC.
STEVE WOODSTOCK
ENOCH MITCHELL
DATE COMPLETED:
12-12-90

WELL LOG
WELL #3 ON WEST RIVER BANK

N.T.S.

VALVE V

N.T.S.

DATE	DESCRIPTION	BY

REVISIONS

LOCAL
SITE

CHUCK EG
CONSULTING ENG
ANCHORAGE, ALA

KB 25-19-16 BADD

29682

Well Information - **Well log not available**

Date: 11/12/03 LAS#: 24090

Source of information: WATER RIGHTS APP.

Data supplied by (Owner): NATIVE VILLAGE OF NOATAK.

Well location (MTRS): KB 25-19-16 A B B B

Property description: ISLAND IN NOATAK RIVER

Two wells
Well depth: 40 Ft, Static water level (TOC): ± 1 ft BLS. Ft

Type of well: DRILLED BY VILLAGE., Yield: 40 gpm

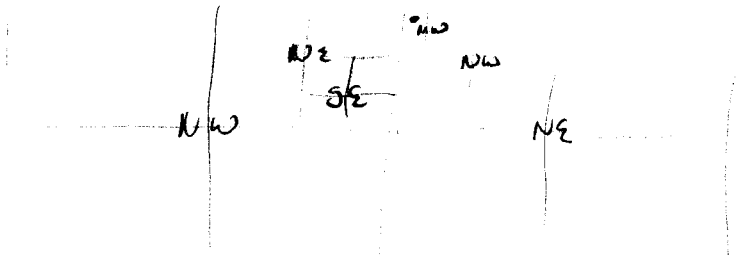
Diameter of well: 6", in., Cased? (Y) / N, to 40 ft. Ft, Bedrock? Y / (N)

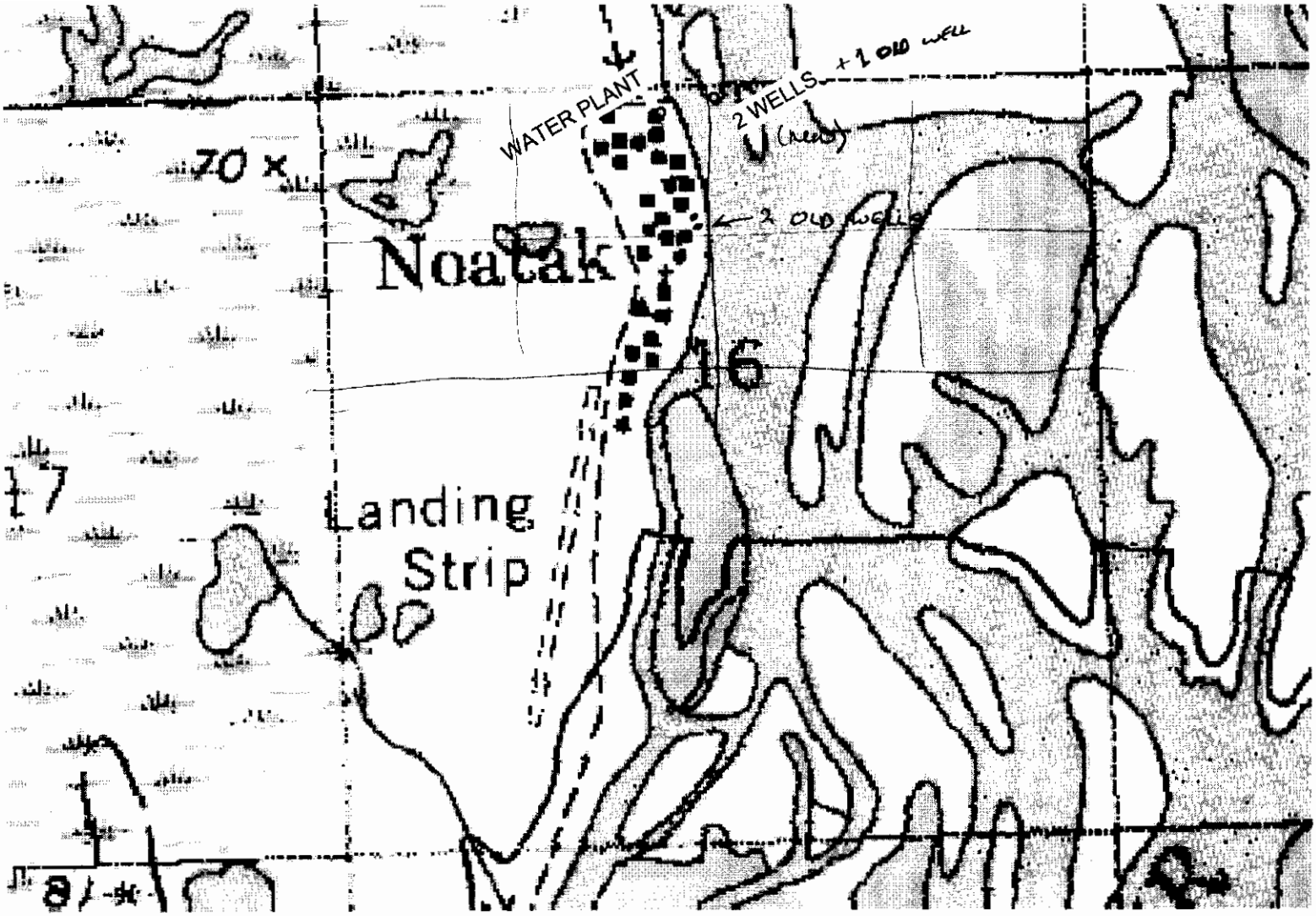
Perforated: unknown, Ft, Screened? Y / N: unknown. Ft

Use of well: Public water supply.,

Remarks: Drilled by mobile rig into river gravels, protected by concrete vault and articulating concrete block mat. - Probably no well logs, water from unconfined surficial aquifer (ie the river bed!)

Location map (sketch):





ADL 42907

OLD WELLS APPARENTLY LOST DUE TO EROSION.

- INCLUDES 1 WELL (1989) ON EAST SIDE OF SOUTHERN TIP OF THE ISLAND AND 2 WELLS (1990) ON THE RIGHT BANK, APPROX. MIDTOWN AREA.

LAS 24090

NEW WELLS (#5 & #6) ARE ON THE ISLAND CENTER LINE, NEAR THE ~~(1990)~~ SOUTHERN TIP (+/- {500 to 800} ft upstream) - ~~SOON~~ BE ARMOURED. ARE.

± 5/1/2003

1 WELL UNACCOUNTED FOR - MAY HAVE BEEN ALREADY LOST.

- SAME AQUIFER (SOURCE) AS OLD WELLS - RIVER BED GRAVELS & SANDS - PROBABLY UNCONFINED, SURFICIAL AQUIFER

- ATTEMPT TO GET WELL LOGS.

'Noatak C-2 63K; AK'; Scale: 1" = 0.213Mi 343Mt 1,126Ft, 1 Mi = 4.688" , 1 cm = 135Mt

APPENDIX F

HISTORICAL AERIAL PHOTOGRAPHS

Aerial Photography by ©AeroMetric

SLR

N

Report	PROPERTY ASSESSMENT AND CLEANUP PLAN NOATAK DUMP SITES NOATAK, ALASKA
Date	June 2, 2011
File Name	Noatak Aerial Photos
Photo Date	August 11, 1975
Project No.	105.00065.10007
Aerial Photo:	1975

Aerial Photography by ©AeroMetric

SLR

N

Report	PROPERTY ASSESSMENT AND CLEANUP PLAN NOATAK DUMP SITES NOATAK, ALASKA			
Date	June 2, 2011	Photo Date	August 1, 1991	Aerial Photo: 1991
File Name	Noatak Aerial Photos	Project No.	105.00065.10007	

Aerial Photography by ©AeroMetric

SLR

N

Report	PROPERTY ASSESSMENT AND CLEANUP PLAN NOATAK DUMP SITES NOATAK, ALASKA
Date	June 2, 2011
File Name	Noatak Aerial Photos
Photo Date	August 26, 2000
Project No.	105.00065.10007
Aerial Photo:	2000

Aerial Photography by ©AeroMetric

SLR

N

Report	PROPERTY ASSESSMENT AND CLEANUP PLAN NOATAK DUMP SITES NOATAK, ALASKA
Date	June 2, 2011
Photo Date	June 29, 2008
Aerial Photo:	2008
File Name	Noatak Aerial Photos
Project No.	105.00065.10007

APPENDIX G

HISTORICAL RESEARCH DOCUMENTATION

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue
Seattle, WA 98101

Reply To
Attn Of: ECL-115

Janet Mills
Director, Noatak Environmental Protection Agency
P.O. Box 89
Noatak, AK 99761

Dear Ms. Mills:

The U.S. Environmental Protection Agency (EPA), through its contractor, Ecology and Environment, Inc., conducted a Preliminary Assessment at the Noatak Closed Dumpsite in Noatak, Alaska. A copy of the report is enclosed. Based on this review, EPA does not anticipate further investigation under the Federal Superfund Program. If you have any questions, I can be reached at (206) 553-2594.

Sincerely,

Joanne LaBaw
Site Assessment Manager

Enclosure

cc: NANA Regional Corportation
Greg Light, Alaska Department of Environmental Conservation
Frank Matsuno, EPA Alaska Operations Office
Eric Winiecki, EPA

Noatak Closed Dumpsite
Preliminary Assessment Report
Noatak, Alaska
TDD: 99-07-0002

Contract: 68-W6-0008
March 2000

Region 10

START

Superfund Technical Assessment and Response Team

Submitted To: Joanne LaBaw, Task Monitor
U.S. Environmental Protection Agency
1200 Sixth Avenue
Seattle, WA 98101

10:\00061 1\99070002

NOATAK CLOSED DUMPSITE
PRELIMINARY ASSESSMENT REPORT
NOATAK, ALASKA

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ACRONYM LIST

Acronym	Definition
ADFG	Alaska Department of Fish and Game
bgs	below ground surface
CD	Closed Dumpsite
DRO	diesel range organics
E & E	Ecology and Environment, Inc.
EPA	United States Environmental Protection Agency
NWI	National Wetlands Inventory
PA	Preliminary Assessment
PCBs	polychlorinated biphenyls
PPE	Probable Point of Entry
START	Superfund Technical Assessment and Response Team
SVOCs	semivolatile organic compounds
TDL	target distance limit
USFWS	United States Fish and Wildlife Service
VOCs	volatile organic compounds

NOATAK CLOSED DUMPSITE
PRELIMINARY ASSESSMENT REPORT
NOATAK, ALASKA

1. INTRODUCTION

Ecology and Environment, Inc., (E & E) was tasked by the United States Environmental Protection Agency (EPA) to provide technical support for completion of a Preliminary Assessment (PA) at the Noatak Closed Dumpsite in Noatak, Alaska. E & E completed PA activities under Technical Direction Document No. 99-07-0002, issued under EPA, Region 10, Superfund Technical Assessment and Response Team (START) Contract No. 68-W6-0008.

The specific goals for the Noatak Closed Dumpsite PA, identified by the EPA, are to:

- Determine the potential threat to public health or the environment posed by the site;
- Determine the potential for a release of hazardous constituents into the environment; and
- Determine the potential for placement of the site on the National Priorities List.

Completion of the PA included reviewing existing site information, collecting receptor information within the range of site influence, determining regional characteristics, and conducting a site visit. This document includes a discussion of site background information (Section 2), a discussion of migration/exposure pathways and potential receptors (targets; Section 3), and a list of pertinent references (Section 4).

2. SITE BACKGROUND

2.1 SITE LOCATION

Site Name:	Noatak Closed Dumpsite
CERCLIS ID No.:	AKSFN1002150
Location:	Noatak, Alaska
Latitude:	67°33'30.4" North 67.5584
Longitude:	162°58'27.2" West -162.9742
Legal Description:	Section 16, Township 25N, Range 19W Kateel River Meridian
Congressional District:	Alaska
Site Owner:	NANA Regional Corporation 1001 Benson Blvd. Anchorage, Alaska 99508
Site Contacts:	Mr. Frank Onalik Director (former)- Noatak Environmental Protection Agency P.O. Box 89 Noatak, Alaska 99761 (907) 485-2236 Ms. Janet Mills Director (current)- Noatak Environmental Protection Agency P.O. Box 89 Noatak, Alaska 99761 (907) 485-2236

2.2 SITE DESCRIPTION/OWNERSHIP HISTORY

The Noatak Closed Dumpsite (CD) is located on the southern edge of Noatak, approximately 100 feet inland from the west bank of the Noatak River (Figures 2-1 and 2-2). Noatak is located approximately 50 air miles northeast of Kotzebue, Alaska, and 575 air miles northwest of Anchorage, Alaska. The site was formerly the community dump and is approximately 3 acres in size. The NANA Regional Corporation currently owns the Noatak CD property and has since 1984 when they received it through Interim Conveyance No. 849 (Mills 2000). The Village of Noatak began operation of the dump sometime in the 1970s and ceased approximately four years ago (Onalik 1999). It is unlikely that the Noatak CD ever had an operating permit (Sonafrank 2000).

The site is surrounded by a black spruce bog forest, and the northern edge of the former dump is beginning to erode into the Noatak River. This occurs during high water times, typically during spring breakup and fall.

2.3 SITE OPERATIONS AND WASTE CHARACTERISTICS

The site was used as a dump by Noatak residents from the 1970s until approximately 1995 (Onalik 1999). The dump was covered with approximately 18 inches of gravel and this condition remains today.

According to site representatives, all types of household refuse, including oils and lubricants likely were deposited at the dump (Onalik 1999). While the gravel cover appears to be intact, there were several areas where debris, including rusted and crushed drums, where observed protruding out of the gravel.

No previous environmental investigations are known to have occurred at the site.

2.4 START ACTIONS

The START conducted a site visit on September 28, 1999. Noatak is not accessible by road. The START traveled to Noatak via charter air service from Kotzebue, Alaska. Site access was granted to the START by Mr. Frank Onalik, Former Director of the Noatak Environmental Protection Agency. Mr. Onalik accompanied the START during the site visit. The site is bound on the east, west, and south by gravel roads. The road on the south side turns north and continues towards Noatak. The road on the east side runs north and south. This road terminates at the western bank of the Noatak River. In this area the northern edge of the former dump is located approximately 100 feet south of the western bank of the Noatak River. Four distinct intermittent drainage channels exist at the site. For purposes of this report

these drainage channels are called Drainage 1, 2, 3, and 4. Drainage 1 is located between the northern edge of the former dump and the river. This channel is approximately 10 feet deep and terminates at the edge of the river. Drainages 2 and 3 are located on the east side of the north-south trending gravel road located on the east side of the site and both terminate at the slope of a sand and gravel bar of the Noatak River. Drainage 2, the northern most of these two drainages is also approximately 10 feet deep with a road culvert located near it; however, the drainage channel and the culvert did not appear to be connected. Drainage 3, the southern most drainage on the east side is characterized as a shallow drainage area. Drainage 4 is located on the south side of the southern gravel road and is also a shallow drainage area.

One sediment sample and two soil sample locations were chosen at the site. Sediment sample NK01SD was collected at the northern edge of the former dump at the confluence of Drainage 1 with the Noatak River. Surface soil sample NK02SS was collected on the east side of the site in Drainage 3. Surface soil sample NK03SS was collected on the southern edge of the former dump in Drainage 4 (Figure 2-3; Attachment A, Photographs 10, 11, and 15, respectively). All three samples were collected with a dedicated stainless steel spoon from 0 to 6 inches below ground surface (bgs). Each sample was analyzed for semivolatile organic compounds (SVOCs; EPA Method 8270), volatile organic compounds (VOCs; EPA Method 8260), pesticides/polychlorinated biphenyls (Pest/PCB; EPA Method 8082), total metals, and diesel range organics (DRO; Alaska Method 102). Based on EPA, Region 10 Policy, evaluation of aluminum, calcium, iron, magnesium, potassium, and sodium (common earth crust elements) generally is employed only in water mass tracing, which is beyond the scope of this PA report. Therefore, these elements are not discussed in this report. Samples were analyzed by On Site Environmental, of Redmond, Washington. Substances that were detected and their reported concentrations are presented in Table 2-1. A list of all substances analyzed for is presented in Attachment B. The analytical data have not been validated. The analytical laboratory data forms are presented in Attachment C.

DRO was detected in samples NK02SS and NK03SS. Two VOC analytes were detected: methylene chloride in sample NK01SD and toluene in sample NK03SS. Four SVOC analytes were detected: bis(2-ethylhexyl)phthalate in sample NK02SS and bis(2-ethylhexyl)phthalate, phenol, 2-methylphenol, and 4-methylphenol in sample NK03SS. Additionally, five metals: barium, chromium, copper, manganese and nickel were detected in all three samples. Lead was detected in samples NK01SD and NK03SS. No PCBs or pesticides were detected in any of the samples.

Table 2-1

ANALYTICAL DATA SUMMARY
NOATAK CLOSED DUMPSITE PRELIMINARY ASSESSMENT
NOATAK, ALASKA

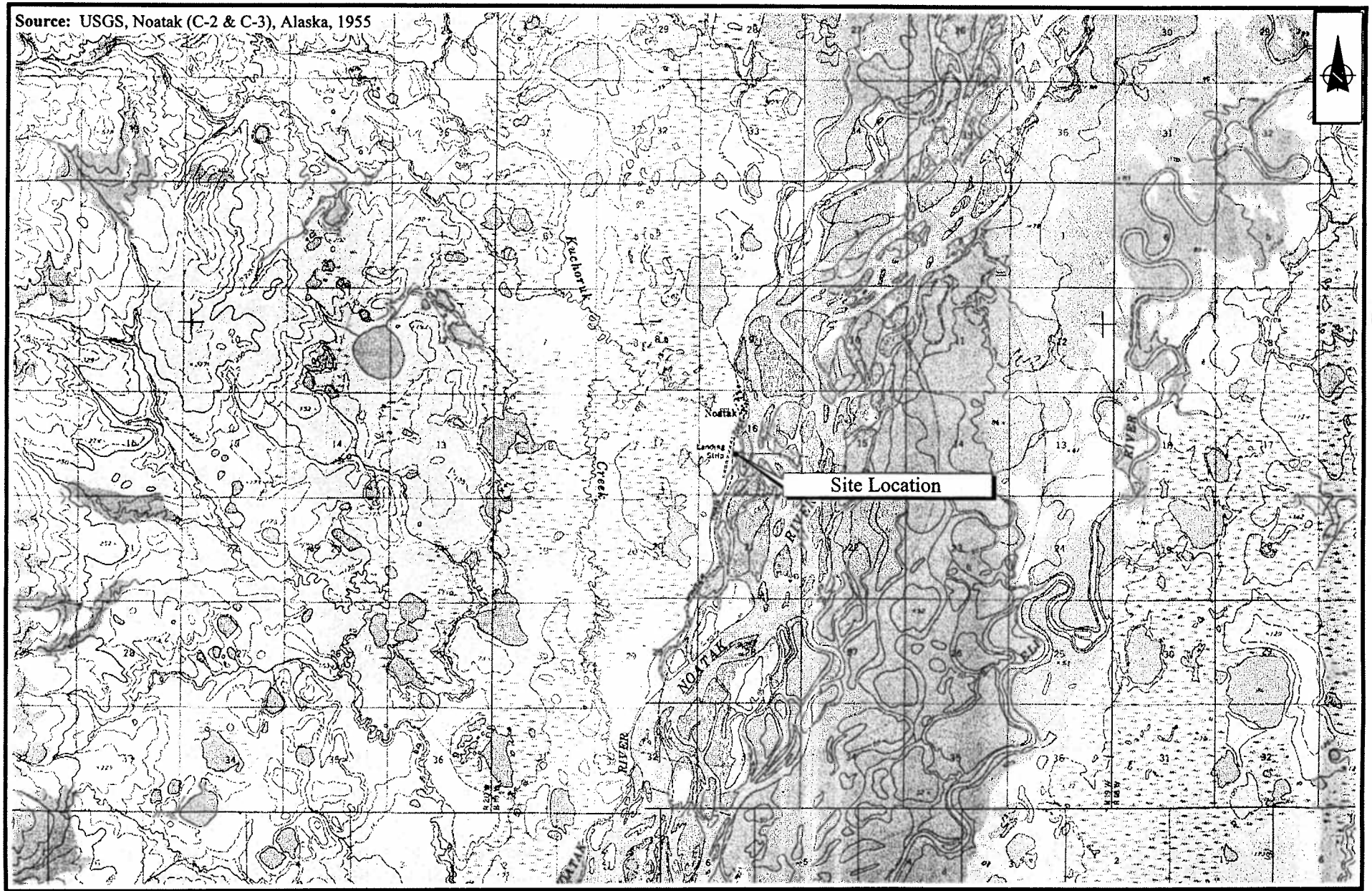
EPA Sample No.:	99090300	99090301	99090302
Field Sample No.:	Sediment NK01SD	Surface Soil NK02SS	Surface Soil NK03SS
Diesel Range Organics (mg/kg)			
DRO	5.4U	**12**	**59**
Volatile Organic Compounds (µg/kg)			
Toluene	68U	63U	**390**
Methylene Chloride	**71**	63U	50U
Semivolatile Organic Compounds (µg/kg)			
Bis(2-ethylhexyl)phthalate	45U	**48**	**570**
Phenol	45U	42U	**100**
2-Methylphenol	45U	42U	**92**
4-Methylphenol	45U	42U	**1,200**
Metals (mg/kg)			
Aluminum	**9,370**	**3,220**	**148,000**
Barium	**131**	**128**	**381**
Calcium	**10,900**	**20,500**	**31,200**
Chromium	**15.6**	**5.2**	**20.5**
Copper	**16.1**	**11.8**	**27.5**
Iron	**21,400**	**8,930**	**30,900**
Lead	**7.16**	5U	**11.9**
Magnesium	**5,560**	**2,500**	**6,740**
Manganese	**451**	**330**	**439**
Nickel	**34**	**15.3**	**38.6**
Potassium	**350**	**218**	**714**
Sodium	**327**	**341**	**476**

Note: Data have not been validated. Bold text indicates concentrations above the detection limit.

