Alaska Department of Environmental Conservation



Reuse & Redevelopment Initiative

Brownfield Assessment



PROPERTY ASSESSMENT AND CLEANUP PLAN

Old City Tank Farm and Power Plant Akiak, Alaska





By: SLR International Corp April 2010

PROPERTY ASSESSMENT AND CLEANUP PLAN OLD CITY TANK FARM AND POWER PLANT AKIAK, ALASKA

Prepared for

Alaska Department of Environmental Conservation Contaminated Sites Program Division of Spill Prevention and Response 610 University Avenue Fairbanks, AK 99709-3643

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ACRONYMS

AAC Alaska Administrative Code
ANC Akiak Native Community
AST aboveground storage tank

ATV all terrain vehicle

AVEC Alaska Village Electric Cooperative

bgs below ground surface

BTEX benzene, toluene, ethylbenzene, and xylenes

CSM conceptual site model

cy cubic yards

DBA DEC Brownfield Assessment

DCCED Alaska Department of Commerce, Community and Economic Development

DEC Alaska Department of Environmental Conservation

DRO diesel range organics

E&E Ecology and Environment, Inc.

EPA U.S. Environmental Protection Agency

ESA environmental site assessment

ETM exposure tracking model GRO gasoline range organics

HAZWOPER hazardous waste operations and emergency response

HUD Housing and Urban Development

mg/kg milligrams per kilogram mg/L milligrams per liter

MKC Middle Kuskokwim Consortium NAD83 North American Datum of 1983

PAPC Property Assessment and Cleanup Plan PAH polynuclear aromatic hydrocarbon

PCB polychlorinated biphenyls PID photoionization detector

ppm parts per million

RCRA Resource Conservation and Recovery Act

RRO residual range organics
SLR SLR International Corp
VOC volatile organic compound

ACRONYMS (CONTINUED)

WRCC Western Regional Climate Center

EXECUTIVE SUMMARY

SLR International Corp is pleased to submit this Property Assessment and Cleanup Plan (PACP) to the Alaska Department of Environmental Conservation (DEC) for the Old City Tank Farm and Power Plant site (the Site) in Akiak, Alaska. The Site is located approximately 1,000 feet west of the Kuskokwim River in the City of Akiak in Section 32, Township 10 North, Range 67 West of the Seward Meridian.

The objective of this PACP is to provide information aimed at advancing the property through the Brownfield process to beneficially reuse the Site. The Site, owned by the City of Akiak, is the location of the Old City Tank Farm and Power Plant. The Site has not been used since the new power plant and tank farm were built.

Interested parties in this PACP include the Akiak Native Community, City of Akiak, Middle Kuskokwim Consortium, and DEC. The reuse of the Site has been determined as a "zero development" (i.e., green space) because of the Site's proximity to residential areas.

In order to reuse the Site, it is recommended that all solid waste be removed from the Site. In addition, further characterization of the soil and ground water at the Site is recommended to determine the extent of impact and future remedial actions for the property. A cost estimate for guiding future funding requests was prepared for the preferred environmental actions based on local equipment and labor available in Akiak.

1. INTRODUCTION

In the spring of 2009, the Native Village of Akiak submitted a Brownfield Assessment (DBA) request to the Alaska Department of Environmental Conservation (DEC) to address contamination concerns at the Old City Tank Farm and Power Plant site (the Site). The DBA request form is included as Appendix A. The Site is located approximately 1,000 feet west of the Kuskokwim River in the City of Akiak, Alaska in Section 32, Township 10 North, Range 67 West of the Seward Meridian. The property is owned by the City of Akiak.

This Property Assessment and Cleanup Plan (PACP) has been prepared by SLR International Corp (SLR) on behalf of DEC in response to the DBA request to recommend property assessment and cleanup actions with general cost estimates to enable sufficient and productive reuse of the property (as appropriate).

Funding for this work was provided by the U.S. Environmental Protection Agency (EPA) through DEC using a grant from the State Tribal Response Program. Funding sources for the cleanup of the Site that may be available for the community to apply for include the following:

- The EPA Brownfield competitive cleanup process in 2010;
- The Community Development Block Grant (CDBG); and
- Other grants available from the federal government.

1.1 PURPOSE OF PROJECT

The purpose of this PACP is to provide background, regulatory, and remedial option information appropriate for advancing the Site through the Brownfield process to help the state and community redevelop and reuse the property.

1.2 SCOPE OF SERVICES SUMMARY

SLR completed the tasks outlined below to develop this PACP.

1.2.1 TASK 1 – STAKEHOLDER SCOPING AND PLANNING MEETING

In September 2009, SLR participated in a stakeholder and planning teleconference with stakeholders in the project. Attendees included representatives from The Akiak Native Community (ANC), City of Akiak, the Middle Kuskokwim Consortium (MKC), Yupi'it School District, the EPA, DEC, and SLR. The purpose of the meeting was to define the project objectives and also identify the path through the Brownfield process to reuse the Site. SLR

prepared a summary record of the meeting and provided it to the stakeholders and DEC. A copy of this summary for the scoping meeting is included as Appendix B.

1.2.2 TASK 2 - PACP PREPARATION

The PACP, which was developed following SLR's site visit, is based on a review of information gathered from the stakeholder meeting, DEC site files, previous investigations conducted at the Site, communication with individuals familiar with the community and the Site, and observations made during the SLR's site visits in September and October 2009. This plan includes a comprehensive summary of the existing site conditions and recommendations for property assessment and corrective actions to supply interested stakeholders with a guideline document suitable for progressing the Site through the remediation process.

1.3 OBJECTIVES

The objective of this PACP is to provide the following:

- Historical summary for the Old Alaska Village Electric Cooperative (AVEC) Tank Farm, including historical land use, environmental incidents, and assessment/response activities to date:
- Description of the proposed reuse of the property;
- A qualitative assessment of risk to human receptors from potential contamination at the Site;
- 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 community reuse objectives; and
- A summary of practical remediation options for the Site including cost estimates.

2. COMMUNITY OVERVIEW AND INFORMATION

This section provides information about the community of Akiak, including pertinent information about the stakeholders involved, and summarizes the level of community involvement for the property.

2.1 COMMUNITY GENERAL INFORMATION

2.1.1 LOCATION AND CLIMATE

Akiak is located on the west bank of the Kuskokwim River, 42 air miles northeast of Bethel, Alaska on the Yukon-Kuskokwim Delta. The community lies at approximately 60 degrees, 53 minutes, 31.9 seconds north latitude and 161 degrees, 12 minutes, 90 seconds west longitude relative to the North American Datum of 1983 (NAD83) (Section 32, Township 10 North, Range 67 West of the Seward Meridian). Akiak encompasses 2 square miles of land and 1.1 square miles of water (DCCED, 2009).

The population of Akiak consists of 95.1 percent Alaska Native or part Native. Akiak is a Yup'ik Eskimo village that relies on subsistence hunting and fishing activities. The City of Akiak was incorporated in 1970 (DCCED, 2009).

Akiak has a subarctic climate with maritime influences. The nearest weather station is located at the Bethel Airport, where the average annual precipitation is 17.28 inches and the average annual snowfall is 55.3 inches (WRCC, 2009).

2.1.2 COMMUNITY RESOURCES AND INFRASTRUCTURE

The community of Akiak is comprised of approximately 309 persons and relies heavily on subsistence hunting and fishing activities (DCCED, 2009).

Individual wells, septic systems, and plumbing were installed in 14 Housing and Urban Development (HUD) homes during 1997. The school and health clinic are connected directly to the water plant. Interviews with individuals familiar with Akiak indicated that only 2 of the 14 wells are still used. A piped water and gravity sewer system is under construction with household plumbing. Houses without piped water and sewer currently dispose of sewage by septic tanks, honey buckets, or privies (DCCED, 2009).

Two wells were drilled in the vicinity of the Water Treatment Plant in Akiak; Well No. 3 in 2001 and Well No. 5 in 2002. The wells were drilled to total depths of 170 feet bgs and 211 feet bgs, respectively. Screens were installed from 145.1 feet to 155.52 feet bgs in Well No. 3 and from

169.65 feet to 174.65 feet bgs and 194.65 feet to 199.65 feet bgs in Well No. 5. Based on the drilling logs, the lithology in this area consists of peat to approximately 3 feet bgs underlain by silty sand, which may be frozen depending on the time of year, to at least 140 feet bgs. Below 140 feet bgs, silty sand, gravel, and clay layers are present. Wet and heaving sand was observed in Well No. 3 at 59 feet bgs. Wet silty sand was not observed until 83 feet bgs in Well No. 5. Water-bearing sands were first encountered at 140 feet bgs in Well No. 3 and 170 feet bgs in Well No. 5. The static water levels in the wells 3 and 5 were measured at 16.5 feet and 22.3 feet bgs, respectively.

Akiak has an airport with a gravel runway in good condition; the strip provides chartered or private air access year-round. Snow machines, all terrain vehicles (ATVs), and skiffs are used extensively for local transportation to nearby villages. There are no docking facilities (DCCED, 2009). Future construction plans include road improvements, weatherization, foundation repairs, and connecting nine homes to water and sewer service.

2.2 COMMUNITY INVOLVEMENT

The following entities are considered stakeholders for the Old City Tank Farm and Power Plant Site.

Akiak Native Community (ANC) – ANC is a federally recognized tribe governed by a traditional council.

The City of Akiak – The City of Akiak is the owner of the Site.

Middle Kuskokwim Consortium (MKC) – MKC is a current State and Tribal Response Program grantee and submitted the DBA application to DEC for the Site.

Alaska Department of Environmental Conservation (DEC) – DEC's Reuse and Redevelopment Program targets specific assessment and cleanup projects on behalf of state agencies. In addition to work being conducted on state-owned properties, DEC also receives a grant from the EPA (State and Tribal Response Program) for assessment work that can be conducted on non-state owned land. Because of those limited EPA funds, the DBA request forms are used for those requests from the community to prioritize the projects that will be selected.

2.2.1 COMMUNITY CONCERNS

Community concerns identified in the 2009 DBA application and discussed during the 2009 SLR site visit included:

- The Site contains hazardous materials (oil, glycol, lead acid batteries, transformers), and any spill would allow contaminants to seep into the ground water. The water plant, which provides drinking water for the village, is down river from the Site; and
- During annual flooding in the spring, a strong odor of heating oil is observed near the Old Tank Farm.

2.2.2 STAKEHOLDER MEETING SUMMARY

In September 2009, a stakeholder and planning teleconference was held and included attendees from the ANC, the City of Akiak, Kokarmiut Corporation, Yupi'it School District, the EPA, 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; describe SLR's planned Site visit and schedule; and describe the Brownfield process to make the Site suitable for beneficial reuse. SLR prepared a summary record of the meeting and provided it to the stakeholders and DEC. A copy of this summary is included as Appendix B.

2.2.3 PROPOSED COMMUNITY DEVELOPMENT AND LAND USE

The proposed use for the property is as a "zero development" (i.e., green space) because of the Site's proximity to the residential areas.

2.2.4 INTERVIEWS AND COMMUNITY INPUT

Interviews were conducted during and after the site visit with individuals knowledgeable about current and historic conditions of the property and other information necessary to prepare the PACP. Interviews were conducted with Sam Jasper, Sheila Williams, and Adam Kashatok. These interviews are summarized below to provide the pertinent information gathered.

Sam Jasper – Sam Jasper has lived in Akiak his entire life (62 years) and was the Power Plant Operator for 20 years from October 1988 to October 2008. Mr. Jasper described petroleum sources at the Site as:

- Two aboveground storage tanks (ASTs) one with a capacity of 20,000 gallons and one with a capacity of 22,000 gallons;
- One approximately 700-gallon day tank, which was located inside the generator building (and since has been relocated); and,
- Used motor oil.

Mr. Jasper indicated that the ASTs were filled every fall, and on one occasion in the early 1990s, one of the tanks was overfilled by about one gallon. Also in the early 1990s, a leak was discovered in a ¾-inch pipe connecting the two ASTs to the generator day tank. The leak was located approximately half way between the ASTs and the day tank. Mr. Jasper and his coworker removed what contamination they could and backfilled the resulting hole with gravel; Mr. Jasper believes that some contamination remains at this location.

Prior to Mr. Jasper's employment as Power Plant Operator, used motor oil was collected in 55-gallon drums. Mr. Jasper indicated the location of these drums is the only other potentially contaminated area that he was aware of. He estimated a total of 20 to 25 drums were stored in two locations (15 behind the generator, and 10 between the generator and the power plant). The majority of the drums contained used motor oil, but Mr. Jasper suspects a few might have also contained anti-freeze. In 1998, Mr. Jasper hired individuals to burn the used oil that had been

accumulated. After the ash burner exploded (unrelated to used oil burning), Mr. Jasper began collecting used oil in 5-gallon buckets and has not used the ash burner since. He indicated that he has seen some members of the community pick up used oil from the building for personal use (heating dog food or chain saw oil).

Mr. Jasper was not aware if transformers at the Site contained polychlorinated biphenyls (PCB) or if lead-based paint was ever used at the Site. Mr. Jasper stated that the generator located in the trees across the road from the generator building had been drained of oil prior to removal from the building. Mr. Jasper also indicated that the small AST observed during the October site visit belonged to the corporation and was used to deliver heating oil to the community.

Sheila Williams – Sheila Williams, the Tribal Administrator for ANC, has lived in Akiak her entire life, and is familiar with the Old City Tank Farm and Power Plant site. Ms. Williams stated that planned future use of the Site is green space. Ms. Williams was not aware of any use for any of the tanks at the Site, or of any spills at the Site, but she did indicate a strong heating oil odor smell is present during the spring thaw. Ms. Williams stated that the only heavy equipment in Akiak is an excavator and a small backhoe. Ms. Williams commented that they are currently planning a 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) training course for up to 10 people in the near future.

Ms. Williams said that future work in Akiak includes: work to improve the roads within the community, weatherization projects, foundation repairs, and nine more homes will be connected to water and sewer services.

Adam Kashatok – Adam Kashatok, City of Akiak Administrator, has worked for the City of Akiak since 2004 and has been familiar with the Site since 1980. Mr. Kashatok indicated that the City of Akiak owns the Site. According to Mr. Kashatok, the Site is not currently used and was previously used for the community's generator system and associated tank farm. He was unsure when use of the Site was discontinued. Mr. Kashatok was not sure about the future use of the Site and indicated that some individuals may be interested in some of the items at the Site. He is not aware of any spills.

3. PROPERTY/SITE OVERVIEW

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

3.1 OVERVIEW OF SITE PROPERTY

The Site is located at 60 degrees, 53 minutes, 31.9 seconds north latitude and 161 degrees, 12 minutes, 90 seconds west longitude relative to NAD83. The Site is located in the northern portion of Akiak, approximately 1,000 feet west of the Kuskokwim River (Figures 1 and 2). The Site is currently divided by a road, with the former tank farm and power plant on opposite sides (Figure 3). Akiak residents must traverse this road in order to reach the fuel-dispensing island associated with the new tank farm. An underground pipeline running from the old tank farm to the former power plant was used during operation; thus, the area of the Site, as described in this assessment, encompasses both facilities and the road between them (approximately 45,000 square feet).

Two field screening samples were collected from the subsurface soil interval in 2000 as part of a site reconnaissance effort to assess tank farms in the City of Akiak. Field screening samples were analyzed for by the heated headspace method using a photoionization detector (PID). Field screening results ranged from 5.8 parts per million (ppm) to 24.4 ppm. One analytical sample was also collected from this interval and analyzed for gasoline range organics (GRO); diesel range organics (DRO); and benzene, toluene, ethylbenzene, and xylenes (BTEX). GRO, toluene, ethylbenzene, and xylenes were detected at concentrations below DEC Method Two soil cleanup levels; GRO was detected at 5.2 milligrams per kilogram (mg/kg) and toluene, ethylbenzene, and xylene concentrations ranged from 0.089 mg/kg to 0.17 mg/kg. Benzene was not detected. DRO was also detected at 5,700 mg/kg, above the DEC Method Two soil cleanup level of 250 mg/kg (E&E, 2000).

The former power plant building, which remains on the Site, is approximately 25 feet by 30 feet in size and was built in the late 1970s. The building was impacted by flooding in the spring of 2009 with the high water mark approximately 2 feet above the floor of the building, which is elevated on pilings. The floor of the building was heavily stained and approximately 70 5-gallon plastic pails containing waste oil, lead-acid batteries, generators, and transformers are stored in the building.

3.2 GEOLOGIC SETTING

Akiak is located in the Yukon-Kuskokwim Delta area which is comprised largely of Quaternary alluvial deposits that have been built up through the slow accumulation of sand and silt deposited by the Yukon and Kuskokwim rivers. Most of the region is flat with a few feet of elevation marking the boundaries of major drainages and much of the surface is covered with water.

Two wells were drilled in the vicinity of the water treatment plant in Akiak – Well No. 3 in 2001 and Well No. 5 in 2002. The wells were drilled to total depths of 170 feet below ground surface (bgs) at Well No. 3 and 211 feet bgs at Well No. 5. Screens were installed from 145.1 feet to 155.52 feet bgs in Well No. 3, and from 169.65 feet to 174.65 feet bgs and 194.65 to 199.65 feet bgs in Well No. 5. Based on the drilling logs, the lithology in this area consists of peat to approximately 3 feet bgs underlain by silty sand, which may be frozen depending on the time of year, to at least 140 feet bgs. Below 140 feet bgs, silty sand, gravel, and clay layers are present. Wet and heaving sand was observed in Well No. 3 at 59 feet bgs. Wet, silty sand was not observed until 83 feet bgs in Well No. 5. Water-bearing sands were first encountered at 140 feet bgs in Well No. 3 and 170 feet bgs in Well No. 5. The static water levels in the wells were measured at 16.5 feet and 22.3 feet bgs, respectively, which were measured by the driller's logs.

3.3 PROPERTY USE

3.3.1 HISTORICAL USE

Before the power plant was built, the Site was undeveloped and used for subsistence high bush cranberry picking in the fall (Appendix A).

3.3.2 CURRENT USE

The Site has been unused since the new tank farm and power plant were built around 2000. ASTs, the old power plant building and contents, a generator, and miscellaneous equipment remain on the Site. Access to the Site is unrestricted, and members of the community must travel between the Old City Tank Farm and Old City Power Plant to access the fuel-dispensing pump associated with the new tank farm.

3.4 OWNERSHIP INFORMATION

The site is owned by the City of Akiak.

3.5 RECORDS REVIEW

Records reviewed to prepare this PACP included the DBA application (Appendix A), a preliminary site assessment report by DEC (1999), and the Akiak AST Farm Site Reconnaissance report by Ecology & Environment (E&E, 2000).

The records review also included files from DEC's Drinking Water Program (DEC, 2009). As a Class C public water system in Alaska, the city water system source consists of ground water collected from one or more wells in Akiak. The drinking water in Akiak is sampled regularly in accordance with the requirements of DEC's Division of Environmental Health's Drinking Water Program. The Drinking Water Program maintains records of drinking water sample analysis results. Volatile organic compound (VOC) sampling has been conducted annually for the City of Akiak. The most recent VOC analytical results for Akiak met DEC cleanup levels and are provided in Appendix E.

4. SITE RECONNAISSANCE

On September 28 and October 30, 2009 an SLR representative assessed the current condition of the Old City Tank Farm and Power Plant site. In addition, the SLR representative conducted interviews with individuals familiar with the property (during and after the site visit) and evaluated potential remedial strategies. Interviews conducted during the site visit are presented in Section 2.2.4 of this document. Evaluation of the property's current condition is discussed below. Photographic and written documentation of the Site are included in Appendices C and D, respectively. Additional information regarding the Site can be found in the Phase I Environmental Site Assessment (ESA) by SLR included as Appendix H.

4.1 METHODOLOGY

To assess the conditions of the Site, SLR traversed the property in search of surface staining or other visual signs of contamination. SLR also noted the presence and condition of potential environmental liabilities, including waste material and derelict equipment located on the Site.

4.2 OBSERVATIONS

SLR visited the Site on September 28 and October 30, 2009.

Flooding of the Kuskokwim River in spring 2009 toppled the two vertical ASTs. The ASTs were outside of their containment and appeared to be empty at the time the Site was visited by SLR. No stained soil or pooled liquids indicating a recent release were observed, although historical petroleum contamination has been documented at the Site in previous reports and was described in interviews.

4.3 SITE SAMPLING

Due to limited funding, no sampling was conducted as part of this project.

5. ENVIRONMENTAL REVIEW AND SUMMARY OF FINDINGS

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

5.1 HISTORICAL ENVIRONMENTAL REVIEW

A documented release of approximately 250 gallons of diesel fuel at the Old City Tank Farm was reported on July 10, 1999 (DEC Spill Number 99279919101). Four 55-gallon drums of diesel fuel were recovered from within the diked area. However during the response, the liner was accidentally torn and an unknown amount of diesel fuel escaped into the surrounding soil (DEC, 1999).

During the October 1999 site visit, contamination was observed at the spill site (described above) and a petroleum hydrocarbon-like odor was noted in the gravel. Twenty 55-gallon covered drums containing waste oil were observed behind the green generator house on a thick, black liner. Pools of thick, black oil were observed on the liner and staining was noted on soils near the drums and beneath the generator house (DEC, 1999).

In September 2000, E&E conducted an assessment of the Old City Tank Farm and Power Plant that included the collection of soil samples. At the time of the assessment, the tank farm was not in use. Seven field screening samples were collected for heated headspace analysis using a PID. Field screening results ranged from 3.6 ppm to 28.5 ppm. One analytical sample was also collected from 3.5 feet bgs from an area exhibiting an elevated PID result and analyzed for GRO; DRO; and BTEX. GRO, toluene, ethylbenzene, and xylenes were detected at concentrations below DEC Method Two soil cleanup levels; GRO was detected at 5.2 mg/kg and toluene, ethylbenzene, and xylene concentrations ranged from 0.089 mg/kg to 0.17 mg/kg. Benzene was not detected. DRO was detected at 5,700 mg/kg, which is above the DEC Method Two soil cleanup level of 250 mg/kg (E&E, 2000).

5.1.1 POTENTIAL SOURCE AREAS

Obvious potential source areas at the Site include:

- The ground beneath and around the ASTs and the fuel pipeline described by Sam Jasper (see Section 2.2.4);
- The west side of the power plant building in the area of a former used-oil storage area where stressed vegetation was observed during SLR's site visit in 2009; and

• The area beneath and surrounding hazardous materials (consisting of old mechanical devices and other debris, approximately 70 5-gallon waste oil containers, lead-acid batteries, generators, and transformers) present at the Site. Several potentially hazardous materials were located outside of the building including a transformer, an old generator, drums, and other miscellaneous items. These items are show in the photograph log (photographs 1 through 4), which is included as Appendix C. The location of the transformer and old generator are also depicted on Figure 3.

5.2 KNOWN OR PERCEIVED DATA GAPS

Two major data gaps have been identified at the Site:

- The extent of soil impacted by previous activity at the Site has not been adequately characterized. No information on the horizontal or vertical extent of contamination is known. As indicated in an interview with Sam Jasper in Section 2.2.4, he believes that some contamination remains at this location. The volume of this release and the extent of impact in this area are unknown, and the area has not been characterized.
- No information is available to determine whether ground water in the vicinity of the Site is impacted.

5.3 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 property. The CSM is based on the information from a 1999 site visit (DEC, 1999), a 2000 site visit (E&E, 2000), and information gathered during SLR's site visits in 2009. The following describes the potential exposure scenarios for current and future receptors. The CSM is included as Appendix F of this report.

The CSM identified the following potentially complete exposure pathways:

- Direct contact via incidental soil ingestion,
- Dermal absorption of contaminants from soil,
- Ingestion of ground water,
- Inhalation of outdoor air,
- Ingestion of surface water, and
- Ingestion of wild foods.

A discussion of these exposure pathways is described below and the complete CSM is provided in Appendix F.

5.3.1 POTENTIALLY COMPLETE EXPOSURE PATHWAYS

The direct contact exposure pathway via incidental soil ingestion is considered potentially complete because soil contamination exists between 0 and 15 feet bgs and the property, although not currently in use, may be used by human receptors in the future. In addition, members of the community must travel between the Old City Tank Farm and Old City Power Plant to access the fuel-dispensing pump associated with the new tank farm; community members are considered Site Visitors for this CSM, as described in Section F.4.

The dermal absorption of contaminants from soil exposure pathway is considered potentially complete because polynuclear aromatic hydrocarbons (PAHs) and polychlorinated biphenols (PCBs), which can permeate the skin, may be present at the Site based on historical use information. Collection of soil samples for PAH and PCB analysis would allow for a definitive determination of whether this pathway is complete and/or significant.

The ingestion of ground water exposure pathway is considered potentially complete because contaminants have the potential to migrate to ground water and the future use of ground water for drinking water at the Site has not been eliminated by DEC per 18 AAC 75.350. However, the availability of a community drinking water source limits its potential usage. Ground water is used as a drinking water source within the community of Akiak. Two houses reportedly have their own wells (the closest is approximately 800 feet from the Site) and the City of Akiak has up to five wells near the water plant (approximately 1,900 feet from the Site), which supply the community (Figure 2). The most recent volatile organic compound sample collected on September 21, 2009 from the community drinking water supply did not contain any analytes at concentrations above laboratory method reporting limits.

The inhalation of outdoor air exposure pathway is considered potentially complete because of the presence of volatile contaminants (GRO, DRO, toluene, ethylbenzene, and xylenes) in soil between 0 and 15 feet bgs and the potential use of the property by human receptors. Although the Site is not currently used, members of the community must travel between the Old City Tank Farm and Old City Power Plant to access the fuel-dispensing pump associated with the new tank farm.

The ingestion of surface water pathway is considered potentially complete. The Site has the potential to flood, resulting in overland migration of contaminants, and the Kuskokwim River is used for subsistence fishing and recreational activities which may result in incidental ingestion of surface water.

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 Site to potential subsistence hunting and gathering areas. In addition, based on historical usage, PAHs and PCBs, which have the potential to bioaccumulate, may be present at the Site. Collection of soil samples for PAH and PCB analysis would allow for a definitive determination of whether this pathway is complete and/or significant.

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. The incomplete pathways are discussed briefly in this section.

The inhalation of indoor air pathway is not considered complete because buildings in Akiak 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. In addition, the only building within 100 feet of potential sources of contamination is the Old City Power Plant building, which is located on pilings and not occupied.

The dermal exposure to contaminants in ground water and surface water pathway and the inhalation of volatile compounds in household water pathway do not require further evaluation, and are, thus, considered incomplete, because DEC water quality standards are applied as cleanup levels at the Site.

The inhalation of fugitive dust exposure pathway is not considered complete because DEC soil ingestion cleanup levels, which are applied at the Site, are protective of this pathway for all analytes except chromium. Based on historical site use information, chromium is not considered a potential contaminant of concern at the Site.

The direct contact with sediment pathway is not considered complete because DEC soil ingestion cleanup levels are assumed to also be protective of this pathway. In addition, sediment is not considered an exposure media.

5.3.3 CURRENT AND FUTURE RECEPTORS

The Site has been non-operational since the new tank farm and power plant were built around 2000. The Site has remained unused since that time; ASTs, the Old City Power Plant building and contents, a generator, and miscellaneous equipment remain on the Site. Access to the Site is unrestricted and members of the community must travel between the Old City Tank Farm and Old City Power Plant to access the fuel-dispensing pump associated with the new tank farm. The proposed future reuse objective for the Site is green space; the Site was a raspberry patch prior to development. Based on the proposed future reuse objectives for the Site, the following human receptors are considered to be potentially exposed to Site contaminants:

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

In addition, since the final reuse of the Site has not been determined, future residences are also included as potential receptors.

5.4 DEC EXPOSURE TRACKING MODEL

DEC's Contaminated Sites Program developed the exposure tracking model (ETM) to prioritize which sites need the most attention. The ETM is a revision to the Alaska hazard ranking model, historically used to prioritize all contaminated sites. The ETM is a preliminary evaluation of all sites and ranks each site according to possibility of human and ecosystem exposure to the contaminants that are present. Prioritization for a site can change over time.

DEC has provided two ETMs for this PACP; one for the old tank farm portion of the Site, and one for the former power plant portion of the Site. These ETMs and a brief description of them are provided in Appendix G.

5.5 CLEANUP CRITERIA

This section describes the cleanup criteria that currently apply to soil, ground water, and solid waste at the property. However, based on the future use of the property, Site specific cleanup levels may be developed in the future as determined by the risk of exposure.

5.5.1 SOIL CLEANUP LEVELS

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

- Benzene, 0.025 mg/kg (migration to ground water)
- Toluene, 6.5 mg/kg (migration to ground water)
- Ethylbenzene, 6.9 mg/kg (migration to ground water)
- Total xylenes, 63 mg/kg (outdoor inhalation and migration to ground water)
- DRO, 250 mg/kg (migration to ground water)
- Residual range organics (RRO), 10,000 mg/kg (ingestion)
- PCBs, 1 mg/kg (direct contact)
- Polynuclear aromatic hydrocarbon (PAH) compounds at varying concentrations listed in 18 AAC 75
- Resource Conservation and Recovery Act (RCRA) metals at varying concentrations listed in 18 AAC 75

5.5.2 GROUND WATER CLEANUP LEVELS

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

- Benzene, 0.005 milligrams per liter (mg/L)
- Toluene, 1.0 mg/L
- Ethylbenzene, 0.7 mg/L
- Total xylenes, 10 mg/L
- DRO, 1.5 mg/L
- RRO, 1.1 mg/L
- PCBs, 0.0005 mg/L
- PAH compounds at varying concentrations listed in 18 AAC 75, Table C
- RCRA metals at varying concentrations listed in 18 AAC 75, Table C

5.5.3 OTHER REGULATED CLEANUP CRITERIA

All material to be disposed offsite will be inventoried prior to the handling of the waste. Although the presence of PCB-, asbestos-, and lead-containing material has not been confirmed at the Site, if encountered, this material will require special handling in accordance with state and federal regulations.

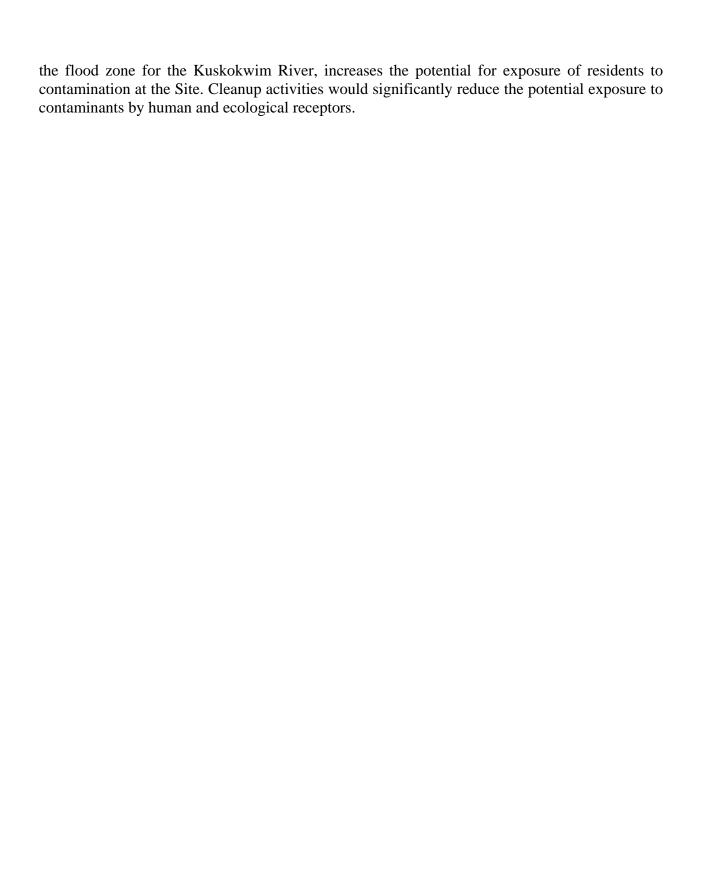
5.5.4 NON-REGULATED CLEANUP CRITERIA

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

5.6 GENERAL ENVIRONMENTAL OVERVIEW

Based on the CSM provided as Appendix F of this PACP, the lack of soil characterization data, and planned land reuse objective (green space), remedial action and additional site characterization is necessary to reduce the risk to human receptors prior to reuse. Potential near-surface and subsurface soil contamination poses a risk to human receptors through incidental soil ingestion, dermal absorption of contaminants from soil, ingestion of ground water, inhalation of outdoor air, ingestion of surface water, and ingestion of wild foods.

Because the Site is currently divided by a road, with the former tank farm and power plant on opposite sides, Akiak residents must traverse this road in order to reach the fuel-dispensing island associated with the new tank farm. This, along with the fact that the Site is located within



6. RECOMMENDED ACTIONS

The following sections summarize the actions recommended to reuse the land at the Site as a green space.

6.1 ENVIRONMENTAL ACTIONS

SLR recommends the following environmental actions to allow the community of Akiak to reuse the land at the Site: 1) solid waste removal, and 2) soil and ground water investigation. At this time, excavation of contaminated soil is not recommended until data gaps discussed in Section 5.2 regarding the extent of contamination at the Site can be addressed. However, general information regarding excavation of contaminated soil and soil management alternatives are provided to aid the community to proceed with Site cleanup. Environmental actions are described in detail below.

In order to maximize efficiency and minimize costs, SLR recommends that all operable equipment and items with beneficial use be reused within the community, if possible, and solid waste be disposed of locally.

6.2 SOLID WASTE REMOVAL

Debris located in and around the Old City Tank Farm and Power Plant property currently precludes the reuse of the Site and may be negatively impacting the surrounding environment. This material includes, but is not limited to, the items described below. It is recommended that debris be removed from the Site and surrounding land. Prior to the removal of any of the debris listed below, it is recommended that the location of debris be marked with swing ties and geographic locations be recorded using a handheld global positioning system receiver to assist in a targeted surface and subsurface soil investigation and contaminated soil excavation. An environmental consultant will be on site to assist with the segregation of solid waste and also to perform the soil and ground water investigation activities described in Section 6.3.

- Two ASTs associated with the former tank farm are located on the Site; the tanks are no longer in use and appear to be empty. It is recommended that these tanks be decommissioned by a qualified contractor, cut up, and either reused, recycled or disposed of in the local landfill.
- Approximately 70 5-gallon buckets were used inside the old power plant building; interviews indicated these buckets contain motor oil. It is recommended that this used oil be combusted in a waste oil burner for energy recovery. The waste oil would require testing to determine if it complies with state and federal regulations for this purpose, for

example to check for the presence of chlorinated hydrocarbons. Once empty, the buckets should be disposed of in the local landfill.

- Three generators are present at the Site (two inside the old power plant building and one outside in the brush) It is recommended that the generators be reused within the community, if possible. If reuse of the generators is not feasible they should be disposed of in accordance with state regulations, which may require offsite shipment if they cannot be disposed of in the local landfill.
- Several transformers were observed at the Site. The oil within the transformers should be sampled and analyzed for PCBs or other hazardous substances. Operational equipment should be reused within the community; non-operational equipment should be disposed of in the local landfill, if it does not contain PCBs or other hazardous substances. Any PCB containing transformers should be disposed of properly.
- Lead-acid batteries were observed at the Site. These require special handling and should be disposed of in accordance with all applicable state and federal regulations.

All activities for the removal of materials off the Site will be conducted according to all applicable state and federal regulations. The best and most cost-effective alternative for removal and disposal of the materials listed above would be either reuse within the community, recycle using a backhaul program if applicable, or disposal at the local landfill.

6.3 SOIL AND GROUND WATER INVESTIGATION

In order to excavate contaminated soil in an efficient manner, it is recommended that a soil investigation be performed prior to excavation to confirm the contaminants of concern present at the site and the extent of contaminated soil. Based on the soil conditions in Akiak and to keep project costs down, it is proposed that this investigation be conducted using a hand auger with extensions capable of advancing to a depth of 15 bgs.

Unless otherwise specified by DEC, it is expected that one or more monitoring wells would be required to assess for contamination in ground water. Two options are proposed to complete the ground water investigation: a hydraulically powered 3-inch auger or a small, portable drill rig. If acceptable to DEC and if refusal was not encountered in during drilling, the hydraulically powered auger would be significantly less expensive than the portable drill rig for installing ground water monitoring wells. However, recent work at two nearby sites in Akiak did not encounter ground water between 0 and 14 feet bgs and the wells would consequently be expected to be completed to a minimum depth of 20 feet bgs. Costs are presented for both ground water investigation options. This work is proposed to occur directly following the solid waste removal when an environmental consultant is already recommended to be on the Site.

The soil investigation should be designed to define the extent of petroleum hydrocarbon-impacted soil and confirm the presence or absence of contaminants that may not be detected using field screening methods (i.e., total petroleum hydrocarbons using PetroFlag[®] and volatile hydrocarbons using the heated headspace method with a PID); these include PCBs, chlorinated solvents, and RCRA metals, which could be present at the Site based on historical site use.

SLR recommends installing three ground water monitoring wells to determine if ground water has been impacted by activities at the Site. One well will be located in the assumed source area, and two wells would be completed downgradient from the source area. Ground water samples would be collected from these wells and submitted for laboratory analysis for concentrations for contaminants identified in Section 5.4.2.

A utility clearance must be obtained prior to any subsurface work.

6.4 CONTAMINATED SOIL EXCAVATION

Although the total in-place volume of future proposed excavation area(s) cannot be determined without a soil investigation, the following information should provide the community of Akiak with a proposed plan for removal of impacted soil once site characterization activities are complete. During contaminated soil removal, field screening samples should be collected to guide the lateral extent of the excavation. Once field screening indicates contaminated soil has been excavated, confirmation samples should be collected from the excavation sidewall and floor.

For estimating purposes only, it is assumed that 70 cubic yards (cy) of petroleum hydrocarbon-impacted soil are present at the Site. The costs for removing less or more soil than this would have to be evaluated on a line-item basis, as there is not a linear relationship between volume of impacted soil and cost.

It is also assumed that no PCB-, chlorinated solvent-, or metals-impacted soil is present at the Site. If present, these soils will require special handling and will most likely need to be shipped off the Site for disposal at an approved facility.

The proposed soil excavation volume is an in-place estimate. Due to the swell of soils during handling, the anticipated ex situ management volume is expected to increase by 30 percent to approximately 90 cy. An additional 10 percent contingency for additional excavation beyond the preliminary limits of excavation would require the management of an estimated 100 cy of soil.

6.5 SOIL MANAGEMENT ALTERNATIVES

The results of the evaluation of the selected soil remedial actions are presented in Table 1. The following alternatives were considered for the management of contaminated soil.

- Passive Biopile Construction In this option, excavated soils are mixed with clean soil, placed on a treatment area, and covered. Aeration is provided passively through perforated pipe extending into the pile. Fertilizer may be added to soils in the pile to enhance microbial activity. The pile is covered and a leachate collection sump is included to manage water if the cover is damaged. The pile is left until the soils meet specified cleanup levels for land spreading or beneficial reuse.
- **Road Base Encapsulation** This alternative method would only apply to Akiak if a road bed is constructed to provide zero net infiltration, the road is located in an area that meets the requirements of 18 AAC 75.360(11)(G), and with the concurrence of the community.

- Daily Landfill Cover Under this option, contaminated soils could be used for landfill cover. This option requires permission from DEC's Solid Waste Program, and typically is contingent on pre-treatment and sampling of the soil prior to use as landfill cover. This alternative is a common form of beneficial reuse of contaminated soil, is less expensive than many other options at remote sites, and effectively manages risks associated with contaminated soil.
- Landfarming This method includes spreading the contaminated soil into a 1-foot-thick layer. The soil is tilled periodically during the summer months using a rototiller. Tilling aerates the soils to promote aerobic degradation of contaminants in the soil. The addition of fertilizer is also used to promote biological activity. Initial landfarm characterization samples are collected to document contaminant levels at the time of placement. Characterization samples are collected on an annual basis to determine when cleanup goals are met. The DEC Solid Waste Program will specify the cleanup requirements prior to using landfarmed soils as daily landfill cover.
- **Thermal Remediation** Thermal remediation of contaminated soil is generally expensive at remote locations both to ship in treatment equipment and for the fuel required, and it is most likely not a feasible option for Akiak.
- Shipment Off-Site for Treatment or Disposal This option is employed if soils cannot be reasonably treated onsite and is most feasible when inexpensive transportation is available. If soils are determined to be hazardous, or no appropriate area exists for onsite treatment, it may have to be containerized and transported to a facility for treatment or disposal. In these instances, treatment typically involves incineration, and disposal typically involves placement in a permitted landfill.

The matrix for remedial option selection is presented in Table 1. The alternatives are ranked according to the five parameters of environmental protection, regulatory compliance, effectiveness, implementability, and cost. Remediation options with the best overall rating are compared for use at a particular site.

6.6 PREFERRED ALTERNATIVE

The preferred alternative for managing contaminated soil from the Old City Tank Farm and Power Plant site would be landfarming, followed by use as daily landfill cover. Precedence exists for using contaminated soils as landfill cover in rural communities, but it requires approval by DEC's Solid Waste Program. The DEC Solid Waste Program requires that contaminated soil be managed prior to use as landfill cover. Landfarming, in an area not subjected to flooding, should be implemented to reduce contaminant concentrations to acceptable levels for use as landfill cover material, which are assumed to be DEC Method Two ingestion and inhalation cleanup levels.

Initial work will include landfarm construction, which is anticipated to require an area of approximately 52 feet by 52 feet. Each year that landfarming is conducted, two rounds of tilling and fertilizer application will occur using local labor. In addition, analytical samples are required of the soil to determine the contaminant levels are acceptable for landfill cover soil. It is

estimated that three successive field seasons of landfarm fertilizer application, tilling, and sampling may be required to meet DEC requirements for use of the soil as landfill cover.

6.7 LONG-TERM SOIL TREATMENT LOCATIONS

Landfarming is considered a long-term treatment option because it typically takes years to meet required cleanup or soil reuse objectives. No existing landfarming containment unit is available; thus, implementation of the landfarming alternative will likely require construction of a new landfarm cell at the community landfill. The community landfill is fenced and located approximately one-half mile from the nearest residence; the entire Akiak region is relatively flat with less than 10 feet of topographic relief and the landfill may be subject to flooding from the Kuskokwim River. This location would limit contact with contaminated soil by village residents and will reduce the potential for exposure of contaminants to surface water or ground water. Criteria for selecting the landfarming location for soils removed at the Site include the following:

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

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

6.8 SOURCE OF BACKFILL MATERIAL

According to Ms. Williams, there is a sand pit material site owned by the City of Akiak that could be used as a source of backfill for the Site.

6.9 WATER MANAGEMENT OPTIONS

Ground water is not expected to be encountered during any subsurface investigation activities or excavations. However, if ground water is encountered, dewatering will not be conducted and the excavation will not proceed below the static water level.

6.10 EQUIPMENT AND LABOR REQUIREMENTS

The equipment and labor requirements to implement the preferred alternative require the use of an excavator, haul trucks capable of carrying up to 10 cy of material, and a backhoe to spread the soil at the landfarm location. These activities can be carried out simultaneously to minimize the time required to complete the work. In this manner, the excavator will fill haul trucks that dump

at the landfarm location while a backhoe consolidates the material to the 1-foot-depth specification. In addition, qualified personnel will be required to operate heavy equipment.

6.11 AVAILABLE RESOURCES

This section describes the equipment currently available in Akiak. As a cost control, Site remediation should be timed with other large construction activities within the community, if possible, in order to take advantage of resource leveraging opportunities. Ongoing or upcoming projects planned in Akiak are described in Section 6.11.3.

6.11.1 EQUIPMENT

A list of heavy equipment available within the City of Akiak includes one excavator and one backhoe. No other heavy equipment is available in Akiak. Persons who are qualified heavy equipment operators reside in the community.

6.11.2 LABOR

No village residents currently have 40-hour HAZWOPER training. Ms. Sheila Williams indicated that they are planning a 40-hour HAZWOPER training course for up to 10 people in the near future.

6.11.3 RESOURCE LEVERAGING OPPORTUNITIES

Ms. Williams indicated that future work in Akiak includes: work to improve the roads within the community, weatherization projects, foundation repairs, and nine homes will be connected to water and sewer services.

Ongoing or upcoming projects planned for Akiak include the following:

- Work to improve the roads within the community.
- Weatherization projects.
- Foundation repairs.
- Nine more homes will be connected to water and sewer services.

6.11.4 PERSONNEL QUALIFICATIONS

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

7. CONCLUSIONS

In order to allow the community to reuse the Site, solid waste will need to be removed. It is recommended that, to the extent possible, equipment and supplies on Site be beneficially reused within the community or disposed of in the local landfill. Materials requiring special handling may require offsite disposal at an approved facility. At this time, excavation activities are not recommended until the volume of contaminated soil present at the Site is known to allow appropriate planning for removal and treatment. SLR recommends that a soil and ground water assessment be conducted to determine the extent of contamination and determine if non-petroleum contaminants are present.

The cost estimates for site work are as follows, and are detailed in Appendix I. A comprehensive correction action plan, which includes a work plan for additional site assessment is estimated to cost \$8,460. The soil and ground water investigation task, which includes removal of debris and soil investigation via hand auger and ground water investigation via a hydraulically powered auger, but not tank decommissioning, is estimated to cost \$91,645. If a drill rig is required to complete the ground water investigation the total cost for this part of the project is estimate at \$128,765. The estimated cost for a contractor to decommission the two ASTs is \$50,000. Solid waste removal and assessment activities could be conducted in a single field season.

Once the extent of contamination has been determined, excavation of contaminated material can proceed. The most appropriate method of soil treatment and disposal was found to be landfarming followed by use as landfill cover material. Excavation and landfarm preparation can be implemented in one field season. It is estimated that three successive field seasons of landfarm fertilization, and tilling, may be required to meet closure standards established by the DEC for an assumed in-place volume of 70 cy of contaminated soil (100 cy volume when excavated). Sampling of the soil may also be required before use as landfill cover. The preliminary cost estimate for construction of the landfarm area, soil excavation and backfill, placing soil in the landfarm area, tilling and fertilizing the landfarm, landfarm maintenance, and decommissioning the landfarm is \$103,619.

The project will rely on consultant assistance for documentation and reporting to DEC, and the estimated total project reporting costs are an additional \$12,990. With a 10-percent contingency included, the total project costs for all phases of work, assuming a drill rig is not required, are estimated to be \$293,386. If a drill rig is required to complete the ground water investigation, the total project cost is estimated at \$339,343. It should be emphasized that the assumed 70 cy in place volume of contaminated soil for which this cost estimate has been prepared has not been defined by a field investigation, and project costs may be different based on the actual volume of contaminated soil.

8. REFERENCES

- Alaska Department of Commerce, Community, and Economic Development (DCCED), Division of Community and Regional Affairs (DCRA), 2009. www.commerce.state.ak.us/deca/commdb/CIS.cfm, November.
- Alaska Department of Environmental Conservation (DEC), Division of Environmental Health, Drinking Water Program, 2009. www.dec.state.ak.us/eh/dw/index.htm, November.
- DEC, 2008. Alaska Administrative Code (18 AAC 75), Oil and Other Hazardous Substances Pollution Control, as amended through October 9.
- DEC, 1999. Preliminary Site Assessment Report on Akiak, Alaska, October 13-14, 1999. October 22
- Ecology and Environment, Inc. (E&E), 2000. Akiak Aboveground Storage Tank Farm Site Reconnaissance, Akiak, Alaska. December.
- Western Regional Climate Center (WRCC), 2009. http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ak6058, September.

LIMITATIONS

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

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

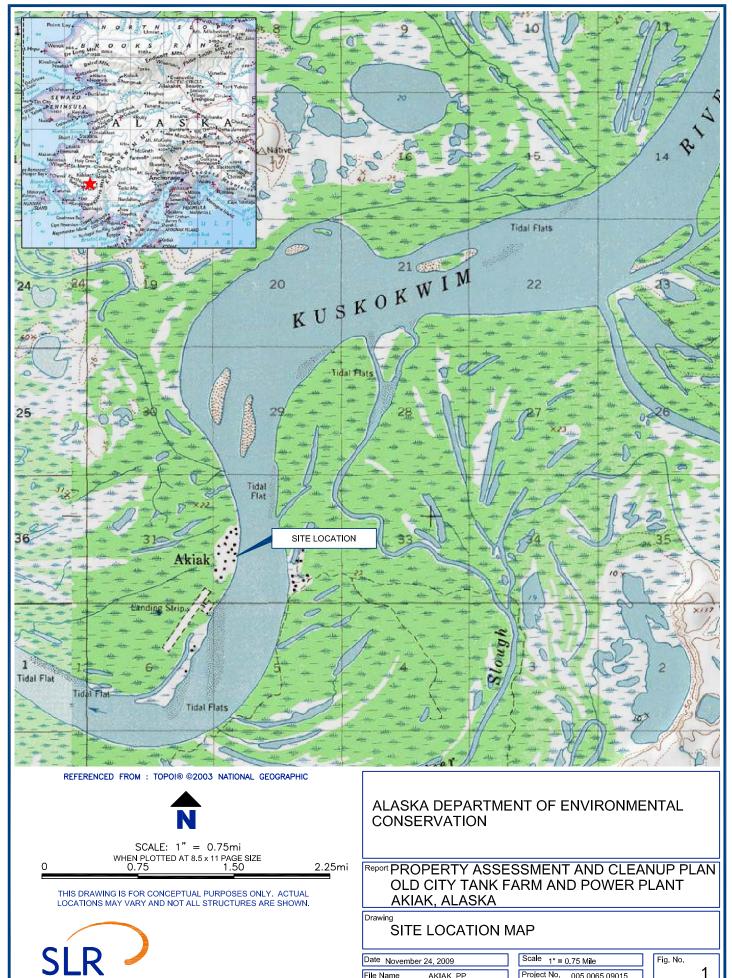
The purpose of an environmental assessment is to reasonably evaluate the potential for or actual impact of past practices on a given site area. In performing an environmental assessment, it is understood that a balance must be struck between a reasonable inquiry into the environmental issues and an exhaustive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

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

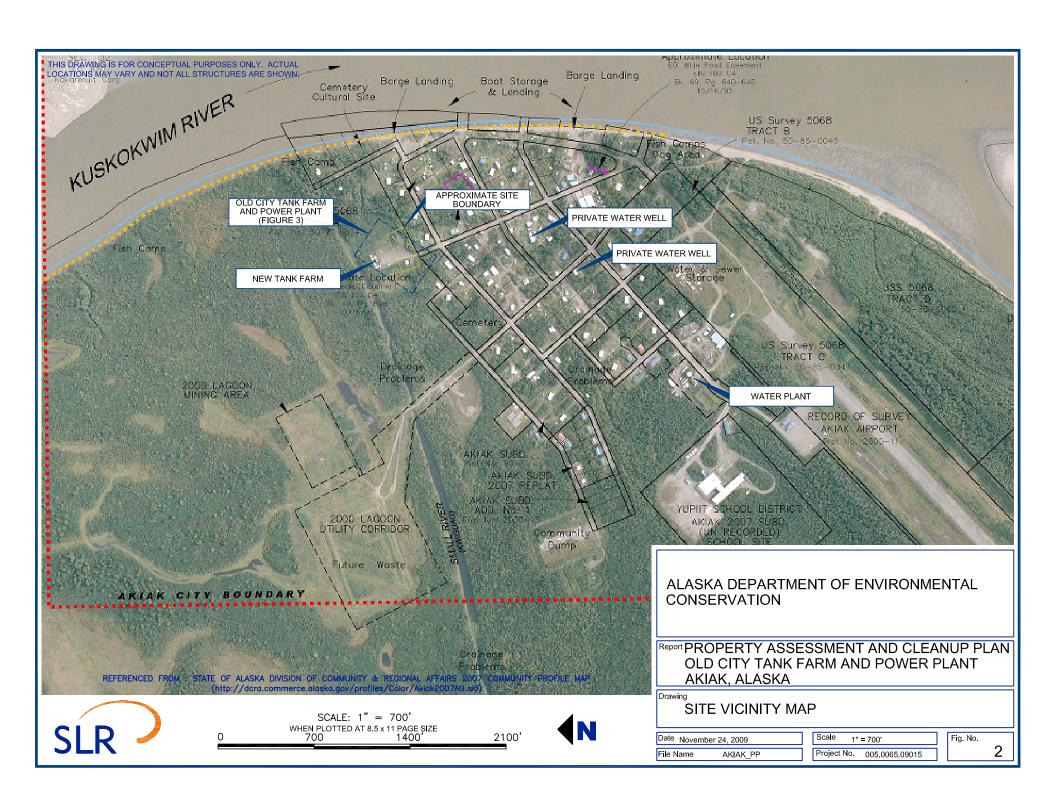
Environmental conditions may exist at the site that cannot be identified by visual observation. Where subsurface work was performed, our professional opinions are based in part on interpretation of data from discrete sampling locations that may not represent actual conditions at unsampled locations.