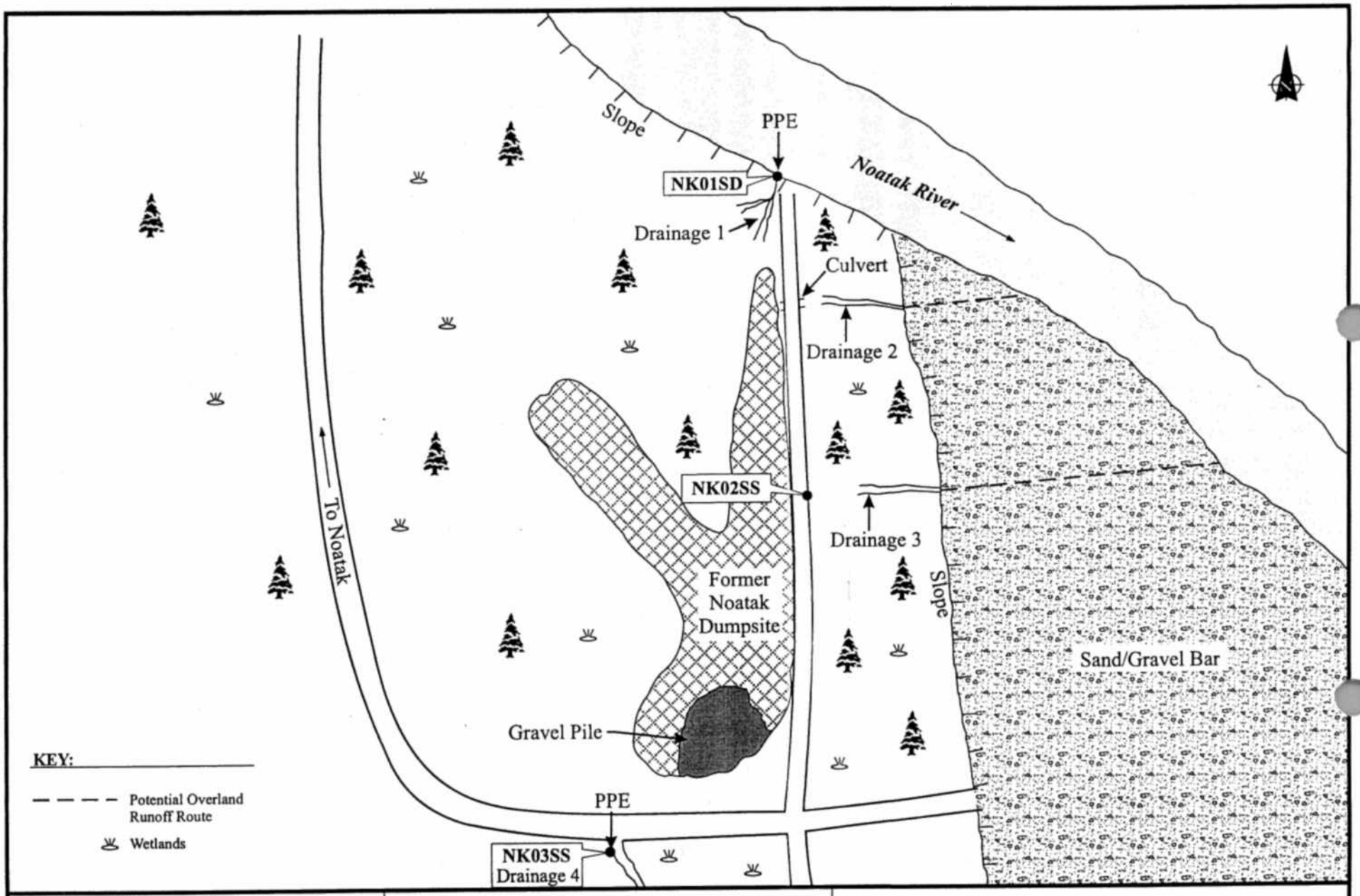
Key:
- EPA = United States Environmental Protection Agency.
- DRO = Diesel Range Organics.
- mg/kg = Milligrams per kilogram.
- No. = Number.
- µg/kg = Micrograms per kilogram.
- U = The material was analyzed for but not detected. The associated numerical value is the sample quantitation limit.

Source: USGS, Alaska Map A, 1996

ecology and environment, inc. International Specialists in the Environment Anchorage, Alaska	NOATAK CLOSED DUMP SITE Noatak, Alaska	Figure 2-1 SITE VICINITY MAP			
	0 40 80 Approximate Scale in Miles	Drawn: AES	Date 10/12/99	Job No. DG0201SAT0	Dwg.No. DG0201 2-1



ecology and environment, inc. International Specialists in the Environment Anchorage, Alaska	NOATAK CLOSED DUMP SITE Noatak, Alaska	Figure 2-2 SITE LOCATION MAP			
	0 .5 1 Approximate Scale in Miles	Drawn: AES	Date 10/12/99	Job No. DG0201SAT0	Dwg.No. DG0201 2-2



ecology and environment, inc. International Specialists in the Environment Anchorage, Alaska	NOATAK CLOSED DUMP SITE Noatak, Alaska	Figure 2-3 SITE SKETCH			
	Not to Scale	Drawn: AES	Date 2/28/00	Job No. DG0201SAT0	Dwg.No. DG0201 2-3

3. MIGRATION/EXPOSURE PATHWAYS AND TARGETS

The following sections describe migration/exposure pathways and potential targets within the site's range of influence (Figures 3-1 and 3-2).

3.1 GROUNDWATER MIGRATION PATHWAY

Surficial soils at the Noatak CD site have been mapped as Typic Cryofluvents. In the Noatak area, these soils occur on nearly level to rolling hillside association. Typic Cryofluvents are well-drained soils on low terraces and natural levees bordering streams. These soils consist of dark gray stratified silty and sandy sediment with lenses of buried organic matter (Rieger et al. 1979). The START assumes that the hydraulic conductivity of these deposits is 10^{-2} cm/sec. How deep these deposits extend is unknown; however, data from boreholes completed in 1981 indicate that the deposits are at least 35 feet thick (ADOT & PF 1981).

In Noatak, seasonal and perennial permafrost occurs. Permafrost has been reported to be present from 2 to 3 feet bgs (ADOT & PF 1981).

Specific climatological data are not available for Noatak: therefore, data for Kotzebue, located approximately 50 air miles southwest of Noatak was used. In Kotzebue, the average annual precipitation is 8.84 inches (Leslie 1989) and the estimated annual evapotranspiration is 8.02 inches (Patric and Black 1968); thus, the net annual precipitation for the Noatak area is 0.82 inch.

A 1998 population census certified by the Alaska Department of Community and Regional Affairs listed 423 people in Noatak, with an average of 4.5 persons per household (ADCRA 1998). According to the Alaska Department of Natural Resources (ADNR 1999), two water wells are located within a 4-mile radius of the site, with depths of 42 and 47 feet, respectively (ADNR 1999). Topographically, these wells are located upgradient of the Noatak CD. According to site representatives, only one of these wells is used for drinking water (Onalik 1999). This well serves approximately 381 of the 423 people living in Noatak and is located approximately ½ mile north of the site. The remaining 42 people, mainly village elders, prefer to obtain their drinking water from the Noatak River (Onalik 1999).

Groundwater is not used for any other resource in the area, such as irrigation, watering of livestock, commercial food preparation, or recreation supply. Table 3-1 lists the drinking water wells and populations served by the wells within a 4-mile radius of the Noatak CD.

Based on site conditions, sample results, and location of drinking water wells, the START does not suspect a release of hazardous substances to groundwater drinking targets at the Noatak CD.

3.2 SURFACE WATER MIGRATION PATHWAY

The northern edge of the site is located approximately 100 feet inland of the Noatak River. Several distinct surface water overland routes lead from the Noatak CD. The upgradient area expected to drain through the site is approximately 100 acres (USGS 1987).

All surface water runoff from the site is expected to flow generally to the Noatak River (Figure 3-1). Four specific routes for runoff exist. The first is approximately 100 feet overland to the north via Drainage 1 to PPE 1 at the Noatak River. The second and third routes are from the east side of the landfill to the Noatak River. It is approximately 500 feet overland from the dump to PPEs 2 and 3 at the Noatak River. Drainage 4 is sheet flow from the dump to a spruce wetland located south of the site approximately 200 feet. A fourth PPE may exist at this wetland. This wetland is approximately 50 acres in size. It appeared that Drainage 4 terminated at this wetland. The surface water pathway Target Distance Limit (TDL) for the Noatak CD is defined as the Noatak River from the Drainage 1 PPE to 15 miles downstream of the Drainage 4 PPE. The average flow rate for the Noatak River is unknown. The START estimates the flow rate to be approximately 5,000 cubic feet per second.

Surficial soils at the Noatak CD site have been mapped as Typic Cryofluvents. In the Noatak area, these soils occur on nearly level to rolling hillside association. Typic Cryofluvents are well-drained soils on low terraces and natural levees bordering streams. These soils consist of dark gray stratified silty and sandy sediment with lenses of buried organic matter (Rieger et al. 1979). The START assumes these soils have a high infiltration rate.

The two-year, 24-hour rainfall event for the Noatak area is 1.25 inches (Miller 1963). Flooding in Noatak usually is caused by the Noatak River overflowing its banks as a result of ice jams during spring breakup, but flood hazard is reportedly low (USAED Alaska 1993). However, information from residents indicates that flooding can occur during fall, when the region periodically can experience heavy rain (Onalik 1999). The Noatak CD is assumed to be in a ten-year floodplain. Erosion along the Noatak River, particularly near Noatak, is a serious problem (USAED Alaska 1993). This was verified by Mr. Onalik during the site visit and observed by the START.

There are no recorded surface water intakes for drinking water within the site's surface water TDL. However, 10% (42 people) of Noatak residents who do not receive water from the public supply obtain their water from the Noatak River near town, upgradient of the Noatak CD (Onalik 1999).

The Noatak River is a Federally Designated Wild and Scenic River for its entire 330-mile length and supports sport and subsistence fisheries. The Alaska Department of Fish and Game has tabulated the sport fishing harvest for major fisheries in the Noatak River for 1997 (ADFG 1998). Sport fish catch is reported in number of fish, not poundage. The START derived the average weight per fish per species from a baseline subsistence survey conducted by the ADFG in 1994. Total poundage then was obtained by multiplying the number of fish harvested per species by the average pound per fish per species as determined by the START from subsistence harvest data. The 15-mile downgradient portion of the site's range of influence represents 5% of the total length of the Noatak River. To estimate the annual sport harvest within the site's range of influence, the START multiplied the reported harvest per species by 5%, and reported this figure as the number harvested in Table 3-2. Sport fisheries harvest is reported in Table 3-2.

Subsistence fish harvest within the site's TDL is obtained from two types of surveys. Salmon subsistence fish harvest numbers for Noatak are gathered each fall through a household survey. The most recent survey was completed in 1998. During this survey 90 of the 97 households in Noatak were contacted. Only total numbers of fish harvested, not poundage, are reported, for this survey. The START derived the average weight per fish per species from a baseline subsistence survey conducted by the ADFG in 1994. For additional species that are harvested for subsistence use in the Noatak River, the START used fish harvest data obtained by the ADFG during a baseline survey conducted in 1994. During this survey, one-third of all households in Noatak were contacted regarding their subsistence practices, species harvested, and harvest rates (Magdanz 1999).

The 15-mile downgradient portion of the site's range of influence represents 5% of the total length of the Noatak River. To estimate the annual subsistence harvest within the site's range of influence, the START multiplied the reported harvest per species by 5%, and reported this figure as the number harvested in Table 3-2.

The United States Fish and Wildlife Service (USFWS) does not list any threatened or endangered species or critical environments within the site's surface water TDL (Swem 1999). The National Wetlands Inventory (NWI) has not published wetlands maps for the entire 15-mile downstream TDL near Noatak (USFWS 1995). Therefore, wetlands frontage within the site's surface water TDL cannot be determined accurately. Based on the site's topographic map, the START estimated that approximately 30 linear miles of wetlands frontage occurs within the site's TDL (USGS 1987). The use of surface water for any other resource in the area, such as irrigation, watering of livestock, commercial food preparation, or recreation supply, is not known or expected.

Based on site conditions and sample results, the START does not suspect that a release of hazardous substances to surface water has occurred at the Noatak CD.

3.3 SOIL EXPOSURE PATHWAY

The START observed no visible areas of soil contamination during the Noatak CD visit. However, partially buried solid debris was observed.

No schools, day care facilities or places of work are located within 200 feet of the site. The Napaaqtugmiut School, located between ½ and 1 mile of the site has 145 students and 9 staff in attendance (ADCRA 1998). The entire community, population 423, lives within 1 mile of the site. The average persons per household in Noatak is listed as 4.5 (ADCRA 1998). The nearest resident to the site is approximately 0.5 mile to the north. Table 3-3 provides population data.

The Noatak CD has no fence or gated security. During the START site visit, people were observed traveling through the site to access the large gravel bar along the Noatak River to gather firewood. No terrestrial sensitive environments are located on site (Swem 1999). No commercial agriculture or silviculture occurs on site.

Two surface soil samples and one sediment sample were collected on site during the site visit. DRO was detected in both surface soil samples. The VOC constituent methylene chloride was detected in the sediment sample at a level just above the detection limit; therefore the START attributes this detection as a laboratory artifact. Toluene was detected in sample NK03SS at 390 micograms per kilogram. The SVOC constituents bis(2-ethylhexyl)phthalate, phenol, 2-methylphenol, and 4-methylphenol also were detected in sample NK03SS. Additionally, the SVOC constituent bis(2-ethylhexyl)phthalate was detected in sample NK02SS at a level just above the detection limit, therefore the START attributes this detection as a laboratory artifact. Five metals; barium, chromium, copper, manganese, and nickel were detected in all three samples. Lead was detected in two of the samples. No PCBs or pesticides were detected in the samples. Table 2-1 lists the sample results.

Based on site conditions and sample results, a release to the soil exposure pathway is demonstrated. The START suspects contamination in the soil exposure pathway to be attributable to former site activities.

3.4 AIR MIGRATION PATHWAY

The air migration pathway TDL is a 4-mile radius extending from the property boundaries of the site (Figure 3-1). An observed release to the air pathway has not been established at the site; however, a potential to release exists. At the Noatak CD, the source area is contaminated soil with no containment.

The nearest resident to the site is located approximately 0.5 mile to the north. The entire Noatak community, population 423, lives within a 1-mile radius of the site (Table 3-3; ADCRA 1998; USGS 1955).

The NWI has not published wetlands maps for the Noatak area (USFWS 1995); therefore, wetlands acreage within the site's air migration pathway TDL cannot be determined accurately. However, based on topographic maps, the START estimated wetlands acreage, which is presented in Table 3-3 (USGS 1955). No other sensitive environments are known to exist within 4 miles of the site (Swem 1999). No commercial agriculture, silviculture, or designated recreation area is known to exist within 0.5 mile of the site.

Based on site conditions and sample results, the START does not suspect that a release of hazardous substances to the air migration pathway has occurred at the Noatak CD.

Table 3-1

GROUNDWATER DRINKING WATER POPULATION WITHIN A 4-MILE RADIUS
NOATAK CLOSED DUMPSITE PRELIMINARY ASSESSMENT
NOATAK, ALASKA

Distance (Miles)	Wells	Population
0-¼	0	0
¼-½	0	0
½-1	1	381
1-2	0	0
2-3	0	0
3-4	0	0
Total	**1**	**381**

Source: Alaska Department of Natural Resources 1999 and Alaska Department of Community and Regional Affairs 1998.

Table 3-2

ANNUAL FISH HARVEST WITHIN THE SITE'S RANGE OF INFLUENCE NOATAK CLOSED DUMPSITE PRELIMINARY ASSESSMENT NOATAK, ALASKA

SPORT HARVEST			
Species	**Number Harvested**	**Average Pound Per Fish***	**Pounds Harvested**
Chum salmon *(Oncorhynchus keta)*	9	6	54
Lake trout *(Salvelinus namaycush)*	1	5**	5
Dolly Varden/arctic char *(Salvelinus malma/alpinus)*	5	3	15
Grayling *(Thymallus arcticus)*	22	1	22
Northern pike *(Esox lucius)*	1	10**	10
Total Sport Harvest	**38**		**106**
SUBSISTENCE HARVEST			
Chum salmon *(Oncorhynchus keta)*	125	6	750
Dolly Varden/arctic char *(Salvelinus malma/alpinus)*	231	3	693
Grayling *(Thymallus arcticus)*	20	1	20
Sheefish *(Stenodus leucichthys)*	5	6	30
Broad whitefish *(Coregonus nasus)*	1	3	3
Humpback whitefish *(Coregonus pidschian)*	4	2	8
Round whitefish *(Prosopium cylindraceum)*	9	1	9
Total Subsistence Harvest	**395**		**1,513**
Total Harvest	**433**		**1,619**

* Estimate derived by the START using the harvest data from the ADFG.

** Estimated by the START.

KEY: ADFG = Alaska Department of Fish and Game

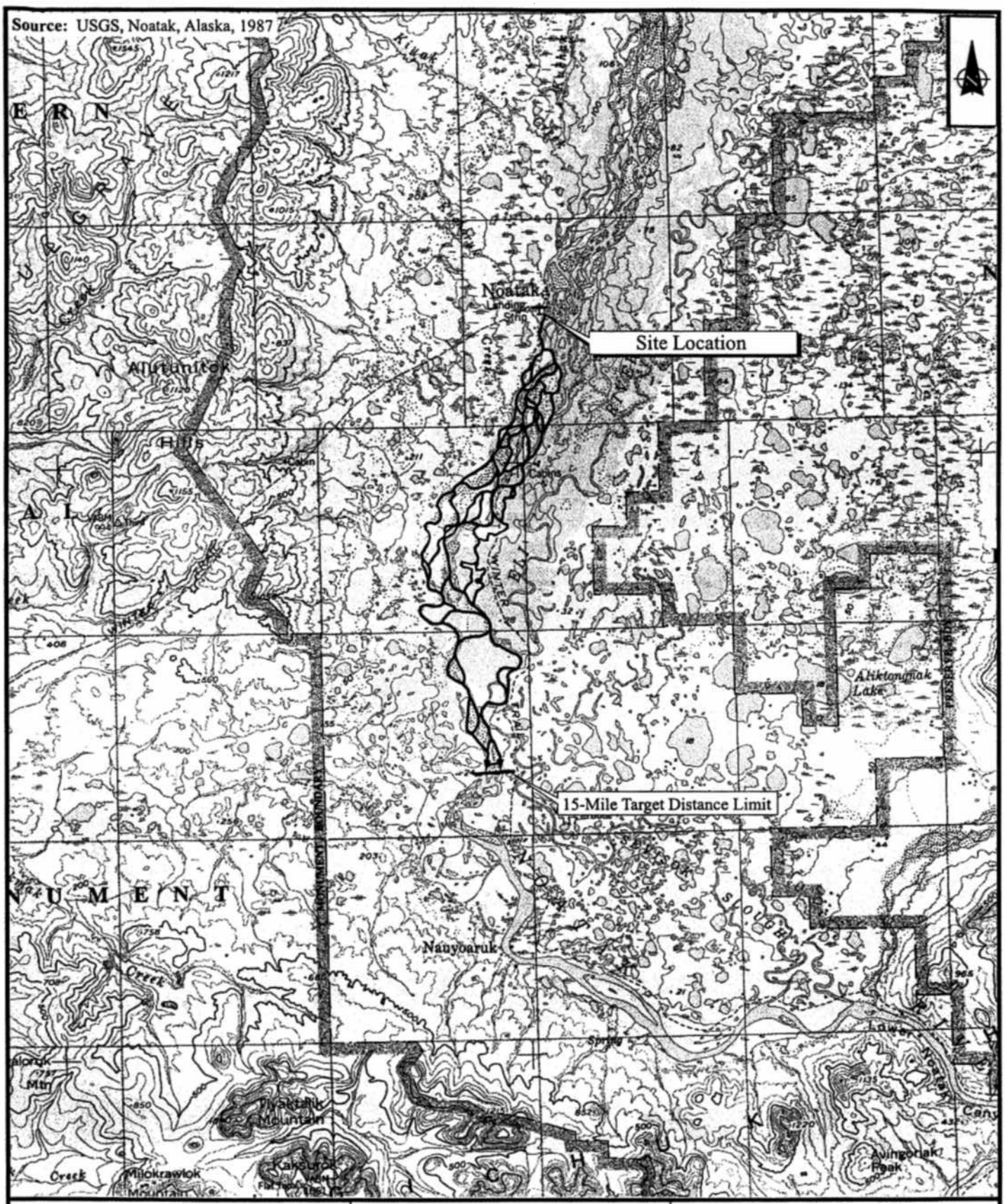
START = Superfund Technical Assessment and Response Team.

Table 3-3

POPULATION AND WETLANDS WITHIN A 4-MILE RADIUS
NOATAK CLOSED DUMPSITE PRELIMINARY ASSESSMENT
NOATAK, ALASKA

Distance Ring (Miles)	Population	Wetlands (Acreage)
On site	0	0
0-¼	0	100
¼-½	30	75
½-1	547*	520
1-2	0	3,500
2-3	0	5,000
3-4	0	8,500
Total	**577**	**17,695**

* Includes 145 students and 9 staff members at school.