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

FIGURES



Scale 1" = 0.75 Mile Fig. No. Date November 24, 2009 Project No. 005.0065.09015 File Name AKIAK_PP





TABLES

Table 1
Evaluation of Remedial Alternatives for Soil

ALTERNATIVE	ENVIRONMENTAL PROTECTION	REGULATORY COMPLIANCE	EFFECTIVENESS	IMPLEMENT-ABILITY	соѕт	OVERALL RATING
No Action	Poor	Fair	Poor	Excellent	Excellent; ground water monitoring required	Fair
Passive Biopile Construction	Good	Good	Fair	Fair	Fair	Fair
Road Base Encapsulation	Good	Good	Fair- request longer treatment than land filling	nent than land of ADOT&PF and		Good
Daily Landfill Cover	Good	Fair	Good	Good; may require pre- treatment of soils to reduce contaminant concentrations before use.	Good	Good
Landfarming	Good	Good	Fair; the community of Akiak is located within a flood plain.		Good	Good
Thermal Remediation	Good	Good	Good	Fair- require mobilization of specialized equipment		Fair
Offsite Shipment and Disposal	Excellent	Good	Good	Poor; only practical if non- petroleum hydrocarbon- impacted soils are present.	Poor; extremely high cost for small projects	Fair

Poor-inferior, inadequate, or unsatisfactory

Fair-sufficient but not preferred

Good-favorable; reliable

Excellent-exceptionally good; superior method

APPENDIX A

DEC BROWNFIELD ASSESSMENT REQUEST FORM – 2009

Akiale Old Power Plant 2402, 57,001 Aref 2402, 38,005 (Akiak Old City Touch Farm)

DEC Brownfields Assessment Request Form - 2009

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

Eligibility Determination—General Questions:
Is the applicant in any way responsible for the potential contamination at the site, or related to those who may be responsible?
☐ Yes No
Is the site federally owned?
☐ Yes No
Has the site or facility received funding for remediation from the Leaking Underground Storage Tank (LUST) Trust Fund?
Yes No Vunknown
If you answered "yes" to any of the above questions, we recommend that you please call DEC to discuss the specifics of your eligibility determination.
To the best of your knowledge, is the owner of the property in question:
Private City/Public State Native Corp Tribal Unknown Known or suspected contaminant(s) (check one):
Known or suspected contaminant(s) (check one):
☐ Hazardous Substances ☐ Petroleum Only Hazardous Substances and Petroleum
Is this site currently listed on DEC's contaminated sites database?
☐ Yes ☐ No ☑ Unknown
If yes, please list the project name, if known:
1. Applicant/Owner
a) Applicant - Provide the name and address of the organization applying for a DBA, the name of the contact person, email, telephone, and fax numbers. Middle Kuskakwim Gensorf, unification ATIVE Community AKIAK NATIVE Community. Tulings alc NATIVE Community AKIAK NATIVE Community. Po Box 5217, ALIKA 1AK 9852 If Applicant is IGAP staff, please provide name of EPA project officer:
b) Project Team - Because no one person can be responsible for all aspects of a brownfield project, we request that you form a project team to ensure continued action beyond this DBA. Attach a letter from each team member acknowledging their support and willingness to participate. (Team members may include: city or village government representatives, tribal council representatives, environmental managers, elders or other community leaders, and other interested parties.)
c) Property Owner - The owner of the property must allow DEC access to the site. If the applicant

is different from the owner, include written consent for access from the owner. (Note: the

applicant must be able to secure access for DEC and its contractors to conduct the assessment.)

[Akiachak Native Community. Akiak Native Community. Tuluksak Native Community] Akiak Native Community PO Box 52127 Akiek, AK 99552 Ph.907.765.7118 Fx,907.765.7888

Brownsfield Assessment Request Form - 2009 PAGE 1/4

1. Applicant/owner

a) applicant:

Middle Kuskokwim Consortium

Akiak Native Community ph/907.765.7118

fax\907.765.7888

PO Box 52127

Akiak, AK99552

Contacts: Matthew Gilila . Program Assistant \ e-mail: AkiakMKC@yahoo.com >>Edward Nicholai.Program Coordinator ph.907.825.4624 fx.907.825.4029

Akiachak Native Community . Akiachak, Ak99551<<

b) project team:

Akiak Native Community

City of Akiak

Kokamilut Corporation

PO Box 52127

PO Box 52028 Akiak, AK99552

PO Box 147 Akiak, AK99552

Akiak, AK99552

Sheila Williams, Executive Director Moses Owen, City Administrator

David Gilla Sr. Business Manager Ph.907.765.7226 Fx: 765.7619

Ph\\907.765.7112 Fx.765.7512 Ph//907.765.7411 Fx:765.7414

(letters of team-member support attached from all 3 entities)

c) property owner. City of Akiak, Akiak, AK99552

ATTACHED: written CONSENT for access

(s) by City Administrator Moses Owen \\ Mayor Debra Jackson > Executive Director Sheila Williams \\ Akiak Native Community >Business Manager David Gilila Sr. \\ Kokarmiut Corporation

- 2. Site Information
- a) -Historical Site Use: No known uses other than high-bush-cranberry picking (Fall)
 - > The GENERATOR Building was built in the LATE 1970's source: Samuel Jasper, Powerplant Operator \ City of Akiak
 - > once the Generator Building was built & GENERATOR operational, CONTAMINATION started from: accidental spills, exhaust
 - > SUBSTANCES: waste oil, glycol (coolant), battery acids
 - >contamination: floor of & under & around generator building(soil)
- b) Current site Condition & Use:

>OLD GENERATOR SITE:

GPS LOCATION: North 60 degrees \ 54.6851

West 161 degrees \12.859

Elevation: 15 feet

[Akiachak Native Community.Akiak Native Community.Tuluksak Native Community]

Akiak Native Community

PO Box 52127

Akiak, AK99552

Brownsfield Assessment Request Form - 2009 Page 2/4

b) \cont'd\ Current site Condition & Use \continued

>common name: "old generator site" building size: 25' X 30' 2-24,000Gallon bulk tanks

>location: WEST end of KILBUCK ST. (extreme end of Kilbuck

street) \\ NEW "modern" TANK FARM - 7 tanks

\\\\150 feet WEST: fuel dispensing pump

\\ 200 feet WEST: 7 tanks

(OWNER: Akiak Native Community ph/907:765.7112)

>adjacent land-use: other than the Akiak Native Community Tank Farm

3 residential homes: 1 – 200 feet EAST

2-300 feet SOUTH

3 - 300 feet SOUTHEAST

('AREA including the NEW Akiak Native Community Tank Farm is APPROXIMATLY 1 CITY BLOCK)

> KNOWN & SUSPECTED CONTAMINATION: building floor-soaked oil, under the building (soil) and around the building /diesel fuel < (COMBINED AREA of possible contamination: 1,000 square feet.)

CONTENTS: >> 2 DEAD generators 150 kw & 300 kw

>> Approximately 60 5-gailon cans WASTE OIL

>> 10 DEAD batteries

>> 3 transformers plus 1 outside (4)

>>>60 feet EAST (across the road) discarded 150kw generator

c) prior environmental assessment activities:

NO RECORD OF ASSESSMENTS ON THIS SITE EXIST THE OLD GENERATOR BUILDING. Prior ASSESSMENTS have been done on the CITY OF AKIAK TANK FARM which is 200 FEET NORTH of the Old Generator Building (the current BROWNSFIELD target).

Enclosed is a copy of a RECORD of assessments done on the OLD CITY OF AKIAK TANK FARM "adjacent" to The Old Generator Building. This RECORD is FROM the Alaska Department of Environmental Conservation Contaminated Sites DATABASE. (((provided by Sonja Bension \ Conservation \ 610 University Avenue \ Fairbanks, Alaska 99709

\ phone: 907.451.2156 fax: 907.451.2155)))

**** copies attached ***

[Akiachak Native Community.Akiak Native Community]
Akiak Native Community
PO: Box. 52127
Akiak, Ak 99552

Brownsfield Assessment Request Form - 2009 Page 3/4

3. Environmental Concerns

- a) reason for concern: This site (the old generator building & the area surrounding the building is contaminated oil/glycol, waste from batteries, transformers.) Any spills are soaked into the ground with Spring snow-melt, rains. THE LOCAL CONCERN: contaminants seeping down to the water table. The Akiak Native Community WATERPLANT ((the community watersource)) is located 2,200 feet SOUTH \(\begin{align*}(\text{ "DOWNRIVER" from this site})\)
- b) <u>Proposed Project Need</u> soil testing \surface & subsurface TECHNICIANS (COULD locals BE TRAINED?) RECOMMENDATIONS and TRAINING FROM experts IN DEALING WITH CONTAMINATED SITES. WORKERS/welders.
- >> The site needs to be assessed/cleaned / building demolished/ dead generators removed \\\\ bulk tanks "DISMANTLED"
- >> Work in restoration of site MUST BE DONE IN THE SUMMER (between Mid-June to Mid-September, GENERATOR BUILDING CAN BE DEMOLISHED LATE MAY & JUNE same for BULK TANKS

4. Community Planning & Re-use Goals

- a) Community projects: >>Currently in Progress: Water/Sewer Construction >>PROPOSAL STAGE: LANDFILL RELOCATION
- b) Reuse & Redevelopment Plans: **ZERO DEVELOPMENT** for this SITE IS RECOMMENDED due to the sites' proximity to the RESIDENTIAL AREAS and the New Akiak Native CommunityTank Farm and CONTAMINATION OF SOIL FROM SPILLS.

" green space"

[Akiachak Native Community Akiak Native Community Tuluksak Native Community]

Akiak Native Community

PO Box 52127

Akiak, AK99552

Ph. 907.765.7118 Fx.907.765.7888

Brownsfield Assessment Form - 2009 Page 4/4

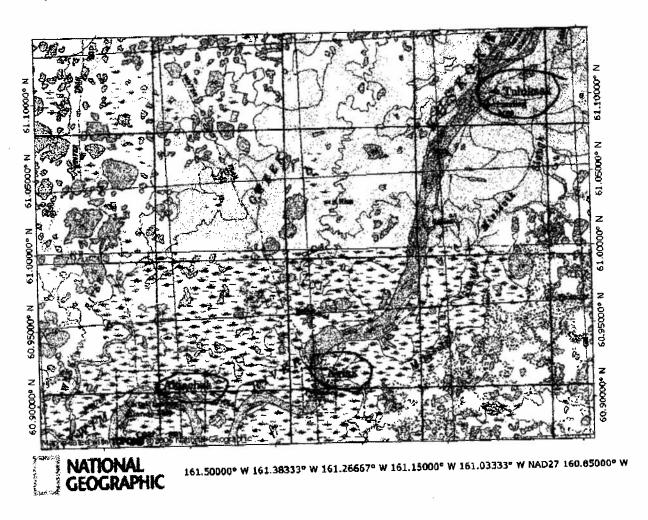
5. Public Involvement

- a) Public Benefit: The removal of Contaminants/Hazardous Materials will benefit the residential areas next to this site.
 - >Training & certification of a local HazMat Specialists
 - >Temporary employment \\ LABORERS/METAL WORKERS
- b) Community Support: The 3 entities \ Akiak Native Community, City of Akiak, and Kokarmiut Corporation and their perspective officials have LETTERS OF SUPPORT enclosed (see: 1 b) Project Team)
- c) Community Resources: >Local Laborers for Clean-up (after assessments);
 - >Lodging: The City of Akiak has "camp" space in their office complex— BYOF\bring your own food.
 - >Transportation: The Akiak Native Community EPA Program has a 4-WHEELER
 - >OTHER EQUIPMENT small caterpillar tractor
 - local/personal 4-wheeler/trailers
 - > water/sewer project.Akiak Native Community: dump truck / back-hoe/front-end loader "5foot tires"
 - >The "Project Team" entities: Akiak Native Community, City of Akiak, and Kokarmiut corporation: NO SUPPLEMENTAL FUNDING for projects such as the BROWNSFIELDS

MALL 03.02-09

MKC. Akiadek Akiak) Tuluksale

<u>Point of Contact</u>: -Eric Phillip, Akiachak Native Community Environmental Director 907 825 4615 <u>e_phillip78@yahoo.com</u>



Sec 4.6 Middle Kuskokwim Consortium Information

3 of 3

[Akiachak Native Community.Akiak Native Community.Tuluksak Native Community]
Akiak Office.PO Box 52127.Akiak, AK99552.
Ph.907.765.7118 Fx.907.765.7888

Brownsfield Sites — Akiak (GPS LOCATIONS) — From North End to South End

Kokarmiut Corporation: 2 tanks: N 60 degrees \ 54.871

W 16 degrees \ 12.859

Elevation: 52 feet

City of Akiak: 2 tanks: N 60 degrees \ 54.859

W 161 degrees \ 13.037

Elevation: 21 feet

Old Generator: N 60 degrees \ 54.6851

W 161 degrees \ 12.859

Elevation: 15 feet

Next to City Generator \ 1 tank : N 60 degrees \ 54.504

W 161 degrees \ 13.361

Elevation: 7 feet

Yupiit School District: 2 tanks: N 60 degrees \ 54.668 "live"

W 161 degrees \ 12.895 Elevation: 14 feet

7 tanks: N 60 degrees \ 54.618

W 161 degrees \ 13.011

Elevation: 2 feet

February 26, 2009

2402.38.005

City Of Akiak P.O. Box 52028 Akiak, Alaska 99552 (907) 765-7411 Fax-(907) 765-7414

February 24, 2009

Letter of Support for Middle Kuskokwim Consortium Brownsfield

The City of Akiak City Council during the regular meeting today passed a motion unanimously to support the Brownsfield Assessment on the old City of Akiak Generator Site and Building for contamination, clean up and restoration efforts and that Brownsfield and Department of Environmental Conservation may proceed with the testing of the site as soon as possible.

Passed this date + eb.

Debra Jackson

Mayor

Ronald Andrews
Secretary/Treasurer

1 b)

KOKARMIUT CORPORATION

PO BOX 52147

AKIAK, ALASKA 99552

PH: (907) 765-7228 FAX: (907) 765-7619

FEBRUARY 25, 2009

TO: WHOM IT MAY CONCERN

SUBJ:

SOIL TESTING

THIS LETTER WILL SERVE AS A NOTICE TO AUTHORIZE, SUPPORT, TO ASSESS THE EXTENT OF CANTAMINATION, WHERE THE OLD SITE OF THE APU GENERATORS, BY THE AKIAK TANK FARM.

WE ARE IN SUPPORT OF WHAT BROWNSFIELD AND DEC, ARE DOING IN THAT TO ASSESS THE CONTAMINANTS WHITIN THE OLD SITE OF THE GENERATORS.

IF THERE ARE ANY QUESTIONS PLEASE DO NOT HESITATE TO CALL ME AT THE ABOVE LISTED NUMBER,

RESPECTFULLY:

DAVID GILILA SR

GEN MANAGER

CC: FILES



Akiak Native Community

Akiak IRA Council P.O. Box 52127 Akiak, Alaska 99552

Phone: (907) 765-7112 Fax: (907) 765-7512

February 24, 2009

Letter of Support for Middle Kuskokwim Consortium Brownfield

The Akiak Native Community Council supports Brownfields site access and assessment activities on the old generator site, and remedial action remedies for site clean-up and restoration.

Thank you.

Address 2:

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION CONTAMINATED SITES DATABASE

Comprehensive Site Specific Report - ADEC

Contaminated Site Data and Actions for Hazard ID: 3370

Address 1: W Bank of Kuskokwim River Site Name: Akiak Old City Tank Farm

City/State/Zip: Akiak, AK File Number: 2402.38.005

Longitude: -161.213194

907 451 2155

99552

Latitude: 60.914167

Responsible Party: City of Akiak RP Address 1: P.O. Box 187

RP Address 2:

RP Tolephone: 9077657411

Landowner Type: Landowner:

Problem/Com: The City of Aklak Electric Utility operated this AST farm for the storage and supply of fuel oil for its former power plant. These operations

have since been moved to the new consolidated bulk fuel facility in Akiak and to an AST located next to the new power plant

RP City/State/Zip: Aktak, AK 99552

Ledger Code:

Status: Active

Township: 10

Old Reckey: 2000250129304

Staff: Lidren Grant

Meridian: Seward Range: 67

West North

Section: 32

One soil sample was collected at 3.5 feet bgs, on the south side of the AST farm. DRO concentration was 5,700 mg/kg

in fair condition with extensive rust. The ASTs are supported on 12-by-12 inch timbers with 2-by-12-inch planking

There is no fence around this facility. The AST farm consists of two 24,000-gallon, vertical, welded steel, single wall tanks. The ASTs are The AST farm is located approximately 1,000 feet from the Kuskokwim River. There is a lined gravel and sand bag dike around the ASTs.

poted south くてけるのできたい

Comprehensive Site Specific Report ADEC

OF Above

1 atthew Gilila Akiak Brownfields 2/20/09

pages total! thanks. Somia Benson
laska DEC Brownia

2/20/2009

The selection of a site for a DBA in no way implies that DEC is accepting fiability for any contamination that may exist at the site, nor is DEC responsible for any necessary clearup of hazardous substances that may be found at the site. Liability for contamination on a property is specifically addressed in Aleeka Statute (AS) 46.03.822, which outlines those who are fiable 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 amange for disposal or transport of the substance.

Submit Completed Forms by March 3, 2009, to:

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

Or by regular mail:

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

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



< Akiachak Native Community.Akiak Native Community. Tutuksak Native Community > Akiak Native Community PO Box 52127 Akiak, AK99552 pt 907.765.7118 1765.7888

Aboveground Storage Tank Farms Akiak

March 23, 2009

OLD CITY of Akiak Tank Farm. GPS coordinates:

N. 60 degrees 54.859

W. 161 degrees 13.037 Elev. 21 feet

"old city of akiek generator fuel storage & supply"

NOTE: The following is a compilation of DATA from the: Aboveground Storage Tank (AST) Reconnaisance Report (December 22, 2000). This "recon" & report was done by: Mr. Michael Daigneault of "ecology & environment, Inc. 1/ 840 K St. 1/ Anchorage, AK99801" credit for use of tank farm diagrams (copies) & PID readings CHART (copies): "ecology & environment, Inc.

THIS TANK FARM IS LOCATED "NEXT" TO The Old City of Akiak Generator (200 feet North of Old city Generator).

>>> 2 (TWO) 24,000 GALLON, VERTICAL, WELDED STEEL, SINGLE-WALL ((WERE used for: storage/supply of fuel oil (deisel) for former City of Akiak "Old Generator"; the current (March 3, 2009 "ASSESSMENT") target.))

>>>"site is approximately 1,000 feet from the Kuskokwim River"

>>>"lined gravel & sand bag dike around AST's, No fencing. \\ Berm collapsed in numerous locations"

>>>supports: "12 inch X 12 inch timbers \\ 2 x 12 inch planking"

AS OF DATE OF THE "RECON REPORT--December 2000": these AST's were "shut down"/no longer in use --

>>>"AST's & piping remain on site"

>>>"piping connecting these ASTs for refilling—CAPPED"

=====THIS ASTs were "dormant" at the time of the above "recon" report as storage & supply "Operations" have been moved to the new consolidated bulk fuel facility."

[ANALYTICAL DATA: on soil collected 3.5 feet below ground surface: ALL BTEX Compounds (except Benzene) were detected: 0.089 to 0.17 mg/kg. >>GRO(GAS RANGE ORGANICS) 5.2 mg/kg AND DRO(DIESEL RANGE ORGANICS) 5,700mg/kg (>>>DRO: "PRESENT AT A concentration EXCEEDING the ADEC Soil Cleanup Level (ADEC 2000))

This SUMMARY: compiled by Matthew Gilita. PromitAssistant Brownfields | MKC-Akiak Office

ATTACHMENTS: tank farm diagrams/PID READINGS chart \(\text{\text}\) ecology & environment, inc.

copies; sonjaBensonljohnCamahan\Ak.Dept.ofEnvironmentatConservation division of SpitPrevention & Response\ContaminatedSitesProgram 610 UniversityAvenue\\Fairbanks,AK99709 ph.907.451-2156 fax:907.451.2155

> file -middleKuskokwimconsortium.akiak epe/igap-akiakNativecommunity.stephanielvan\susanJasper edwardNicholai.programCoordinator.Brownfields.middleKuskokwimconsortium AkiachakNAtiveCommunity\Akiachak99551

Table C-4

CITY OF AKIAK POWER PLANT TANK FARM - HEADSPACE ANALYSIS AKIAK AST TANK PARM RECONNAISSANCE AKIAK, ALASKA

Sample No.	PID Reading		Meter Response Time	attainment)	Comments (include soil type, presence of organics)
CB 01	3.6	61.4	. 1:04	30:00	brown, silty sand; 10-12 inches bgs; SW corner
CB 02	24.4	60.7	0:07		gray, rusty silt; 3.5 feet bgs; south-central border
CB 03	28.5	59.9	0:12		gray, silty sand; root material; 10-12 inches bgs; SE corner
CB 04	5.8	59.4	0:09	37:00	gray, silty sand; 3 feet bgs; SE corner
CB 05	4.1	58.5	0:03	38:00	rusty, gray silt; trace root material; 12-16 inches bgs; NW corner
CB 06	2	59.2	0:22	40:00	rusty gray silt; 12 inches bgs; north-central border
CB 07	6.7	59.9	0:11		gray, silty sand; 12 inches bgs; calibrate; NE corner

⇒ Aboveground storage tank.

= Below ground surface. = Degrees Fahrenheit.

NE

Northeast.

Na. NW = Number. = Northwest.

PID

- Photoionization detector.

ŞE

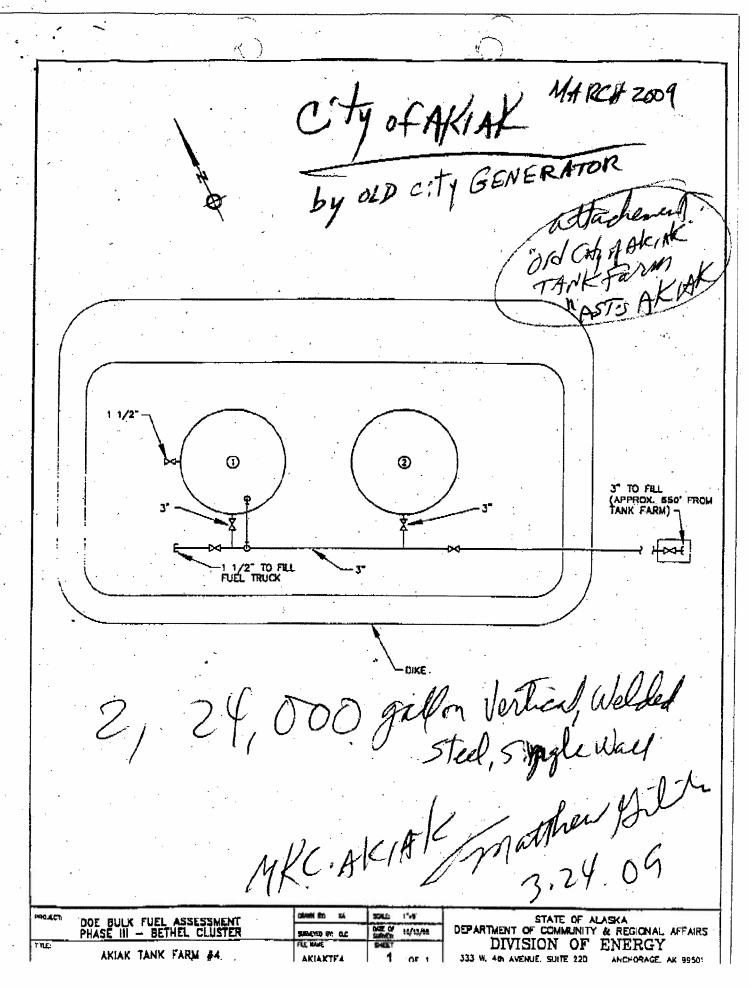
= Southeast.

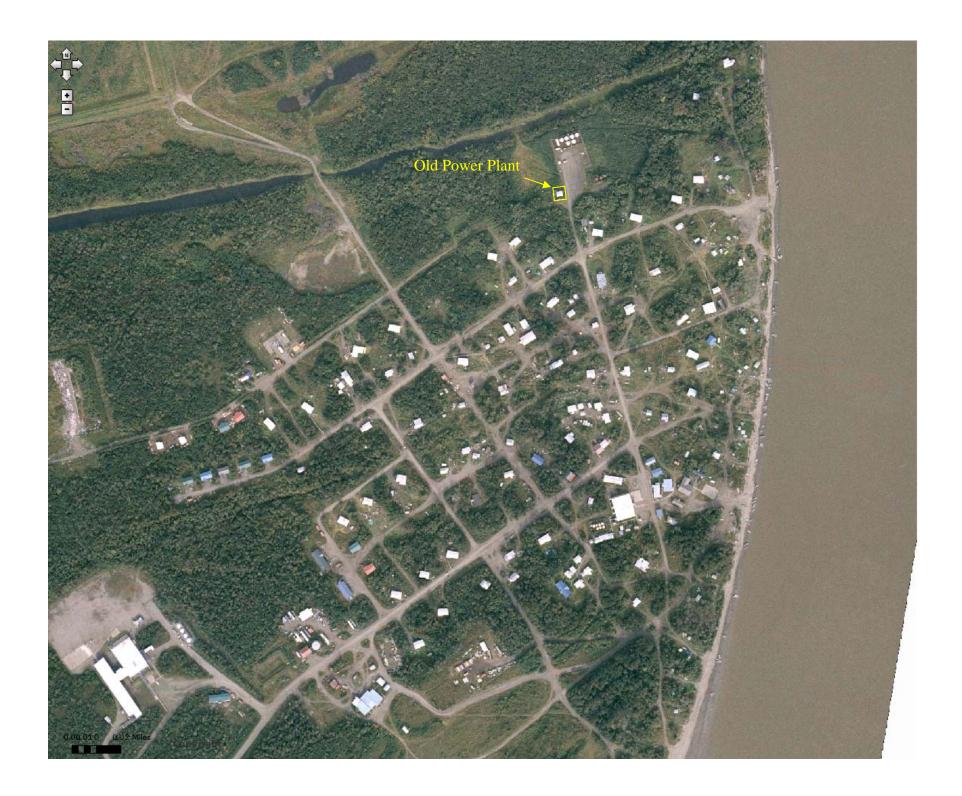
SW

-Southwest

Vorticel, Welded Steel, Single wall

MKC. AKIAK mother GILICA PRIGram assistant





APPENDIX B STAKEHOLDER MEETING MINUTES



Date: October 13, 2009, 10:00 A.M. to 11:00 A.M.

Re: Akiak Old City Power Plant and Tank Farm Property Assessment and Cleanup

Plan and Akiak School Tank Farms Combined Stakeholder Meeting

Attendees: Sammy Jackson, Akiak Brownfield Representative, Middle Kuskokwim

Consortium

Ben Kawagley, Brownfield Coordinator, Middle Kuskokwim Consortium Mary Goolie, Brownfields Project Manager, Alaska Operations, U.S.

Environmental Protection Agency

Sheila Williams, Tribal Administrator, Akiak Native Community Stephanie Ivan, IGAP Coordinator, Akiak Native Community Susan Jasper, IGAP Assistant, Akiak Native Community

Sam Jasper, Former Akiak Power Plant Operator

Nathan Williams, Assistant Maintenance Director, Akiak School Tank Farms

Norman Lott, Excavator Operator

Deborah Williams, Brownfield Project Manager, Alaska Department of

Environmental Conservation (DEC)

Sonja Benson, Brownfield Project Manager, DEC

Grant Lidren, Contaminated Sites Project Manager, DEC

Michael Rieser, Program Director, SLR Christina Bentz, Field Geologist, SLR

Meeting Opening:

The planning meeting was opened with brief introductions from each of the meeting attendees. Ms. Benson then spoke briefly about the EPA-funded Brownfield, or Reuse and Redevelopment, Program and how the focus of the program is safe reuse of properties with environmental concerns. Ms. Benson spoke of the grant funds available for private site assessment through the State & Tribal Response Program (STRP) through the EPA and that this would be the mechanism for funding this project. Ms. Benson indicated that the Old City Power Plant and Tank Farm project was intended to provide a tool (the Property Assessment and Cleanup Plan) to move forward with beneficial reuse of the site. Ms. Benson stated that according to the DEC Brownfield Assessment request form the stated reuse for the site was as a green space.

Mr. Lidren, the DEC project manager for the school tank farm sites, gave brief remarks on the proposed work for those sites. The planned work focuses on determining the extent and magnitude

October 13, 2009 – Akiak Old City Power Plant and Tank Farm PACP Stakeholder Meeting Summary Page 2

of impact from the two tank farms and evaluates potential exposure routes to humans and the environment. Mr. Lidren indicated that previous reconnaissance work has been done at these sites, but that there are still a lot of unknowns. Mr. Lidren also stated that he does not expect gross contamination at the site, and that based on SLR's initial site visit, ground water consumption is not considered a contaminant exposure pathway given the distance of the sites from water wells. Ground water sampling from well points at the two school sites is also part of the current scope of work.

Ms. Benson stated that the main distinction between the sites is that the work at the Old City Power Plant and Tank Farm consists of creating a Property Assessment and Cleanup Plan, which includes future planning, while the work at the school tank farm sites includes sampling. Ms. Benson indicated that more work is being done at the school sites because DEC has capital funds available to deal with these state-owned sites.

Ms. Sheila Williams stated that a major community concern (expressed by the tribe, corporation, and city) is related to annual flooding where water from the river flows through the tank farms and into town. Ms. Williams indicated that residents smell heating oil every spring after it floods, although she was unsure if the odors originated from the tank farms or not, but that the strongest odors are observed around the tank farms. Ms. Williams also stated that she is excited about the planned work.

Mr. Rieser then provided an introduction to SLR's scope of work for the sites.

SLR Project Summary:

Mr. Rieser explained the objectives of SLR to accomplish the projects. The main objective for the Old City Power Plant and Tank Farm was to create a Property Assessment and Cleanup Plan to assist the community in moving forward with the proposed reuse of the site. The project includes a review of existing information, site history, future plans for the site, and potential risk to humans and other receptors. Mr. Rieser continued and indicated that the plan would also include recommendations that could include removal of solid waste and contaminated soil. Mr. Rieser then stated that the main objective for the school tank farms was site characterization, which will include test pitting and well installation.

Ms. Bentz added that the site assessment work is planned for the week of October 26 and will be approximately 5 days in Akiak. Ms. Bentz added that while in Akiak for the assessment at the school tank farms, she would be gathering information for the Old City Power Plant and Tank Farm project, including a survey of local labor and equipment, and conducting interviews.

Ms. Benson asked if SLR had any other information they needed before returning to Akiak. Ms. Bentz stated that everything was pretty much in order but that she would need to get back together with Mr. Nathan Williams to close out the issue of fuel lines around the tank farms; the two remaining lines that need to be identified are the underground line from the Old High School Tank Farm to the new High School Tank Farm and the one aboveground line from the Old Elementary School Tank Farm. Mr. Rieser added that utilities are a big safety concern for SLR. Mr. Williams stated that his supervisor would be available to help SLR.

October 13, 2009 – Akiak Old City Power Plant and Tank Farm PACP Stakeholder Meeting Summary Page 3

Ms. Benson thanked Mr. Jackson for his brush clearing work and the members of the community on the call for their involvement.

Mr. Kawagley asked about the Targeted Brownfield Assessment for Akiachak. Ms. Goolie stated that Targeted Brown Assessments are a good initial step for looking at sites with the end goal of cleaning up the site for reuse. Ms. Goolie indicated that the grant the Middle Kuskokwim Consortium had was not to do cleanup but rather to work on Brownfield Assessments and work on finding other money. Mr. Jackson then asked if it would be a good idea to request a Targeted Brownfield Assessment for the tank farms in Akiak. The response was that information from the current scope of work could be used to apply for a Targeted Brownfield Assessment at the Old City Power Plant and Tank Farm or even the Old Corporation Tank Farm.

Mr. Jackson asked about the status of the 40 hour certification for the equipment operator. Ms. Benson indicated that SLR had prepared a work around. Mr. Rieser indicated that SLR planned to prevent exposure to contaminated soil by the equipment operator by: 1) having the equipment operator stay in the cab during test pitting activities and 2) backfilling the test pits once they have been sampled. Ms. Bentz added that SLR will also be performing air monitoring in the cab of the excavator (in the operator's breathing zone) at regular intervals during the work. Mr. Jackson asked if SLR would be having safety meetings. Mr. Rieser stated that SLR would have a safety meeting before work began and would also be conducting daily tailgate meetings.

Mr. Lidren stated that information on these sites is available through DEC's Contaminated Site Database online. Ms. Benson indicated that the link to the database would be included with the meeting minutes.

Meeting Closing:

Ms. Deborah Williams concluded the meeting by thanking the attendees, and requested that SLR prepare the meeting notes. Ms. Williams said that she would distribute the minutes and a contact list once prepared.

APPENDIX C PHOTOGRAPHIC LOG

PHOTOGRAPHIC LOG



Photograph 1:

Old City Power Plant Generator Building. Power lines run directly above the building and it is unknown if the power line connected to the building is still active. A transformer is visible behind the all-terrain vehicle (September 2009).



Photograph 2:

Saturated sorbent observed on the ground outside the Old City Power Plant Generator Building (September 2009).



Photograph 3: Unlabeled 55-gallon drum and wiring observed adjacent to the Old City Power Plant Generator Building (September 2009).



Photograph 4: Waste oil bucket and miscellaneous debris behind the Old City Power Plant and Generator Building (September 2009).



Photograph 5: Stressed vegetation noted behind the Old City Power Plant Generator Building (September 2009).



Photograph 6: Interior of the Old City Power Plant Generator Building (September 2009).



Photograph 7:

High water line from spring flooding is visible on the second row of buckets inside the Old City Power Plant Generator Building (September 2009).



Photograph 8:

One generator, batteries, two transformers, and lots of motor oil buckets inside the Old City Power Plant and Generator Building (September 2009).



Photograph 9:
Generator observed in the trees across the road from the Old City Power Plant Generator Building (October 2009).



Photograph 10:

Aboveground storage tank (AST) observed in the trees near the Old City Power Plant Generator Building (October 2009). The AST was not noted during SLR's initial site visit in September 2009.



Photograph 11:

Tanks toppled over at the Old City Tank Farm (September 2009). Both top-loading tanks were toppled during the 2009 spring flooding of the Kuskokwim River, located approximately 1,000 feet away.



Photograph 12: Close-up of tank top (September 2009).



Photograph 13:

Toppled tank and associated fuel line. Also visible in this photograph is one of the wooden platforms the tanks originally sat on, which were removed partially outside of the lined area during the spring flooding. No stained soil was observed (September 2009).

APPENDIX D FIELD NOTES

Akiak Combined Tank Farm Site Characterization



"Rite in the Rain" ALL-WEATHER JOURNAL No. 391

Old Power Plant and Tank Farm 005.0065.09015

Elementary School Former Tank Farm 005.0065.09016

Former High School Tank Farm 005.0065.09017

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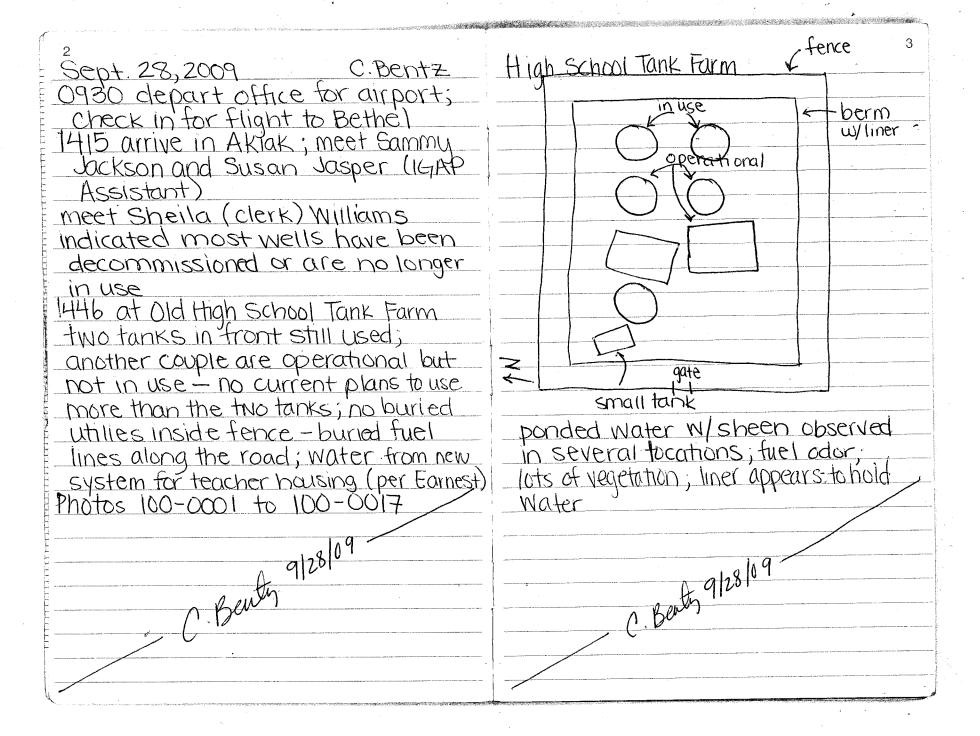
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ALL-WEATHER WRITING PAPER	1111

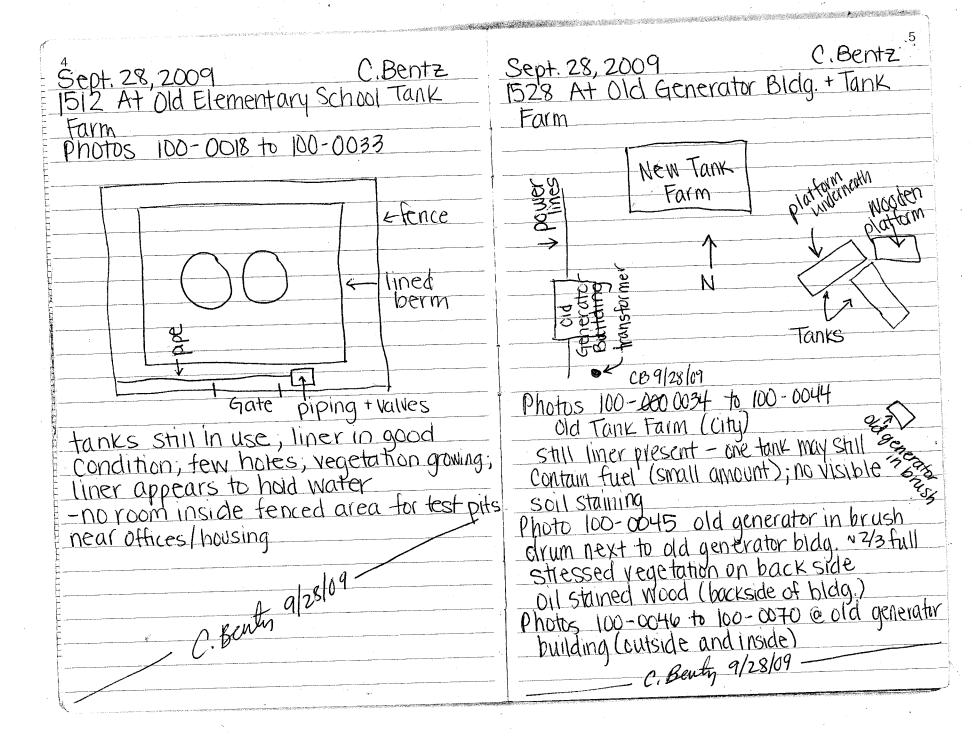
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	horage, A			
Phone _	907-222-	1112	<u> </u>	
Project	AKIAK T	ank Farn	n Site	<u>Charactoriz</u>

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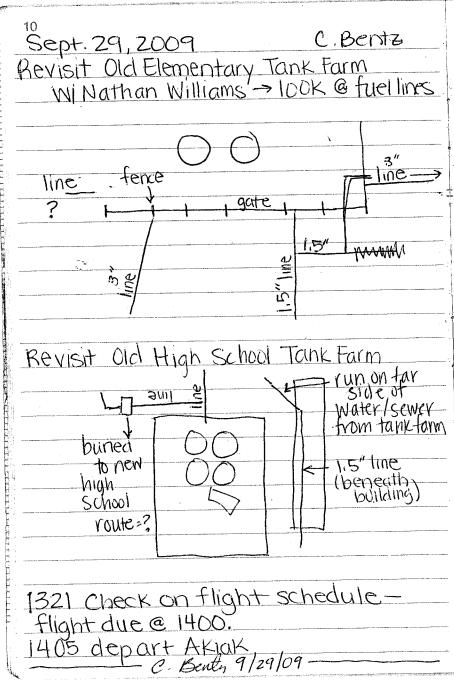
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Clear Vinyl Protective Slipcovers (Item No. 30) are available for this style of notebook. Helps protect your notebook from wear & tear. Contact your dealer or the J. L. Darling Corporation.





C.Bentz Sept. 28,2009 Sept. 28,2009 Inside old generator bildg. — 2 generators C.Bentz Photos 100-0071 to 100-0084 City of Akiak = power = above ground Phone = Unicom'/GCI - 2 transtormers Water / Sewer = Akiak Native Community= - at least 4 batteries underground N 70 5 gallon buckets motor oil Fuel lines = mostly above ground 1650 Call M. Rieser about Schedule + floor is black where visible used sorbents update on findings so far - possible dates = Neek of 10/12 or 10/26 Backhoe = John Deere 1600 LC Water mark N2' (visible on buckets) 1601 At Old Corporption Tank Farm -2 tanks are now at the dump was used for water sewer project N2' bucket 1717 backhoe starts and operates; no obvious Kuskokwim leaks 1730 set-up to stay @ school (in library); Wooden end of day planks 09- 9/28/09 C. Benth dike liner appears to hold water; Sheen on water Sammy indicated used to be more waterleaking, liner in poor condition in places



Sept. 29, 2009	C.Bentz
Interviews-	
Samuel Jasper -	- Old Power Plant
Tom Jacobs - S	chool tank tarm
	plans
Others??	
Sammy Jacksor mkc.aklak@	e-mail address:
mkc.aklak@	live.com
cp 9/29/0°	
1515 Arrive in Be	thel; locate bag
1515 Arrive in Bethat never made	it; check in for
flight to Anchora	1C
11.0 M board flight for	Z Anchorage - Ma
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C. Bentz C. Bentz October 29,2009 A. Nash A Nash October 30, 2009 Analytical sample Log 10/28/09 HS SB-8@ 0,5-1'= HS-19@ 1158 -0825 Call Mike Rieser - no one available forcall; head to SB-11@0,5-1'=HS-20@1356 VIllage office Not able to ship on this morning's
flight - full w/passengers
one option = SB-15 @ 1.5-21= HS-21@ 1440 Duplicates = ES-6@ 1253; dup of ES-5 (TP-2@3') HS-11@ 1513; dup of HS-10 543-3652 Arctic Transportation Services easiest option to charter plane on Frontier - chartered @ (TP-1@1) 1230pm - Changed to 215pm AK Arlines Hight 1024 Conference call w/mike and Grant Unable to internew Sam Jasper or Sheila Williams today 1038 conference call wison a Benson and Mike Rieser - backhaul options?? 1056 head out to do site walks w/video commentary 1156 done w/video site warks. get call from Frontier - will be here in 20 minutes travel to Bethel - Anchorage

Page 1 of 2 11/10/09 1045am Telephone Interview W/Sam Jasper by C. Bentz

Lived in Akiak whole life (62 years)
Power Plant Operator from 10/88-10/08 Two Asts - 1 @ 20,000 gallons 1 @ 24,000 gallons tanks were filled every fail

- on one occassion remembers overfilling one of the tanks NI gallon (early 90s)

- around the same time discovered a leak from a 3/4" pipe from the ASTs to the generator day tank - about 1/2 way

they dug out what contamination they could and backfilled w/gravel - believes More contamination remains

Day Tank located inside building Had used motor oil

> at one time used motor oil was collected in arums (more recently 5-gallon buckets) in 1998-hired guys to burn oil after started collecting in buckets, ash burner exploded (afraid to use since) some people pick up used oil to heat dog food or for chain saw oil

	Page 20+2
	not aware if Fransformers contained PCBs or
	If lead - based paint was used @ site
	ASTIN trees near building — belongs to corporation used to deliver heating oil
	Old Generator in trees - took oil out before removing from building
	Only other potentially contaminated area =
	old drum location
	drums were already there in 1988
	N2D-25
	most had nuttor oil, but a few
	May have had antitreeze
	15 LIPKO COLODON AP NEW TOX
	10 more between generator + power plant
	drums removed in ??
	Other persons to interview - David Gilia Sr. Maybe?
	- C. Bents 11/10/09

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APPENDIX E CITY DRINKING WATER ANALYTICAL RESULTS

find

Division of Environmental Health

Drinking Water Program



You are here:

Water System Search >> Water Systems >> Water System Details >> Non-Coliform Samples >> Non-Coliform Sample Results

Water System

Water System No.:	AK2272005	Federal Type	С
Water System Name:	AKIAK COMMUNITY WATER SYSTEM	State Type:	С
Principal County Served:	BETHEL	Primary Source:	GW
Status:	A	Activity Date:	1997-01-01 00:00:00.0

Non-Coliform Sample Results

ab Sample No. :	VO*A0909280-01B	Collection Date	09-21-2009
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Lab Sample No VO A0909280-01B Collection Date 09-21-2009									
Analyte	Analyte Name	Method	Less than	Level	Reporting	Concentration	Monitoring Period	Monitoring Perio	
Code	Analyte Name	Code	Indicator	Туре	Level	Level	Begin Date	End Date	
2378	1,2,4-TRICHLOROBENZENE	524.2	Υ	MRL	0.5 UG/L		01-01-2008	12-31-2010	
2378	1,2,4-TRICHLOROBENZENE	524.2	Y	MRL	0.5 UG/L		01-01-2008	12-31-2010	
2378	1,2,4-TRICHLOROBENZENE	524.2	Y	MRL	0.5 UG/L		01-01-2008	12-31-2010	
2378	1,2,4-TRICHLOROBENZENE	524.2	Y	MRL	0.5 UG/L		01-01-2008	12-31-2010	
2378	1,2,4-TRICHLOROBENZENE	524.2	Υ	MRL	0.5 UG/L		01-01-2008	12-31-2010	
2380	CIS-1,2- DICHLOROETHYLENE	524.2	Υ	MRL	0.5 UG/L		01-01-2008	12-31-2010	
2380	CIS-1,2- DICHLOROETHYLENE	524.2	Υ	MRL	0.5 UG/L		01-01-2008	12-31-2010	
2380	CIS-1,2- DICHLOROETHYLENE	524.2	Υ	MRL	0.5 UG/L		01-01-2008	12-31-2010	
2380	CIS-1,2- DICHLOROETHYLENE	524.2	Υ	MRL	0.5 UG/L		01-01-2008	12-31-2010	
2380	CIS-1,2- DICHLOROETHYLENE	524.2	Υ	MRL	0.5 UG/L		01-01-2008	12-31-2010	
2955	XYLENES, TOTAL	524.2	Υ	MRL	0.5 UG/L		01-01-2008	12-31-2010	
2955	XYLENES, TOTAL	524.2	Y	MRL	0.5 UG/L		01-01-2008	12-31-2010	
2955	XYLENES, TOTAL	524.2	Υ	MRL	0.5 UG/L		01-01-2008	12-31-2010	
2955	XYLENES, TOTAL	524.2	Y	MRL	0.5 UG/L		01-01-2008	12-31-2010	
2964	DICHLOROMETHANE	524.2	Y	MRL	0.5 UG/L		01-01-2008	12-31-2010	
2964	DICHLOROMETHANE	524.2	Y	MRL	0.5 UG/L		01-01-2008	12-31-2010	
2964	DICHLOROMETHANE	524.2	Y	MRL	0.5 UG/L		01-01-2008	12-31-2010	
2964	DICHLOROMETHANE	524.2	Y	MRL	0.5 UG/L		01-01-2008	12-31-2010	

2964	DICHLOROMETHANE	524.2	Y	MRL	0.5	01-01-2008	12-31-2010
2968	O-DICHLOROBENZENE	524.2	Y	MRL	0.5	01-01-2008	12-31-2010
2968	O-DICHLOROBENZENE	524.2	Y	MRL	0.5	01-01-2008	12-31-2010
2968	O-DICHLOROBENZENE	524.2	Y	MRL	UG/L 0.5	01-01-2008	12-31-2010
	O-DICHLOROBENZENE	524.2			UG/L 0.5	01-01-2008	12-31-2010
2968			Y	MRL	UG/L 0.5		
2968	O-DICHLOROBENZENE	524.2	Y	MRL	UG/L 0.5	01-01-2008	12-31-2010
2969	P-DICHLOROBENZENE	524.2	Y	MRL	UG/L 0.5	01-01-2008	12-31-2010
2969	P-DICHLOROBENZENE	524.2	Y	MRL	UG/L 0.5	01-01-2008	12-31-2010
2969	P-DICHLOROBENZENE	524.2	Y	MRL	UG/L 0.5	01-01-2008	12-31-2010
2969	P-DICHLOROBENZENE	524.2	Y	MRL	UG/L	01-01-2008	12-31-2010
2976	VINYL CHLORIDE	524.2	Y	MRL	0.5 UG/L	01-01-2008	12-31-2010
2976	VINYL CHLORIDE	524.2	Y	MRL	0.5 UG/L	01-01-2008	12-31-2010
2976	VINYL CHLORIDE	524.2	Y	MRL	0.5 UG/L	01-01-2008	12-31-2010
2976	VINYL CHLORIDE	524.2	Υ	MRL	0.5 UG/L	01-01-2008	12-31-2010
2977	1,1-DICHLOROETHYLENE	524.2	Y	MRL	0.5 UG/L	01-01-2008	12-31-2010
2977	1,1-DICHLOROETHYLENE	524.2	Y	MRL	0.5 UG/L	01-01-2008	12-31-2010
2977	1,1-DICHLOROETHYLENE	524.2	Y	MRL	0.5 UG/L	01-01-2008	12-31-2010
2977	1,1-DICHLOROETHYLENE	524.2	Υ	MRL	0.5 UG/L	01-01-2008	12-31-2010
2979	TRANS-1,2- DICHLOROETHYLENE	524.2	Υ	MRL	0.5 UG/L	01-01-2008	12-31-2010
2979	TRANS-1,2- DICHLOROETHYLENE	524.2	Y	MRL	0.5 UG/L	01-01-2008	12-31-2010
2979	TRANS-1,2- DICHLOROETHYLENE	524.2	Y	MRL	0.5 UG/L	01-01-2008	12-31-2010
2979	TRANS-1,2- DICHLOROETHYLENE	524.2	Y	MRL	0.5 UG/L	01-01-2008	12-31-2010
2979	TRANS-1,2- DICHLOROETHYLENE	524.2	Υ	MRL	0.5 UG/L	01-01-2008	12-31-2010
2980	1,2-DICHLOROETHANE	524.2	Y	MRL	0.5 UG/L	01-01-2008	12-31-2010
2980	1,2-DICHLOROETHANE	524.2	Y	MRL	0.5 UG/L	01-01-2008	12-31-2010
2980	1,2-DICHLOROETHANE	524.2	Y	MRL	0.5 UG/L	01-01-2008	12-31-2010
2980	1,2-DICHLOROETHANE	524.2	Y	MRL	0.5 UG/L	01-01-2008	12-31-2010
2981	1,1,1-TRICHLOROETHANE	524.2	Y	MRL	0.5 UG/L	01-01-2008	12-31-2010
2981	1,1,1-TRICHLOROETHANE	524.2	Y	MRL	0.5 UG/L	01-01-2008	12-31-2010
2981	1,1,1-TRICHLOROETHANE	524.2	Y	MRL	0.5 UG/L	01-01-2008	12-31-2010
2981	1,1,1-TRICHLOROETHANE	524.2	Y	MRL	0.5 UG/L	01-01-2008	12-31-2010
2982	CARBON TETRACHLORIDE	524.2	Y	MRL	0.5 UG/L	01-01-2008	12-31-2010
2982	CARBON TETRACHLORIDE	524.2	Y	MRL	0.5 UG/L	01-01-2008	12-31-2010
2982	CARBON TETRACHLORIDE	524.2	Y	MRL	0.5 UG/L	01-01-2008	12-31-2010
2982	CARBON TETRACHLORIDE	524.2	Y	MRL	0.5	01-01-2008	12-31-2010
2983	1,2-DICHLOROPROPANE	524.2	Y	MRL	0.5	01-01-2008	12-31-2010
				 	UG/L		

2983	1,2-DICHLOROPROPANE	524.2	Y	MRL	0.5 UG/L	01-01-2008	12-31-2010
2983	1,2-DICHLOROPROPANE	524.2	Y	MRL	0.5 UG/L	01-01-2008	12-31-2010
2983	1,2-DICHLOROPROPANE	524.2	Y	MRL	0.5 UG/L	01-01-2008	12-31-2010
2983	1,2-DICHLOROPROPANE	524.2	Y	MRL	0.5 UG/L	01-01-2008	12-31-2010
2984	TRICHLOROETHYLENE	524.2	Y	MRL	0.5 UG/L	01-01-2008	12-31-2010
2984	TRICHLOROETHYLENE	524.2	Υ	MRL	0.5 UG/L	01-01-2008	12-31-2010
2984	TRICHLOROETHYLENE	524.2	Υ	MRL	0.5 UG/L	01-01-2008	12-31-2010
2984	TRICHLOROETHYLENE	524.2	Υ	MRL	0.5 UG/L	01-01-2008	12-31-2010
2985	1,1,2-TRICHLOROETHANE	524.2	Υ	MRL	0.5 UG/L	01-01-2008	12-31-2010
2985	1,1,2-TRICHLOROETHANE	524.2	Υ	MRL	0.5 UG/L	01-01-2008	12-31-2010
2985	1,1,2-TRICHLOROETHANE	524.2	Y	MRL	0.5 UG/L	01-01-2008	12-31-2010
2985	1,1,2-TRICHLOROETHANE	524.2	Y	MRL	0.5 UG/L	01-01-2008	12-31-2010
2985	1,1,2-TRICHLOROETHANE	524.2	Y	MRL	0.5 UG/L	01-01-2008	12-31-2010
2987	TETRACHLOROETHYLENE	524.2	Y	MRL	0.5 UG/L	01-01-2008	12-31-2010
2987	TETRACHLOROETHYLENE	524.2	Y	MRL	0.5 UG/L	01-01-2008	12-31-2010
2987	TETRACHLOROETHYLENE	524.2	Υ	MRL	0.5 UG/L	01-01-2008	12-31-2010
2987	TETRACHLOROETHYLENE	524.2	Y	MRL	0.5 UG/L	01-01-2008	12-31-2010
2987	TETRACHLOROETHYLENE	524.2	Υ	MRL	0.5 UG/L	01-01-2008	12-31-2010
2989	CHLOROBENZENE	524.2	Υ	MRL	0.5 UG/L	01-01-2008	12-31-2010
2989	CHLOROBENZENE	524.2	Υ	MRL	0.5 UG/L	01-01-2008	12-31-2010
2989	CHLOROBENZENE	524.2	Y	MRL	0.5 UG/L	01-01-2008	12-31-2010
2989	CHLOROBENZENE	524.2	Υ	MRL	0.5 UG/L	01-01-2008	12-31-2010
2989	CHLOROBENZENE	524.2	Υ	MRL	0.5 UG/L	01-01-2008	12-31-2010
2990	BENZENE	524.2	Υ	MRL	0.5 UG/L	01-01-2008	12-31-2010
2990	BENZENE	524.2	Y	MRL	0.5 UG/L	01-01-2008	12-31-2010
2990	BENZENE	524.2	Υ	MRL	0.5 UG/L	01-01-2008	12-31-2010
2990	BENZENE	524.2	Y	MRL	0.5 UG/L	01-01-2008	12-31-2010
2991	TOLUENE	524.2	Y	MRL	0.5 UG/L	01-01-2008	12-31-2010
2991	TOLUENE	524.2	Y	MRL	0.5 UG/L	01-01-2008	12-31-2010
2991	TOLUENE	524.2	Y	MRL	0.5 UG/L	01-01-2008	12-31-2010
2991	TOLUENE	524.2	Υ	MRL	0.5 UG/L	01-01-2008	12-31-2010
2991	TOLUENE	524.2	Υ	MRL	0.5 UG/L	01-01-2008	12-31-2010
2992	ETHYLBENZENE	524.2	Υ	MRL	0.5 UG/L	01-01-2008	12-31-2010
2992	ETHYLBENZENE	524.2	Υ	MRL	0.5 UG/L	01-01-2008	12-31-2010
2992	ETHYLBENZENE	524.2	Υ	MRL	0.5 UG/L	01-01-2008	12-31-2010
2992	ETHYLBENZENE	524.2	Υ	MRL	0.5 UG/L	01-01-2008	12-31-2010

2992	ETHYLBENZENE	524.2	Y	MRL	0.5 UG/L	01-01-2008	12-31-2010
2996	STYRENE	524.2	Y	MRL	0.5 UG/L	01-01-2008	12-31-2010
2996	STYRENE	524.2	Y	MRL	0.5 UG/L	01-01-2008	12-31-2010
2996	STYRENE	524.2	Y	MRL	0.5 UG/L	01-01-2008	12-31-2010
2996	STYRENE	524.2	Y	MRL	0.5 UG/L	01-01-2008	12-31-2010
2996	STYRENE	524.2	Y	MRL	0.5 UG/L	01-01-2008	12-31-2010

Total Number of Records Fetched = 96

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APPENDIX F CONCEPTUAL SITE MODEL

APPENDIX F AKIAK OLD CITY TANK FARM AND POWER PLANT CONCEPTUAL SITE MODEL

This Conceptual Site Model (CSM) was developed to qualitatively assess the ways in which potential human receptors may be exposed to contaminants associated with the Old City Tank Farm and Power Plant Site (the Site). This CSM is based on information from a 1999 site visit (DEC, 1999), a 2000 site visit (E&E, 2000), and information gathered during SLR's site visits in 2009.