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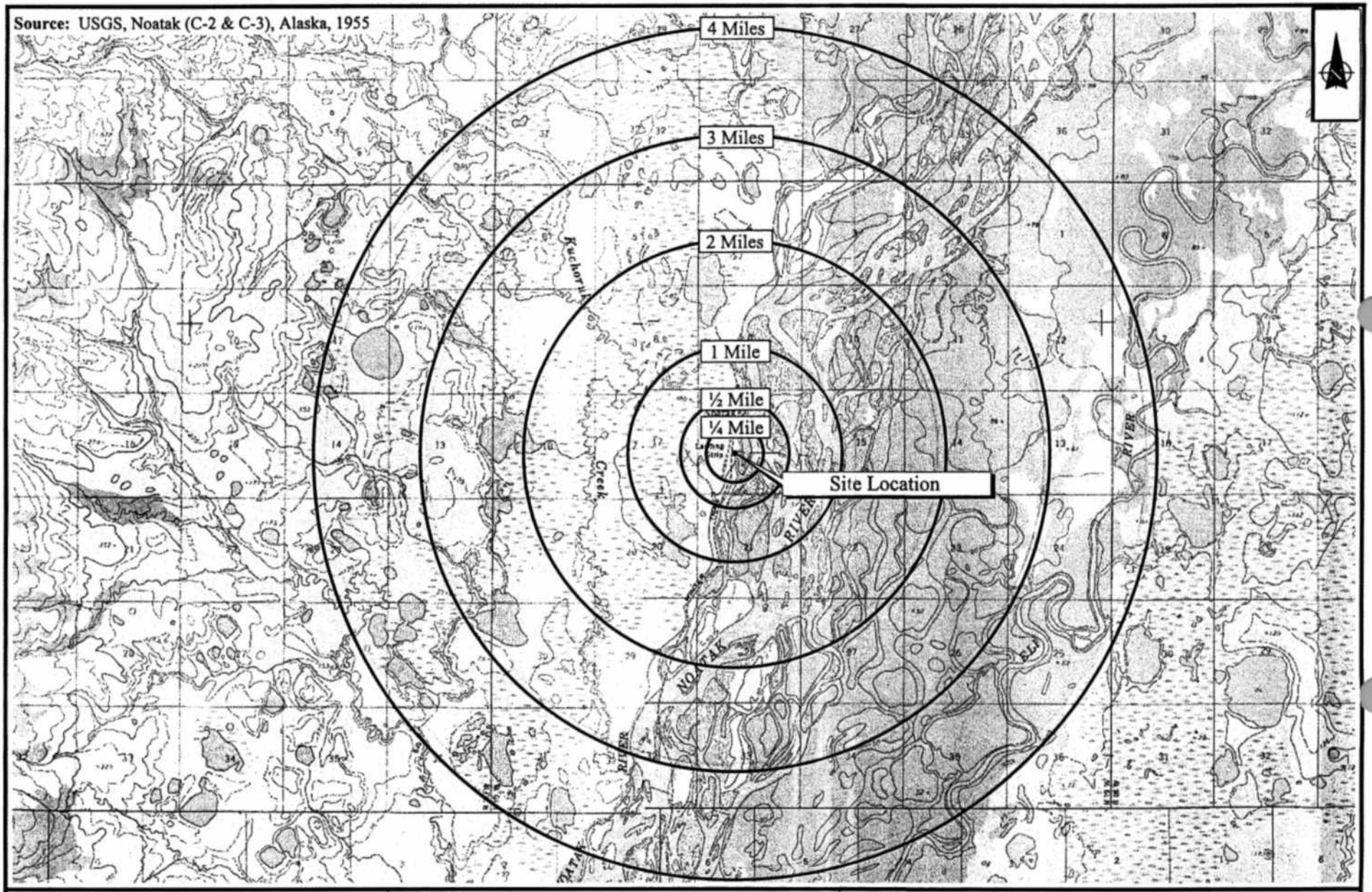
International Specialists in the Environment
Anchorage, Alaska

NOATAK CLOSED DUMP SITE
Noatak, Alaska

Figure 3-2
15-MILE MAP

0 2.5 5
Approximate Scale in Miles

Drawn:	DATE:	JOB NO.	Dwg.No.
AES	10/12/99	DG0201SAT0	DG0201 3-2



ecology and environment, inc. International Specialists in the Environment Anchorage, Alaska	NOATAK CLOSED DUMP SITE Noatak, Alaska	Figure 3-1 4-MILE MAP			
	0 .5 1 Approximate Scale in Miles	Drawn: AES	Date 10/12/99	Job No. DG0201SAT0	Dwg.No. DG0201 3-1

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ATTACHMENT A

PHOTOGRAPHIC DOCUMENTATION

PHOTOGRAPH IDENTIFICATION SHEET

Camera Serial #: 8728118
Lens Type: Pentax 38-110 mm

TDD #: 99-07-0002
Site Name: Noatak Closed Dumpsite

Photo	Date	Time	Photographer	Direction	Description and Orientation
1	9/28/99	1355	T. Mayers	N	Looking down into Noatak River near Drainage 1 that discharges into river.
2	9/28/99	1355	T. Mayers	N	Standing on west bank of Noatak River looking upstream. Village of Noatak in background.
3	9/28/99	1355	T. Mayers	S	Erosional gully near north end of former dump.
4	9/28/99	1410	T. Mayers	S	Northeast end of dump.
5	9/28/99	1415	T. Mayers	S	Exposed debris at dump.
6	9/28/99	1420	T. Mayers	SW	Standing water near northwest edge of dump.
7	9/28/99	1425	T. Mayers	NE	Northeast section of dump.
8	9/28/99	1425	T. Mayers	N	General view of gravel cover on dump.
9	9/28/99	1425	T. Mayers	N	General view of gravel cover on dump.
10	9/28/99	1505	T. Mayers	S	Sample NK01SD location, showing erosional gully.
11	9/28/99	1530	L. Flynn	D	Sample NK02SS location near east edge of dump.
12	9/28/99	1610	L. Flynn	E	View of gravel cover from west edge of dump.
13	9/28/99	1615	L. Flynn	SE	Exposed debris on gravel mound.
14	9/28/99	1630	L. Flynn	E	Standing water near Drainage 4.
15	9/28/99	1635	L. Flynn	D	Sample NK03SS location.

KEY:
D= Looking Down
E = East
N= North
NE= Northeast
S= South
SE= Southeast
SW= Southwest


1
9 28'99

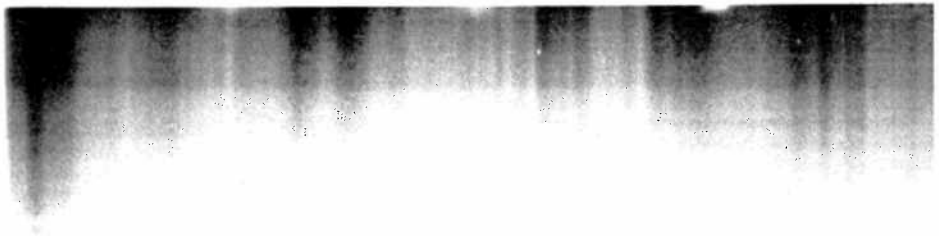

2
9 28'99


3
9 28'99


4
9 28'99


5
9 28'99

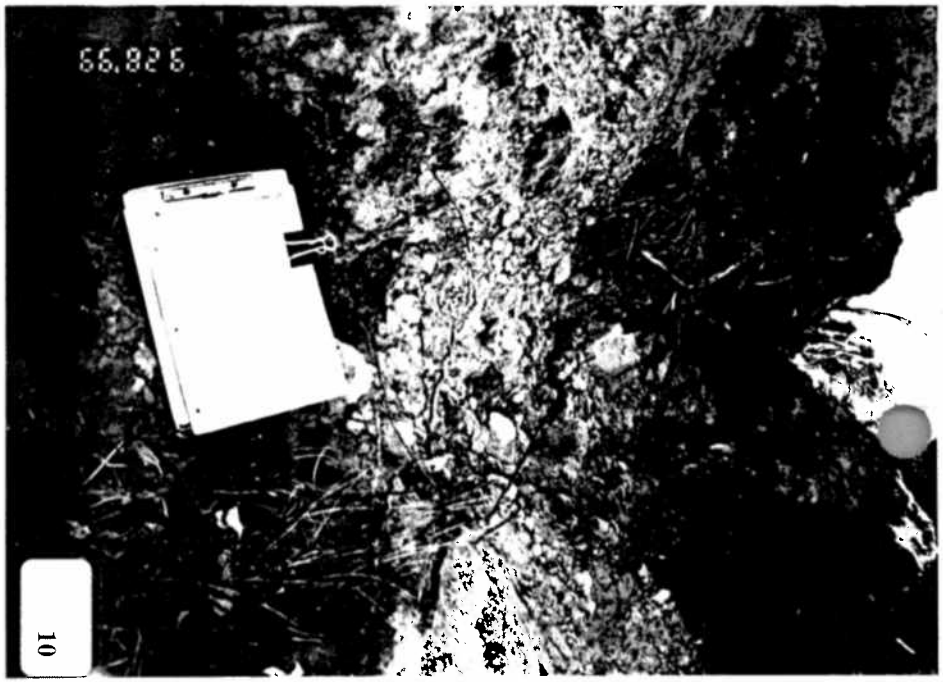

6




7
9 28'99


8
9 28'99


9
3 28'99


66.826
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11


12


13


14


15

ATTACHMENT B
LIST OF COMPOUNDS ANALYZED

Semivolatile Organic Compounds (SVOCs)

Aniline
bis(2-Chloroethyl)ether
Phenol
2-Chlorophenol
1,4-Dichlorobenzene
1,2-Dichlorobenzene
Benzyl alcohol
bis(2-chloroisopropyl)ether
2-Methylphenol
Hexachloroethane
N-Nitroso-di-n-propylmine
4-Methylphenol
Nitrobenzene
Isophorone
2-Nitrophenol
2,4-Dimethylphenol
bis(2-Chloroethoxy)methane
2,4-Dichlorophenol
Benzoic acid
1,2,4-Trichlorobenzene
Naphthalene
4-Chloroaniline
Hexachlorobutadiene
4-Chloro-3-methylphenol
2-Methylnaphthalene
Hexachlorocyclopentadiene
2,4,6-Trichlorophenol
2,4,5-Trichlorophenol
2-Chloronaphthalene
2-Nitroaniline
Acenaphthylene
Dimethylphthalate
2,6-Dinitrotoluene
Acenaphthene
3-Nitroaniline
2,4-Dinitrophenol
Dibenzofuran
2,4-Dinitrotoluene
4-Nitrophenol
Fluorene
4-Chlorophenyl-phenylether
Diethylphthalate
4-Nitroaniline
4,6-Dinitro-2-methylphenol
n-Nitrosodiphenylamine
4-Bromophenyl-phenylether
Hexachlorobenzene
Pentachlorophenol
Phenanthrene
Anthracene
Carbazole
Di-n-butylphthalate
Fluoranthene
Benzidine
Pyrene
Butylbenzylphthalate
3,3'-Dichlorobenzidine
Benzo(a)anthracene
Chrysene
bis(2-Ethylhexyl)phthalate
Di-n-octylphthlate
Benzo(b)fluoranthene
Benzo(k)fluoranthene
Benzo(a)pyrene
Indeno(1,2,3-cd)pyrene
Dibenz(a,h)anthrcene

Benzo(g,h,i)perylene

Volatile Organic Compounds (VOCs)
Dichlorodifluoromethane
Chloromethane
Vinyl Chloride
Bromomethane
Chloroethane
Trichlorofluoromethane
1,1-Dichloroethane
Acetone
Carbon Disulfide
Methylene Chloride
(trans) 1,2-Dichloroethene
1,1-Dichloroethane
Vinyl Acetate
2,2-Dichloropropane
(cis) 1,2-Dichloroethene
2-Butanone
Chloroform
1,1,1-Trichloroethane
Carbon Tetrachloride
1,1-Dichloropropene
Benzene
1,2-dichloroethane
Trichloroethene
1,2-Dichloropropane
Dibromomethane
Bromodichloromethane
2-Chlroethyl Vinyl Ether
(cis) 1,3-Dichloropropene
Toluene
(trans) 1,3-Dichloropropene
1,1,2-Trichloroethane
Tetrachloroethene
1,3-Dichloropropane
Methyl Isobutyl Ketone
Dibromochloromethane
1,2-Dibromoethane
Chlorobenzene
1,1,1,2-tetrachlroethane
Ethylbenzene
m,p-Xylene
o-Xylene
Styrene
Bromoform
Isopropylbenzene
Bromobenzene
1,1,2,2-Tetrachloroethane
1,2,3-Trichloropropane
n-Propylbenzene
2-Chlorotoluene
4-Chlorotoluene
1,3,5-Trimethylbenzene
tert-Butylbenzene
1,2,4-Trimethylbenzene
sec-Butylbenzene
1,3-Dichlorobenzene
p-Isopropyltoluene
1,4-Dichlorobenzene
1,2-Dichlorobenzene
n-Butylbenzene
1,2-Dibromo-3-chloropropane
1,2,4-Trichlorobenzene
Hexachlorobutadiene
Naphthalene
1,2,3-Trichlorobenzene

Pesticides
alpha-BHC
gamma-BHC
Heptachlor
Aldrin
beta-BHC
delta-BHC
Heptachlor epoxide
Endosulfan I
4,4'-DDE
Dieldrin
Endrin
Endosulfan II
4,4'-DDD
4,4'-DDT
Endrin Aldehyde
Endosulfan Sulfate
Methoxychlor
Endrin ketone
Toxaphene
Chlordane (Technical)

Polychlorinated Biphenyls (PCBs)
Aroclor 1016
Aroclor 1221
Aroclor 1232
Aroclor 1242
Aroclor 1248
Aroclor 1254
Aroclor 1260

Diesel Range Organics

Metals
Aluminum
Antimony
Arsenic
Barium
Beryllium
Cadmium
Calcium
Chromium
Cobalt
Copper
Iron
Lead
Magnesium
Manganese
Mercury
Nickel
Potassium
Selenium
Silver
Sodium
Thallium
Vanadium
Zinc

ATTACHMENT C
ANALYTICAL DATA FORMS

1 PEST
PESTICIDE ANALYSIS DATA SHEET

SAMPLE NO.
99090300

Lab Name: ONSITE ENVIRONMENTAL INC. Contract: E&E

Project No.: 99-07-0002 Group: 10-002S

Matrix: (soil/water) SOIL Lab Sample ID: 10-002-01

Sample wt/vol: 20 (g/mL) ml Lab File ID: 1014 007.D

Level: (low/med) LOW Date Received: 10/1/99

% Moisture: 26 decanted: (Y/N): N Date Extracted: 10/6/99

Concentrated Extract Volume: 20000 (uL) Date Analyzed: 10/14/99

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
alpha-BHC	14	U
gamma-BHC	14	U
Heptachlor	14	U
Aldrin	14	U
beta-BHC	14	U
delta-BHC	14	U
Heptachlor epoxide	14	U
Endosulfan I	14	U
4,4'-DDE	27	U
Dieldrin	27	U
Endrin	27	U
Endosulfan II	27	U
4,4'-DDD	27	U
4,4'-DDT	27	U
Endrin Aldehyde	27	U
Endosulfan Sulfate	27	U
Methoxychlor	27	U
Endrin ketone	27	U
Toxaphene	680	U
Chlordane (Technical)	140	U

1 PEST
PESTICIDE ANALYSIS DATA SHEET

SAMPLE NO.
99090301

Lab Name: ONSITE ENVIRONMENTAL INC. Contract: E&E

Project No.: 99-07-0002 Group: 10-002S

Matrix: (soil/water) SOIL Lab Sample ID: 10-002-02

Sample wt/vol: 20 (g/mL) ml Lab File ID: 1014 010.D

Level: (low/med) LOW Date Received: 10/1/99

% Moisture: 21 decanted: (Y/N): N Date Extracted: 10/6/99

Concentrated Extract Volume: 20000 (uL) Date Analyzed: 10/14/99

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
alpha-BHC	13	U
gamma-BHC	13	U
Heptachlor	13	U
Aldrin	13	U
beta-BHC	13	U
delta-BHC	13	U
Heptachlor epoxide	13	U
Endosulfan I	13	U
4,4'-DDE	25	U
Dieldrin	25	U
Endrin	25	U
Endosulfan II	25	U
4,4'-DDD	25	U
4,4'-DDT	25	U
Endrin Aldehyde	25	U
Endosulfan Sulfate	25	U
Methoxychlor	25	U
Endrin ketone	25	U
Toxaphene	630	U
Chlordane (Technical)	130	U

1 PEST
PESTICIDE ANALYSIS DATA SHEET

SAMPLE NO.
99090302

Lab Name: ONSITE ENVIRONMENTAL INC. Contract: E&E

Project No.: 99-07-0002 Group: 10-002S

Matrix: (soil/water) SOIL Lab Sample ID: 10-002-03

Sample wt/vol: 20 (g/mL) ml Lab File ID: 1014 011.D

Level: (low/med) LOW Date Received: 10/1/99

% Moisture: 45 decanted: (Y/N): N Date Extracted: 10/6/99

Concentrated Extract Volume: 20000 (uL) Date Analyzed: 10/14/99

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
alpha-BHC	18	U
gamma-BHC	18	U
Heptachlor	18	U
Aldrin	18	U
beta-BHC	18	U
delta-BHC	18	U
Heptachlor epoxide	18	U
Endosulfan I	18	U
4,4'-DDE	36	U
Dieldrin	36	U
Endrin	36	U
Endosulfan II	36	U
4,4'-DDD	36	U
4,4'-DDT	36	U
Endrin Aldehyde	36	U
Endosulfan Sulfate	36	U
Methoxychlor	36	U
Endrin ketone	36	U
Toxaphene	910	U
Chlordane (Technical)	180	U

1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

K01SD 99090300

Lab Name: OnSite Environmental Inc. Contract: E & E

Lab Code: OSE Case No.: 99-07-00 SAS No.: SDG No.: 10-002

Matrix: (soil/water) SOIL Lab Sample ID: 10-002-01

Sample wt/vol: 10.0 (g/ml) G Lab File ID: 1003006.D

Level: (low/med) MED Date Received: 10/01/99

% Moisture: not dec. 26 Date Analyzed: 10/03/99

GC Column: HP-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: 10000 (uL) Soil Aliquot Volume: 100 (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Dichlorodifluoromethane	68	U
	Chloromethane	68	U
	Vinyl Chloride	68	U
	Bromomethane	1400	U
	Chloroethane	68	U
	Trichlorofluoromethane	68	U
	1,1-Dichloroethene	68	U
	Acetone	3400	U
	Carbon Disulfide	68	U
	Methylene Chloride	71	
	(trans) 1,2-Dichloroethene	68	U
	1,1-Dichloroethane	68	U
	Vinyl Acetate	1400	U
	2,2-Dichloropropane	68	U
	(cis) 1,2-Dichloroethene	68	U
	2-Butanone	3400	U
	Chloroform	68	U
	1,1,1-Trichloroethane	68	U
	Carbon Tetrachloride	68	U
	1,1-Dichloropropene	68	U
	Benzene	68	U
	1,2-Dichloroethane	68	U
	Trichloroethene	68	U
	1,2-Dichloropropane	68	U
	Dibromomethane	1400	U
	Bromodichloromethane	68	U
	2-Chloroethyl Vinyl Ether	1400	U
	(cis) 1,3-Dichloropropene	68	U
	Toluene	68	U
	(trans) 1,3-Dichloropropene	68	U
	1,1,2-Trichloroethane	68	U
	Tetrachloroethene	68	U
	1,3-Dichloropropane	68	U
	Methyl Isobutyl Ketone	1400	U
	Dibromochloromethane	68	U
	1,2-Dibromoethane	68	U
	Chlorobenzene	68	U
	1,1,1,2-Tetrachloroethane	68	U
	Ethylbenzene	68	U

1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

K01SD 99090300

Lab Name: OnSite Environmental Inc. Contract: E & E

Lab Code: OSE Case No.: 99-07-00 SAS No.: SDG No.: 10-002

Matrix: (soil/water) SOIL Lab Sample ID: 10-002-01

Sample wt/vol: 10.0 (g/ml) G Lab File ID: 1003006.D

Level: (low/med) MED Date Received: 10/01/99

% Moisture: not dec. 26 Date Analyzed: 10/03/99

GC Column: HP-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: 10000 (uL) Soil Aliquot Volume: 100 (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/KG	Q
	m,p-Xylene	140	U
	o-Xylene	68	U
	Styrene	68	U
	Bromoform	68	U
	Isopropylbenzene	68	U
	Bromobenzene	68	U
	1,1,2,2-Tetrachloroethane	68	U
	1,2,3-Trichloropropane	68	U
	n-Propylbenzene	68	U
	2-Chlorotoluene	68	U
	4-Chlorotoluene	68	U
	1,3,5-Trimethylbenzene	68	U
	tert-Butylbenzene	68	U
	1,2,4-Trimethylbenzene	68	U
	sec-Butylbenzene	68	U
	1,3-Dichlorobenzene	68	U
	p-Isopropyltoluene	68	U
	1,4-Dichlorobenzene	68	U
	1,2-Dichlorobenzene	68	U
	n-Butylbenzene	68	U
	1,2-Dibromo-3-chloropropane	1400	U
	1,2,4-Trichlorobenzene	1400	U
	Hexachlorobutadiene	68	U
	Naphthalene	1400	U
	1,2,3-Trichlorobenzene	68	U