This CSM was prepared in accordance with the Alaska Department of Environmental Conservation (DEC) *Draft Guidance on Developing Conceptual Site Models* (DEC, 2005) using the DEC Draft Human Health CSM Scoping Form. The DEC Draft Human Health CSM Diagram was used to summarize the results of the scoping form. All cleanup levels referenced in this CSM are DEC soil cleanup levels as specified in Title 18 of the Alaska Administrative Code, Chapter 75 (18 AAC 75), *Oil and Other Hazardous Substances Pollution Control*, Tables B1 and B2, DEC Method Two, for either the under 40-inch zone or migration to ground water, whichever is less (DEC, 2008).

F.1 Impacted Media

Impacted media at the Site are the environmental compartments into which a contaminant is directly released (DEC, 2005). All media are discussed in the subsequent sections with respect to whether they are impacted.

F.1.1 Surface Soil

Surface soil is defined as the interval from 0 to 2 feet below ground surface (bgs) (DEC, 2005). A release or discharge associated with the activities at the Site would directly affect surface soil; therefore, for this CSM, surface soil is considered an impacted medium.

A documented release of approximately 250 gallons of diesel fuel occurred at the Old City Tank Farm on July 10, 1999 (DEC Spill Number 99279919101). Four 55-gallon drums of diesel fuel were recovered from within the diked area. However, during the response, the liner was accidentally torn and an unknown amount of diesel escaped into the surrounding soil (DEC, 1999).

During a site visit in October 1999, contamination was observed at the spill site (described above), and a petroleum hydrocarbon-like odor was noted in the gravel. Twenty 55-gallon covered drums containing waste oil were observed behind the green generator house on a thick, black liner. Pools of thick, black oil were observed on the liner and staining was noted on soil near the drums and beneath the generator house (DEC, 1999).

Five field screening samples were collected from the surface soil interval in 2000 for heated headspace analysis using a photoionization detector (PID). Field screening results ranged from 3.6 parts per million (ppm) to 28.5 ppm (E&E, 2000).

F.1.2 Subsurface Soil

Subsurface soil is defined as the interval from 2 feet to 15 feet bgs (DEC, 2005); soil below 15 feet bgs is not considered in this CSM because it is below the depth interval considered for direct contact by human receptors. Subsurface soil contamination has been documented at the Site; thus, subsurface soil is considered an impacted medium for this CSM.

Two field screening samples were collected from the subsurface soil interval in 2000 for heated headspace analysis using a PID. Field screening results ranged from 5.8 ppm to 24.4 ppm. One analytical sample was also collected from this interval and analyzed for gasoline range organics (GRO), diesel range organics (DRO), benzene, toluene, ethylbenzene, and xylenes. GRO, toluene, ethylbenzene, and xylenes were detected at concentrations below DEC Method Two soil cleanup levels. GRO was detected at 5.2 milligrams per kilogram (mg/kg), and toluene, ethylbenzene, and xylene concentrations ranged from 0.089 mg/kg to 0.17 mg/kg. Benzene was not detected. DRO was detected at 5,700 mg/kg, above the DEC Method Two soil cleanup level of 250 mg/kg (E&E, 2000).

F.1.3 Ground Water

Previous activity at the Site would likely have resulted in impact to the immediate vicinity of aboveground storage tanks (ASTs), drums, and equipment; thus, soil, rather than ground water, would have been the receiving medium. As such, for this CSM, ground water is not considered an impacted medium, but will be considered as an exposure medium; exposure media are described in further detail in Section F.2.

Two wells were drilled in the vicinity of the Water Treatment Plant in Akiak; Well No. 3 in 2001 and Well No. 5 in 2002. The wells were drilled to total depths of 170 feet bgs and 211 feet bgs, respectively. Screens were installed from 145.1 feet to 155.52 feet bgs in Well No. 3 and from 169.65 feet to 174.65 feet bgs and 194.65 feet to 199.65 feet bgs in Well No. 5. Based on the drilling logs, the lithology in this area consists of peat to approximately 3 feet bgs underlain by silty sand, which may be frozen depending on the time of year, to at least 140 feet bgs. Below 140 feet bgs, silty sand, gravel, and clay layers are present. Wet and heaving sand was observed in Well No. 3 at 59 feet bgs. Wet silty sand was not observed until 83 feet bgs in Well No. 5. Water-bearing sands were first encountered at 140 feet bgs in Well No. 3 and 170 feet bgs, respectively.

During investigation activities conducted in 2009 at the Akiak Old High School and Old Elementary School Tank Farms, located approximately 1,200 feet from the Site, SLR did not encounter ground water between 0 and 15 feet bgs.

Ground water is used as a drinking water source within the community of Akiak. Two houses reportedly have their own wells (the closest is approximately 800 feet from the Site) and the City of Akiak has up to five wells near the water plant (approximately 1,900 feet from the Site), which supply the community (Figure 2 of the Property Assessment and Cleanup Plan). The most recent volatile organic compound sample collected on September 21, 2009 from the community

drinking water supply did not contain any analytes at concentrations above laboratory method reporting limits.

F.1.4 Surface Water

Previous activity at the Site would likely have resulted in impact to the immediate vicinity of ASTs, drums, and equipment; thus, soil, rather than surface water, would have been the receiving medium. For this CSM, surface water is not considered an impacted medium. Surface water is, however, considered an exposure medium based on the potential for overland or subsurface migration of contaminants to surface water.

The nearest surface water body to the Site (approximately 300 feet north of the Site) is a long narrow water body that is labeled Small River [Kwiguaq], although based on aerial imagery, it does not have an apparent inlet or outlet. The next closest surface water body is the Kuskokwim River, which is located approximately 700 feet east of the Site. The Kuskokwim River is subject to flooding, with recorded events in 1920, 1964, 1971, 1982, 1984, 1987, and 1988 (USACE, 2009), increasing the risk of overland migration of contaminants from the site. Flood information available from USACE (2009) is only updated through 1998; information gathered during SLR's site visit indicated that a significant flood event occurred in 2009. The 2009 flood was indicated to be responsible for the toppling of the ASTs at the Site.

No known surface water samples have been collected from the Site.

F.1.5 Sediment

A release at the Site would not directly affect sediments associated with nearby surface water for the same reasons as discussed above. Therefore, for this CSM, sediment is not considered an impacted medium.

No known sediment samples have been collected from the Site.

F.2 Transport Mechanisms and Exposure Media

Transport mechanisms are the pathways through which contaminants may move from impacted media to other exposure media. Exposure media are the media to which contaminants are released or transported that may result in exposure by human receptors to the contaminants. Six transport mechanisms were identified at the Site, all from 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 at the end of this CSM.

F.3 Exposure Pathways

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

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

A description of potentially complete and incomplete exposure pathways is provided in the following sections.

F.3.1 Potentially Complete Exposure Pathways

The direct contact exposure pathway via incidental soil ingestion is considered potentially complete because soil contamination exists between 0 and 15 feet bgs and the property, although not currently in use, may be used by human receptors in the future. In addition, members of the community must travel between the Old City Tank Farm and Old City Power Plant to access the fuel-dispensing pump associated with the new tank farm; community members are considered Site Visitors for this CSM, as described in Section F.4.

The dermal absorption of contaminants from soil exposure pathway is considered potentially complete because polynuclear aromatic hydrocarbons (PAHs) and polychlorinated biphenols (PCBs), which can permeate the skin, may be present at the Site based on historical use information. Collection of soil samples for PAH and PCB analysis would allow for a definitive determination of whether this pathway is complete and/or significant.

The ingestion of ground water exposure pathway is considered potentially complete because contaminants have the potential to migrate to ground water and the future use of ground water for drinking water at the Site has not been eliminated by DEC per 18 AAC 75.350. However, the availability of a community drinking water source limits its potential usage.

The inhalation of outdoor air exposure pathway is considered potentially complete because of the presence of volatile contaminants (GRO, DRO, toluene, ethylbenzene, and xylenes) in soil between 0 and 15 feet bgs and the potential use of the property by human receptors. Although the

Site is not currently used, members of the community must travel between the Old City Tank Farm and Old City Power Plant to access the fuel-dispensing pump associated with the new tank farm.

The ingestion of surface water pathway is considered potentially complete. The Site has the potential to flood, resulting in overland migration of contaminants, and the Kuskokwim River is used for subsistence fishing and recreational activities which may result in incidental ingestion of surface water.

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 Site to potential subsistence hunting and gathering areas. In addition, based on historical usage, PAHs and PCBs, which have the potential to bioaccumulate, may be present at the Site. Collection of soil samples for PAH and PCB analysis would allow for a definitive determination of whether this pathway is complete and/or significant.

F.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. The incomplete pathways are discussed briefly in this section.

The inhalation of indoor air pathway is not considered complete because buildings in Akiak 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. In addition, the only building within 100 feet of potential sources of contamination is the Old City Power Plant building, which is located on pilings and not occupied.

The dermal exposure to contaminants in ground water and surface water pathway and the inhalation of volatile compounds in household water pathway do not require further evaluation, and are, thus, considered incomplete, because DEC water quality standards are applied as cleanup levels at the Site.

The inhalation of fugitive dust exposure pathway is not considered complete because DEC soil ingestion cleanup levels, which are applied at the Site, are protective of this pathway for all analytes except chromium. Based on historical site use information, chromium is not considered a potential contaminant of concern at the Site.

The direct contact with sediment pathway is not considered complete because DEC soil ingestion cleanup levels are assumed to also be protective of this pathway. In addition, sediment is not considered an exposure media.

F.4 Current and Future Receptors

The Site has been non-operational since the new tank farm and power plant were built around 2000. The Site has remained unused since that time; ASTs, the Old City Power Plant building

and contents, a generator, and miscellaneous equipment remain on the Site. Access to the Site is unrestricted and members of the community must travel between the Old City Tank Farm and Old City Power Plant to access the fuel-dispensing pump associated with the new tank farm. The proposed future reuse objective for the Site is green space; the Site was a raspberry patch prior to development. Based on the proposed future reuse objectives for the Site, the following human receptors are considered to be potentially exposed to Site contaminants:

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

In addition, since the final reuse of the Site has not been determined, future residences are also included as potential receptors.

F.5 References

- Alaska Department of Environmental Conservation (DEC), 1999. Preliminary Site Assessment Report on Akiak, Alaska, October 13-14, 1999. October 22.
- DEC, 2005. Draft Guidance on Developing Conceptual Site Models. Alaska Department of Environmental Conservation, Division of Spill Prevention and Response. November 30.
- DEC, 2008. Alaska Administrative Code (18 AAC 75), Oil and Other Hazardous Substances Pollution Control, as amended through October 9.
- Ecology and Environment, Inc. (E&E), 2000. Akiak Aboveground Storage Tank Farm Site Reconnaissance, Akiak, Alaska. December.
- U.S. Army Corps of Engineers (USACE), 2009. http://www.poa.usace.army.mil/en/cw/fld_haz/akiak.htm, November.

Human Health Conceptual Site Model Scoping Form

Site Name:	Akiak Old City Tank Farm and Power	Plan	<u>t </u>
File Number:	2402.38.005		
Completed by:	SLR International Corp		
Conservation (DE	be used to reach agreement with the Al (C) about which exposure pathways short from this information, a CSM graphic work plan.	ould	be further investigated during site
General Instructi	ons: Follow the italicized instruction	s in e	each section below.
1. General I	nformation:		
Sources (check)	potential sources at the site)		
USTs			Vehicles
✓ ASTs			Landfills
☐ Dispensers/f	fuel loading racks	✓	Transformers
✓ Drums		✓	Other: Generators
Release Mechai	nisms (check potential release meci	hanis	sms at the site)
✓ Spills		√	Direct discharge
✓ Leaks			Burning
			Other:
Impacted Medi	a (check potentially-impacted medi	a at	the site)
✓ Surface soil (0-2 feet bgs*)		Groundwater
✓ Subsurface Se	oil (>2 feet bgs)		Surface water
Air			Other:
Receptors (chec	ck receptors that could be affected b	у со	ntamination at the site)
Residents (a	dult or child)	✓	Site visitor
Commercial	or industrial worker	✓	Trespasser
✓ Construction	n worker	√	Recreational user
✓ Subsistence	harvester (i.e., gathers wild foods)		Farmer
✓ Subsistence	consumer (i.e., eats wild foods)		Other:

1 3/16/06

^{*} bgs – below ground surface

2.	con	(posure Pathways: (The answers to tappete exposure pathways at the site. Check each "yes".)			stion
	a)	Direct Contact — 1 Incidental Soil Ingestion			
		Is soil contaminated anywhere between 0 as	nd 15 feet bgs?		/
		Do people use the site or is there a chance t future?	hey will use the site	in the	✓
		If both boxes are checked, label this pathwo	ay complete:	Complete	
		2 Dermal Absorption of Contaminants	from Soil		
		Is soil contaminated anywhere between 0 as	nd 15 feet bgs?		/
		Do people use the site or is there a chance t future?	hey will use the site	in the	✓
		Can the soil contaminants permeate the skin or within the groups listed below, should be absorption).			√
		Arsenic Cadmium Chlordane 2,4-dichlorophenoxyacetic acid Dioxins DDT	Lindane PAHs Pentachlorophenol PCBs SVOCs		
		If all of the boxes are checked, label this pa	nthway complete: _	Complete	
	b)	Ingestion – 1 Ingestion of Groundwater			
		Have contaminants been detected or are the groundwater, OR are contaminants expecte the future?	· 1		V
		Could the potentially affected groundwater drinking water source? Please note, only le has determined the groundwater is not a cu future source of drinking water according to	eave the box uncheck errently or reasonabl	red if ADEC	V
		If both the boxes are checked, label this par	thway complete:	Complete	

2 3/16/06

Ingestion of Surface Water $\overline{}$ 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? $\overline{}$ 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). Complete If both boxes are checked, label this pathway complete: **Ingestion of Wild Foods** ✓ Is the site in an area that is used or reasonably could be used for hunting, fishing, or harvesting of wild food? **✓** Do the site contaminants have the potential to bioaccumulate (see Appendix A)? **✓** Are site contaminants located where they would have the potential to be taken up into biota? (i.e. the top 6 feet of soil, in groundwater that **could be** connected to surface water, etc.) Complete *If all of the boxes are checked, label this pathway complete:* c) Inhalation 1 Inhalation of Outdoor Air **✓** Is soil contaminated anywhere between 0 and 15 feet bgs? Do people use the site or is there a chance they will use the site in the **✓** future? **✓** Are the contaminants in soil volatile (See Appendix B)? Complete *If all of the boxes are checked, label this pathway complete:* **Inhalation of Indoor Air** Are occupied buildings on the site or reasonably expected to be placed on the site in an area that could be affected by contaminant vapors? (i.e., within 100 feet, horizontally or vertically, of the contaminated soil or groundwater, or subject to "preferential pathways" that promote easy airflow, like utility conduits or rock fractures) $\overline{}$ Are volatile compounds present in soil or groundwater (See Appendix C)?

If both boxes are checked, label this pathway complete:

3/16/06

3. Additional Exposure Pathways: (Although there are no definitive questions provided in this section, these exposure pathways should also be considered at each site. Use the guidelines provided below to determine if further evaluation of each pathway is warranted.)

Dermal Exposure to Contaminants in Groundwater and Surface Water

Exposure from this pathway may need to be assessed only in cases where DEC water-

 quality or drinking-water standards are not being applied as cleanup levels. Examples of conditions that may warrant further investigation include: Climate permits recreational use of waters for swimming, Climate permits exposure to groundwater during activities, such as construction, without protective clothing, or Groundwater or surface water is used for household purposes.
Check the box if further evaluation of this pathway is needed:
Comments:
No further evaluation is necessary since DEC water-quality standards are being applied as cleanup levels.
Inhalation of Volatile Compounds in Household Water
Exposure from this pathway may need to be assessed only in cases where DEC waterquality or drinking-water standards are not being applied as cleanup levels. Examples of conditions that may warrant further investigation include: O The contaminated water is used for household purposes such as showering, laundering, and dish washing, and O The contaminants of concern are volatile (common volatile contaminants are listed in Appendix B)
Check the box if further evaluation of this pathway is needed:
Comments:
No further evaluation is necessary since DEC water-quality standards are being applied as cleanup levels.
Inhalation of Fugitive Dust
 Generally DEC soil ingestion cleanup levels in Table B1 of 18 AAC 75 are protective of this pathway, although this is not true in the case of chromium. Examples of conditions that may warrant further investigation include: Nonvolatile compounds are found in the top 2 centimeters of soil. The top 2 centimeters of soil are likely to be dispersed in the wind as dust particles. Dust particles are less than 10 micrometers. This size can be inhaled and would be of concern for determining if this pathway is complete.

C	heck	the	box	if fu	rther	evalı	ıation	of	this	patl	iway	is	neea	led.	•			⅃

3/16/06

Comments:
No further evaluation is necessary because DEC soil ingestion cleanup levels, which are being applied at this Site, are assumed to be protective of this pathway and chromium is not considered a contaminant of concern at this Site.
Direct Contact with Sediment

This pathway involves people's hands being exposed to sediment, such as during recreational or some types of subsistence activities. People then incidentally **ingest** sediment from normal hand-to-mouth activities. In addition, **dermal absorption of contaminants** may be of concern if people come in contact with sediment and the contaminants are able to permeate the skin (see dermal exposure to soil section). This type of exposure is rare but it should be investigated if:

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

ADEC soil ingestion cleanup levels are protective of direct contact with sediment. If they are determined to be over-protective for sediment exposure at a particular site, other screening levels could be adopted or developed.

screening revers could be adopted of developed.	
Check the box if further evaluation of this pathway is needed:	
Comments:	
No further evaluation of this pathway is necessary as there is no known activities that would result in expediment an exposure media at this Site.	oposure to sediment, nor is

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

5 3/16/06

APPENDIX A

BIOACCUMULATIVE COMPOUNDS

Table A-1: List of Compounds of Potential Concern for Bioaccumulation

Organic compounds are identified as bioaccumulative if they have a BCF equal to or greater than 1,000 or a log K_{ow} greater than 3.5. Inorganic compounds are identified as bioaccumulative if they are listed as such by EPA (2000). Those compounds in Table X of 18 AAC 75.345 that are bioaccumulative, based on the definition above, are listed below.

Aldrin	DDT	Lead
Arsenic	Dibenzo(a,h)anthracene	Mercury
Benzo(a)anthracene	Dieldrin	Methoxychlor
Benzo(a)pyrene	Dioxin	Nickel
Benzo(b)fluoranthene	Endrin	PCBs
Benzo(k)fluoranthene	Fluoranthene	
Cadmium	Heptachlor	Pyrene
Chlordane	Heptachlor epoxide	Selenium
Chrysene	Hexachlorobenzene	Silver
Copper	Hexachlorocyclopentadiene	Toxaphene
DDD	Indeno(1,2,3-c,d)pyrene	Zinc
DDE		

Because BCF values can relatively easily be measured or estimated, the BCF is frequently used to determine the potential for a chemical to bioaccumulate. A compound with a BCF greater than 1,000 is considered to bioaccumulate in tissue (EPA 2004b).

For inorganic compounds, the BCF approach has not been shown to be effective in estimating the compound's ability to bioaccumulate. Information available, either through scientific literature or site-specific data, regarding the bioaccumulative potential of an inorganic site contaminant should be used to determine if the pathway is complete.

The list was developed by including organic compounds that either have a BCF equal to or greater than 1,000 or a log K_{ow} greater than 3.5 and inorganic compounds that are listed by the United States Environmental Protection Agency (EPA) as being bioaccumulative (EPA 2000). The BCF can also be estimated from a chemical's physical and chemical properties. A chemical's octanol-water partitioning coefficient (K_{ow}) along with defined regression equations can be used to estimate the BCF. EPA's Persistent, Bioaccumulative, and Toxic (PBT) Profiler (EPA 2004) can be used to estimate the BCF using the K_{ow} and linear regressions presented by Meylan et al. (1996). The PBT Profiler is located at http://www.pbtprofiler.net/. For compounds not found in the PBT Profiler, DEC recommends using a log K_{ow} greater than 3.5 to determine if a compound is bioaccumulative.

APPENDIX B

VOLATILE COMPOUNDS

Table B-1: List of Volatile Compounds of Potential Concern

Common volatile contaminants of concern at contaminated sites. A chemical is defined as volatile if the Henry's Law constant is 1×10^{-5} atm-m³/mol or greater and the molecular weight less than 200 g/mole (g/mole; EPA 2004a). Those compounds in Table X of 18 AAC 75.345 that are volatile, based on the definition above, are listed below.

Acenaphthene	1,4-dichlorobenzene	Pyrene
Acetone	1,1-dichloroethane	Styrene
Anthracene	1,2-dichloroethane	1,1,2,2-tetrachloroethane
Benzene	1,1-dichloroethylene	Tetrachloroethylene
Bis(2-chlorethyl)ether	Cis-1,2-dichloroethylene	Toluene
Bromodichloromethane	Trans-1,2-dichloroethylene	1,2,4-trichlorobenzene
Carbon disulfide	1,2-dichloropropane	1,1,1-trichloroethane
Carbon tetrachloride	1,3-dichloropropane	1,1,2-trichloroethane
Chlorobenzene	Ethylbenzene	Trichloroethylene
Chlorodibromomethane	Fluorene	Vinyl acetate
Chloroform	Methyl bromide	Vinyl chloride
2-chlorophenol	Methylene chloride	Xylenes
Cyanide	Naphthalene	GRO
1,2-dichlorobenzene	Nitrobenzene	DRO

APPENDIX C

COMPOUNDS OF CONCERN FOR VAPOR MIGRATION

Table C-1: List of Compounds of Potential Concern for the Vapor Migration

A chemical is considered sufficiently toxic if the vapor concentration of the pure component poses an incremental lifetime cancer risk greater than 10-6 or a non-cancer hazard index greater than 1. A chemical

is considered sufficiently volatile if it's Henry's Law constant is 1 x 10⁻⁵ atm-m³/mol or greater.

	Dibenzofuran	Hexachlorobenzene			
Acenaphthene					
Acetaldehyde	1,2-Dibromo-3-chloropropane	Hexachlorocyclopentadiene			
Acetone	1,2-Dibromoethane (EDB)	Hexachloroethane			
Acetonitrile	1,3-Dichlorobenzene	Hexane			
Acetophenone	1,2-Dichlorobenzene	Hydrogen cyanide			
Acrolein	1,4-Dichlorobenzene	Isobutanol			
Acrylonitrile	2-Nitropropane	Mercury (elemental)			
Aldrin	N-Nitroso-di-n-butylamine	Methacrylonitrile			
alpha-HCH (alpha-BHC)	n-Propylbenzene	Methoxychlor			
Benzaldehyde	o-Nitrotoluene	Methyl acetate			
Benzene	o-Xylene	Methyl acrylate			
Benzo(b)fluoranthene	p-Xylene	Methyl bromide			
Benzylchloride	Pyrene	Methyl chloride chloromethane)			
beta-Chloronaphthalene	sec-Butylbenzene	Methylcyclohexane			
Biphenyl	Styrene	Methylene bromide			
Bis(2-chloroethyl)ether	tert-Butylbenzene	Methylene chloride			
Bis(2-chloroisopropyl)ether	1,1,1,2-Tetrachloroethane	Methylethylketone (2-butanone)			
Bis(chloromethyl)ether	1,1,2,2-Tetrachloroethane	Methylisobutylketone			
Bromodichloromethane	Tetrachloroethylene	Methylmethacrylate			
Bromoform	Dichlorodifluoromethane	2-Methylnaphthalene			
1,3-Butadiene	1,1-Dichloroethane	MTBE			
Carbon disulfide	1,2-Dichloroethane	m-Xylene			
Carbon tetrachloride	1,1-Dichloroethylene	Naphthalene			
Chlordane	1,2-Dichloropropane	n-Butylbenzene			
2-Chloro-1,3-butadiene	1,3-Dichloropropene	Nitrobenzene			
(chloroprene)					
Chlorobenzene	Dieldrin	Toluene			
1-Chlorobutane	Endosulfan	trans-1,2-Dichloroethylene			
Chlorodibromomethane	Epichlorohydrin	1,1,2-Trichloro-1,2,2-			
	T · · · · · · · · · · · · · · · · · · ·	trifluoroethane			
Chlorodifluoromethane	Ethyl ether	1,2,4-Trichlorobenzene			
Chloroethane (ethyl	Ethylacetate	1,1,2-Trichloroethane			
chloride)		-,-,-			
Chloroform	Ethylbenzene	1,1,1-Trichloroethane			
2-Chlorophenol	Ethylene oxide	Trichloroethylene			
2-Chloropropane	Ethylmethacrylate	Trichlorofluoromethane			
Chrysene	Fluorene	1,2,3-Trichloropropane			
cis-1,2-Dichloroethylene	Furan	1,2,4-Trimethylbenzene			
Crotonaldehyde (2-butenal)	Gamma-HCH (Lindane)	1,3,5-Trimethylbenzene			
Cumene Crotonardenyde (2-odtenar)	Heptachlor	Vinyl acetate			
DDE	Hexachloro-1,3-butadiene	Vinyl chloride (chloroethene)			
שטענ	11cAaciiioio-1,3-uulaulelle	v myr chioride (chioroethelle)			

Source: EPA 2002.

Guidance on Developing Conceptual Site Models

January 31, 2005

HUMAN HEALTH CONCEPTUAL SITE MODEL

Akiak, <i>i</i>	y Tank Farm and Power Plant Alaska ile Number: 2402.38.005		Follow the directions below. <u>Do not</u> or land use controls when describ			_	eerin	9		
Check the media the could be directly affect by the release. Media Surface Soil (0-2 ft bgs)		(3) Check exposure medidentified in (2). Exposure Media	or need further evaluation. <u>The pathways</u> identified must agree with Sections 2 and 3 of the CSM Scoping Form. Exposure Pathways	ı	Identify the each expose receptors, both current of the first of the current of the first of the current of the	or recreational users or recreations or rec	thway: I uture re uture re Futur	Enter "C ceptors ceptors e Red	C" for cos, or "Cos.	current C/F" for
-	Direct release to subsurface soil Migration to groundwater V Volatilization Other (list):	✓ groundwater	Ingestion of Groundwater Dermal Absorption of Contaminants in Groundwater Inhalation of Volatile Compounds in Tap Water	F						
Ground- water	Direct release to groundwater check groundwater Volatilization check air Flow to surface water body check surface water Flow to sediment check sediment Uptake by plants or animals check biota Other (list):	✓ air	Inhalation of Outdoor Air Inhalation of Indoor Air Inhalation of Fugitive Dust	F	C/F	F	C/F	C/F		
Surface Water	Direct release to surface water Volatilization Sedimentation Uptake by plants or animals Other (list):	surface water	Ingestion of Surface Water Dermal Absorption of Contaminants in Surface Water Inhalation of Volatile Compounds in Tap Water	F	C/I	=	C/F	C/F		
Sediment	Direct release to sediment	sediment biota	Direct Contact with Sediment Ingestion of Wild Foods	F	C/F	=	C/F	C/F		

APPENDIX G DEC EXPOSURE TRACKING MODELS

APPENIX G AKIAK OLD CITY TANK FARM AND POWER PLANT EXPOSURE TRACKING MODELS

The ETM for the Old City Tank Farm portion of the site was current to May 5, 2008. The summary of the ETM results are discussed below. There are three exposure pathways with high potential exposure (direct contact with surface soil, direct contact with subsurface soil, and ground water ingestion) and two exposure pathways with low potential exposure (outdoor air inhalation and surface water ingestion). Ecological receptors have a low potential for exposure. On a scale of 1 to 10, with 10 representing the highest priority, the ETM ranked the tank farm portion of the Site with a score of 3.

The ETM for the Old City Power Plant portion of the Site is current to November 9, 2008. The ETM indicates there are two exposure pathways with high potential exposure (direct contact with surface soil and ground water ingestion) and two exposure pathways with low potential exposure (direct contact with subsurface soil and outdoor air inhalation). Ecological receptors have a low potential for exposure. On November 9, 2009, on a scale of 1 to 10, with 10 representing the highest priority, the ETM ranked the former power plant portion of the Site with a score of 4.

Exposure Tracking Model - Evaluation Summary

Navigation Save Results Add CSP Action

Site Information:

Site: Akiak Old City Tank Farm and Power Plant

Source: Power Plant

Evaluation Date: 11/9/2009 4:41:09 PM

Initial/Updated: Updated

Results Summary:

Human Health Exposure Category: High Potential Exposure

Controlling Pathway(s): Surface Soil, Groundwater Ingestion

Score: 4

Ecological Site Exposure Category: Low Potential Exposure

Potentially-Contaminated Media: Surface Soil, Subsurface Soil, Groundwater, Surface Water

Other Site Concerns: None

Exposure Assessment:					
Pathway	Exposure (Initial Ranking 7/24/2009 3:00:51 PM	Categories Updated Ranking 11/9/2009 4:41:09 PM			
Direct Contact with Surface Soil:	High Potential Exposure	High Potential Exposure			
Direct Contact with Subsurface Soil:	Low Potential Exposure	Low Potential Exposure			
Outdoor Air Inhalation:	Low Potential Exposure	Low Potential Exposure			
Groundwater Ingestion:	High Potential Exposure	High Potential Exposure			
Surface Water Ingestion:	Pathway Incomplete	Pathway Incomplete			
Wild or Farmed Foods Ingestion:	Pathway Incomplete	Pathway Incomplete			
Indoor Air Inhalation (Vapor Intrusion):	Pathway Incomplete	Pathway Incomplete			
Other Human Health:	Pathway Incomplete	Pathway Incomplete			
Ecological:	Low Potential Exposure	Low Potential Exposure			

Initial Ranking Comments

Direct Contact With Surface Soil: (comments - page)

Only info is from photos date 10/13/1999. At the Power plant, more than twenty 55 gal. waste oil drums, a 5 gal. Uncovered waste oil pail, Pools of oil noted on liner, and staining and petroleum odor, were noted.

Direct Contact With Subsurface Soil: (comments - page)

Only info is from photos date 10/13/1999. At the Power plant, more than twenty 55 gal. waste oil drums, a 5 gal. Uncovered waste oil pail, Pools of oil noted on liner, and staining and petroleum odor, were noted.

Outdoor Air Inhalation: (comments - page)

The building is abandoned w/ no inhabitants and the CoC is waste oil and diesel. Therefore exposure via this pathway is assumed to be minimal.

Groundwater Ingestion: (comments - page)

Akiak has puvblic wells but some private wells do exsist. location/ depth of these wells is unknown.

Aquatic and Terrestrial: (comments - page)

Photos indicate stained patches from waste oil drums. It is unknown if these spills have affected the vegetation or not.

Updated Ranking Comments

Direct Contact With Surface Soil: (comments - page)

Only info is from photos date 10/13/1999. At the Power plant, more than twenty 55 gal. waste oil drums, a 5 gal. Uncovered waste oil pail, Pools of oil noted on liner, and staining and petroleum odor, were noted.

Direct Contact With Subsurface Soil: (comments - page)

Only info is from photos date 10/13/1999. At the Power plant, more than twenty 55 gal. waste oil drums, a 5 gal. Uncovered waste oil pail, Pools of oil noted on liner, and staining and petroleum odor, were noted.

Outdoor Air Inhalation: (comments - page)

The building is abandoned w/ no inhabitants and the CoC is waste oil and diesel. Therefore exposure via this pathway is assumed to be minimal.

Groundwater Ingestion: (comments - page)

Akiak has puvblic wells but some private wells do exsist. location/ depth of these wells is unknown.

Aquatic and Terrestrial: (comments - page)

Photos indicate stained patches from waste oil drums. It is unknown if these spills have affected the vegetation or not.

Exposure Tracking Model - Evaluation Summary

Navigation Lock Initial

Site Information:

Site: Akiak Old City Tank Farm and Power Plant

Source: Old AST Farm **Evaluation Date:** 5/8/2008 4:12:08 PM

Initial/Updated: Initial

Results Summary:

Human Health Exposure Category: High Potential Exposure

Controlling Pathway(s): Subsurface Soil, Groundwater Ingestion, Surface Soil

Score: <u>3</u>

Ecological Site Exposure Category: Low Potential Exposure

Potentially-Contaminated Media: Surface Soil, Subsurface Soil, Groundwater, Surface Water

Other Site Concerns: None

xposure Assessment:				
Pathway	Exposure C Initial Ranking 5/9/2008 8:51:02 AM	Categories Updated Ranking		
Direct Contact with Surface Soil:	High Potential Exposure			
Direct Contact with Subsurface Soil:	High Potential Exposure			
Outdoor Air Inhalation:	Low Potential Exposure			
Groundwater Ingestion:	High Potential Exposure			
Surface Water Ingestion:	Low Potential Exposure			
Wild or Farmed Foods Ingestion:	Pathway Incomplete			
Indoor Air Inhalation (Vapor Intrusion):	Pathway Incomplete			
Other Human Health:	Pathway Incomplete			
Ecological:	Low Potential Exposure			

Initial Ranking Comments

Direct Contact With Surface Soil: (comments - page)

Potential contamination is located in a former area of UST. Soil contamination, leaky waste oil drums, fuel smells, and sheening in a water puddle observed at site. Soil sample taken at 3.5 feet bgs was below ADEC cleanup levels.

Direct Contact With Subsurface Soil: (comments - page)

Historic contamination evident. Effect on subsurface contamination unknown.

Outdoor Air Inhalation: (comments - page)

petroleum contamination is historic, sinifigant exposure via inhalation is unlikely

Groundwater Ingestion: (comments - page)

A new well, water treatment plant and storage tank were recently completed. The school and clinic are connected directly to the water plant. Individual wells, septic systems and plumbing were installed in 14 HUD homes during 1997.

Updated Ranking Comments

APPENDIX H PHASE I ENVIRONMENTAL SITE ASSESSMENT



PHASE I SITE ASSESSMENT REPORT

OLD CITY TANK FARM AND POWER PLANT AKIAK, ALASKA

Prepared for:

Alaska Department of Environmental Conservation Contaminated Sites Program Division of Spill Prevention and Response 610 University Avenue Fairbanks, Alaska 99seventy9-3643

Prepared by:

Christina Bentz Project Geologist

Reviewed by:

Eugene T. Watson, P.G. Principal Geologist

April 2010 Project # 005.0065.09015

SITE DESCRIPTION

SLR International Corp (SLR) has performed a Phase I Environmental *Site* Assessment (ESA) of the Akiak Old City Tank Farm and Power Plant (the *Site*). These facilities have been replaced with a new tank farm and power plant and are no longer in service. The *Site* is located in the City of Akiak, Alaska in Section 32, Township 10 North, Range 67 West of the Seward Meridian. Akiak is located on the west bank of the Kuskokwim River, 42 air miles northeast of Bethel, on the Yukon-Kuskokwim Delta.

The City of Akiak has a population of approximately 309 people, who rely heavily on subsistence hunting and fishing activities. Akiak is a Yup'ik Eskimo village with a federally-recognized tribe, the Akiak Native Community (ANC) (DCCED, 2009).

The *Site* is located in the northern portion of Akiak, approximately 1,000 feet west of the Kuskokwim River. The *Site* is currently divided by a road, with the former tank farm and power plant on opposite sides. Akiak residents must traverse this road in order to reach the fuel-dispensing island associated with the new tank farm. An underground pipeline running from the old tank farm to the former power plant was used during operation; thus, the area of the *Site*, as described in this assessment, encompasses both facilities and the road between them (approximately 45,000 square feet). Access to the *Site* is unrestricted. The *Site* is shown on Figure 3 of the Property Assessment and Cleanup Plan (PACP).

The *Site* was developed in 1977 and operated by the City of Akiak Electric Utility until approximately 2000. The *Site* contained an aboveground storage tank (AST) farm with two ASTs having a total capacity of 42,000 gallons. The tank farm was used to store and supply fuel for the former power plant. The *Site* is owned by the City of Akiak.

Flooding of the Kuskokwim River in 2009 toppled over the two ASTs. The ASTs were outside of their containment and appeared to be empty at the time the *Site* was visited by SLR. No stained soil or pooled liquids indicating a recent release were observed, although historical petroleum contamination has been documented at the *Site* in previous reports and described in interviews.

The former power plant building remains on the *Site*. The building was originally built in the late 19seventys and is approximately 25 feet by 30 feet in size. The building was impacted by flooding in the spring of 2009 with the high water mark approximately 2 feet above the floor of the building, which is elevated on pilings. The floor of the building was heavily stained by diesel fuel or used oil.

The following potentially hazardous substances and petroleum products were observed at the *Site*: old mechanical devices and other debris, approximately seventy 5-gallon buckets containing waste oil, lead-acid batteries, generators, and transformers. The majority of these items are

within the former power plant building, but at least one generator, one transformer, one 55-gallon drum, and one 5-gallon container of waste oil are present outside of the building.

REPORT SUMMARY

REPORT SECTION	REC ¹	HREC ²	DATA GAP	COMMENTS
Site Reconnaissance	Yes	No	No	Potentially hazardous materials and petroleum products were observed at the <i>Site</i> . Stressed vegetation was noted on the west side of the power plant building.
Surrounding Property Reconnaissance	No	No	No	The new tank farm and associated dispenser are located approximately 120 feet from the <i>Site</i> ; there is no indication that spills or leaks have occurred at these locations.
Environmental Records Review	No	No	No	None.
Historical Records Review	Yes	No	No	The historical records reviewed indicated the presence of diesel range organics in soil at concentrations above Department of Environmental Conservation (DEC) Method Two Soil Cleanup Levels. In addition, historical records indicate the presence of 55-gallon drums on the west side of the power plant building.
Interviews	Yes	No	No	An interview conducted with the former power plant operator indicated that petroleum hydrocarbon spills and leaks have occurred at the <i>Site</i> . These are discussed in detail in Section 3 of this document.
User Information	Yes	No	No	Reports provided by DEC indicated a previous spill, drums of waste oil stored at the <i>Site</i> , and soil impacted by petroleum hydrocarbons.

¹ Recognized Environmental Condition (REC)

² Historical Recognized Environmental Condition (HREC)

CONCLUSIONS

Recognized Environmental Conditions

SLR has performed a Phase I ESA of the Old City Tank Farm and Power Plant located in Akiak Alaska. The Phase I ESA was performed in conformance with the scope and limitations of American Society for Testing and Materials (ASTM) Practice E 1527-05. Exceptions to, or deletions from, this practice are described in Section 5.0 of this report. This assessment has revealed no evidence of *recognized environmental conditions* in connection with the *Site*, with the exception of the following:

- Previous reports have documented releases of fuel resulting in impact to soil.
- Hazardous materials consisting of old mechanical devices and other debris, approximately seventy 5-gallon containers of waste oil containers, lead-acid batteries, generators, and transformers are present at the *Site*.
- Stressed vegetation on the west side of the power plant building in the area of a former used-oil storage area.

Historical Recognized Environmental Conditions

This assessment has revealed no *historical recognized environmental condition* in connection with the *Site*.

I declare that, to the best of my professional knowledge and belief, I meet the definition of *Environmental Professional*, as defined in Code of Federal Regulations (CFR) Title 40, Section 312.10;

And

I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the *Site*. I have developed and performed the all appropriate inquiry in conformance with the standards and practices set forth in 40 CFR Part 312.

Environmental Professional:				
Stephen				
EP's Name:				
Eugene T. Watson, P.G.				
EP's Title:				
Principal				

DATE:

April 2010

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1.1 PROJECT INFORMATION

Client ("User") City of Akiak Consultant **SLR International Corp** Information: P.O. Box 52028 Information: 4601 Business Park Blvd... Akiak, Alaska 99552 Suite K42 Anchorage, AK 99503 **Client Contact Program Manager** Name: Adam Kashatok Name: Mike Rieser Phone: Phone: (907) 765-7411 (9seventy) 222-1112 E-mail: mrieser@slrcorp.com Site Latitude / 60° 53' 31.9"(N) / 161°12' 90"(W) **Inspection Date:** September 28, 2009 and Longitude: October 29, 2009 NAD83 Site Information: Old City Tank Farm and Power **Interview Date:** November 2009 Plant **Records Date:** November 2009 Akiak, Alaska **Report Date:** April 2010 Site Assessor: Christina Bentz Senior Reviewer: Gene Watson

1.2 OBJECTIVE

The objective of this Phase I Environmental *Site* Assessment (ESA) was to identify, to the extent feasible pursuant to the processes outlined in the scope of work, *recognized environmental conditions* (*RECs*), or *historical recognized environmental conditions* (*HRECs*), as defined by the ASTM Standard Practice for Environmental *Site* Assessments: Phase I Environmental *Site* Assessment Process, ASTM Practice E 1527-05 (ASTM E1527), and other environmental concerns that were neither *RECs* or *HRECs* for the *Site*.

The ASTM Practice defines a REC as:

"...the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicated an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property. The term includes hazardous substances or petroleum products even under conditions in compliance with laws. The term is not intended to include *de minimis conditions* that generally do not present a material risk of

harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate government agencies..."

The ASTM Practice defines a HREC as:

"...an environmental condition, which in the past would have been considered a *REC*, but which may or may not be considered a *REC* currently. The final decision rests with the *environmental professional* and will be influenced by the current impact of the *HREC* on the *Site*. If a past release of any hazardous substances or petroleum products has occurred in connection with the property and has been remediated, with such remediation accepted by the responsible regulatory agency, this condition shall be considered an *HREC*..."

1.3 PURPOSE

This assessment is intended to provide the due diligence necessary to allow for the City of Akiak, the Akiak Native Community (ANC), and the Middle Kuskokwim Consortium (MKC) to apply for federal funding to clean up the *Site*. This assessment constitutes all appropriate inquiry into the previous ownership and uses of the *Site* consistent with good commercial or customary practice, as defined in the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) at U.S. Code Title 42, Chapter 103, Subchapter I, Section 9601(35)(B).

1.4 Scope of Work, Significant Assumptions, Terms and Conditions

The scope of work, significant assumptions, and terms and conditions applicable to this Phase I ESA are identified in the following documents:

- ASTM Standard Practice E 1527-05.
- Statement of Limitations presented as Appendix D of this report.

1.5 RELIANCE

This report was prepared for the exclusive use of City of Akiak, ANC, MKC, and the DEC. No other entity may rely on the information presented in the report without the express written consent of SLR International Corp (SLR). Any use of this Phase I ESA report constitutes acceptance of the terms and conditions under which it was prepared. SLR's liability extends only to its client and not to any other parties who may obtain or use this report.

1.6 USER-PROVIDED INFORMATION

SLR requested the following information from the *User* of this Phase I ESA report:

USER-PROVIDED INFORMATION	FINDINGS
Information on environmental liens on the Site:	The <i>User</i> indicated that there are no environmental liens on the <i>Site</i> . An Environmental LienSearch™ was requested from Environmental Data Resources Inc. (EDR) in November 2009. No environmental liens were reported by EDR.
Information on Site activity and use limitations (AULs):	The <i>User</i> indicated that there are no AULs on the <i>Site</i> An Environmental LienSearch™ was requested from EDR in November 2009. No environmental AULs were reported by EDR.
Specialized knowledge or experience of the <i>User</i> that is material to RECs in connection with the <i>Site</i> :	The <i>User</i> has no specialized knowledge or experience regarding RECs at the <i>Site</i> .
Knowledge that Site purchase/sale price is significantly lower than market value:	This report was prepared for the purpose of helping the <i>User</i> prepare a property assessment and cleanup plan to ultimately clean up the <i>Site</i> and restore it to its natural state; there will not be a sale of real property.
Commonly known or reasonably ascertainable information about the <i>Site</i> material to RECs:	The <i>User</i> is not aware of commonly known or reasonable ascertainable information about RECs at the <i>Site</i> .
Reason why the <i>User</i> wants to have the Phase I ESA performed:	The Phase I ESA was requested to meet the requirements for the Brownfield application submitted by ANC through MKC

1.7 PROVIDED DOCUMENTS

The following documents were provided by DEC:

- Preliminary Site Assessment Report on Akiak, Alaska, October 13-14, 1999 (DEC, 1999); and
- Akiak Aboveground Storage Tank Farm *Site* Reconnaissance, Akiak, Alaska (E&E, 2000).

Key findings from these documents are described below; copies of the complete documents are provided in Appendix A of this report. In addition, a copy of the Brownfield application was provided by DEC and is provided as Appendix A to the PACP.

1.7.1 1999 Preliminary Site Assessment Report

This report described a documented release of approximately 250 gallons of diesel fuel at the Old City Tank Farm on July 10, 1999 (DEC Spill Number 99279919101). Four 55-gallon drums

of diesel fuel were recovered from within the diked area. However during the response, the liner was accidentally torn and an unknown amount of diesel fuel escaped into the surrounding soil (DEC, 1999).

During the October 1999 site visit, contamination was observed at the spill site (described above) and a petroleum hydrocarbon-like odor was noted in the gravel. Twenty 55-gallon covered drums containing waste oil were observed behind the green generator house on a thick, black liner. Pools of thick, black oil were observed on the liner and staining was noted on soils near the drums and beneath the generator house (DEC, 1999).

1.7.2 Akiak Aboveground Storage Tank Farm Site Reconnaissance

In September 2000, Ecology and Environment, Inc. (E&E) conducted an assessment of the Old City Tank Farm and Power Plant that included the collection of soil samples. At the time of the assessment the tank farm was not in use. Seven field screening samples were collected for heated headspace analysis using a photoionization detector (PID). Field screening results ranged from 3.6 parts per million (ppm) to 28.5 ppm. One analytical sample was also collected and analyzed for gasoline range organics (GRO); diesel range organics (DRO); and benzene, toluene, ethylbenzene, and xylenes (BTEX). GRO, toluene, ethylbenzene, and xylenes were detected at concentrations below DEC Method Two soil cleanup levels. GRO was detected at 5.2 milligrams per kilogram (mg/kg), and toluene, ethylbenzene, and xylene concentrations ranged from 0.089 mg/kg to 0.17 mg/kg. Benzene was not detected. DRO was detected at 5,seventy0 mg/kg, which is above the DEC Method Two soil cleanup level of 250 mg/kg (E&E, 2000).

2.1 FEDERAL/STATE ENVIRONMENTAL RECORDS

A regulatory agency database search report was obtained from a third-party environmental database search firm. A complete copy of the database, including the date the report was prepared, the date the information was last updated, and the definition of databases searched, is provided in Appendix C.

AGENCY LIST/DATABASE	SEARCH RADIUS	NUMBER OF LISTED SITES
Federal NPL	1.0 mile	0
Federal CERCLIS List	0.5 mile	0
Federal CERCLIS NFRAP	0.5 mile	0
Federal RCRA CORRACTS	1.0 mile	0
Federal RCRA Non-CORRACTS TSD	0.5 mile	0
Federal RCRA Generators	0.25 mile	0
Federal Institutional Control/Engineering Control Registry	0.5 mile	0
Federal ERNS	Site only	0
State and Tribal-Equivalent NPL	1.0 mile	1
State and Tribal – Hazardous Waste	0.5 mile	0
State and Tribal Solid Waste Facilities	0.5 mile	0
State and Tribal UST/AST Sites	0.25 mile	0
State and Tribal LUST Sites	0.5 mile	0
State and Tribal Institutional Control/Engineering Control Registry	0.5 mile	0
State and Tribal Voluntary Cleanup Sites	0.5 mile	0
State and Tribal Brownfields' Sites	0.5 mile	11

¹ The *Site* was listed as described below.

2.1.1 Listings for the *Site*

The *Site* was listed in the orphan summary as a State and Tribal Brownfields' *Site*. This Phase I ESA is being conducted at the request of the DEC Brownfields' program.

2.1.2 Listings for Nearby Sites with Potential to Impact Site

One listed site was listed in the report, AKARNG AKIAK FSA; however, the location in the report did not appear to be correct, and there is no known facility by this name in the area surrounding the *Site*.

2.2 LOCAL/REGIONAL ENVIRONMENTAL RECORDS

SLR contacted the following sources to request information pertaining to *Site* use and/or indicative of *REC*s in connection with the *Site*. The following information was requested, as appropriate, from these agencies:

- Local Brownfield lists
- Local lists of landfills/solid waste disposal sites,
- Local lists of hazardous waste/contaminated sites,
- Local lists of registered storage tanks,
- Local land records (for activity and use limitations),
- Records of emergency release reports,
- Records of contaminated public wells, and
- Records of PCBs on Site.

The *Site* is managed by agencies located in the community of Akiak. The agencies knowledgeable about the *Site* include the City of Akiak, ANC, and MKC. Members of these agencies provided information regarding the *Site*; this information is described in Sections 1.6, 1.7, and 3.0 through 3.7 of this document.

2.3 HISTORICAL RECORDS

Obvious uses of the *Site* have been identified from the present, back to the first developed use, or 1940, whichever was earlier. Historical data were reviewed in five-year intervals, unless it was determined that the specific use appeared unchanged over a period longer than five years.

2.3.1 Recorded Land Title Records

According to Adam Kashatok, City Administrator for the City of Akiak, the *Site* is owned by the City of Akiak; however, no records were obtained to confirm this.

2.3.2 Aerial Photographs

YEAR	SCALE	OBSERVATIONS, SITE AND ADJOINING PROPERTIES
1977	1"=50'	The <i>Site</i> is mostly undeveloped with two ASTs present (one standing and one toppled). The area around the tanks and the future location of the power plant building are cleared, but the surrounding area is heavily vegetated.
1982	1"=50'	The area around the tank farm and power plant building are cleared. Access to the <i>Site</i> is visible as trails. Only one AST is present at the <i>Site</i> at this time. Eleven drums and other containers are visible north (3) and east (8) of the power plant building. Three transformers also appear on the south side of the power plant building.
2000	1"=50'	The <i>Site</i> is configured similar to present day with the new tank farm visible to north and a gravel road running through the <i>Site</i> . The tank farm contains two upright ASTs on wooden platforms with a berm around them. One drum is visible south of the ASTs and a small tank is located approximately 60 feet west of the ASTs; it is unknown if these fuel containers are associated with the <i>Site</i> . The power plant building still has three transformers on the south side of the building, but at least 16 drums are present on the west side of the building. In addition, a cluster of drums are visible approximately 60 feet south of the building on the other side of a gravel drive; it is unknown if these drums are associated with the <i>Site</i> .
2005	1"=50'	The <i>Site</i> looks similar to that described in the 2000 photo, with the following exceptions: the drum on the south side of the ASTs is no longer present and three drums are located adjacent to the small tank located approximately 60 feet west of the ASTs; it is unknown if these fuel containers are associated with the <i>Site</i> . In addition, only one transformer is visible south of the power plant building and no drums can be seen on the west side of the building or approximately 60 feet south of the building on the other side of the gravel drive.

Source of aerial photographs: Aero-Metric, Inc. 2014 Merrill Field Drive, Anchorage, Alaska 99501. Aerial photographs are available in Appendix B.

2.3.3 City Directories

The Site is located in a remote area of Alaska and is not included a city directory.

2.3.4 Historical Fire Insurance Maps

YEAR	OCCUPANT OF SITE/ADJOINING PROPERTIES; HAZARDOUS MATERIAL STORAGE
2009	The Site is an unmapped property. No historical fire insurance maps exist for this area.

Name of maps and source: Environmental Data Resources Inc. Sanborn® Map report.

2.3.5 Historical Topographic Maps

YEAR	SCALE	OBSERVATIONS	
1954	1:63,360'	The community of Akiak is visible on the map.	
1980	1:250,000'	The community of Akiak is visible on the map.	
1987	1:250,000'	The community of Akiak is visible on the map.	

Name of maps and source: Environmental Data Resources Inc. Historical Topographic Map report.

2.3.6 Other Historical Sources

There were no other sources of historical information reviewed during this assessment.