1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

K02SS 99090301

Lab Name: OnSite Environmental Inc. Contract: E & E

Lab Code: OSE Case No.: 99-07-00 SAS No.: _____ SDG No.: 10-002

Matrix: (soil/water) SOIL Lab Sample ID: 10-002-02

Sample wt/vol: 10.0 (g/ml) G Lab File ID: 1003009.D

Level: (low/med) MED Date Received: 10/01/99

% Moisture: not dec. 21 Date Analyzed: 10/03/99

GC Column: HP-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: 10000 (uL) Soil Aliquot Volume: 100 (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Dichlorodifluoromethane	63	U
	Chloromethane	63	U
	Vinyl Chloride	63	U
	Bromomethane	1300	U
	Chloroethane	63	U
	Trichlorofluoromethane	63	U
	1,1-Dichloroethene	63	U
	Acetone	3200	U
	Carbon Disulfide	63	U
	Methylene Chloride	63	U
	(trans) 1,2-Dichloroethene	63	U
	1,1-Dichloroethane	63	U
	Vinyl Acetate	1300	U
	2,2-Dichloropropane	63	U
	(cis) 1,2-Dichloroethene	63	U
	2-Butanone	3200	U
	Chloroform	63	U
	1,1,1-Trichloroethane	63	U
	Carbon Tetrachloride	63	U
	1,1-Dichloropropene	63	U
	Benzene	63	U
	1,2-Dichloroethane	63	U
	Trichloroethene	63	U
	1,2-Dichloropropane	63	U
	Dibromomethane	1300	U
	Bromodichloromethane	63	U
	2-Chloroethyl Vinyl Ether	1300	U
	(cis) 1,3-Dichloropropene	63	U
	Toluene	63	U
	(trans) 1,3-Dichloropropene	63	U
	1,1,2-Trichloroethane	63	U
	Tetrachloroethene	63	U
	1,3-Dichloropropane	63	U
	Methyl Isobutyl Ketone	1300	U
	Dibromochloromethane	63	U
	1,2-Dibromoethane	63	U
	Chlorobenzene	63	U
	1,1,1,2-Tetrachloroethane	63	U
	Ethylbenzene	63	U

1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

K02SS 99090301

Lab Name: OnSite Environmental Inc. Contract: E & E

Lab Code: OSE Case No.: 99-07-00 SAS No.: SDG No.: 10-002

Matrix: (soil/water) SOIL Lab Sample ID: 10-002-02

Sample wt/vol: 10.0 (g/ml) G Lab File ID: 1003009.D

Level: (low/med) MED Date Received: 10/01/99

% Moisture: not dec. 21 Date Analyzed: 10/03/99

GC Column: HP-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: 10000 (uL) Soil Aliquot Volume: 100 (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/KG	Q
	m,p-Xylene	130	U
	o-Xylene	63	U
	Styrene	63	U
	Bromoform	63	U
	Isopropylbenzene	63	U
	Bromobenzene	63	U
	1,1,2,2-Tetrachloroethane	63	U
	1,2,3-Trichloropropane	63	U
	n-Propylbenzene	63	U
	2-Chlorotoluene	63	U
	4-Chlorotoluene	63	U
	1,3,5-Trimethylbenzene	63	U
	tert-Butylbenzene	63	U
	1,2,4-Trimethylbenzene	63	U
	sec-Butylbenzene	63	U
	1,3-Dichlorobenzene	63	U
	p-Isopropyltoluene	63	U
	1,4-Dichlorobenzene	63	U
	1,2-Dichlorobenzene	63	U
	n-Butylbenzene	63	U
	1,2-Dibromo-3-chloropropane	1300	U
	1,2,4-Trichlorobenzene	1300	U
	Hexachlorobutadiene	63	U
	Naphthalene	1300	U
	1,2,3-Trichlorobenzene	63	U

1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

K03SS 99090302

Lab Name: OnSite Environmental Inc. Contract: E & E

Lab Code: OSE Case No.: 99-07-00 SAS No.: SDG No.: 10-002

Matrix: (soil/water) SOIL Lab Sample ID: 10-002-03

Sample wt/vol: 10.0 (g/ml) G Lab File ID: 1003010.D

Level: (low/med) MED Date Received: 10/01/99

% Moisture: not dec. 0 Date Analyzed: 10/03/99

GC Column: HP-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: 10000 (uL) Soil Aliquot Volume: 100 (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Dichlorodifluoromethane	50	U
	Chloromethane	50	U
	Vinyl Chloride	50	U
	Bromomethane	1000	U
	Chloroethane	50	U
	Trichlorofluoromethane	50	U
	1,1-Dichloroethene	50	U
	Acetone	2500	U
	Carbon Disulfide	50	U
	Methylene Chloride	50	U
	(trans) 1,2-Dichloroethene	50	U
	1,1-Dichloroethane	50	U
	Vinyl Acetate	1000	U
	2,2-Dichloropropane	50	U
	(cis) 1,2-Dichloroethene	50	U
	2-Butanone	2500	U
	Chloroform	50	U
	1,1,1-Trichloroethane	50	U
	Carbon Tetrachloride	50	U
	1,1-Dichloropropene	50	U
	Benzene	50	U
	1,2-Dichloroethane	50	U
	Trichloroethene	50	U
	1,2-Dichloropropane	50	U
	Dibromomethane	1000	U
	Bromodichloromethane	50	U
	2-Chloroethyl Vinyl Ether	1000	U
	(cis) 1,3-Dichloropropene	50	U
	Toluene	390	
	(trans) 1,3-Dichloropropene	50	U
	1,1,2-Trichloroethane	50	U
	Tetrachloroethene	50	U
	1,3-Dichloropropane	50	U
	Methyl Isobutyl Ketone	1000	U
	Dibromochloromethane	50	U
	1,2-Dibromoethane	50	U
	Chlorobenzene	50	U
	1,1,1,2-Tetrachloroethane	50	U
	Ethylbenzene	50	U

1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

K03SS 99090302

Lab Name: OnSite Environmental Inc. Contract: E & E

Lab Code: OSE Case No.: 99-07-00 SAS No.: SDG No.: 10-002

Matrix: (soil/water) SOIL Lab Sample ID: 10-002-03

Sample wt/vol: 10.0 (g/ml) G Lab File ID: 1003010.D

Level: (low/med) MED Date Received: 10/01/99

% Moisture: not dec. 0 Date Analyzed: 10/03/99

GC Column: HP-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: 10000 (uL) Soil Aliquot Volume: 100 (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	m,p-Xylene	100	U
	o-Xylene	50	U
	Styrene	50	U
	Bromoform	50	U
	Isopropylbenzene	50	U
	Bromobenzene	50	U
	1,1,2,2-Tetrachloroethane	50	U
	1,2,3-Trichloropropane	50	U
	n-Propylbenzene	50	U
	2-Chlorotoluene	50	U
	4-Chlorotoluene	50	U
	1,3,5-Trimethylbenzene	50	U
	tert-Butylbenzene	50	U
	1,2,4-Trimethylbenzene	50	U
	sec-Butylbenzene	50	U
	1,3-Dichlorobenzene	50	U
	p-Isopropyltoluene	50	U
	1,4-Dichlorobenzene	50	U
	1,2-Dichlorobenzene	50	U
	n-Butylbenzene	50	U
	1,2-Dibromo-3-chloropropane	1000	U
	1,2,4-Trichlorobenzene	1000	U
	Hexachlorobutadiene	50	U
	Naphthalene	1000	U
	1,2,3-Trichlorobenzene	50	U

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

10-002-01

Lab Name: OnSite Environmental, Inc. Contract: Ecology and Environmental Inc

Lab Code: 39041-531 Case No.: Nostak PA SAS No.: SDG No.: OSE10002S

Matrix (soil/water): SOIL Lab Sample ID: 10-002-01

Level (low/med): LOW Date Received: 10/01/99

% Solids: 74.0

Concentration Units (ug/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	9370			P
7440-36-0	Antimony	5	U	N	P
7440-38-2	Arsenic	10	U		P
7440-39-3	Barium	131			P
7440-41-7	Beryllium	0.5	U		P
7440-43-9	Cadmium	0.5	U		P
7440-70-2	Calcium	10900			P
7440-47-3	Chromium	15.6			P
7440-48-4	Cobalt	8.23		N	P
7440-50-8	Copper	16.1			P
7439-89-6	Iron	21400			P
7439-92-1	Lead	7.16			P
7439-95-4	Magnesium	5560			P
7439-96-5	Manganese	451			P
7439-97-6	Mercury	0.25	U		CV
7440-02-0	Nickel	34			P
7440-09-7	Potassium	350			P
7782-49-2	Selenium	10	U		P
7440-22-4	Silver	0.5	U		P
7440-23-5	Sodium	327			P
7440-28-0	Thallium	5	U		P
7440-62-2	Vanadium	19.6		N	P
7440-66-6	Zinc	52		N	P
	Cyanide				P
					P

Color Before: BROWN Clarity Before: Texture:

Color After: YELLOW Clarity After: CLEAR Artifacts:

Comments:

U.S. EPA - CLP

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

10-002-02

Lab Name: OnSite Environmental, Inc. Contract: Ecology and Environmental Inc

Lab Code: 39041-531 Case No.: Nostak PA SAS No.: SDG No.: OSE10002S

Matrix (soil/water): SOIL Lab Sample ID: 10-002-01

Level (low/med): LOW Date Received: 10/01/99

% Solids: 79.0

Concentration Units (ug/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3220			P
7440-36-0	Antimony	5	U	N	P
7440-38-2	Arsenic	10	U		P
7440-39-3	Barium	128			P
7440-41-7	Beryllium	0.5	U		P
7440-43-9	Cadmium	0.5	U		P
7440-70-2	Calcium	20500			P
7440-47-3	Chromium	5.2			P
7440-48-4	Cobalt	3.5		N	P
7440-50-8	Copper	11.8			P
7439-89-6	Iron	8930			P
7439-92-1	Lead	5	U		P
7439-95-4	Magnesium	2500			P
7439-96-5	Manganese	330			P
7439-97-6	Mercury	0.25	U		CV
7440-02-0	Nickel	15.3			P
7440-09-7	Potassium	218			P
7782-49-2	Selenium	10	U		P
7440-22-4	Silver	0.5	U		P
7440-23-5	Sodium	341			P
7440-28-0	Thallium	5	U		P
7440-62-2	Vanadium	8.9		N	P
7440-66-6	Zinc	23.1		N	P
	Cyanide				P
					P

Color Before: BROWN Clarity Before: Texture:

Color After: YELLOW Clarity After: CLEAR Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

10-002-03

Lab Name: OnSite Environmental, Inc. Contract: Ecology and Environmental Inc

Lab Code: 39041-531 Case No.: Nostak PA SAS No.: SDG No.: OSE10002S

Matrix (soil/water): SOIL Lab Sample ID: 10-002-01

Level (low/med): LOW Date Received: 10/01/99

% Solids: 55.0

Concentration Units (ug/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	148000			P
7440-36-0	Antimony	5	U	N	P
7440-38-2	Arsenic	10	U		P
7440-39-3	Barium	381			P
7440-41-7	Beryllium	0.5	U		P
7440-43-9	Cadmium	0.5	U		P
7440-70-2	Calcium	31200			P
7440-47-3	Chromium	20.5			P
7440-48-4	Cobalt	10.5		N	P
7440-50-8	Copper	27.5			P
7439-89-6	Iron	30900			P
7439-92-1	Lead	11.9			P
7439-95-4	Magnesium	6740			P
7439-96-5	Manganese	439			P
7439-97-6	Mercury	0.25	U		CV
7440-02-0	Nickel	38.6			P
7440-09-7	Potassium	714			P
7782-49-2	Selenium	10	U		P
7440-22-4	Silver	0.5	U		P
7440-23-5	Sodium	476			P
7440-28-0	Thallium	5	U		P
7440-62-2	Vanadium	37.9		N	P
7440-66-6	Zinc	68.3		N	P
	Cyanide				

Color Before: BROWN Clarity Before: Texture:

Color After: YELLOW Clarity After: CLEAR Artifacts:

Comments:

OnSite Environmental Inc.
Analytical Testing and Mobile Laboratory Services

November 18, 1999

Mark Woodke
Ecology & Environment, Inc.
1500 First Interstate Center
999 Third Avenue
Seattle, WA 98104

Re: Revised form 1 data for SVOCs by EPA 8270 (SDG 10-002S)

Dear Mark,

Here are the corrected form I's for the samples from Tim Mayer's project in Noatak, Alaska received on October 1st, 1999. Please replace the previous pages in SDG 10-002S' report with these revised data pages. Please note that this recent set of data reflects changes we made to the semivolatile's matrix and units.

Please call me should you need any additional information.

Sincerely,

David Baumeister
Project Manager

1B SAMPLE

SEMIVOLATILE ORGANICS ANALYSIS DATA

99090300

Lab	Onsite Environmental Inc.		Contract	E & E	
Lab	OSE	Case	SAS	99-07-	SDG 10-002S
Matrix:	SOIL		Lab Sample	10-002-01	
Sample	30 (g/ml G		Lab File	1029043.D	
Level:	LOW		Date Received	10/1/99	
% Moisture:	0 decanted:(Y/ N		Date Extracted	10/05/99	
Concentrated Extract	1000 (uL)		Date Analyzed	10/30/99	
Injection	1.0 (uL)		Dilution	1.0	
GPC Cleanup:	N pH:				

CAS	COMPOUND	CONCENTRATION (ug/L or	UG/KG	Q
62533	Aniline		45	U
111-44-4	bis(2-Chloroethyl)ether		45	U
108-95-2	Phenol		45	U
95-57-8	2-Chlorophenol		45	U
106-46-7	1,4-Dichlorobenzene		45	U
95-50-1	1,2-Dichlorobenzene		45	U
100-51-6	Benzyl alcohol		45	U
108-60-1	bis(2-chloroisopropyl)ether		45	U
95-48-7	2-Methylphenol		45	U
67-72-1	Hexachloroethane		45	U
621-64-7	N-Nitroso-di-n-propylamine		45	U
106-44-5	4-Methylphenol		45	U
98-95-3	Nitrobenzene		45	U
78-59-1	Isophorone		45	U
88-75-5	2-Nitrophenol		450	U
105-67-9	2,4-Dimethylphenol		450	U
111-91-1	bis(2-Chloroethoxy)methane		45	U
120-83-2	2,4-Dichlorophenol		450	U
65850	Benzoic acid		1100	U
120-82-1	1,2,4-Trichlorobenzene		45	U
91-20-3	Naphthalene		45	U
106-47-8	4-Chloroaniline		45	U
87-68-3	Hexachlorobutadiene		45	U
59-50-7	4-Chloro-3-methylphenol		45	U
91-57-6	2-Methylnaphthalene		45	U
77-47-4	Hexachlorocyclopentadiene		450	U
88-06-2	2,4,6-Trichlorophenol		450	U
95-95-4	2,4,5-Trichlorophenol		450	U
91-58-7	2-Chloronaphthalene		45	U
88-74-4	2-Nitroaniline		45	U
208-96-8	Acenaphthylene		45	U
131-11-3	Dimethylphthalate		45	U
606-20-2	2,6-Dinitrotoluene		450	U
83-32-9	Acenaphthene		45	U
99-09-2	3-Nitroaniline		45	U
51-28-5	2,4-Dinitrophenol		450	U
132-64-9	Dibenzofuran		45	U

EPA SAMPLE
99090300

Lab	Onsite Environmental Inc.	Contract	E & E
Lab	OSE Case	SAS	99-07- SDG 10-002S
Matrix:	SOIL	Lab Sample	10-002-01
Sample	30 (g/ml G	Lab File	1029043.D
Level:	LOW	Date Received	10/1/99
% Moisture:	0 decanted:(Y/ N	Date Extracted	10/05/99
Concentrated Extract	1000 (uL)	Date Analyzed	10/30/99
Injection	1.0 (uL)	Dilution	1.0
GPC Cleanup:	N pH:		

CAS	COMPOUND	CONCENTRATION (ug/L or	UG/KG	Q
121-14-2	2,4-Dinitrotoluene		450	U
100-02-7	4-Nitrophenol		450	U
86-73-7	Fluorene		45	U
7005-72-3	4-Chlorophenyl-phenylether		45	U
84-66-2	Diethylphthalate		45	U
100-01-6	4-Nitroaniline		45	U
534-52-1	4,6-Dinitro-2-methylphenol		450	U
86-30-6	n-Nitrosodiphenylamine		45	U
101-55-3	4-Bromophenyl-phenylether		45	U
118-74-1	Hexachlorobenzene		45	U
87-86-5	Pentachlorophenol		450	U
85-01-8	Phenanthrene		45	U
120-12-7	Anthracene		45	U
14324	Carbazole		45	U
84-74-2	Di-n-butylphthalate		45	U
206-44-0	Fluoranthene		45	U
18935	Benzidine		1100	U
129-00-0	Pyrene		45	U
85-68-7	Butylbenzylphthalate		45	U
91-94-1	3,3'-Dichlorobenzidine		45	U
56-55-3	Benzo[a]anthracene		45	U
218-01-9	Chrysene		45	U
117-81-7	bis(2-Ethylhexyl)phthalate		45	U
117-84-0	Di-n-octylphthalate		1100	U
205-99-2	Benzo[b]fluoranthene		45	U
207-08-9	Benzo[k]fluoranthene		45	U
50-32-8	Benzo[a]pyrene		45	U
193-39-5	Indeno[1,2,3-cd]pyrene		45	U
53-70-3	Dibenz[a,h]anthracene		45	U
191-24-2	Benzo[g,h,i]perylene		45	U

1B EPA SAMPLE

SEMIVOLATILE ORGANICS ANALYSIS DATA

99090301

Lab	Onsite Environmental Inc.	Contract	E & E
Lab	OSE Case	SAS	99-07- SDG 10-002S
Matrix:	SOIL	Lab Sample	10-002-02
Sample	30 (g/ml G	Lab File	1029044.D
Level:	LOW	Date Received	10/1/99
% Moisture:	0 decanted:(Y/ N	Date Extracted	10/05/99
Concentrated Extract	1000 (uL)	Date Analyzed	10/30/99
Injection	1.0 (uL)	Dilution	1.0
GPC Cleanup:	N pH:		

CAS	COMPOUND	CONCENTRATION (ug/L or UG/KG	Q
62533	Aniline	42	U
111-44-4	bis(2-Chloroethyl)ether	42	U
108-95-2	Phenol	42	U
95-57-8	2-Chlorophenol	42	U
106-46-7	1,4-Dichlorobenzene	42	U
95-50-1	1,2-Dichlorobenzene	42	U
100-51-6	Benzyl alcohol	42	U
108-60-1	bis(2-chloroisopropyl)ether	42	U
95-48-7	2-Methylphenol	42	U
67-72-1	Hexachloroethane	42	U
621-64-7	N-Nitroso-di-n-propylamine	42	U
106-44-5	4-Methylphenol	42	U
98-95-3	Nitrobenzene	42	U
78-59-1	Isophorone	42	U
88-75-5	2-Nitrophenol	420	U
105-67-9	2,4-Dimethylphenol	420	U
111-91-1	bis(2-Chloroethoxy)methane	42	U
120-83-2	2,4-Dichlorophenol	420	U
65850	Benzoic acid	1100	U
120-82-1	1,2,4-Trichlorobenzene	42	U
91-20-3	Naphthalene	42	U
106-47-8	4-Chloroaniline	42	U
87-68-3	Hexachlorobutadiene	42	U
59-50-7	4-Chloro-3-methylphenol	42	U
91-57-6	2-Methylnaphthalene	42	U
77-47-4	Hexachlorocyclopentadiene	420	U
88-06-2	2,4,6-Trichlorophenol	420	U
95-95-4	2,4,5-Trichlorophenol	420	U
91-58-7	2-Chloronaphthalene	42	U
88-74-4	2-Nitroaniline	42	U
208-96-8	Acenaphthylene	42	U
131-11-3	Dimethylphthalate	42	U
606-20-2	2,6-Dinitrotoluene	420	U
83-32-9	Acenaphthene	42	U
99-09-2	3-Nitroaniline	42	U
51-28-5	2,4-Dinitrophenol	420	U
132-64-9	Dibenzofuran	42	U

EPA SAMPLE

SEMIVOLATILE ORGANICS ANALYSIS DATA

99090301

Lab	Onsite Environmental Inc.	Contract	E & E
Lab	OSE Case	SAS	99-07- SDG 10-002S
Matrix:	SOIL	Lab Sample	10-002-02
Sample	30 (g/ml G	Lab File	1029044.D
Level:	LOW	Date Received	10/1/99
% Moisture:	0 decanted:(Y/ N	Date Extracted	10/05/99
Concentrated Extract	1000 (uL)	Date Analyzed	10/30/99
Injection	1.0 (uL)	Dilution	1.0
GPC Cleanup:	N pH:		

CAS	COMPOUND	CONCENTRATION (ug/L or UG/KG	Q
121-14-2	2,4-Dinitrotoluene	420	U
100-02-7	4-Nitrophenol	420	U
86-73-7	Fluorene	42	U
7005-72-3	4-Chlorophenyl-phenylether	42	U
84-66-2	Diethylphthalate	42	U
100-01-6	4-Nitroaniline	42	U
534-52-1	4,6-Dinitro-2-methylphenol	420	U
86-30-6	n-Nitrosodiphenylamine	42	U
101-55-3	4-Bromophenyl-phenylether	42	U
118-74-1	Hexachlorobenzene	42	U
87-86-5	Pentachlorophenol	420	U
85-01-8	Phenanthrene	42	U
120-12-7	Anthracene	42	U
14324	Carbazole	42	U
84-74-2	Di-n-butylphthalate	42	U
206-44-0	Fluoranthene	42	U
18935	Benzidine	1100	U
129-00-0	Pyrene	42	U
85-68-7	Butylbenzylphthalate	42	U
91-94-1	3,3'-Dichlorobenzidine	42	U
56-55-3	Benzo[a]anthracene	42	U
218-01-9	Chrysene	42	U
117-81-7	bis(2-Ethylhexyl)phthalate	48	
117-84-0	Di-n-octylphthalate	1100	U
205-99-2	Benzo[b]fluoranthene	42	U
207-08-9	Benzo[k]fluoranthene	42	U
50-32-8	Benzo[a]pyrene	42	U
193-39-5	Indeno[1,2,3-cd]pyrene	42	U
53-70-3	Dibenz[a,h]anthracene	42	U
191-24-2	Benzo[g,h,i]perylene	42	U