2.4 PHYSICAL SETTING

PHYSICAL SETTING	INFORMATION	
Topography	Most of the region surrounding the <i>Site</i> is relatively flat and slopes gently toward the Kuskokwim River to the east. The <i>Site</i> is located at an elevation of 20 feet above sea level and is within the flood zone of the Kuskokwim River.	
Soil/Bedrock Data	Akiak is located in the Yukon-Kuskokwim delta area, which is comprised largely of Quaternary alluvial deposits which have been built up through the slow accumulation of sand and silt deposited by the Yukon and Kuskokwim rivers. The lithology in this area consists of peat to approximately 3 feet bgs underlain by silty sand, which may be frozen depending on the time of year, to at least 140 feet bgs. Below 140 feet bgs, silty sand, gravel, and clay layers are all present. The dominant soil composition in the general area of the <i>Site</i> consists of a histic pergelic cryaquepts with very slow infiltration raters. The depth to bedrock is greater than 60 inches; bedrock type was not specified.	
Estimated Depth to Ground Water/ Direction of Gradient	Surface topography is likely indicative of the direction of the ground water flow; which, if true, would be toward the Kuskokwim River. No ground water monitoring data were available for this assessment. <i>Site</i> characterization activities conducted in 2009 by SLR at locations in Akiak (approximately 1,100 to 1,300 feet from the <i>Site</i>) did not encounter ground water between 0 and 14 feet below ground surface.	

Sources of this information: EDR Environmental Data

2.5 SITE AND SURROUNDING AREA RECONNAISSANCE

The Old City Tank Farm and Power Plant site is located in the northern portion of Akiak, approximately 1,000 feet west of the Kuskokwim River. The former power plant building is located several hundred feet from the old tank farm. SLR's site visit was coordinated by Sammy Jackson, a Brownfield Representative for MKC. SLR visited the *Site* on two occasions. The first visit was conducted on September 28, 2009 and the second on October 30, 2009. The weather conditions at the time of the first visit were light rain and approximately 40°F. The weather at the time of the second visit were light wind and approximately 20°F, with about 4 inches of snow on the ground.

2.6 METHODOLOGY

SLR utilized the following methodology to observe the *Site*:

- Traverse the outer *Site* boundary.
- Traverse across the *Site*.

2.7 RESTRICTIONS

RESTRICTION TYPE	COMMENTS
Weather-related restrictions:	No weather-related restrictions were encountered during the September site visit; however, snow was present on the ground during the October site visit, prohibiting further evaluation of the ground surface.
Facility access restrictions:	Access to the inside of the former power plant building is limited by the presence of approximately seventy 5-gallon waste oil containers and other miscellaneous items that cover the floor of the building.
Client-related restrictions:	None.

2.8 GENERAL DESCRIPTION

2.8.1 Site and Area Description

The *Site* is located in the City of Akiak, Alaska in Section 32, Township 10 North, Range 67 West of the Seward Meridian. Akiak is located on the west bank of the Kuskokwim River, 42 air miles northeast of Bethel, on the Yukon-Kuskokwim Delta.

The City of Akiak is comprised of approximately 309 persons, who rely heavily on subsistence hunting and fishing activities. Akiak is a Yup'ik Eskimo village with a federally-recognized tribe, the Akiak Native Community (ANC) (DCCED, 2009).

The *Site* is located in the northern portion of Akiak, approximately 1,000 feet west of the Kuskokwim River. The *Site* is currently divided by a road, with the former tank farm and power plant on opposite sides. Akiak residents must traverse this road in order to reach the fuel dispensing island associated with the new tank farm. An underground pipeline running from the old tank farm to the former power plant was used during operation and thus, the area of the *Site*, as described in this assessment, encompasses both facilities and the road between them (approximately 45,000 square feet). Access to the *Site* is unrestricted. The *Site* is shown on Figure 3 of the Property Assessment and Cleanup Plan (PACP) to which this document is attached.

The *Site* was developed in 1977 and operated by the City of Akiak Electric Utility approximately 2000. The *Site* contained an aboveground storage tank (AST) farm with two ASTs having a total capacity of 42,000 gallons. The tank farm was used to store and supply fuel for the former power plant. The *Site* is owned by the City of Akiak.

Flooding of the Kuskokwim River in 2009 toppled over the two ASTs. The ASTs were outside of their containment and appeared to be empty at the time the *Site* was visited by SLR. No

stained soil or pooled liquids indicating a recent release were observed, although historical petroleum contamination has been documented at the *Site* in previous reports and described in interviews.

The former power plant building remains on the *Site*. The building was originally built in the late 19seventys and is approximately 25 feet by 30 feet in size. The building was impacted by flooding in the spring of 2009 with the high water mark approximately 2 feet above the floor of the building, which is elevated on pilings. The floor of the building was heavily stained by diesel fuel or used oil.

The following potentially hazardous substances and petroleum products were observed at the *Site*: old mechanical devices and other debris, approximately seventy 5-gallon containers of waste oil, lead-acid batteries, generators, and transformers. The majority of these items are within the former Power Plant building, but at least one generator, one transformer, one 55-gallon drum, and one 5-gallon waste oil container are present outside of the building.

INFORMATION	FINDING
Estimated % of Site location covered by buildings and/or pavement:	2%
Observed evidence of past Site use(s):	Two ASTs are present at the location of the tank farm. The power plant building still contains generators, transformers, lead-acid batteries, and waste oil inside the building. Outside the building, one generator and one transformer were also observed.
Sewage disposal method (and age):	There is no sewage disposal at the Site.
Source of potable water:	There is no source of potable water at the Site.
Electric utility:	There is no electric utility currently at the Site. Overhead power lines are present and are located directly over the power plant building.

2.9 EXTERIOR OBSERVATIONS

SLR made the following observations during the reconnaissance of the Site.

OBSERVATION	DESCRIPTION
Roads or paths with no apparent outlet observed on the Site:	A road leading to the new tank farm runs through the <i>Site</i> and has no apparent outlet.
On-site pits, ponds, or lagoons:	None observed.
Stained soil or pavement:	None observed.
Stressed vegetation:	Stressed vegetation was observed on the west side of the power plant building.

OBSERVATION	DESCRIPTION
On-site solid waste disposal:	None observed.
Waste water:	None observed.
Storm water:	Storm water at the Site likely infiltrates.
Wells:	The closest known well in Akiak is approximately 800 feet from the Site.
Septic systems:	None observed.

2.10 Interior Observations

The power plant consists of a single building that was impacted by flooding in 2009. The building is approximately 25 feet by 30 feet. The building still contains generators, transformers, lead-acid batteries, and waste oil inside the building.

2.11 HAZARDOUS SUBSTANCES AND PETROLEUM PRODUCTS

SLR made the following visual and/or physical observations during the site reconnaissance and/or identified the presence of the following during the interview or records review portions of the assessment:

OBSERVATION	DESCRIPTION
Hazardous substances and petroleum products on site during site visit:	The following potentially hazardous substances and petroleum products were observed at the <i>Site</i> : old mechanical devices and other debris, approximately seventy 5-gallon containers of waste oil, lead-acid batteries, generators, and transformers. The majority of these items are within the former power plant building, but at least one generator, one transformer, one 55-gallon barrel, and one 5-gallon waste oil container are present outside of the building.
Hazardous substances historically stored on site:	Diesel was previously stored in the two 20,000-gallon ASTs and used to operate the power plant. In addition a seventy-gallon day tank was present inside the power plant building. Used oil was stored in 55-gallon drums behind the building (west side) until approximately 1998. Since that time, used soil was stored in 5-gallon containers at the <i>Site</i> .
Strong, pungent, or noxious odors:	None observed.
Pools of liquid:	None observed.
Unidentified substance containers:	None observed.
PCB-containing equipment:	Transformers and other power-generating equipment were observed at the <i>Site</i> . It is unknown whether this equipment is PCB-containing or not.

2.12 UNDERGROUND STORAGE TANKS/STRUCTURES

UST/STRUCTURE	OBSERVATIONS
Existing USTs:	None observed.
Former USTs:	None observed.
Other Underground Structures:	Interviews indicated that a fuel pipeline runs between the tank farm and the power plant building. No evidence of this pipeline was observed during the <i>Site</i> visit.

2.13 ABOVEGROUND STORAGE TANKS

AST	OBSERVATIONS
Existing ASTs:	Two ASTs were observed at the tank farm. Both tanks were toppled and appeared empty.
Former ASTs:	None observed.

2.14 ADJOINING PROPERTIES

2.14.1 Current Uses of Adjoining Properties

North:	New Akiak tank farm and associated dispenser island.
East:	Undeveloped land for approximately 350 feet. Between 350 feet and 1,000 feet are residential properties. The Kuskokwim River is approximately 1,000 feet to the east.
South:	Residential properties are located south of the Site.
West:	Undeveloped land is directly west of the Site.

2.14.2 Observed Evidence of Past Uses of Adjoining Properties

North:	Prior to the new tank farm, there is no evidence of past uses of the adjoining property. Aerial photographs dating back to 1977 show the area as heavily vegetated.
South:	There is no evidence of past uses of the adjoining property other than as residential or undeveloped property.
East:	There is no evidence of past uses of the adjoining property other than as residential or undeveloped property.
West:	There is no evidence of past uses of the adjoining property.

2.14.3 Pits, Ponds or Lagoons on Adjoining Properties

North:	None observed.
South:	None observed.
East:	None observed.
West:	None observed.

2.15 OBSERVED PHYSICAL SETTING

OBSERVED PHYSICAL SETTING	
Topography of the <i>Site</i> locations and surrounding area:	Most of the region surrounding the <i>Site</i> is relatively flat and slopes gently toward the Kuskokwim River to the east. The <i>Site</i> is located at an elevation of 20 feet above sea level and is within the flood zone of the Kuskokwim River.

3.1 FINDINGS FROM INTERVIEW WITH USER

INTERVIEW QUESTIONS	FINDINGS
Name, Title, Telephone Years Familiar with Site	Adam Kashatok, Administrator for the City of Akiak, (907) 765-7411. Familiar with the <i>Site</i> since 1980.
Current Use of Site:	The Site is not currently used.
Past Use(s) of Site:	The Site was previously used for the generator system and associated tank farm.
Current Use of Surrounding Properties:	The surrounding land is not used.
Past Use(s) of Surrounding Properties:	Mr. Kashatok was unsure of the past usage of the surrounding properties.
Current or Past Hazardous/ Petroleum Material Use, Storage, Disposal:	Mr. Kashatok noted there were two ASTs at the Site that were used to hold fuel.
Current or Past Regulatory Action(s):	None.
Past Releases of Hazardous/Petroleum Materials on the Property:	None.
Other Environmental Information (Permits, etc.):	None.

3.2 FINDINGS FROM INTERVIEW WITH KEY PROPERTY MANAGER

INTERVIEW QUESTIONS	FINDINGS
Name, Title, Telephone	Sam Jasper, former power plant operator (October 1988 to October 2008).
Years Familiar with Site	Intimately familiar with Site since 1988.
Current use of Site:	Use of the tank farm and power plant ceased in approximately 2000, and the property has remained unused since that time.
Past Use(s) of Site:	The Site was previously used for a tank farm and power plant. No other previous uses were identified.
Current Use of Surrounding Properties:	Not discussed.

INTERVIEW QUESTIONS	FINDINGS		
Past Use(s) of Surrounding Properties:	None.		
Current or Past Hazardous/ Petroleum Material Use, Storage, Disposal:	There are two ASTs at the <i>Site</i> ; one 20,000-gallon AST and one 22,000-gallon AST. The tanks were filled every fall. There was also a day tank inside the power plant building. Prior to 1988, used oil was stored in 20 to 25 drums at the <i>Site</i> . It was indicated that a few of the drums may have contained antifreeze. After 1998, used oil was stored inside the power plant building in 5-gallon buckets.		
Current or Past Regulatory Action(s):	None.		
Past Releases of Hazardous/Petroleum Materials on the Property:	Mr. Jasper indicated he was aware of two past. The first occurred when approximately one gallon of fuel was spilled from overfilling one of the ASTs in the early 1990s. The second occurred when Mr. Jasper discovered a leak from a 3/4-inch pipe that ran from the tank farm to a day tank inside the power plant building. Mr. Jasper and his co-worker dug out what contaminated soil they could and backfilled the area with gravel. He believes that some contamination remains.		
Other Environmental Information (Permits, etc.):	None.		

3.3 REQUIRED QUESTIONS

SLR interviewed the User/Owner and Key *Site* Manager regarding their awareness of any pending, threatened, or past incidences of the following:

INTERVIEW QUESTIONS	OWNER	KEY SITE MANAGER	USER
Litigation Relevant to Hazardous Substances or Petroleum Products in, on, or from the Site?	No	No	No
Administrative Proceedings Relevant to Hazardous Substances or Petroleum Products in, on, or from Site or either location?	No	No	No
Notices From Any Governmental Entity Regarding Possible Violations of Environmental Laws or Possible Liability Relating to Hazardous Substances?	No	No	No

3.4 FINDINGS FROM INTERVIEWS WITH MAJOR OCCUPANTS

There are no other major occupants at the *Site* besides the City of Akiak; therefore, no other occupants were interviewed.

3.5 FINDINGS FROM INTERVIEWS WITH PAST OWNERS AND OCCUPANTS

SLR has attempted to interview past owners and occupants who are likely to have material information regarding the potential for contamination at the *Site* to the extent that they have been identified and that the information likely to be obtained is not duplicative of information already obtained from other sources.

No past owners or occupants were identified or interviewed.

3.6 FINDINGS FROM INTERVIEWS WITH NEIGHBORING OWNERS OR OCCUPANTS

Neighboring owners or occupants are only interviewed if the *Site* was abandoned and there was evidence of potential unauthorized use or uncontrolled access to the *Site*. While access to the *Site* is not currently used, it is still owned by the City of Akiak and is not considered abandoned.

3.7 FINDINGS FROM INTERVIEWS WITH OTHERS

Others were interviewed primarily to support preparation of the PACP. These individuals include Sheila Williams, ANC Tribal Administrator, and Sammy Jackson, Brownfield Coordinator for MKC. The only additional information gained pertinent to this Phase I is that Ms. Williams reported that the *Site* is in the flood zone, and during spring thaw, a strong heating oil smell is observed.

Data gaps are a lack of or an inability to obtain information required by the ASTM Practice E 1527-05 despite good-faith efforts by the environmental professional to gather such information. Data gaps may have resulted from incompleteness in any of the activities required in ASTM Practice E 1527-05, including, but not limited to the site reconnaissance, records review, or interviews. The presence of a data gap may or may not present a REC due to the possibility that a REC could be discovered if the missing information is obtained.

One data gap was identified during the performance of this assessment: no records were available for the *Site* for the period of time before 1977. An attempt was made to fill this data gap; however, the aerial photograph review indicated that the area including the *Site* was heavily vegetated with no significant development prior to the late 19seventys. In addition, the village of Akiak was located on the other side of the Kuskokwim River and relocated to its current location sometime in the 1960s. This data gap does not impact the conclusions of this report.

5.1 RECOGNIZED ENVIRONMENTAL CONDITIONS

5.1.1 Recognized Environmental Conditions

SLR has performed a Phase I ESA of the Old City Tank Farm and Power Plant located in Akiak Alaska. The Phase I was performed in conformance with the scope and limitations of ASTM Practice E 1527-05. Exceptions to, or deletions from, this practice are described in Section 5.0 of this report. This assessment has revealed no evidence of *RECs* connection with the *Site*, with the exception of the following:

- Previous reports have documented releases of fuel resulting in impact to soil.
- Hazardous materials consisting of old mechanical devices and other debris, approximately seventy 5-gallon waste oil containers, lead-acid batteries, generators, and transformers are present at the *Site*.
- Stressed vegetation on the west side of the power plant building in the area of a former used-oil storage area.

5.1.2 Historical Recognized Environmental Conditions

This assessment has revealed no *historical recognized environmental condition* in connection with the *Site*.

USER-PROVIDED INFORMATION

DEPARTMENT OF ENVIRONMENTAL CONSERVATION

DIVISION OF SPILL PREVENTION AND RESPONSE STORAGE TANK PROGRAM

TONY KNOWLES. GOVERNOR

555 Cordova Street Anchorage, *Alaska 99501 PHONE: (907) 269-7699*

FAX: 267-7507

http://www.state.ak.us/dec/dspar/stp_home.htm

File:

Date: October 22, 1999

Preliminary Site Assessment Report On Akiak, Alaska, October 13-14, 1999

I. General Information

A. Purpose of Site Visit/Assessment:

A site visit to Akiak was made by Eleanor Hung on October 13-14, 1999. On the 13th, beginning at 10:30 a.m. and ending at 5:00 p.m. and on the 14th beginning at 8:30 a.m. and ending at 11:30 a.m.

The following objectives were accomplished:

- 1. Inspect present and former tank farm locations in the village for evidence of petroleum releases. Attention was focused on tank farms that have been abandoned and/or upgraded by the Department of Community and Regional Affairs (DCRA) [now the Department of Commerce and Economic Development (DCED)], Division of Energy (DOE).
- 2. Identify key contacts in the village.
- 3. Identify equipment and personnel resources in the village, and identify preliminary personnel training needs.
- 4. Identify potential locations for stockpiling/landspreading of contaminated soil.

B. Owners of tank farm sites:

List each former tank farm site and who owns them:

Old City Tank Farm (also known as old green generator house) with (2) 20,000-gallon ASTs. Owned by the City of Akiak

Located near the new tank farm.

Contact: Sam Jasper, City Power Plant Operator 765-7411

ANCSA Land Entitlement:

According to interview with David? (phone: 765-7228) and Percy Frisby, Director, Division of Energy, DCED (phone: 269-4641)

Name of Village Corporation: Kokarmiut 12(a) Land Entitlement*: 115,200 acres 12(b) Land Entitlement**: 115,200 acres Other Land Entitlements: ANSCA 12(a) land entitlement to village corp. from federal government ANSCA 12(b) land reallocated to village corp. from Regional Native Corp. 14(c)(3) Land Status: 4(c)(3) Status***: City of Akiak 4(c)(3) Comments: Some land has been given to the City for housing 4(c)(3) Agreement Signed: Must be negotiated between Corp. & City 4(c)(3) Acres: Map of Boundaries done: Date Plat Files: Plat Number: Recording District: Bethel Municipal Land Trust: Authorized Village Entity Type: Under ANSCA 14(c)(3), villages must reconvey surface estates to the local city government to provide for community use and expansion.

C. Operators of Tank Farm Sites:

List the names of the former tank farm operators, their title, phone number, and any training needs:

This list includes former/current tank farm operators. For training needs, unless indicated, no training has been provided.

Sam Jasper, City Power Plant Operator 765-7411

Emil Williams, Assistant City Power Plant Operator

Philip Philip, Jr., City Power Plant Operator Substitute

Jimmy Owens, Kokarmiut Corporation Gas Office Facility Attendant (also known as Old Corporation Tank Farm) 765-7329

Lott Egoak, Jr., Yup'ik School District (YSD) Maintenance Mechanic 765-7215

Ron Andrews, YSD Maintenance Mechanic 765-7212. AST training 4/15-16/98 @ Kwethluk

D. Locations of Tank Farm Sites:

If possible attach an official published drawing or aerial photo and provide legal descriptions of tank farm sites if available:

- 1. Kokarmiut Corporation Gas Office Facility located at the bank of the Kuskokwim River (2) 25,000-gallons diesel and gasoline ASTs. This will be inoperable soon.
- 2. Yup'ik School District (10) ASTs of which (8) are located behind the high school and (2) are located behind the Library
- 3. New tank farm inoperable, contains (8) ASTs and is located near the old city tank farm

See attached drawing for Yup'ik School District tank farm See photographs

E. Reports on File with ADEC:

For each tank farm site, List ADEC file numbers and summarize any relevant content:

1. Old city tank farm with (2) 20,000-gallon ASTs – spill date: 7/10/99 Spill #99279919101. According to Sam Jasper approximately 250 gallons diesel #2 spilled over into the diked area while he was gravity filling one of the 20,000-gallon tanks from the 25,000-gallon tank at the Kokarmiut Corporation Gas Office Facility. He was able to recover (4) 55-gallon drums of diesel within the diked area. During cleanup he accidentally tore into the dike liner and unknown amount of diesel escaped into the surrounding soil.

See Akiak Caseload Management Report on releases reported to ADEC

II. Tank Farm Site Status (10/99)

For each tank farm, identify the current disposition (currently operating, removed, abandoned, etc.) and provide drawing/photograph attachments.

- 1. New tank farm inoperable, pending electrical connection
- 2. Old city tank farm with (2) 20,000-gallon ASTs abandoned
- 3. Yup'ik School District tank farms currently operating in two locations
- 4. Kokarmiut Corporation Gas Office Facility currently operating

See photographs

III. Tank Farm Site History (10/99)

For each tank farm, answer and elaborate on the following questions: Yes/No

Old City Tank Farm

	Olu (Jity .	LANK PAIN
Yes		_	Was soil contamination observed or identified?
	,		Contamination observed was at the spill site reported in E above. Snow ½ inch covered the ground in most areas, it was windy and cold and the ground was frozen. However, after digging through the gravel in several places, there was an odor detected that resembled petroleum hydrocarbons.
			Waste oil contamination behind the green generator house. There were (20) 55-gallon covered drums sitting on a thick black liner. All were full. A 5 gallon pail of oil was uncovered. There were pools of thick black oil sitting on the liner. There were stains on the soil from overflow during snow melt or high water. These stains were also noted under the green generator house. Sam Jasper stated the waste oil is from the generator and being burned in the portable "Smart Ash" burner. The burner had been relocated to the large open field, due to an explosion while in operation behind the house. This green house has been inoperable for several years (since 1991). Another generator in town is currently in use. See photos.
		No	Was groundwater contamination observed or identified?
	_		Did inventory control or prior tank repairs indicate a possible release?
		٧	Sam Jasper has been with the City of Akiak since 1988 and has not seen any records nor does he keep records.
	Yes	_	Have there been any previous site assessments or spill reports at this site on file with ADEC?
			No site assessments known. However, a spill report has been made to ADEC. See E
	Yes		Do previous site assessments or spill reports indicate any contamination has

Yup'ik School District: Location is (2) tanks behind the Library

No Was soil contamination observed or identified?

Partially frozen surface water and snow prevented soil observation

Yes Was groundwater contamination observed or identified?

There appeared to be a slight sheen on the surface ground water around the tank fittings where water had accumulated. No leakage or odor was present. Because of the vegetation growing in the diked area, the sheen could possibly have been caused from the degradation of the tundra mat and organic in nature. One sees this frequently in the fall in northern Alaska. Weather conditions prevented further investigation. However, this should be considered as a possible area for consideration of further investigation because 3 years ago all piping which was threaded was replaced with welded piping.

Did inventory control or prior tank repairs indicate a possible release?

All records are with Ralph Kinegak, YSD Maintenance Director in Akiachak (phone: 825-4828). Whenever repairs need to be done, a person from Akiachak is dispatched to Akiak. Therefore no records are in Akiak.

Unknown

Have there been any previous site assessments or spill reports at this site on file with ADEC?

Unknown

Do previous site assessments or spill reports indicate any contamination has occurred?

IV. Field Screening Analysis

For each tank farm site, Summarize your field screening methodology. (Refer to drawings, photographs, and/or site sketches as appropriate):

Old City Tank Farm

Since the ground was frozen and weather conditions were cold and windy. It was only possible to barely scratch at the gravel at the abandoned site and use olfactory senses to detect petroleum hydrocarbons from the release that had occurred. See photos.

Yup'ik School District (2) Tanks behind the Library

Only visual observations were done. See narrative under III and photographs

V. Collection of Soil Samples

For each tank farm, log any analytical samples taken:

None were taken

VI. Groundwater Investigation

For each tank farm answer and elaborate on the following questions:

This was not done

YN								
		Was groundwater encountered during the excavation or drilling work?						
_		Were borings drilled/pits dug at least five feet below the tank farm bottom?						
_		Is groundwater or seasonal high water table known or suspected to exist within five feet of the bottom of the tank farm?						
_	_	Were samples taken from borings drilled/test pits dug to this water level?						
Were all these samples analyzed within recommended holding times? — How many groundwater/saturated-soil samples were collected & analyzed? How many of these samples were taken from the top 6" of water table? How many fields QC samples were analyzed?								
	•							
			Trip blanks	Duplicates	Decon blanks			

VII. Disposal of Material

Elaborate on possible disposal options for contaminated soil. Include maps/drawings if appropriate:

Stockpiling or landspreading of contaminated soil can possibly be done at the dump that is fenced and is reported to be ½ mile to the closest resident and about one mile from the City office. Sam Jasper stated that the temperature can get up to 80 degrees Fahrenheit in the summer.

The YSD has no available land. They would have to share facilities with the City of Akiak.

VIII. Site Sketch

For each tank farm provide a site sketch showing any soil boring/field screening locations, indicate depth to groundwater, presence of permafrost, dimensions of tank farms, and distances to possible vertical/horizontal control points.

Old City Tank Farm with (2) 20,000-gallon tanks - Information obtained from Sam Jasper. Ground water is about 19 feet bgs. Permafrost in the summer is about 4-6 feet bgs depending on location. The first foot is gravel, followed by sand and at about 19 feet is ground water. Approximate dimensions of tank farm: 300 feet by 100 feet.

Yup'ik School District (2) Tanks behind the Library - Information obtained from Lott Egoak, Jr. Ground water is about 18-30 feet bgs. Permafrost, May through July is about 4-5 feet bgs depending on snow cover. If lots of snow, permafrost is about 3-4 feet bgs. By August, all permafrost is gone. The first 2 feet bgs is mud, followed by sand and at 18 –30 feet is ground water. Approximate dimensions of tank farm: 75 feet by 75 feet. See tank farm drawing.

Kokarmiut Corporation Gas Office Facility – Approximate tank farm dimensions supplied by Sam Jasper: 30 feet by 40 feet.

New Tank Farm – Approximate tank farm dimensions supplied by Sam Jasper: 50 feet by 75 feet.

See photographs

IX. City Equipment

Inventory available equipment in the village and identify the qualified operators: (Include photographs if possible):

Kokarmiut Corporation Gas Office Facility

Jimmy Owens and Sam Jasper

Orange colored boom stored under office building

- (2) hand shovels,
- (2) Enpac 95-gallon green heavy plastic containers with lids, used at this location for disposal of oil/gasoline from customers that empty their engine wastes (skiffs, 4-wheelers).