SEMIVOLATILE ORGANICS ANALYSIS DATA

99090302

Lab	Onsite Environmental Inc.	Contract	E & E
Lab	OSE Case	SAS	99-07- SDG 10-002S
Matrix:	SOIL	Lab Sample	10-002-03
Sample	30 (g/ml G	Lab File	1029045.D
Level:	LOW	Date Received	10/1/99
% Moisture:	0 decanted:(Y/ N	Date Extracted	10/05/99
Concentrated Extract	1000 (uL)	Date Analyzed	10/30/99
Injection	1.0 (uL)	Dilution	1.0
GPC Cleanup:	N pH:		

CAS	COMPOUND	CONCENTRATION (ug/L or UG/KG	Q
62533	Aniline	61	U
111-44-4	bis(2-Chloroethyl)ether	61	U
108-95-2	Phenol	100	
95-57-8	2-Chlorophenol	61	U
106-46-7	1,4-Dichlorobenzene	61	U
95-50-1	1,2-Dichlorobenzene	61	U
100-51-6	Benzyl alcohol	61	U
108-60-1	bis(2-chloroisopropyl)ether	61	U
95-48-7	2-Methylphenol	92	
67-72-1	Hexachloroethane	61	U
621-64-7	N-Nitroso-di-n-propylamine	61	U
106-44-5	4-Methylphenol	1200	
98-95-3	Nitrobenzene	61	U
78-59-1	Isophorone	61	U
88-75-5	2-Nitrophenol	610	U
105-67-9	2,4-Dimethylphenol	610	U
111-91-1	bis(2-Chloroethoxy)methane	61	U
120-83-2	2,4-Dichlorophenol	610	U
65850	Benzoic acid	1500	U
120-82-1	1,2,4-Trichlorobenzene	61	U
91-20-3	Naphthalene	61	U
106-47-8	4-Chloroaniline	61	U
87-68-3	Hexachlorobutadiene	61	U
59-50-7	4-Chloro-3-methylphenol	61	U
91-57-6	2-Methylnaphthalene	61	U
77-47-4	Hexachlorocyclopentadiene	610	U
88-06-2	2,4,6-Trichlorophenol	610	U
95-95-4	2,4,5-Trichlorophenol	610	U
91-58-7	2-Chloronaphthalene	61	U
88-74-4	2-Nitroaniline	61	U
208-96-8	Acenaphthylene	61	U
131-11-3	Dimethylphthalate	61	U
606-20-2	2,6-Dinitrotoluene	610	U
83-32-9	Acenaphthene	61	U
99-09-2	3-Nitroaniline	61	U
51-28-5	2,4-Dinitrophenol	610	U
132-64-9	Dibenzofuran	61	U

1 EPA SAMPLE

SEMIVOLATILE ORGANICS ANALYSIS DATA

99090302

Lab	Onsite Environmental Inc.		Contract	E & E	
Lab	OSE	Case	SAS	99-07-	SDG 10-002S
Matrix:	SOIL		Lab Sample	10-002-03	
Sample	30 (g/ml G		Lab File	1029045.D	
Level:	LOW		Date Received	10/1/99	
% Moisture:	0 decanted:(Y/ N		Date Extracted	10/05/99	
Concentrated Extract	1000 (uL)		Date Analyzed	10/30/99	
Injection	1.0 (uL)		Dilution	1.0	
GPC Cleanup:	N pH:				

CAS	COMPOUND	CONCENTRATION (ug/L or	UG/KG	Q
121-14-2	2,4-Dinitrotoluene		610	U
100-02-7	4-Nitrophenol		610	U
86-73-7	Fluorene		61	U
7005-72-3	4-Chlorophenyl-phenylether		61	U
84-66-2	Diethylphthalate		61	U
100-01-6	4-Nitroaniline		61	U
534-52-1	4,6-Dinitro-2-methylphenol		610	U
86-30-6	n-Nitrosodiphenylamine		61	U
101-55-3	4-Bromophenyl-phenylether		61	U
118-74-1	Hexachlorobenzene		61	U
87-86-5	Pentachlorophenol		610	U
85-01-8	Phenanthrene		61	U
120-12-7	Anthracene		61	U
14324	Carbazole		61	U
84-74-2	Di-n-butylphthalate		61	U
206-44-0	Fluoranthene		61	U
18935	Benzidine		1500	U
129-00-0	Pyrene		61	U
85-68-7	Butylbenzylphthalate		61	U
91-94-1	3,3'-Dichlorobenzidine		61	U
56-55-3	Benzo[a]anthracene		61	U
218-01-9	Chrysene		61	U
117-81-7	bis(2-Ethylhexyl)phthalate		570	
117-84-0	Di-n-octylphthalate		1500	U
205-99-2	Benzo[b]fluoranthene		61	U
207-08-9	Benzo[k]fluoranthene		61	U
50-32-8	Benzo[a]pyrene		61	U
193-39-5	Indeno[1,2,3-cd]pyrene		61	U
53-70-3	Dibenz[a,h]anthracene		61	U
191-24-2	Benzo[g,h,i]perylene		61	U

1B EPA SAMPLE

SEMIVOLATILE ORGANICS ANALYSIS DATA

METHOD BLANK

Lab	Onsite Environmental Inc.		Contract	E & E	
Lab	OSE	Case	SAS	99-07-	SDG 10-002S
Matrix:	SOIL		Lab Sample	MB1005S1	
Sample	30 (g/ml G		Lab File	1031003.D	
Level:	LOW		Date Received	NA	
% Moisture:	0	decanted:(Y/ N	Date Extracted	10/05/99	
Concentrated Extract	1000 (uL)		Date Analyzed	10/31/99	
Injection	1.0 (uL)		Dilution	1.0	
GPC Cleanup:	N	pH:			

CAS	COMPOUND	CONCENTRATION (ug/L or	UG/KG	Q
62533	Aniline		33	U
111-44-4	bis(2-Chloroethyl)ether		33	U
108-95-2	Phenol		33	U
95-57-8	2-Chlorophenol		33	U
106-46-7	1,4-Dichlorobenzene		33	U
95-50-1	1,2-Dichlorobenzene		33	U
100-51-6	Benzyl alcohol		33	U
108-60-1	bis(2-chloroisopropyl)ether		33	U
95-48-7	2-Methylphenol		33	U
67-72-1	Hexachloroethane		33	U
621-64-7	N-Nitroso-di-n-propylamine		33	U
106-44-5	4-Methylphenol		33	U
98-95-3	Nitrobenzene		33	U
78-59-1	Isophorone		33	U
88-75-5	2-Nitrophenol		330	U
105-67-9	2,4-Dimethylphenol		330	U
111-91-1	bis(2-Chloroethoxy)methane		33	U
120-83-2	2,4-Dichlorophenol		330	U
65850	Benzoic acid		830	U
120-82-1	1,2,4-Trichlorobenzene		33	U
91-20-3	Naphthalene		33	U
106-47-8	4-Chloroaniline		33	U
87-68-3	Hexachlorobutadiene		33	U
59-50-7	4-Chloro-3-methylphenol		33	U
91-57-6	2-Methylnaphthalene		33	U
77-47-4	Hexachlorocyclopentadiene		330	U
88-06-2	2,4,6-Trichlorophenol		330	U
95-95-4	2,4,5-Trichlorophenol		330	U
91-58-7	2-Chloronaphthalene		33	U
88-74-4	2-Nitroaniline		33	U
208-96-8	Acenaphthylene		33	U
131-11-3	Dimethylphthalate		33	U
606-20-2	2,6-Dinitrotoluene		330	U
83-32-9	Acenaphthene		33	U
99-09-2	3-Nitroaniline		33	U
51-28-5	2,4-Dinitrophenol		330	U
132-64-9	Dibenzofuran		33	U

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EPA SAMPLE

SEMIVOLATILE ORGANICS ANALYSIS DATA

METHOD BLANK

Lab	Onsite Environmental Inc.		Contract	E & E	
Lab	OSE	Case	SAS	99-07-	SDG 10-002S
Matrix:	SOIL		Lab Sample	MB1005S1	
Sample	30 (g/ml G		Lab File	1031003.D	
Level:	LOW		Date Received	NA	
% Moisture:	0	decanted:(Y/ N	Date Extracted	10/05/99	
Concentrated Extract	1000 (uL)		Date Analyzed	10/31/99	
Injection	1.0 (uL)		Dilution	1.0	
GPC Cleanup:	N	pH:			

CAS	COMPOUND	CONCENTRATION (ug/L or	UG/KG	Q
121-14-2	2,4-Dinitrotoluene		330	U
100-02-7	4-Nitrophenol		330	U
86-73-7	Fluorene		33	U
7005-72-3	4-Chlorophenyl-phenylether		33	U
84-66-2	Diethylphthalate		33	U
100-01-6	4-Nitroaniline		33	U
534-52-1	4,6-Dinitro-2-methylphenol		330	U
86-30-6	n-Nitrosodiphenylamine		33	U
101-55-3	4-Bromophenyl-phenylether		33	U
118-74-1	Hexachlorobenzene		33	U
87-86-5	Pentachlorophenol		330	U
85-01-8	Phenanthrene		33	U
120-12-7	Anthracene		33	U
14324	Carbazole		33	U
84-74-2	Di-n-butylphthalate		33	U
206-44-0	Fluoranthene		33	U
18935	Benzidine		830	U
129-00-0	Pyrene		33	U
85-68-7	Butylbenzylphthalate		33	U
91-94-1	3,3'-Dichlorobenzidine		33	U
56-55-3	Benzo[a]anthracene		33	U
218-01-9	Chrysene		33	U
117-81-7	bis(2-Ethylhexyl)phthalate		33	U
117-84-0	Di-n-octylphthalate		830	U
205-99-2	Benzo[b]fluoranthene		33	U
207-08-9	Benzo[k]fluoranthene		33	U
50-32-8	Benzo[a]pyrene		33	U
193-39-5	Indeno[1,2,3-cd]pyrene		33	U
53-70-3	Dibenz[a,h]anthracene		33	U
191-24-2	Benzo[g,h,i]perylene		33	U

1B EPA SAMPLE

SEMIVOLATILE ORGANICS ANALYSIS DATA

99090302MS

Lab	Onsite Environmental Inc.	Contract	E & E
Lab	OSE Case	SAS	99-07- SDG 10-002S
Matrix:	SOIL	Lab Sample	10-002-03MS
Sample	30 (g/ml G	Lab File	1029046.D
Level:	LOW	Date Received	10/1/99
% Moisture:	0 decanted:(Y/ N	Date Extracted	10/05/99
Concentrated Extract	1000 (uL)	Date Analyzed	10/30/99
Injection	1.0 (uL)	Dilution	1.0
GPC Cleanup:	N pH:		

CAS	COMPOUND	CONCENTRATION (ug/L or UG/KG	Q
62533	Aniline	61	U
111-44-4	bis(2-Chloroethyl)ether	61	U
108-95-2	Phenol	2500	
95-57-8	2-Chlorophenol	2700	
106-46-7	1,4-Dichlorobenzene	1200	
95-50-1	1,2-Dichlorobenzene	61	U
100-51-6	Benzyl alcohol	61	U
108-60-1	bis(2-chloroisopropyl)ether	61	U
95-48-7	2-Methylphenol	92	
67-72-1	Hexachloroethane	61	U
621-64-7	N-Nitroso-di-n-propylamine	1400	
106-44-5	4-Methylphenol	950	
98-95-3	Nitrobenzene	61	U
78-59-1	Isophorone	61	U
88-75-5	2-Nitrophenol	610	U
105-67-9	2,4-Dimethylphenol	610	U
111-91-1	bis(2-Chloroethoxy)methane	61	U
120-83-2	2,4-Dichlorophenol	610	U
65850	Benzoic acid	1500	U
120-82-1	1,2,4-Trichlorobenzene	1500	
91-20-3	Naphthalene	61	U
106-47-8	4-Chloroaniline	61	U
87-68-3	Hexachlorobutadiene	61	U
59-50-7	4-Chloro-3-methylphenol	4000	
91-57-6	2-Methylnaphthalene	61	U
77-47-4	Hexachlorocyclopentadiene	610	U
88-06-2	2,4,6-Trichlorophenol	610	U
95-95-4	2,4,5-Trichlorophenol	610	U
91-58-7	2-Chloronaphthalene	61	U
88-74-4	2-Nitroaniline	61	U
208-96-8	Acenaphthylene	61	U
131-11-3	Dimethylphthalate	61	U
606-20-2	2,6-Dinitrotoluene	610	U
83-32-9	Acenaphthene	2000	
99-09-2	3-Nitroaniline	61	U
51-28-5	2,4-Dinitrophenol	610	U
132-64-9	Dibenzofuran	61	U

1 EPA SAMPLE

SEMIVOLATILE ORGANICS ANALYSIS DATA

99090302MS

Lab	Onsite Environmental Inc.		Contract	E & E	
Lab	OSE	Case	SAS	99-07- SDG	10-002S
Matrix:	SOIL		Lab Sample	10-002-03MS	
Sample	30 (g/ml G		Lab File	1029046.D	
Level:	LOW		Date Received	10/1/99	
% Moisture:	0 decanted:(Y/ N		Date Extracted	10/05/99	
Concentrated Extract	1000 (uL)		Date Analyzed	10/30/99	
Injection	1.0 (uL)		Dilution	1.0	
GPC Cleanup:	N pH:				

CAS	COMPOUND	CONCENTRATION (ug/L or	UG/KG	Q
121-14-2	2,4-Dinitrotoluene		1700	
100-02-7	4-Nitrophenol		3100	
86-73-7	Fluorene		61	U
7005-72-3	4-Chlorophenyl-phenylether		61	U
84-66-2	Diethylphthalate		61	U
100-01-6	4-Nitroaniline		61	U
534-52-1	4,6-Dinitro-2-methylphenol		610	U
86-30-6	n-Nitrosodiphenylamine		61	U
101-55-3	4-Bromophenyl-phenylether		61	U
118-74-1	Hexachlorobenzene		61	U
87-86-5	Pentachlorophenol		4800	
85-01-8	Phenanthrene		61	U
120-12-7	Anthracene		61	U
14324	Carbazole		61	U
84-74-2	Di-n-butylphthalate		61	U
206-44-0	Fluoranthene		61	U
18935	Benzidine		1500	U
129-00-0	Pyrene		2900	
85-68-7	Butylbenzylphthalate		61	U
91-94-1	3,3'-Dichlorobenzidine		61	U
56-55-3	Benzo[a]anthracene		61	U
218-01-9	Chrysene		61	U
117-81-7	bis(2-Ethylhexyl)phthalate		61	U
117-84-0	Di-n-octylphthalate		1500	U
205-99-2	Benzo[b]fluoranthene		61	U
207-08-9	Benzo[k]fluoranthene		61	U
50-32-8	Benzo[a]pyrene		61	U
193-39-5	Indeno[1,2,3-cd]pyrene		61	U
53-70-3	Dibenz[a,h]anthracene		61	U
191-24-2	Benzo[g,h,i]perylene		61	U

1B EPA SAMPLE

SEMIVOLATILE ORGANICS ANALYSIS DATA

99090302MSD

Lab Onsite Environmental Inc. Contract E & E

Lab OSE Case SAS 99-07- SDG 10-002S

Matrix: SOIL Lab Sample 10-002-03MSD

Sample 30 (g/ml G Lab File 1029047.D

Level: LOW Date Received 10/1/99

% Moisture: 0 decanted:(Y/ N Date Extracted 10/05/99

Concentrated Extract 1000 (uL) Date Analyzed 10/30/99

Injection 1.0 (uL) Dilution 1.0

GPC Cleanup: N pH:

CAS	COMPOUND	CONCENTRATION (ug/L or UG/KG	Q
62533	Aniline	61	U
111-44-4	bis(2-Chloroethyl)ether	61	U
108-95-2	Phenol	3500	
95-57-8	2-Chlorophenol	3700	
106-46-7	1,4-Dichlorobenzene	1700	
95-50-1	1,2-Dichlorobenzene	61	U
100-51-6	Benzyl alcohol	61	U
108-60-1	bis(2-chloroisopropyl)ether	61	U
95-48-7	2-Methylphenol	93	
67-72-1	Hexachloroethane	61	U
621-64-7	N-Nitroso-di-n-propylamine	2000	
106-44-5	4-Methylphenol	1400	
98-95-3	Nitrobenzene	61	U
78-59-1	Isophorone	61	U
88-75-5	2-Nitrophenol	610	U
105-67-9	2,4-Dimethylphenol	610	U
111-91-1	bis(2-Chloroethoxy)methane	61	U
120-83-2	2,4-Dichlorophenol	610	U
65850	Benzoic acid	1500	U
120-82-1	1,2,4-Trichlorobenzene	2100	
91-20-3	Naphthalene	61	U
106-47-8	4-Chloroaniline	61	U
87-68-3	Hexachlorobutadiene	61	U
59-50-7	4-Chloro-3-methylphenol	5300	
91-57-6	2-Methylnaphthalene	61	U
77-47-4	Hexachlorocyclopentadiene	610	U
88-06-2	2,4,6-Trichlorophenol	610	U
95-95-4	2,4,5-Trichlorophenol	610	U
91-58-7	2-Chloronaphthalene	61	U
88-74-4	2-Nitroaniline	61	U
208-96-8	Acenaphthylene	61	U
131-11-3	Dimethylphthalate	61	U
606-20-2	2,6-Dinitrotoluene	610	U
83-32-9	Acenaphthene	2600	
99-09-2	3-Nitroaniline	61	U
51-28-5	2,4-Dinitrophenol	610	U
132-64-9	Dibenzofuran	61	U

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EPA SAMPLE

SEMIVOLATILE ORGANICS ANALYSIS DATA

99090302MSD

Lab	Onsite Environmental Inc.		Contract	E & E	
Lab	OSE	Case	SAS	99-07-	SDG 10-002S
Matrix:	SOIL		Lab Sample	10-002-03MSD	
Sample	30 (g/ml G		Lab File	1029047.D	
Level:	LOW		Date Received	10/1/99	
% Moisture:	0 decanted:(Y/ N		Date Extracted	10/05/99	
Concentrated Extract	1000 (uL)		Date Analyzed	10/30/99	
Injection	1.0 (uL)		Dilution	1.0	
GPC Cleanup:	N pH:				

CAS	COMPOUND	CONCENTRATION (ug/L or	UG/KG	Q
121-14-2	2,4-Dinitrotoluene		2300	
100-02-7	4-Nitrophenol		4000	
86-73-7	Fluorene		61	U
7005-72-3	4-Chlorophenyl-phenylether		61	U
84-66-2	Diethylphthalate		61	U
100-01-6	4-Nitroaniline		61	U
534-52-1	4,6-Dinitro-2-methylphenol		610	U
86-30-6	n-Nitrosodiphenylamine		61	U
101-55-3	4-Bromophenyl-phenylether		61	U
118-74-1	Hexachlorobenzene		61	U
87-86-5	Pentachlorophenol		5600	
85-01-8	Phenanthrene		61	U
120-12-7	Anthracene		61	U
14324	Carbazole		61	U
84-74-2	Di-n-butylphthalate		61	U
206-44-0	Fluoranthene		61	U
18935	Benzidine		1500	U
129-00-0	Pyrene		3100	
85-68-7	Butylbenzylphthalate		61	U
91-94-1	3,3'-Dichlorobenzidine		61	U
56-55-3	Benzo[a]anthracene		61	U
218-01-9	Chrysene		61	U
117-81-7	bis(2-Ethylhexyl)phthalate		160	
117-84-0	Di-n-octylphthalate		1500	U
205-99-2	Benzo[b]fluoranthene		61	U
207-08-9	Benzo[k]fluoranthene		61	U
50-32-8	Benzo[a]pyrene		61	U
193-39-5	Indeno[1,2,3-cd]pyrene		61	U
53-70-3	Dibenz[a,h]anthracene		61	U
191-24-2	Benzo[g,h,i]perylene		61	U

1B EPA SAMPLE

SEMIVOLATILE ORGANICS ANALYSIS DATA

SPIKE BLANK

Lab Onsite Environmental Inc. Contract E & E

Lab OSE Case SAS 99-07- SDG 10-002S

Matrix: SOIL Lab Sample SB1005S1

Sample 30 (g/ml G Lab File 1031003.D

Level: LOW Date Received NA

% Moisture: 0 decanted:(Y/ N Date Extracted 10/05/99

Concentrated Extract 1000 (uL) Date Analyzed 10/31/99

Injection 1.0 (uL) Dilution 1.0

GPC Cleanup: N pH:

CAS	COMPOUND	CONCENTRATION (ug/L or	UG/KG	Q
62533	Aniline		33	U
111-44-4	bis(2-Chloroethyl)ether		33	U
108-95-2	Phenol		1700	
95-57-8	2-Chlorophenol		2000	
106-46-7	1,4-Dichlorobenzene		990	
95-50-1	1,2-Dichlorobenzene		33	U
100-51-6	Benzyl alcohol		33	U
108-60-1	bis(2-chloroisopropyl)ether		33	U
95-48-7	2-Methylphenol		33	U
67-72-1	Hexachloroethane		33	U
621-64-7	N-Nitroso-di-n-propylamine		1100	
106-44-5	4-Methylphenol		33	U
98-95-3	Nitrobenzene		33	U
78-59-1	Isophorone		33	U
88-75-5	2-Nitrophenol		330	U
105-67-9	2,4-Dimethylphenol		330	U
111-91-1	bis(2-Chloroethoxy)methane		33	U
120-83-2	2,4-Dichlorophenol		330	U
65850	Benzoic acid		830	U
120-82-1	1,2,4-Trichlorobenzene		1100	
91-20-3	Naphthalene		33	U
106-47-8	4-Chloroaniline		33	U
87-68-3	Hexachlorobutadiene		33	U
59-50-7	4-Chloro-3-methylphenol		2300	
91-57-6	2-Methylnaphthalene		33	U
77-47-4	Hexachlorocyclopentadiene		330	U
88-06-2	2,4,6-Trichlorophenol		330	U
95-95-4	2,4,5-Trichlorophenol		330	U
91-58-7	2-Chloronaphthalene		33	U
88-74-4	2-Nitroaniline		33	U
208-96-8	Acenaphthylene		33	U
131-11-3	Dimethylphthalate		33	U
606-20-2	2,6-Dinitrotoluene		330	U
83-32-9	Acenaphthene		1300	
99-09-2	3-Nitroaniline		33	U
51-28-5	2,4-Dinitrophenol		330	U
132-64-9	Dibenzofuran		33	U

1

EPA SAMPLE

SEMIVOLATILE ORGANICS ANALYSIS DATA

SPIKE BLANK

Lab	Onsite Environmental Inc.	Contract	E & E
Lab	OSE Case	SAS	99-07- SDG 10-002S
Matrix:	SOIL	Lab Sample	SB1005S1
Sample	30 (g/ml G	Lab File	1031003.D
Level:	LOW	Date Received	NA
% Moisture:	0 decanted:(Y/ N	Date Extracted	10/05/99
Concentrated Extract	1000 (uL)	Date Analyzed	10/31/99
Injection	1.0 (uL)	Dilution	1.0
GPC Cleanup:	N pH:		

CAS	COMPOUND	CONCENTRATION (ug/L or UG/KG	Q
121-14-2	2,4-Dinitrotoluene	1400	
100-02-7	4-Nitrophenol	3100	
86-73-7	Fluorene	33	U
7005-72-3	4-Chlorophenyl-phenylether	33	U
84-66-2	Diethylphthalate	33	U
100-01-6	4-Nitroaniline	33	U
534-52-1	4,6-Dinitro-2-methylphenol	330	U
86-30-6	n-Nitrosodiphenylamine	33	U
101-55-3	4-Bromophenyl-phenylether	33	U
118-74-1	Hexachlorobenzene	33	U
87-86-5	Pentachlorophenol	3400	
85-01-8	Phenanthrene	33	U
120-12-7	Anthracene	33	U
14324	Carbazole	33	U
84-74-2	Di-n-butylphthalate	33	U
206-44-0	Fluoranthene	33	U
18935	Benzidine	830	U
129-00-0	Pyrene	1600	
85-68-7	Butylbenzylphthalate	33	U
91-94-1	3,3'-Dichlorobenzidine	33	U
56-55-3	Benzo[a]anthracene	33	U
218-01-9	Chrysene	33	U
117-81-7	bis(2-Ethylhexyl)phthalate	33	U
117-84-0	Di-n-octylphthalate	830	U
205-99-2	Benzo[b]fluoranthene	33	U
207-08-9	Benzo[k]fluoranthene	33	U
50-32-8	Benzo[a]pyrene	33	U
193-39-5	Indeno[1,2,3-cd]pyrene	33	U
53-70-3	Dibenz[a,h]anthracene	33	U
191-24-2	Benzo[g,h,i]perylene	33	U

1 AK102
DRO ANALYSIS DATA SHEET

SAMPLE NO.
99090300

Lab Name: ONSITE ENVIRONMENTAL INC. Contract: E&E

Project No.: 99-07-0002 Group: 10-002S

Matrix: (soil/water) SOIL Lab Sample ID: 10-002-01

Sample wt/vol: 25 (g/mL) g Lab File ID: 1020 472.D

Level: (low/med) LOW Date Received: 10/1/99

% Moisture: 26 decanted: (Y/N): N Date Extracted: 10/7/99

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 10/21/99

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

Compound	Concentration Units: (mg/L or mg/Kg) mg/Kg	Q
Diesel Range Organics (DRO)	5.4	U

1 AK102
DRO ANALYSIS DATA SHEET

SAMPLE NO.
99090301

Lab Name: ONSITE ENVIRONMENTAL INC. Contract: E&E

Project No.: 99-07-0002 Group: 10-002S

Matrix: (soil/water) SOIL Lab Sample ID: 10-002-02

Sample wt/vol: 25 (g/mL) g Lab File ID: 1020 475.D

Level: (low/med) LOW Date Received: 10/1/99

% Moisture: 21 decanted: (Y/N): N Date Extracted: 10/7/99

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 10/21/99

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

Compound	Concentration Units: (mg/L or mg/Kg) mg/Kg	Q
Diesel Range Organics (DRO)	12	

1 AK102
DRO ANALYSIS DATA SHEET

SAMPLE NO.
99090302

Lab Name: ONSITE ENVIRONMENTAL INC. Contract: E&E

Project No.: 99-07-0002 Group: 10-002S

Matrix: (soil/water) SOIL Lab Sample ID: 10-002-03

Sample wt/vol: 25 (g/mL) g Lab File ID: 1020 476.D

Level: (low/med) LOW Date Received: 10/1/99

% Moisture: 45 decanted: (Y/N): N Date Extracted: 10/7/99

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 10/21/99

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

Compound	Concentration Units: (mg/L or mg/Kg) mg/Kg	Q
Diesel Range Organics (DRO)	59	

1 PCB

PCB ANALYSIS DATA SHEET

SAMPLE NO.

99090300

Lab Name: ONSITE ENVIRONMENTAL INC. Contract: E&E

Project No.: 99-07-0007 Group: 10-002S

Matrix: (soil/water) SOIL Lab Sample ID: 10-002-01

Sample wt/vol: 20 (g/mL) g Lab File ID: 1006 009.D

Level: (low/med) LOW Date Received: 10/1/99

% Moisture: 26 decanted: (Y/N): N Date Extracted: 10/6/99

Concentrated Extract Volume: 20000 (uL) Date Analyzed: 10/6/99

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
Aroclor 1016	68	U
Aroclor 1221	68	U
Aroclor 1232	68	U
Aroclor 1242	68	U
Aroclor 1248	68	U
Aroclor 1254	68	U
Aroclor 1260	68	U

1 PCB

PCB ANALYSIS DATA SHEET

SAMPLE NO.

99090301

Lab Name: ONSITE ENVIRONMENTAL INC. Contract: E&E

Project No.: 99-07-0007 Group: 10-002S

Matrix: (soil/water) SOIL Lab Sample ID: 10-002-02

Sample wt/vol: 20 (g/mL) g Lab File ID: 1006 012.D

Level: (low/med) LOW Date Received: 10/1/99

% Moisture: 21 decanted: (Y/N): N Date Extracted: 10/6/99

Concentrated Extract Volume: 20000 (uL) Date Analyzed: 10/6/99

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
Aroclor 1016	63	U
Aroclor 1221	63	U
Aroclor 1232	63	U
Aroclor 1242	63	U
Aroclor 1248	63	U
Aroclor 1254	63	U
Aroclor 1260	63	U

1 PCB

PCB ANALYSIS DATA SHEET

SAMPLE NO.

99090302

Lab Name: ONSITE ENVIRONMENTAL INC. Contract: E&E

Project No.: 99-07-0007 Group: 10-002S

Matrix: (soil/water) SOIL Lab Sample ID: 10-002-03

Sample wt/vol: 20 (g/mL) g Lab File ID: 1006 013.D

Level: (low/med) LOW Date Received: 10/1/99

% Moisture: 45 decanted: (Y/N): N Date Extracted: 10/6/99

Concentrated Extract Volume: 20000 (uL) Date Analyzed: 10/6/99

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
Aroclor 1016	91	U
Aroclor 1221	91	U
Aroclor 1232	91	U
Aroclor 1242	91	U
Aroclor 1248	91	U
Aroclor 1254	91	U
Aroclor 1260	91	U

APPENDIX H

CSM SCOPING AND GRAPHIC FORMS

Print Form

Human Health Conceptual Site Model
Scoping Form

Site Name: Noatak Old Dump Site

File Number: 440.38.002

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, summary text about the CSM and a graphic depicting exposure pathways should be submitted with the site characterization work plan and updated as needed in later reports.

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

1. General Information:

Sources *(check potential sources at the site)*

- ☐ USTs
- ☐ ASTs
- ☐ Dispensers/fuel loading racks
- ☐ Drums
- ☐ Vehicles
- ☒ Landfills
- ☐ Transformers
- ☐ Other:

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

- ☒ Spills
- ☒ Leaks
- ☒ Direct discharge
- ☐ Burning
- ☒ Other: Erosion

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

- ☒ Surface soil (0-2 feet bgs*)
- ☐ Subsurface soil (>2 feet bgs)
- ☐ Air
- ☒ Sediment
- ☐ Groundwater
- ☒ Surface water
- ☐ Biota
- ☐ Other:

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

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

* 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

Are contaminants present or potentially present in surface soil between 0 and 15 feet below the ground surface? (Contamination at deeper depths may require evaluation on a site-specific basis.) ☒

If the box is checked, label this pathway complete: Complete

Comments:

Potentially complete. Soil contamination between 0 and 15 feet bgs.

2. Dermal Absorption of Contaminants from Soil

Are contaminants present or potentially present in surface soil between 0 and 15 feet below the ground surface? (Contamination at deeper depths may require evaluation on a site specific basis.) ☒

Can the soil contaminants permeate the skin (see Appendix B in the guidance document)? ☒

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

Comments:

Potentially complete. SVOCs detected in site soils.

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 DEC has determined the ground-water is not a currently or reasonably expected future source of drinking water according to 18 AAC 75.350. ☒

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

Comments:

Potentially complete, but considered unlikely.

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

Comments:

Potentially complete because site is located on the river bank and is eroding into the river which is used for subsistence activities..

3. Ingestion of Wild and Farmed Foods

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

Do the site contaminants have the potential to bioaccumulate (see Appendix C in the guidance document)? ☒

Are site contaminants located where they would have the potential to be taken up into biota? (i.e. soil within the root zone for plants or burrowing depth for animals, in groundwater that could be connected to surface water, etc.) ☒

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

Comments:

Potentially complete because of the potential for contaminants in shallow soil and proximity to subsistence hunting areas.

c) Inhalation-

1. Inhalation of Outdoor Air

Are contaminants present or potentially present in surface soil between 0 and 15 feet below the ground surface? (Contamination at deeper depths may require evaluation on a site specific basis.) ☒

Are the contaminants in soil volatile (see Appendix D in the guidance document)? ☒

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

Comments:

Potentially complete due to volatile contaminants.

2. Inhalation of Indoor Air

Are occupied buildings on the site or reasonably expected to be occupied or placed on the site in an area that could be affected by contaminant vapors? (within 30 horizontal or vertical feet of petroleum contaminated soil or groundwater; within 100 feet of non-petroleum contaminted soil or groundwater; or subject to "preferential pathways," which promote easy airflow like utility conduits or rock fractures) ☐

Are volatile compounds present in soil or groundwater (see Appendix D in the guidance document)? ☒

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

Comments:

No buildings within 100 feet.

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

Dermal exposure to contaminants in groundwater and surface water may be a complete pathway if:

- Climate permits recreational use of waters for swimming.
- Climate permits exposure to groundwater during activities, such as construction.
- Groundwater or surface water is used for household purposes, such as bathing or cleaning.

Generally, DEC groundwater cleanup levels in 18 AAC 75, Table C, are assumed to be protective of this pathway.

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

Comments:

Potentially complete. Use of ground water and surface water for household purposes cannot be eliminated.

Inhalation of Volatile Compounds in Tap Water

Inhalation of volatile compounds in tap water may be a complete pathway if:

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

Generally, DEC groundwater cleanup levels in 18 AAC 75, Table C, are assumed to be protective of this pathway.

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

Comments:

Potentially complete. Use of ground water and surface water for household purposes cannot be eliminated.

Inhalation of Fugitive Dust

Inhalation of fugitive dust may be a complete pathway if:

- 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 (Particulate Matter - PM_{10}). Particles of this size are called respirable particles and can reach the pulmonary parts of the lungs when inhaled.
- Chromium is present in soil that can be dispersed as dust particles of any size.

Generally, DEC direct contact soil cleanup levels in Table B1 of 18 AAC 75 are protective of this pathway because it is assumed most dust particles are incidentally ingested instead of inhaled to the lower lungs. The inhalation pathway only needs to be evaluated when very small dust particles are present (e.g., along a dirt roadway or where dusts are a nuisance). This is not true in the case of chromium. Site specific cleanup levels will need to be calculated in the event that inhalation of dust containing chromium is a complete pathway at a site.

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

Comments:

Not complete. Chromium is not a contaminant of concern at this site.

Direct Contact with Sediment

This pathway involves people's hands being exposed to sediment, such as during some recreational, subsistence, or industrial activity. People then incidentally ingest sediment from normal hand-to-mouth activities. In addition, dermal absorption of contaminants may be of concern if the the contaminants are able to permeate the skin (see Appendix B in the guidance document). This type of exposure should be investigated if:

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

Generally, DEC direct contact soil cleanup levels in 18 AAC 75, Table B1, are assumed to be protective of direct contact with sediment.

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

Comments:

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 there are also no known activities likely to result in sediment contact.

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

HUMAN HEALTH CONCEPTUAL SITE MODEL GRAPHIC FORM

Site: Noatak Old Dump Site
Noatak, Alaska

Completed By: SLR International Corp
Date Completed: February 2011

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

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

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

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

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

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

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

Revised, 10/01/2010

Print Form

Human Health Conceptual Site Model
Scoping Form

Site Name: Noatak Current Dump Site

File Number: None

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, summary text about the CSM and a graphic depicting exposure pathways should be submitted with the site characterization work plan and updated as needed in later reports.

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

1. General Information:

Sources *(check potential sources at the site)*

- ☐ USTs
- ☐ ASTs
- ☐ Dispensers/fuel loading racks
- ☐ Drums
- ☐ Vehicles
- ☒ Landfills
- ☐ Transformers
- ☐ Other:

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

- ☒ Spills
- ☒ Leaks
- ☒ Direct discharge
- ☒ Burning
- ☐ Other:

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

- ☒ Surface soil (0-2 feet bgs*)
- ☐ Subsurface soil (>2 feet bgs)
- ☐ Air
- ☐ Sediment
- ☐ Groundwater
- ☐ Surface water
- ☐ Biota
- ☐ Other:

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

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

* 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

Are contaminants present or potentially present in surface soil between 0 and 15 feet below the ground surface? (Contamination at deeper depths may require evaluation on a site-specific basis.) ☒

If the box is checked, label this pathway complete: Complete

Comments:

Potentially complete. Potential soil contamination between 0 and 15 feet bgs.

2. Dermal Absorption of Contaminants from Soil

Are contaminants present or potentially present in surface soil between 0 and 15 feet below the ground surface? (Contamination at deeper depths may require evaluation on a site specific basis.) ☒

Can the soil contaminants permeate the skin (see Appendix B in the guidance document)? ☒

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

Comments:

Potentially complete. No analytical samples and potential for contaminants that can permeate skin.

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 DEC has determined the ground-water is not a currently or reasonably expected future source of drinking water according to 18 AAC 75.350. ☒

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

Comments:

Potentially complete, but considered unlikely.

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

Comments:

Potentially complete because site is located in a flood zone and the river is used for subsistence activities..

3. Ingestion of Wild and Farmed Foods

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

Do the site contaminants have the potential to bioaccumulate (see Appendix C in the guidance document)? ☒

Are site contaminants located where they would have the potential to be taken up into biota? (i.e. soil within the root zone for plants or burrowing depth for animals, in groundwater that could be connected to surface water, etc.) ☒

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

Comments:

Potentially complete because of the potential for contaminants in shallow soil and proximity to subsistence hunting areas. Because no analytical sampling has been performed at the Current Dump Site, it is not possible to determine if this pathway is complete and/or significant.

c) Inhalation-

1. Inhalation of Outdoor Air

Are contaminants present or potentially present in surface soil between 0 and 15 feet below the ground surface? (Contamination at deeper depths may require evaluation on a site specific basis.) ☒

Are the contaminants in soil volatile (see Appendix D in the guidance document)? ☒

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

Comments:

Potentially complete due to possible contaminants and open burning.

2. Inhalation of Indoor Air

Are occupied buildings on the site or reasonably expected to be occupied or placed on the site in an area that could be affected by contaminant vapors? (within 30 horizontal or vertical feet of petroleum contaminated soil or groundwater; within 100 feet of non-petroleum contaminted soil or groundwater; or subject to "preferential pathways," which promote easy airflow like utility conduits or rock fractures) ☐

Are volatile compounds present in soil or groundwater (see Appendix D in the guidance document)? ☒

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

Comments:

No buildings within 100 feet.

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

Dermal exposure to contaminants in groundwater and surface water may be a complete pathway if:

- Climate permits recreational use of waters for swimming.
- Climate permits exposure to groundwater during activities, such as construction.
- Groundwater or surface water is used for household purposes, such as bathing or cleaning.

Generally, DEC groundwater cleanup levels in 18 AAC 75, Table C, are assumed to be protective of this pathway.

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

Comments:

Potentially complete. Use of ground water and surface water for household purposes cannot be eliminated.

Inhalation of Volatile Compounds in Tap Water

Inhalation of volatile compounds in tap water may be a complete pathway if:

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

Generally, DEC groundwater cleanup levels in 18 AAC 75, Table C, are assumed to be protective of this pathway.

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

Comments:

Potentially complete. Use of ground water and surface water for household purposes cannot be eliminated.

Inhalation of Fugitive Dust

Inhalation of fugitive dust may be a complete pathway if:

- 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 (Particulate Matter - PM_{10}). Particles of this size are called respirable particles and can reach the pulmonary parts of the lungs when inhaled.
- Chromium is present in soil that can be dispersed as dust particles of any size.

Generally, DEC direct contact soil cleanup levels in Table B1 of 18 AAC 75 are protective of this pathway because it is assumed most dust particles are incidentally ingested instead of inhaled to the lower lungs. The inhalation pathway only needs to be evaluated when very small dust particles are present (e.g., along a dirt roadway or where dusts are a nuisance). This is not true in the case of chromium. Site specific cleanup levels will need to be calculated in the event that inhalation of dust containing chromium is a complete pathway at a site.

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

Comments:

Potentially complete because although it is unlikely chromium would be released in large quantities from dumping at the site, no analytical samples have been collected to confirm this.

Direct Contact with Sediment

This pathway involves people's hands being exposed to sediment, such as during some recreational, subsistence, or industrial activity. People then incidentally ingest sediment from normal hand-to-mouth activities. In addition, dermal absorption of contaminants may be of concern if the the contaminants are able to permeate the skin (see Appendix B in the guidance document). This type of exposure should be investigated if:

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

Generally, DEC direct contact soil cleanup levels in 18 AAC 75, Table B1, are assumed to be protective of direct contact with sediment.

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

Comments:

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 there are also no known activities likely to result in sediment contact.

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

HUMAN HEALTH CONCEPTUAL SITE MODEL GRAPHIC FORM

Site: Noatak Current Dump Site
Noatak, Alaska

Completed By: SLR International Corp
Date Completed: February 2011

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

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

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

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

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

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

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

Revised, 10/01/2010

APPENDIX I

NOATAK LANDFILL FACILITIES CONCEPTUAL PLAN

Noatak Landfill Facilities Conceptual Plan

ID	Task Name	Start	Finish	Responsible
1	**Noatak Landfill Facilities Conceptual Plan**	**9/15/2010**	**12/16/2014**	
2				
3	**Phase 1 - 2010 and 2011**	**9/15/2010**	**12/30/2011**	
4	Stakeholder meetings	9/15/2010	12/30/2011	
5	Phase 1 Funding Process 2011	9/15/2010	1/18/2011	
6	Phase 2 Funding Process year 2012	12/29/2010	12/13/2011	
7	Phase 1 Funding Authorized/Received	1/19/2011	1/19/2011	
8				
9	**Historic (Previous) Landfill**	**9/15/2010**	**11/9/2011**	
10	Initial funding waste removal	9/15/2010	10/12/2010	Noatak IRA
11	Environmental Report/Agency Issues/Landowners	1/20/2011	5/25/2011	Noatak IRA
12	Closure Report	5/26/2011	9/28/2011	
13	2011 waste removal	9/29/2011	11/9/2011	
14				
15	**Property Assessment and Cleanup Plan**	**10/13/2010**	**1/20/2011**	
16	**Assessment of Historic Landfill**	**10/13/2010**	**11/23/2010**	**SLR**
17	Volume assessment	10/13/2010	10/19/2010	SLR
18	Waste characterization	10/13/2010	11/16/2010	SLR
19	Impacts & Risk Assessment	10/13/2010	11/16/2010	SLR
20	Cost Estimate	10/27/2010	11/23/2010	SLR
21	**Assessment of Current Landfill**	**10/13/2010**	**11/23/2010**	**SLR**
22	Volume assessment	10/13/2010	11/9/2010	SLR
23	Waste characterization	10/13/2010	11/9/2010	SLR
24	Impacts & Risk Assessment	10/13/2010	11/9/2010	SLR
25	Cost Estimate	10/27/2010	11/23/2010	SLR
26	**Prepare Draft Report**	**11/24/2010**	**1/19/2011**	**SLR**
27	Prepare Draft Property Assessment and Cleanup Plan	11/24/2010	12/14/2010	SLR
28	Submit Draft Report	12/15/2010	12/15/2010	SLR
29	Review Draft Report	12/16/2010	1/5/2011	SLR
30	Receive and incorporate Comments	1/6/2011	1/19/2011	SLR
31	**Submit Final Property Assessment and Cleanup Plan**	1/20/2011	1/20/2011	SLR
32				
33	**Current Landfill**	**1/19/2011**	**12/20/2011**	
34	Accept 2010 and 2011 Historic Landfill Waste	1/21/2011	12/1/2011	Noatak IRA
35	Backhaul/Recycling	1/21/2011	12/1/2011	Maniilaq
36	Environmental Report/Agency Issues/Landowner Issues	1/19/2011	12/20/2011	
37				
38	**Future Landfill**	**1/19/2011**	**12/20/2011**	
39	Site Selection Process	1/19/2011	7/5/2011	Noatak IRA
40	DOT Coordination	1/19/2011	7/5/2011	
41	Landowner/Stakeholder Approval	3/2/2011	7/5/2011	Noatak IRA
42	Permitting and Design	7/6/2011	12/20/2011	
43				
44				
45				
46				
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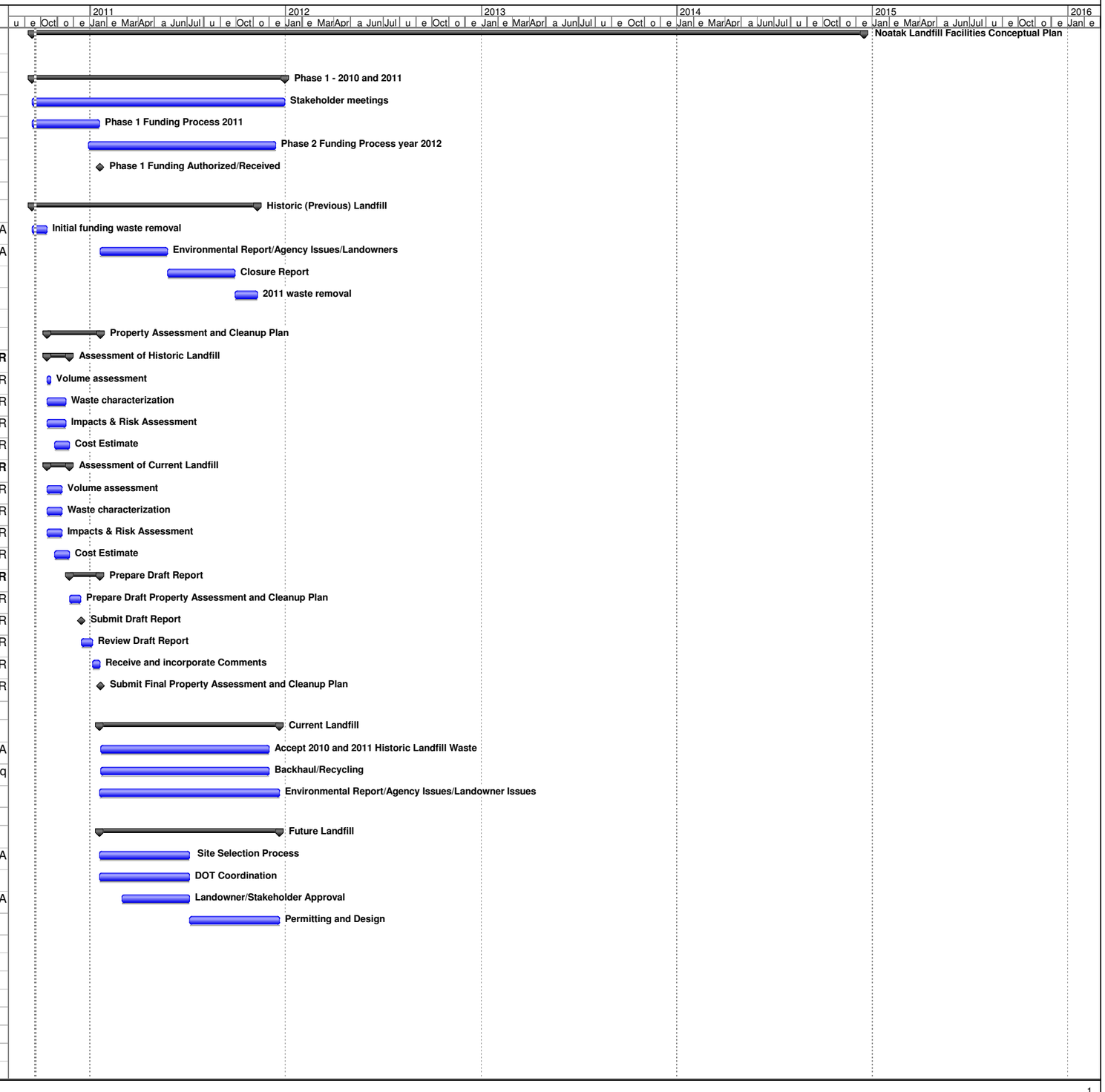
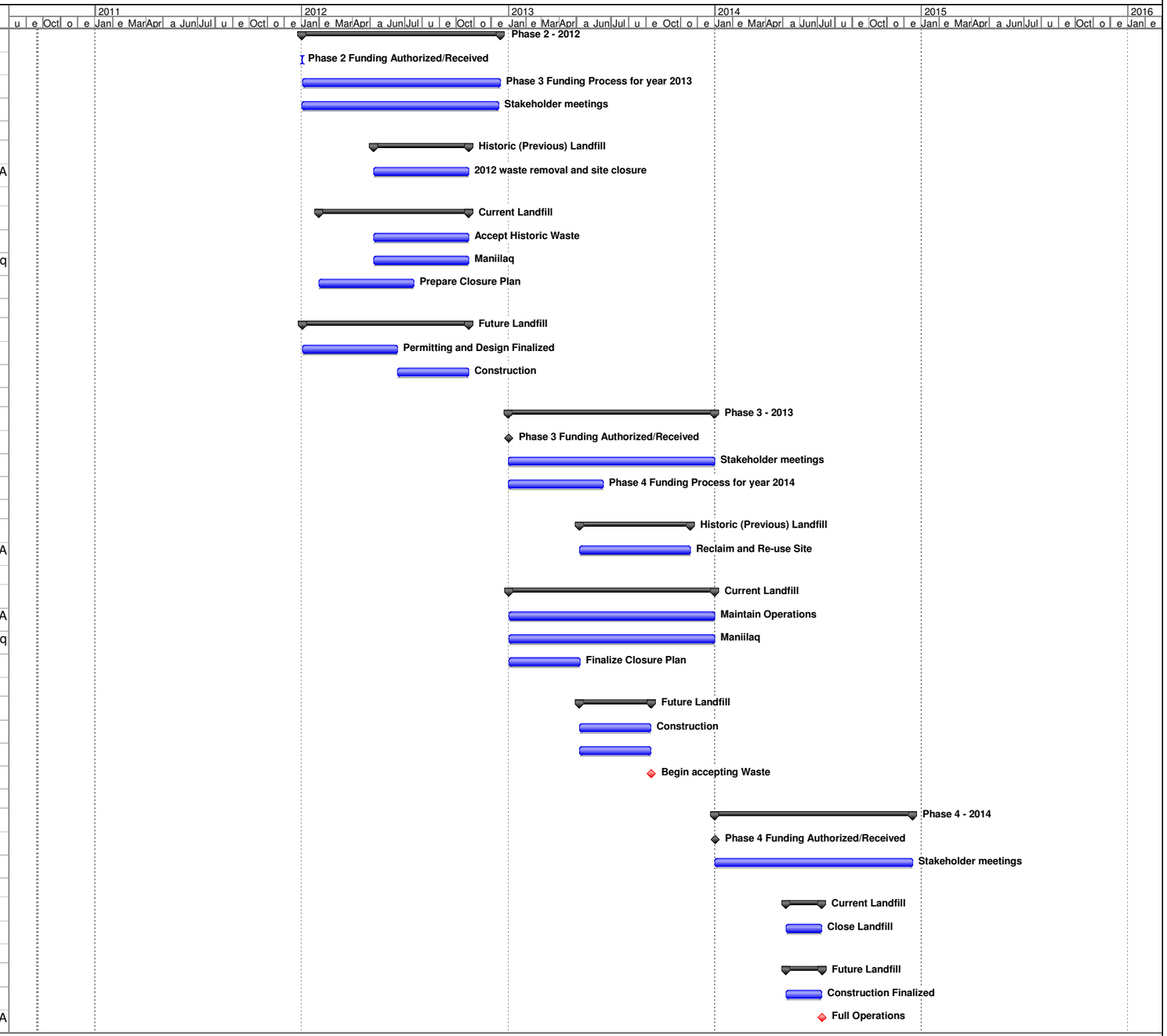
48				
49				
50				



Noatak Landfill Facilities Conceptual Plan

ID	Task Name	Start	Finish	Responsible
51	**Phase 2 - 2012**	**1/2/2012**	**12/17/2012**	
52	Phase 2 Funding Authorized/Received	1/2/2012	1/2/2012	
53	Phase 3 Funding Process for year 2013	1/3/2012	12/17/2012	
54	Stakeholder meetings	1/2/2012	12/14/2012	
55				
56	**Historic (Previous) Landfill**	**5/8/2012**	**10/22/2012**	
57	2012 waste removal and site closure	5/8/2012	10/22/2012	Noatak IRA
58				
59	**Current Landfill**	**2/1/2012**	**10/22/2012**	
60	Accept Historic Waste	5/8/2012	10/22/2012	
61	Backhaul/Recycling	5/8/2012	10/22/2012	Maniilaq
62	Prepare Closure Plan	2/1/2012	7/17/2012	
63				
64	**Future Landfill**	**1/3/2012**	**10/22/2012**	
65	Permitting and Design Finalized	1/3/2012	6/18/2012	
66	Construction	6/19/2012	10/22/2012	
67				
68	**Phase 3 - 2013**	**1/1/2013**	**12/31/2013**	
69	Phase 3 Funding Authorized/Received	1/1/2013	1/1/2013	
70	Stakeholder meetings	1/1/2013	12/31/2013	
71	Phase 4 Funding Process for year 2014	1/1/2013	6/17/2013	
72				
73	**Historic (Previous) Landfill**	**5/7/2013**	**11/18/2013**	
74	Reclaim and Re-use Site	5/7/2013	11/18/2013	Noatak IRA
75				
76	**Current Landfill**	**1/2/2013**	**12/31/2013**	
77	Maintain Operations	1/2/2013	12/31/2013	Noatak IRA
78	Backhaul/Recycling	1/2/2013	12/31/2013	Maniilaq
79	Finalize Closure Plan	1/2/2013	5/7/2013	
80				
81	**Future Landfill**	**5/7/2013**	**9/10/2013**	
82	Construction	5/7/2013	9/9/2013	
83	Backhaul	5/7/2013	9/9/2013	
84	Begin accepting Waste	9/10/2013	9/10/2013	
85				
86	**Phase 4 - 2014**	**1/1/2014**	**12/16/2014**	
87	Phase 4 Funding Authorized/Received	1/1/2014	1/1/2014	
88	Stakeholder meetings	1/1/2014	12/16/2014	
89				
90	**Current Landfill**	**5/7/2014**	**7/8/2014**	
91	Close Landfill	5/7/2014	7/8/2014	
92				
93	**Future Landfill**	**5/7/2014**	**7/9/2014**	
94	Construction Finalized	5/7/2014	7/8/2014	
95	Full Operations	7/9/2014	7/9/2014	Noatak IRA



APPENDIX J

ALASKA FUNDING SPREADSHEET

Funding for Brownfield Redevelopment Projects

Alaska

Program Name	Grant/Loan	Who is Eligible	Site Eligibility	Eligible Costs	Typical Amount Per Site	Deadline	Contact
US Environmental Protection Agency (EPA):							
Assessment	Grant	States, local government, Intertribal Consortia (excluding Alaskan tribes), Alaska Native Regional Corporation, Alaska Native Village Corporation, & Metlakatla Indian Community	Petroleum or Hazardous & Site-Specific or Community-wide	Site assessment, community planning & outreach	$200K for Petroleum; $200K for Hazardous; or $350K for single site with EPA waiver $1M for coalitions of 3 eligible entities	Fall 2011	Mary Goolie goolie.mary@epa.gov 907.271.3414 Susan Morales morales.susan@epa.gov 206.553.7299 yosemite.epa.gov/R10/cleanup.nsf/sites/bf
Cleanup	Grant	Same as assessents; Nonprofits. Eligible party must own site	Petroleum or Hazardous	Cleanup	$200K/site, up to 3 sites (requires 20% cost share)	Fall 2011	
Revolving Loan Fund (RLF)	Grant	Same as assessents	Petroleum or Hazardous	Cleanup	$1M/entity (requires 20% cost share). May subgrant 50% of award to municipalities & nonprofits with site ownership	Fall 2011	
Targeted Brownfield Assessments (TBAs)	In-kind Technical Service	Same as assessents; nonprofits; Alaska tribes	Any brownfield	Site assessment	Site assessment services	Ongoing	Joanne LaBaw labaw.joanne@epa.gov 206.553.2594 yosemite.epa.gov/R10/CLEANUP.NSF/brownfields/targeted+brownfields+assessments
Environmental Workforce and Job Training Grant	Grant	Same as assessents; colleges, universities, nonprofit training centers	NA	Training	$300K	March 2011	Susan Morales morales.susan@epa.gov 206.553.7299 yosemite.epa.gov/R10/CLEANUP.NSF/brownfields/grants+&+competitions
US Department of Housing & Urban Development (HUD):							
Community Development Block Grant (CDBG)	Grant or Loan	State, urban county, or entitlement city who decides use of funds & to whom funds will be made available	Anything that passes HUD's Environmental Review	Site assessment, cleanup, rehabilitation, site improvements, limited construction	Depends on needs/size of community (average project award ranges from $200K - $1M)	Ongoing	Colleen Bickford colleen.bickford@hud.gov 907.677-9800
Section 108	Loan	same as CDBG	same as CDBG	same as CDBG	Up to five times the annual allocation less any outstanding loan amounts	Ongoing	same as above
Brownfields Economic Development Initiative (BEDI)	Grant	Same as CDBG	Same as CDBG	Same as CDBG	Up to $2M; may not exceed 1:1 ratio with Section 108 loan	Contact staff	Same as above
Sustainable Communities	Grant	Depending on program, local, regional, state or tribal government, & partnerships thereof	Depending on program, region or priority area	Planning	Up to $5M, depending on community size & number of coalition members	Contact staff	Zuleika K. Morales-Romero 202-402-7683 Zuleika.K.Morales@hud.gov portal.hud.gov/portal/page/portal/HUD/program_offices/sustainable_housing_communities
Alaska Office of Native American Programs (ONAP)	Grant	Native Alaskan communities	Same as CDBG	Same as CDBG	Contact staff	Contact staff	Bill Zachares bill.zachares@hud.gov 907.677.9860 www.hud.gov/offices/pih/ih/codetalk/onap/akonap/

Funding for Brownfield Redevelopment Projects

Alaska

Program Name	Grant/Loan	Who is Eligible	Site Eligibility	Eligible Costs	Typical Amount Per Site	Deadline	Contact
Indian Community Development Block Grant (ICDBG)	Grant	Any Indian tribe, band, group, or nation (including Alaska Indians, Aleut, & Eskimos) or Alaska Native village which has established a relationship to the Federal government as defined in the program regulations. In certain instances, tribal organizations may be eligible to apply.	Same as CDBG	Housing - Rehabilitation, land acquisition, & under limited circumstances, new housing construction. Community Facilities - Infrastructure, e.g., roads, water & sewer facilities; &, single or multipurpose community buildings. Economic Development - Commercial, industrial, agricultural projects which may be recipient-owned & operated or which may be owned &/or operated by a third party.	Contact staff	Contact Staff	Deb Alston deb.alston@hud.gov 907.677.9863 www.nls.gov/offices/pih/ih/grants/icdbg.cfm
US Department of Agriculture (USDA):							
Community Facilities	Grant or Loan	Political subdivisions of the State, nonprofits, & federally recognized Alaska Native Tribes	In a rural community	Costs for essential facilities, usually construction costs, for essential community services that are typically provided by local government or a community based organization for the benefit of the community	Contact staff	Ongoing	Palmer Office: Rural Programs - Deborah Davis Deborah.Davis@ak.usda.gov 907.761.7740 Business Programs - Dean Stewart Dean.Stewart@ak.usda.gov 907.761.7722 Community Programs - Merlaine Kruse Merlaine.Kruse@ak.usda.gov 907.761.7778 Regional contacts: Bethel - Gene Kane Gene.Kane@ak.usda.gov 907.543.3858 Dillingham - Spud Williams William.C.William@ak.usda.gov 907.842.3921 Fairbanks / Nome - James Polhman James.Polhlman@ak.usda.gov 907.479.6767.4 Kenai - Michelle Hoffman Michelle.Hoffman@ak.usda.gov 907.283.6640.4 Sitka - Keith Perkins Keith.Perkins@ak.usda.gov 907.747.3506 www.rurdev.usda.gov/ak/
Rural Development - Renewable Energy & Energy Efficiency; Housing; Community Facilities; Business; Coops; Electric; Telecommunication; Utility; Water & Environment; Community Development	Grant, Loan or technical assistance	Varies - depends on program	Varies	Loans, loan guarantees, down payment assistance, construction	Contact staff	Ongoing	
Rural Housing	Grant or Loan	Varies - depends on program	Varies	Loans, loan guarantees, down payment assistance, construction	Contact staff	Ongoing	
US Department of Commerce, Economic Development Administration (EDA):							
Public Works	Grant	States & political subdivisions of states; tribes, nonprofits, higher education institutions; BRAC impacted communities	In areas experiencing: high unemployment, low per capita income, or special needs; must be part of a Comprehensive Economic Development Strategy	Construction or rehab of public infrastructure & facilities that generate or retain private sector jobs & capital investment	No more than 50-80% of the total project cost (with exceptions); (average project award $1.4M)	March, June, September, December	Shirley Kelly skelly@eda.doc.gov 907-677.9800 www.eda.gov/InvestmentsGrants/Investments.xml

Funding for Brownfield Redevelopment Projects

Alaska

Program Name	Grant/Loan	Who is Eligible	Site Eligibility	Eligible Costs	Typical Amount Per Site	Deadline	Contact
Economic Adjustment	Grant	States & political subdivisions of states; tribes, nonprofits, higher education institutions; BRAC impacted communities	In areas experiencing: high unemployment, low per capita income, or special needs; must be part of a Comprehensive Economic Development Strategy	Strategy development, infrastructure construction, & revolving loan fund capitalization	No more than 50-80% of the total project cost (with exceptions); (average project award $570K)	March, June, September, December	same as above
Local Technical Assistance	Grant	States & political subdivisions of states; tribes, nonprofits, higher education institutions	Sites in areas of economic distress	Technical assistance (project planning, economic analyses, feasibility studies, etc.)	No more than 50-80% of the total project cost (with exceptions)	March, June, September, December	same as above
Partnership Planning	Grant	States & political subdivisions of states; tribes, nonprofits, higher education institutions	Sites in areas of economic distress	Economic development planning assistance	No more than 50-80% of the total project cost (with exceptions)	March, June, September, December	same as above
US Army Corps of Engineers (USACE):							
Planning Assistance to States	Cost share/match 50% / in-kind services	State, local government, Native Alaskan communities	Sites affected by coastal areas & waterways	Technical services provided by USACE	Maximum of $500,000 per year per state; $25K - $100K per project	Ongoing	Lisa Rabbe lisa.rabbe@usace.army.mil 907.753.2634 www.poa.usace.army.mil/en/cw/cap/brochures/PASbrochure.pdf
Alaska Department of Environmental Conservation (DEC):							
DEC Brownfields Assessments (DBAs)	In-kind Service	Public & nonprofits	Any brownfield.	Site assessment	Contact staff	Winter 2011	Sonja Benson Sonja.Benson@alaska.gov 907.451.2156 www.dec.state.ak.us/spar/csp/brownfields.htm#assess
Alaska Energy Authority (AEA):							
Various alternative energy projects	Grant/Loan & technical assistance	States & political subdivisions of states; tribes, nonprofits, energy generators	Various requirements	Technical assistance, system upgrade, training	Contact staff	Different deadlines	Butch White bwhite@aidea.org 907-771-3052 www.aidea.org/AEA/programs.html www.akenergyauthority.org/EETFundGrantProgram.html
Alaska Industrial Development & Export Authority (AIDEA):							
Revenue Bond Program	Loans	Business enterprises	Location of business enterprise	Financing for capital expenses	Contact staff	Ongoing	Chris Anderson canderson@aidea.org 907.771.3030 www.aidea.org/programscrb.html
Alaska Department of Natural Resources:							
Alaska Trails Initiative	Grants	Nonprofit organizations & local, state, federal & tribal entities	Proposed trail	Planning, permitting, design, construction, reconstruction, equipment purchase, education & interpretation of trails & trail related facilities.	Average of $500,000	Contact Staff	Bill Luck dnr.alaska.gov/shared/emailcontact.cfm?send=bill.luck 907.269.8699 www.dnr.alaska.gov/parks/grants/aktrailinit.htm

Funding for Brownfield Redevelopment Projects

Alaska

Program Name	Grant/Loan	Who is Eligible	Site Eligibility	Eligible Costs	Typical Amount Per Site	Deadline	Contact
Recreational Trails Program - Recreational trails & Snowmobiles	Matching grants	For recreational trails - nonprofit organizations & public agencies. For snowmobile trails - all organizations, clubs, public agencies, or businesses	Proposed or existing trail	Reimbursable, matching funds to develop & maintain recreational trails & trail-related facilities for both non-motorized & motorized recreational trail uses.	Subject to program requirements	Contact Staff	Bill Luck dnr.alaska.gov/shared/emailcontact.cfm?send=bill.luck 907.269.8699 www.dnr.alaska.gov/parks/grants/aktrailinit.htm
Land & Water Conservation Fund Grant Program	Partial grants	State, regional or local governments with authority to provide outdoor recreation services	Public lands	Acquisition of outdoor recreation lands &/or development of outdoor recreation facilities	$100,000 - $500,000	Contact Staff	Kristy Gray www.dnr.alaska.gov/standard/emailcontact.cfm?send=jean.ayers 907.269.8694 www.dnr.alaska.gov/parks/grants/lwcf.htm
National Coastal Wetlands Conservation Grant Program	Grants	Public agencies & land trusts	Coastal areas	Acquisition, restoration, management or enhancement of coastal wetlands	Contact staff, subject to availability of state matching funds	Contact Staff	Steve Neel dnr.alaska.gov/shared/emailcontact.cfm?send=steve.neel 907.269.8709 www.dnr.alaska.gov/parks/grants/ncwc.htm
Division of Forestry - Green Infrastructure Planning Grants	Grants	Local government	Publicly owned land	Green infrastructure planning	$20,000-$80,000	Applications are usually due in January	Patricia Joyner patricia.joyner@alaska.gov 907.269.8465 forestry.alaska.gov/community/grants.htm
Alaska Department of Commerce:							
Alaska CDBG	Grants	Municipalities	Publicly-owned sites	Community development, planning & Special Economic Development	Maximum of $850,000 per community	Applications are usually due in December	Jill Davis Jill.Davis@alaska.gov 907.451.2717 www.commerce.state.ak.us/dca/grt/blockgrants.htm
Alaska Housing Finance Corporation (AHFC):							
Beneficiary & Special Needs Housing Grant Program (SNHG)	Grant	Nonprofit service providers & housing developers for construction of housing for the Alaskan special needs populations, primarily the beneficiaries of the Alaska Mental Health Trust	A housing site	Planning & construction activities for congregate, supportive & transitional housing types	Contact staff	Typically in January	Daniel Delfino ddelfino@ahfc.state.ak.us 907.330.8273 www.ahfc.state.ak.us/grants/beneficiary_snhg.cfm
Elder Housing Program (Denali Commission)	Grant	Housing Authorities, local governments, nonprofits	A housing site	Grants to plan, construct & rehabilitate housing in rural locations	Contact staff. Predevelopment funds only for 2011	Contact Staff	Diana Faude dfaud@ahfc.state.ak.us 907.330.8277 www.ahfc.state.ak.us/grants/elder_housing.cfm
Matching Grants Program	Grant	Nonprofits providing supportive housing services	A housing site	Supportive Housing Program (SHP) activities	Contact staff	Contact Staff	Diana Faude dfaud@ahfc.state.ak.us 907.330.8277 www.ahfc.state.ak.us/grants/elder_housing.cfm
Matching Grants Program	Grant	Nonprofits	A housing site	Funds to meet the federal & state match requirements for grants awarded to nonprofit organizations.	Contact Staff	Contact Staff	Toni Butler tbutler@ahfc.state.ak.us 907.330.8280 www.ahfc.state.ak.us/grants/matching_grants.cfm

Funding for Brownfield Redevelopment Projects

Alaska

Program Name	Grant/Loan	Who is Eligible	Site Eligibility	Eligible Costs	Typical Amount Per Site	Deadline	Contact
Homeownership Development Program (HDP)	Grant	Participants in the USDA's 523 self-help homeownership program, Community Land Trusts & Habitat for Humanity organizations	A housing site	Real property acquisition & site improvements for new construction of permanent, single family housing.	Contact Staff	Contact Staff	Colette Slover cslover@ahfc.state.ak.us 907.330.8275 www.ahfc.state.ak.us/grants/hdp.cfm
Teacher, Health Professional & Public Safety Housing Program (AHFC/Denali Commission)	Grant	School districts, local governments, housing authorities & nonprofit health organizations	A housing site	New construction, rehabilitation or acquisition of rental or lease/purchase housing to develop housing in rural Alaska for teachers, public safety officials & health professionals	Contact Staff	Contact Staff	James Wiedle jwiedle@ahfc.state.ak.us 907.330.8235 www.ahfc.state.ak.us/grants/teacher_health_safety_housing.cfm
New Market Tax Credits (NMTC) & Community Lenders							
Rural Community Assistance Corporation (RCAC)	Loan, Equity, Technical Assistance	Local government, nonprofit, Native American	Qualifying census tract as defined by CDFI Fund Dept. Treasury	Housing, environmental infrastructure & community facilities	Contact staff	Ongoing	Bruce Newman - Housing programs bnewman@rcac.org 530.741.2227 Jim Wilson- Environmental programs jwilson@rcac.org 530.741.2227 www.rcac.org
RurAL CAP:							
Self Help housing	Grant	Contact staff	Contact staff	Self Help housing	Contact staff	Contact Staff	Mitzi Barker 907.865.7370 www.ruralcap.com/index.php?option=com_content&view=article&id=174&Itemid=225
Community planning	Grant	Contact staff	Contact staff	Community Planning Activities	Contact staff	Contact Staff	Mitzi Barker 907.865.7370 www.ruralcap.com/index.php?option=com_content&view=article&id=89&Itemid=87
Waste management	Grant	Contact staff	Contact staff	improving solid waste management, with an emphasis on protecting local water supplies from contamination	Contact staff	Contact Staff	Ellen Kazary 907.865.7358 www.ruralcap.com/www/?option=com_content&view=article&id=172&Itemid=247
Rasmuson Foundation:							
Pre-Development	Grants	Nonprofit organizations, municipal government & tribal communities	Contact staff	Contact staff	Contact staff	Ongoing	Chris Kowalczewski ckowalczewski@forakergroup.org 907.743.1203 www.rasmuson.org/index.php?switch=viewpage&pageid=141 www.forakergroup.org/index.cfm?section=Shared-Services&page=Pre-Development
Program-related investments	Loans, equity investments, linked deposits or loan guarantees	Nonprofit organizations	Contact staff	Program-related investments for housing, economic development, historic preservation	Contact staff	Ongoing	Chris Perez cperez@rasmuson.org 907.334.0522 www.rasmuson.org/index.php?switch=viewpage&pageid=159

Funding for Brownfield Redevelopment Projects

Alaska

Program Name	Grant/Loan	Who is Eligible	Site Eligibility	Eligible Costs	Typical Amount Per Site	Deadline	Contact
Capital projects - Tier 1	Grant	Nonprofit organizations	Contact staff	Capital projects i.e., community centers, playgrounds	Average $25,000	Ongoing	Aleesha Towns-Bain atowns-bain@rasmuson.org 907.297.2875 www.rasmuson.org/index.php?switch=viewpage&pageid=32
Strategic projects - Tier 2	Grant	Nonprofit organizations	Contact staff	Strategic projects & the expansion or start-up of innovative programs by established organizations.	Average $25,000	Ongoing	Same as above www.rasmuson.org/index.php?switch=viewpage&pageid=33
Alaska Community Foundation:							
Pebble Fund & other grant programs	Grant	Nonprofit organizations, municipal government & tribal communities	Contact staff	Donor fund grant requirements including renewable resources/fish, energy, education & community & economic development	Contact staff	Contact Staff	Iris Matthews imatthews@alaskacf.org 907.274.6707 www.alaskacf.org/GrantOpportunities/TypesofGrants/tabid/177/Default.aspx
Conoco:							
Community Giving	Grant, technical assistance or in-kind services	Contact staff	Contact staff	Various - contact staff	Contact staff	Apply between June 1 - August 1	www.conocophillips.com/EN/susdev/communities/pages/contributions.aspx
BP:							
Community Giving	Grant, technical assistance or in-kind services	Contact staff	Contact staff	Various - contact staff	Contact staff	Contact Staff	ancextaff@BP.com 907.564.5640 www.bp.com/sectiongenericarticle.do?categoryId=9030185&contentId=7055672
University of Alaska:							
Office of University Partnerships	Technical assistance / partnerships	Contact staff	Contact staff	Various - contact staff	Contact staff	Contact Staff	Andrew Parkerson-Gray fyosp@uaf.edu 907.474.6000

APPENDIX K

COST ESTIMATE

Cost Estimate for Old Dump Site Closure, Noatak, Alaska

	Clerical	Drafting	Environmental Scientist	Project Manager	Project Director	Total		Comments / Backup
1. Consultant Direct Labor	$55.00	$80.00	$85.00	$100.00	$130.00	Hours	Cost	
Task 1 - Detailed Closure Plan and Cost Estimate for DEC	6	24	40	16	4	90	$7,770.00	Prepare DEC closure plan and cost estimate.
Task 2a - DEC Required Litter Collection							$0.00	Assumes this task will be done using staff in Noatak. No consultant oversight.
Task 2b - DEC Required Landfill Cover and Grading			48	4	2	54	$4,740.00	Assumes fourteen12-hour days to cover and grade the landfill with at least 24 inches of gravel. Volume required is estimated at 250 cubic yards with 20 cubic yards being moved per day by two dump trucks. One contingency day added. Consultant will be onsite for last 3 days of task to verify conditions and assist with closure reporting and documentation.
Task 2c - DEC Required Landfill Seeding, Fertilizing and Marking			12	4	2	18	$1,680.00	Assumes one12-hour day to seed and fertilize the landfill and to place required markers. Consultant will be onsite to verify conditions in order to
Task 3 - Landfill Closure Reporting	12	24	72	24	8	140	$12,140.00	Report of excavation and closure activities.
Task 4 - Year 1 Annual Inspection	2	2	12	4	4	24	$2,210.00	Assumes local hire will perform above ground site evaluation to identify concerns of erosion, ponded water, exposed waste, or depressions. A consultant will prepare a letter report summarizing the findings.
Task 5 - Year 2 Annual Inspection	2	2	12	4	4	24	$2,210.00	Assumes local hire will perform above ground site evaluation to identify concerns of erosion, ponded water, exposed waste, or depressions. A consultant will prepare a letter report summarizing the findings.
Task 6 - Year 3 Annual Inspection	2	2	12	4	4	24	$2,210.00	Assumes local hire will perform above ground site evaluation to identify concerns of erosion, ponded water, exposed waste, or depressions. A consultant will prepare a letter report summarizing the findings.
Task 7 - Year 4 Annual Inspection	2	2	12	4	4	24	$2,210.00	Assumes local hire will perform above ground site evaluation to identify concerns of erosion, ponded water, exposed waste, or depressions. A consultant will prepare a letter report summarizing the findings.
Task 8 - Year 5 Annual Inspection	2	2	12	4	4	24	$2,210.00	Assumes local hire will perform above ground site evaluation to identify concerns of erosion, ponded water, exposed waste, or depressions. A consultant will prepare a letter report summarizing the findings.
Task 9 - DEC Request for Retired Facility	12	24	72	24	8	140	$12,140.00	Final DEC report to request facility retirement.
Total Hours	40	82	304	92	44	562		
Labor Cost	$2,200	$6,560	$25,840	$9,200	$5,720	**Labor Cost Total**	**$49,520**	

Cost Estimate for Old Dump Site Closure, Noatak, Alaska

Task 1 - Detailed Closure Plan and Cost Estimate for DEC	No. of Units	Unit	Cost Per Unit	Subtotal	Comments
Reproduction	1	estimate	$500	$500	

Subtotal Task 1 (ODC)	**$500**
Subtotal Task 1 (Labor)	**$7,770**
Task 1 - Total Costs	**$8,270**

Task 2a - DEC Required Litter Collection	No. of Units	Unit	Cost Per Unit	Subtotal	Comments
Laborer #1	12	hour	$47	$567	Assume one day for litter collection. Davis Bacon wage rates for Group I Operator and Group I Laborer. Rate includes Fringe Costs.
Meals	1	man-day	$60	$60	Estimated daily cost for food and meals for one person.
Digital Camera	1	days	$15	$15	
PPE	1	days	$20	$20	Estimated costs of Level D PPE for one person.

Subtotal Task 2A (ODC)	**$662**
Subtotal Task 2A (Labor)	**$0**
Task 2A - Total Costs	**$662**

Task 2b - DEC Required Landfill Cover and Grading	No. of Units	Unit	Cost Per Unit	Subtotal	Comments
Excavator	180	hours	$0	$0	Estimated no charge. Equipment owned by IRA.
Loader	180	hours	$0	$0	Estimated no charge. Equipment owned by IRA.
Dump Truck	180	hours	$0	$0	Estimated no charge. Equipment owned by IRA.
Dump Truck	180	hours	$0	$0	Estimated no charge. Equipment owned by IRA.
Bulldozer	180	hours	$0	$0	Estimated no charge. Equipment owned by IRA.
Equipment Fuel	2700	gallons	$10	$27,000	Assumes 3 gallons per hour of equipment use. Estimated cost per unit.
Equipment Operator #1	180	hour	$53	$9,590	Assume fourteen days for covering and grading landfill. Davis Bacon wage rates for Group I Operator and Group I Laborer. Rate includes Fringe Costs and one contingency day.
Equipment Operator #2	180	hour	$53	$9,590	Assume fourteen days for covering and grading landfill. Davis Bacon wage rates for Group I Operator and Group I Laborer. Rate includes Fringe Costs and one contingency day.
Equipment Operator #3	180	hour	$53	$9,590	Assume fourteen days for covering and grading landfill. Davis Bacon wage rates for Group I Operator and Group I Laborer. Rate includes Fringe Costs and one contingency day.
Equipment Operator #4	180	hour	$53	$9,590	Assume fourteen days for covering and grading landfill. Davis Bacon wage rates for Group I Operator and Group I Laborer. Rate includes Fringe Costs and one contingency day.
Equipment Operator #5	180	hour	$53	$9,590	Assume fourteen days for covering and grading landfill. Davis Bacon wage rates for Group I Operator and Group I Laborer. Rate includes Fringe Costs and one contingency day.
Laborer #1	180	hour	$47	$8,498	Assume fourteen days for covering and grading landfill. Davis Bacon wage rates for Group I Operator and Group I Laborer. Rate includes Fringe Costs and one contingency day.
Laborer #2	180	hour	$47	$8,498	Assume fourteen days for covering and grading landfill. Davis Bacon wage rates for Group I Operator and Group I Laborer. Rate includes Fringe Costs and one contingency day.
Laborer #3	180	hour	$47	$8,498	Assume fourteen days for covering and grading landfill. Davis Bacon wage rates for Group I Operator and Group I Laborer. Rate includes Fringe Costs and one contingency day.
Laborer #4	180	hour	$47	$8,498	Assume fourteen days for covering and grading landfill. Davis Bacon wage rates for Group I Operator and Group I Laborer. Rate includes Fringe Costs and one contingency day.
Laborer #5	180	hour	$47	$8,498	Assume fourteen days for covering and grading landfill. Davis Bacon wage rates for Group I Operator and Group I Laborer. Rate includes Fringe Costs and one contingency day.
Gravel Material	250	cubic yards	$0	$0	Estimated no charge. Gravel owned by NANA.
Meals	15	days	$720	$10,800	Estimated daily cost for food and meals for twelve people.
PPE	15	days	$240	$3,600	Estimated costs of Level D PPE for twelve people.
Digital Camera	15	days	$10	$150	
Lodging	3	man-day	$60	$180	Estimated daily cost for one person.
Consultant RT Airfare, Anchorage to Noatak	1	each	$890	$890	Alaska Airlines from Anchorage to Kotzebue, Hageland Aviation from Kotzebue to Noatak

Subtotal Task 2B (ODC)	**$133,061**
Subtotal Task 2B (Labor)	**$4,740**
Task 2B - Total Costs	**$137,801**

Cost Estimate for Old Dump Site Closure, Noatak, Alaska

Task 2c - DEC Required Landfill Seeding, Fertilizing and Marking	No. of Units	Unit	Cost Per Unit	Subtotal	Comments
Laborer #1	12	hour	$47	$567	Assume one day to seed and fertilize the landfill. Davis Bacon wage rates for Group I Operator and Group I Laborer. Rate includes Fringe Costs.
Laborer #2	12	hour	$47	$567	Assume one day to seed and fertilize the landfill. Davis Bacon wage rates for Group I Operator and Group I Laborer. Rate includes Fringe Costs.
Seed	4	pound	$21.50	$86	Western Alaska region grass mixture at 40 pounds per acre. Estimated area is 0.1 acre. Estimate from Alaska Mill & Feed.
Fertilizer	2	40 lb bag	$24.95	$50	8-32-16 Nitrogen-Phosphorus-Potassium at 20 pounds per 1,000 square feet. Estimated area is 3,375 square feet. Estimate from Alaska Mill & Feed.
Backhaul of Seed and Fertilizer	44	pound	$0.25	$11	Estimated backhaul rate.
Lodging	1	man-day	$60	$60	Estimated daily cost for one person.
Meals	1	man-day	$180	$180	Estimated daily cost for food and meals for three people.
Digital Camera	1	days	$15	$15	
PPE	1	days	$60	$60	Estimated costs of Level D PPE for three people.

Subtotal Task 2C (ODC)	**$1,595**
Subtotal Task 2C (Labor)	**$1,680**
Task 2C - Total Costs	**$3,275**

Task 3 - Landfill Closure Reporting	No. of Units	Unit	Cost Per Unit	Subtotal	Comments
Reproduction	1	estimate	$500	$500	

Subtotal Task3 (ODC)	**$500**
Subtotal Task 3 (Labor)	**$12,140**
Task 3 - Total Costs	**$12,640**

Task 4 - Year 1 Annual Inspection	No. of Units	Unit	Cost Per Unit	Subtotal	Comments
Laborer #1	12	hour	$47	$567	Assume one day to inspect the landfill and transmit documentation to consultant. Davis Bacon wage rates for Group I Operator and Group I Laborer. Rate
Reproduction	1	estimate	$250	$250	
Per Diem	1	estimate	$60	$60	Estimated daily cost for food and meals for twelve people.
Digital Camera	1	days	$15	$15	

Subtotal Task 4 (ODC)	**$325**
Subtotal Task 4 (Labor)	**$2,210**
Task 4 - Total Costs	**$2,535**

Task 5 - Year 2 Annual Inspection	No. of Units	Unit	Cost Per Unit	Subtotal	Comments
Laborer #1	12	hour	$47	$567	Assume one day to inspect the landfill and transmit documentation to consultant. Davis Bacon wage rates for Group I Operator and Group I Laborer. Rate
Reproduction	1	estimate	$250	$250	
Per Diem	1	estimate	$60	$60	Estimated daily cost for food for one person.
Digital Camera	1	days	$15	$15	

Subtotal Task 5 (ODC)	**$325**
Subtotal Task 5 (Labor)	**$2,210**
Task 5- Total Costs	**$2,535**

Cost Estimate for Old Dump Site Closure, Noatak, Alaska

Task 6 - Year 3 Annual Inspection	No. of Units	Unit	Cost Per Unit	Subtotal	Comments
Laborer #1	12	hour	$47	$567	Assume one day to inspect the landfill and transmit documentation to consultant. Davis Bacon wage rates for Group I Operator and Group I Laborer. Rate
Reproduction	1	estimate	$250	$250	
Per Diem	1	estimate	$60	$60	Estimated daily cost for food for one person.
Digital Camera	1	days	$15	$15	

Subtotal Task 6 (ODC)	**$325**
Subtotal Task 6 (Labor)	**$2,210**
Task 6 - Total Costs	**$2,535**

Task 7 - Year 4 Annual Inspection	No. of Units	Unit	Cost Per Unit	Subtotal	Comments
Laborer #1	12	hour	$47	$567	Assume one day to inspect the landfill and transmit documentation to consultant. Davis Bacon wage rates for Group I Operator and Group I Laborer. Rate
Reproduction	1	estimate	$250	$250	
Per Diem	1	estimate	$60	$60	Estimated daily cost for food for one person.
Digital Camera	1	days	$15	$15	

Subtotal Task 7 (ODC)	**$325**
Subtotal Task 7 (Labor)	**$2,210**
Task 7 - Total Costs	**$2,535**

Task 8 - Year 5 Annual Inspection	No. of Units	Unit	Cost Per Unit	Subtotal	Comments
Laborer #1	12	hour	$47	$567	Assume one day to inspect the landfill and transmit documentation to consultant. Davis Bacon wage rates for Group I Operator and Group I Laborer. Rate
Reproduction	1	estimate	$250	$250	
Per Diem	1	estimate	$60	$60	Estimated daily cost for food for one person.
Digital Camera	1	days	$15	$15	

Subtotal Task 8 (ODC)	**$325**
Subtotal Task 8 (Labor)	**$2,210**
Task 8 - Total Costs	**$2,535**

Task 9 - DEC Request for Retired Facility	No. of Units	Unit	Cost Per Unit	Subtotal	Comments
Reproduction	1	estimate	$500	$500	

Subtotal Task 9 (ODC)	**$500**
Subtotal Task 9 (Labor)	**$12,140**
Task 9 - Total Costs	**$12,640**

Total, Labor	**$49,520**
Total, Other Direct Costs	**$138,442**
10% Contingency	**$18,796**
TOTAL PROJECT COST (Noatak Remediation)	***$206,759***