Village Corporation Warehouse

Jimmy Owens

- (4) empty Enpac 95-gallon drums
- (17) large bundles of sorbent pads

City of Akiak

Sam Jasper

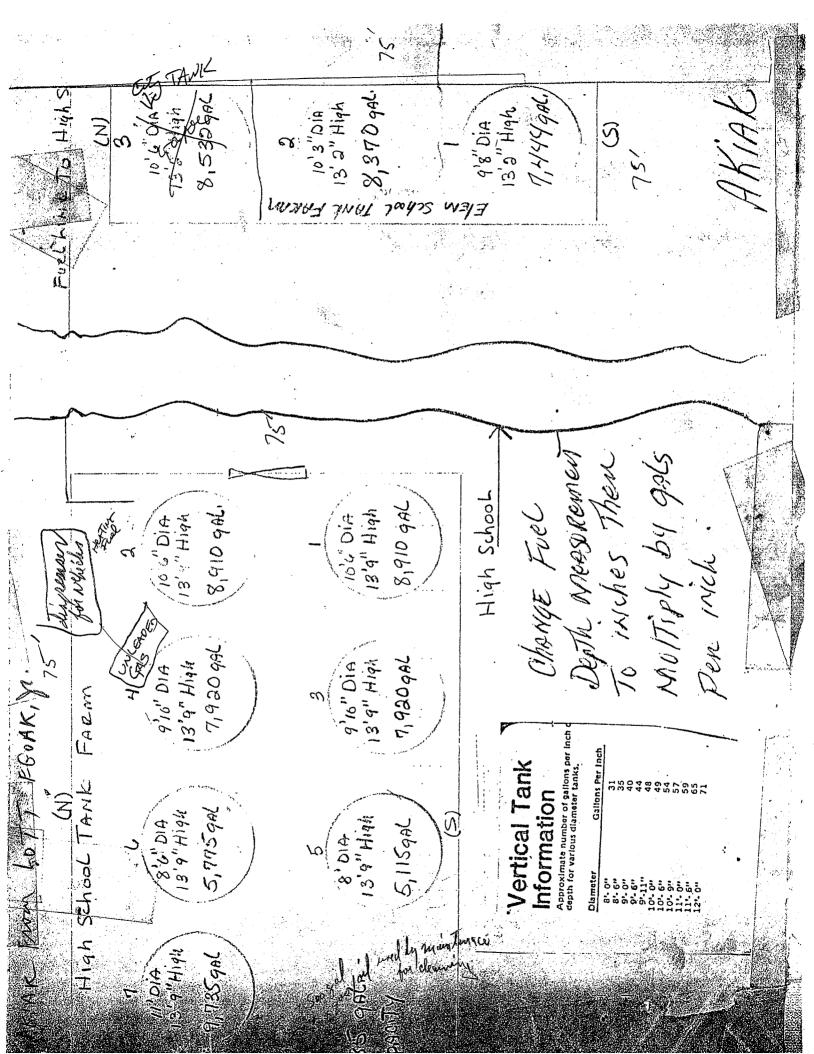
- (1) backhoe
- (2) bulldozers
- (2) large snowplow graders @ airport
- 1-2 trucks

Yup'ik School District

Lott Egoak, Jr., and Ron Andrews

- (1) Earthmover tractor (state-owned, kept at residence of Ron Andrews because of vandalism)
- (2) 55-gallon drum spill kits (these have never been opened, contents unknown) Hand shovels, many Sorbent sheets Sorbent booms

See photographs for some areas.



CASELOAD MANAGEMENT REPORT

10/20/99

								CASE			CLEANUP	CASE
CASE	SPILL	SPILL						LOAD	TYPE OF CLEANUP CLOSURE	NUP CLOSURE	CLOSED	CLOSED
MANAGER	DATE	MANAGER DATE NUMBER LC CODE SPILL NAME	LC CODE SPILL NAME	SPILL N		LOCATION	QNTY. SUBSTANCE	CODE	RESPONSE ACTION	NO	DATE	DATE
CARLSON,	01/11/98	CARLSON, 01/11/98 98279901101 14691760 AKIAK CLINIC	14691760	AKIAK Q		AKIAK CLINIC	200 DIESEL	J. J.	FIELD	; 1 1 1 1 1 1 1	; † † 1 1 1 1 1	!
COST RECO	COST RECOVERY STATUS						CLEANUP STATUS = SOIL REMOVAL IN SPRING 99. INTERIM REPORT DUE.	IL REMOU?	AL IN SPRING	99. INTERIM RE	SPORT DUE.	
PEARSON,	06/02/99	PEARSON, 06/02/99 99279915301		AKIAK P	AKIAK POWER PLANT DRUM	AKIAK CLOSE TO THE POWER PLANT	50 WASTE OIL (ALL FF	! ! !	PHONE NO FUR	NO FURTHER ACTION 06/02/99 06/02/99	06/05/99	16/02/99
COST RECO	COST RECOVERY STATUS = NONE	S = NONE					·CLEANUP STATUS = ALL CLEANED UP	CLEANE	, an o			•
DREYER, B	07/10/99	DREYER, B 07/10/99 99279919101		AKIAK P	~ '2	_ <u>×</u> 4 ·	250 DIESEL	NEC	HONE NO FUR	PHONE NO FURTHER ACTION	/60 66/60/60	€ /6I
COST RECO	COST RECOVERY STATUS = NONE	COST RECOVERY STATUS = NONE					CLEANUP STATUS = FINAL REPORT RECEIVED.	NAL REPOS	ET RECEIVED.			

page 1

End of this report



ecology and environment, inc.

International Specialists in the Environment

840 K Street Anchorage, Alaska 99501 Tel: (907) 257-5000, Fax: (907) 257-5007

December 22, 2000

RECEIVED

JAN 03 2001

Daniel Benfield, Project Manager Alaska Department of Environmental Conservation Aboveground Storage Tank Program 410 Willoughby Avenue, Suite 105 Juneau, Alaska 99801-1795 ADEC STORAGE TANK PROGRAM FAIRBANKS

Re:

Trip Report for the Village of Akiak, Alaska, Notice to Proceed No. 1850011401, Contract

No. 18-5001-14

Dear Mr. Benfield:

Enclosed please find a copy of the trip report for the Village of Akiak, Alaska, Aboveground Storage Tank Farm site reconnaissance. As we have discussed in the past, this report presents a preliminary view of conditions at the site. Ecology and Environment, Inc. would be pleased to meet with you in the near future to discuss each tank farm in more detail and explore the various scenarios that are possible at each tank farm.

If you have any questions, please call me or Greg Horner at (907) 257-5000.

Sincerely,

Michael Daigneault

Project Manager

AKIAK ABOVEGROUND STORAGE TANK FARM SITE RECONNAISSANCE

AKIAK, ALASKA

NTP No.: 1850011401

Contract: 18-5001-14

December 2000

Prepared for:

Mr. Daniel Benfield
Alaska Department of Environmental Conservation
Aboveground Storage Tank Program
Juneau, Alaska

Akiak Aboveground Storage Tank Farm Site Reconnaissance Akiak, Alaska

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1.0 Introduction

In accordance with Notice to Proceed No. 1850011401 under Contract No. 18-5001-14, Ecology and Environment, Inc. (E & E) performed the site reconnaissance of the Village of Akiak aboveground storage tank (AST) farms on October 19 and 20, 2000. Site reconnaissance was completed with the assistance of local contacts including Mr. Rod Pruitt, Principal of Akiak Schools, and Mr. Philip, City of Akiak employee. Tank farms included in the site reconnaissance were the Elementary School Tank Farm (Akiak Tank Farm No. 1), High School Tank Farm (Akiak Tank Farm No. 2), Old Corporation Tank Farm (Akiak Tank Farm No. 3), and Old City Tank Farm (Akiak Tank Farm No. 4; tank farm numbers correspond to those assigned by the Department of Community and Regional Affairs [DCRA], Division of Energy, as indicated in the site figures in Appendix A). Additional ASTs and AST farms located in Akiak but not included in the site reconnaissance include the new consolidated bulk fuel facility (Akiak Tank Farm No. 7), an AST at the National Guard Armory Building (Akiak Tank Farm No. 6), an AST at the new City Power Plant (Akiak Tank Farm No. 5), and an AST at the new water treatment facility (not surveyed by DCRA). The National Guard Armory Building AST was not included in the site reconnaissance because the United States Army conducts its own tank management program and the remaining three tank farms were not included in the site reconnaissance because they are newly constructed facilities.

Site reconnaissance consisted of a site visit, collection of soil for field screening and fixed laboratory analysis, gathering of local information, and obtaining site photographs. Soil was collected at suspected sources (e.g., locations of visible staining, stressed vegetation, former tank locations, known spill locations, or major pipe junctions/connections). Soil samples were collected with hand-operated sampling equipment. Soil throughout each tank farm was systematically collected and field-screened via headspace analysis with a photoionization detector (PID). Site conditions were used to identify locations for collection of soil samples for fixed laboratory analysis. Analyses at the fixed laboratory were limited to gasoline-range organics/benzene, toluene, ethylbenzene, and xylenes (GRO/BTEX; Alaska Method 101/EPA Method 8021) and diesel-range organics (DRO; Alaska Method 102). One soil sample was collected for fixed laboratory analysis per tank farm; no field duplicate samples or matrix spike/matrix spike duplicate samples were collected during the site reconnaissance. One trip blank sample was submitted for GRO/BTEX analysis. All samples collected for fixed laboratory analysis were collected in accordance with the Alaska Department of Environmental Conservation (ADEC), Storage Tank Program, Underground Storage Tanks Procedures Manual, Guidance for Treatment of Petroleum-Contaminated Soil and Water and Standard Sampling Procedures (ADEC 1999a).

The following report is intended to provide general information regarding the AST farms and the preliminary results of the site reconnaissance. The appendices are included for further detail and

clarification. Appendix A includes figures drawn by DCRA after a survey on October 13, 1998; the figures have not been altered by E & E. A detailed description of daily activities during the site reconnaissance can be found in Appendix B. Analytical data collected as a result of the site reconnaissance is included in Appendices C and D. Appendix E provides a visual picture of the site descriptions found in the following pages; the photograph numbers correspond with the numbers and descriptions contained in the field logbook (Appendix B).

2.0 Local Authorities

Mr. Rod Pruitt, Principal Yupiit School District Akiak, Alaska 99552 (907) 765-7212

Mr. Sam Jasper City of Akiak P.O. Box 187 Akiak, Alaska 99552 (907) 765-7411

Mr. Bob Carlson Alaska Department of Environmental Conservation Bethel, Alaska 99559 (907) 543-3215

3.0 Elementary School Tank Farm

3.1 Site Description

The Yupiit School District operates this AST farm for the storage and supply of fuel oil for heating the Akiak Elementary School and the library building. The Yupiit School District is interested in decommissioning this AST farm and connecting the elementary school and library to the new consolidated bulk fuel storage facility. The following site description was obtained directly from observations made by DCRA during an October 13, 1998, site assessment. The AST farm is located approximately 50 feet west of the elementary school and 350 feet west of the Kuskokwim River. There is a 3.5-foot-high gravel dike and liner around the AST farm. Around this facility is a 5.5-foot-high chain link fence equipped with an unlocked gate. The AST farm consists of two vertical, welded steel, single wall, Bureau of Indian Affairs (BIA) style tanks with removable tops; both have a capacity of approximately 8,000 gallons (see Akiak Tank Farm No. 1, Appendix A). The ASTs are supported on 8-by-8-inch timbers with 2-by-12-inch planking. The ASTs are equipped with a manhole and normal vent on top, but no emergency vent. Each AST has a 1-inch drain valve. The ASTs are connected by a

3-inch-diameter steel header with welded fittings. Each AST has a steel ball valve and flexible connection. The AST valves are not locked. The AST's header piping is connected to a 3-inch-diameter steel fill line with welded fittings. The fill line extends approximately 150 feet to an off-loading header equipped with a gate valve, check valve, pressure relief, camlock fitting, and drip pan. This fill line also connects to AST Farm No. 3. A 1-inch-diameter steel distribution line, with threaded fittings, connects to the school day tank. A ¾-inch diameter branch line connects to the library day tank. These lines are equipped with a gate valve. The ASTs are filled by the fuel barge during its periodic delivery to the village (DCRA 1998). Frequency of filling at the AST farm is unknown.

The tank farm is slightly elevated from the surrounding area. The topography surrounding the AST farm is generally flat and slopes gently east toward the Kuskokwim River. The area north and west of the tank farm has recently been regraded as a result of housing construction. A small stand of trees is located along the east side of the tank farm. Reportedly, groundwater is approximately 18-30 feet below ground surface (bgs; ADEC 1999b). Depending on snow cover, seasonal frost is typically 4-5 feet bgs from May to July; when snow cover remains later in the season, seasonal frost is usually about 3-4 feet bgs (ADEC 1999b). By August, seasonal frost is typically absent (ADEC 1999b). Although the ADEC Preliminary Assessment Report refers to permafrost at the aforementioned depths, it is E&E's belief that the author was referring to seasonal frost rather than permafrost.

Minimal information is available regarding the operational practices at the tank farm; apparently, when the berm area fills with precipitation, water is pumped from the berm area and discharged to nearby road surfaces. It is unknown whether the water is tested for petroleum contaminants before pumping or the exact location of water discharge.

3.2 Site Reconnaissance

Access to the site was granted by Mr. Rod Pruitt. Local children were playing in and around the AST farm during the site reconnaissance. The timbers and planking supporting the ASTs within the berm area were flooded because of precipitation retainment by the berm; a thin layer of ice covered the water surface. A sheen was noted on open water within the berm area. Vegetation was growing within the lined berm area. Soil was collected from a total of nine locations for field screening analysis with the PID (see Appendix B). One soil sample was collected at 2 feet bgs, downslope from the AST farm main valve assembly. Photographs of the site were taken; however, the photographs did not develop properly.

3.3 Analytical Results

PID readings ranged from 3.9 to 714 parts per million (ppm; Appendix C). The maximum PID reading was taken at the AST farm main valve assembly at 2 feet bgs. In the fixed laboratory sample

collected from 2 feet bgs at the AST farm main valve assembly, all BTEX compounds were detected in the sample at concentrations ranging from 0.19 to 53 milligrams per kilogram (mg/kg; Appendix D). Benzene and ethylbenzene concentrations exceed the ADEC Migration to Groundwater Soil Cleanup Level (ADEC 2000). GRO and DRO were also detected in the sample at concentrations of 1,500 and 20,000 mg/kg, respectively. GRO and DRO concentrations exceed Soil Cleanup Levels established by ADEC (ADEC 2000).

3.4 Discussion and Recommendations

Petroleum contaminants are present at concentrations above ADEC Soil Cleanup Levels in soil in the vicinity of the main valve assembly. The volume of contaminated soil is unknown. The main valve assembly is not within the berm area and therefore is not contained. It is unknown whether petroleum constituents are present within the berm area or have permeated through the liner; however, because of a petroleum sheen present on water contained within the lined berm, the practice of pumping water from the berm to the nearby road surface to prevent overflow may have caused some migration of petroleum contaminants. Additional information is necessary to assess the extent of contaminant migration at the site and to provide a framework for future needs at the site. Two approaches can be utilized to gather additional information at the site: site characterization with fixed laboratory analysis or soil removal that is directed by quantitative field screening in areas of known contamination with fixed laboratory analysis for confirmation of field screening results. Management of removed soil could be determined during the removal or following future investigations, and would be based on the volume and contaminant levels of soil removed. Management and consolidation with soils removed from the other remedial sites will be considered.

The possibility of decommissioning the AST farm and connecting the elementary school and library to the new consolidated bulk fuel facility should be reviewed. A number of scenarios are possible. Therefore, decisions regarding decommissioning methods, AST reuse, and investigation of potentially contaminated soil should be jointly agreed upon by ADEC and the Yupiit School District.

4.0 High School Tank Farm

4.1 Site Description

The Yupiit School District operates this AST farm for the storage and supply of fuel oil for heating the Akiak High School and for the school's standby generator system (see Akiak Tank Farm No. 2, Appendix A). One AST (tank No. 6) is used for gasoline dispensing for the school's gas operated equipment and vehicles. The Yupiit School District is interested in decommissioning this AST farm and connecting the high school to the new consolidated bulk fuel storage facility. The following site

description was obtained directly from observations made by DCRA during an October 13, 1998, site assessment. The AST farm is located behind the high school, approximately 700 feet from the Kuskokwim River. There is a 2-foot-high gravel dike and liner around the AST farm. Vegetation is growing inside the dike. The facility is not fenced or gated. The AST farm consists of seven vertical, welded steel, single wall, BIA-style tanks with removable tops. The individual ASTs vary in capacity from 5,000 to 9,750 gallons, with a total AST farm capacity of 54,000 gallons. The ASTs are supported on 12-by-12-inch timbers with 2-by-14-inch planking. The ASTs are equipped with a manhole and normal vent on top, but no emergency vent. Each AST has a drain valve. The ASTs, except tank No. 6, are connected to a 3-inch diameter steel header with welded fittings. Each AST has a steel plug valve and flexible connection. The AST valves are not locked. The AST's header piping is connected to a 3-inch diameter welded steel fill line and two 2-inch diameter welded steel distribution lines. The header line has pressure relief. The fill line has a check valve and runs to the off-loading header of AST Farm No. 1. One of the 2-inch diameter distribution lines runs to the school's day tank, and the second runs to the generator day tank. The lines are equipped with a gate valve. Tank No. 6 has a 1-inch diameter steel distribution pipe, with threaded fittings, routed to an electric fuel pump with a meter, hose, and nozzle. The pump is located within the diked area inside a wooden box. The ASTs are filled by the fuel barge during its periodic delivery to the village (DCRA 1998). Frequency of filling at the AST farm is unknown.

The tank farm is slightly elevated from the surrounding area. The topography surrounding the AST farm is generally flat and slopes gently east toward the Kuskokwim River. A small stand of trees is located along the north and west sides of the tank farm. Groundwater and seasonal frost levels are not known, but they are likely similar to those reported for the Elementary School Tank Farm.

Minimal information has been gathered regarding the operational practices at the tank farm; apparently, when the berm area fills with precipitation, water is pumped from the berm area and discharged to nearby road surfaces. It is unknown whether the water is tested for petroleum contaminants before pumping or the exact location of water discharge.

4.2 Site Reconnaissance

Access to the site was granted by Mr. Rod Pruitt. The timbers and planking supporting the ASTs rest upon a sandbag substrate. Stained and darkened soil and sandbags were noted throughout the berm area. Vegetation was growing within the lined berm area. Soil was collected from a total of nine locations for field screening analysis with the PID (see Appendix B). One soil sample was collected at 12 inches bgs, adjacent to the gasoline fuel dispensing pump on the west side of the AST farm.

Photographs of the site were taken and are available in Appendix E; photograph descriptions are in the logbook (Appendix B).

4.3 Analytical Results

PID readings ranged from 9.9 to greater than 2,000 ppm (Appendix C). The maximum PID reading was taken at the gasoline fuel dispensing pump on the west side of the AST farm. In the fixed laboratory sample collected from 12 inches bgs at the gasoline fuel dispensing pump, all BTEX compounds were detected in the sample at concentrations ranging from 96 to 1,500 mg/kg (Appendix D). GRO and DRO were also detected in the sample at concentrations of 9,100 and 4,300 mg/kg, respectively. All BTEX compounds, GRO, and DRO were present at concentrations exceeding the ADEC Soil Cleanup Levels (ADEC 2000).

4.3 Discussion and Recommendations

Petroleum contaminants are present at concentrations above ADEC Soil Cleanup Levels in soil in the vicinity of the gasoline dispensing pump; however, the volume of contaminated soil is unknown. It is unknown whether petroleum constituents are present within the berm area or have permeated through the liner. The sandbags within the berm area are stained throughout and will likely need to be treated as contaminated soil. Because of the presence of stained soil within the lined berm, the practice of pumping water from the berm to the nearby road surface to prevent overflow may have caused some migration of petroleum contaminants. Additional information is necessary to assess the extent of contaminant migration at the site and to provide a framework for future site needs. Two approaches can be utilized to gather additional information at the site: site characterization with fixed laboratory analysis or soil removal directed by quantitative field screening in areas of known contamination with fixed laboratory analysis for confirmation of field screening results. Consistent with the contaminated soils described above for the Elementary School Tank Farm (see Section 3.4), soil treatment and disposal options can be determined during a removal or future investigations. Specific actions will based on the volume and contaminant concentration of the soil removed.

The possibility of decommissioning this AST farm and connecting the high school to the new consolidated bulk fuel facility should be addressed. Because a number of possible scenarios exist, decisions regarding decommissioning methods, AST reuse, and investigation of potentially contaminated soil should be jointly agreed upon by ADEC and the Yupiit School District.

5.0 Old Corporation Tank Farm

5.1 Site Description

The Kokamiut Corporation operated this AST farm for the storage, supply, and dispensing of gasoline and fuel oil to its village customers. These operations have since been moved to the new consolidated bulk fuel facility in Akiak. The following site description was obtained directly from observations made by DCRA during an October 13, 1998, site assessment. The former AST farm is located approximately 30 feet from the Kuskokwim River and approximately 100 feet from a private well (see Akiak Tank Farm No. 3, Appendix A). The Kuskokwim River bank is rapidly eroding and will eventually overtake this AST farm. The two existing ASTs are within a lined 2-foot-high dirt and gravel dike. The liner is torn and misplaced throughout the AST farm. There is no fence around this facility. The AST farm consists of two vertical, welded steel, single wall tanks; both have a capacity of approximately 24,000 gallons (see Akiak Tank Farm No. 3, Appendix A). The ASTs sit on 12-by-12-inch timbers with 4-by-12-inch planking within the diked area. The ASTs have a normal vent on top, but no emergency vents or manholes. The ASTs each have a 3-inch diameter steel fuel supply line, with threaded fittings, routed to a dispensing shed located adjacent to the AST farm. Both lines have a 3-inch diameter bronze gate valve but no flex connection at the AST. The dispensing shed was equipped with individual gasoline and fuel oil electric pump dispensers with a meter, hose, and nozzle. The shed door was locked and has a warning sign posted. The gasoline AST was filled by a 3-inch diameter off-loading header with a bronze gate valve and cam lock fitting located adjacent to the dispensing shed. The fuel oil AST was filled through a fill cap on top. This AST has a 3/4-inch diameter rubber supply hose which runs to a portable electric fuel transfer pump. The transfer pump, located under a cardboard box cover, is connected to a ¾-inch diameter dispensing hose which has a nozzle with a meter. The ASTs were filled by the fuel barge during its periodic delivery to the village (DCRA 1998). Frequency of filling at the AST farm is unknown.

The area surrounding the AST farm is generally flat. The AST farm is bordered on the west and south by dirt roads. The Kuskokwim River is adjacent to the site on the east side. A small stand of trees is located north of the AST farm.

5.2 Site Reconnaissance

As described above, the AST farm consisted of two ASTs within a lined berm at the time of the site reconnaissance; however, a third AST existed at this AST farm (DCRA 1998). The former third AST was a 10,000-gallon, horizontal, welded steel, single wall integral diked tank mounted on steel skids sitting directly on a grade south of the existing berm. This AST formerly stored gasoline; the AST

possibly was moved to the new consolidated bulk fuel facility as an AST of identical capacity and similar dimensions currently exists there.

Access to the site was granted by Mr. Philip Philip. The timbers and planking supporting the ASTs were flooded with water because of precipitation retainment by the berm and liner. Stained soil and petroleum odor was noted around the fuel dispensing pumps. The liner has been compromised in numerous locations. Soil was collected from a total of 10 locations for field screening analysis with the PID (Appendix B). One soil sample was collected at 16 inches bgs, approximately at the north end of the former 10,000-gallon horizontal gasoline AST. Photographs of the site were taken and are available in Appendix E; photograph descriptions are in the logbook (Appendix B).

5.3 Analytical Results

PID readings ranged from 3.0 to 1,240 ppm (Appendix C). The maximum PID reading was taken at the south side of the fuel dispensing station adjacent to the gasoline pump. In the fixed laboratory sample collected from 16 inches bgs at the north end of the former gasoline AST, no BTEX compounds, GRO, or DRO were detected (Appendix D).

5.4 Discussion and Recommendations

The former Kokamiut Corporation AST farm was operated until the new bulk facility in Akiak was activated. One AST has already been removed from the former site. No contaminants were detected in the fixed laboratory sample collected near the AST that had been removed. The remaining two ASTs are believed to have been emptied. The condition of the berm and liner indicate that contaminants may have migrated to soils directly below the AST farm. Soil staining and petroleum odor was evident near the fuel dispensing pump shed and the maximum PID readings for the site were obtained from soil collected at the dispensing pump shed. Contaminant migration to the Kuskokwim River was not observed based on the absence of soil staining or petroleum seeps in the exposed riverbank and the lack of sheen on surface water along the riverbank. Additional information is necessary to assess the extent of contaminant migration, if any, at the site and to provide a framework for future site needs. Two approaches can be utilized to gather additional information at the site: site characterization with fixed laboratory analysis or soil removal directed by quantitative field screening in areas of suspected contamination. Fixed laboratory analysis will be used for confirmation of field screening results. Management decisions for the ultimate treatment and disposal of removed soil would be made in conjunction with the other AST removals at Akiak. An additional consideration at the Old Corporation Tank Farm is caused by it's proximity to the Kuskokwim River. Excavation or other removal options

should be carefully evaluated to determine the potential for increased erosion and thermal instability of the river bank.

The AST farm is no longer in use; however, remaining equipment presents a possible safety concern to people utilizing the area. The priority of completely decommissioning this AST farm should be determined by ADEC, the Kokamiut Corporation, and the community of Akiak. As a number of possible scenarios exist, decisions regarding decommissioning methods, AST reuse, and investigation of potentially contaminated soil should be jointly agreed upon by ADEC and the Kokamiut Corporation.

6.0 Old City Tank Farm

6.1 Site Description

The City of Akiak Electric Utility operated this AST farm for the storage and supply of fuel oil for its former power plant. These operations have since been moved to the new consolidated bulk fuel facility in Akiak and to an AST located next to the new power plant. The following site description was obtained directly from observations made by DCRA during an October 13, 1998, site assessment. The AST farm is located approximately 1,000 feet from the Kuskokwim River. There is a lined gravel and sand bag dike around the ASTs. There is no fence around this facility. The AST farm consists of two 24,000-gallon, vertical, welded steel, single wall tanks (see Akiak Tank Farm No. 4, Appendix A). The ASTs are in fair condition with extensive rust. The ASTs are supported on 12-by-12-inch timbers with 2-by-12-inch planking. The ASTs are equipped with a spring-loaded emergency vent manhole and a normal vent. The ASTs are connected by a 3-inch diameter steel header with welded fittings. Each AST has a steel gate valve and a flexible connection. The AST valves are not locked, but the stem handles are removed. The AST's header piping, with pressure relief, is extended to an off-loading header which is located outside the diked area. The off-loading header is equipped with a gate valve, check valve, and camlock fitting. Also on the header piping is a 1.5-ineh diameter service connection with a ball valve, used by the electric utility for filling the fuel truck. These ASTs were filled by the fuel barge during its periodic delivery to the village (DCRA 1998). Frequency of filling at the AST farm is unknown.

6.2 Site Reconnaissance

Access to the site was granted by Mr. Philip Philip. The area appears to have been recently regraded on the west, north, and east sides of the AST farm. The south side of the AST farm contained numerous piles of gravel fill atop native soil. Native soils were accessed by hand digging through the recently graded or gravel fill layers. The timbers and planking supporting the ASTs were flooded with water because of precipitation retainment by the berm and liner. The dike has been compromised in numerous locations. Soil was collected from a total of seven locations for field screening analysis with

the PID (Appendix B). One soil sample was collected at 3.5 feet bgs, on the south site of the AST farm. Photographs of the site were taken and are available in Appendix E; photograph descriptions are in the logbook (Appendix B).

6.3 Analytical Data

PID readings ranged from 2.0 to 28.5 ppm (Appendix C). The maximum PID reading was taken at the surface soil collected near a capped valve at the southeast corner of the AST farm; piping in this area appeared to run to the Kuskokwim River for filling operations. In the fixed laboratory sample collected from 3.5 feet bgs on the south side of the AST farm, all BTEX compounds except benzene were detected at concentrations ranging from 0.089 to 0.17 mg/kg (Appendix D). GRO and DRO were also detected in the sample at concentrations of 5.2 and 5,700 mg/kg, respectively. DRO was present at a concentration exceeding the ADEC Soil Cleanup Level (ADEC 2000).

6.4 Discussion and Recommendations

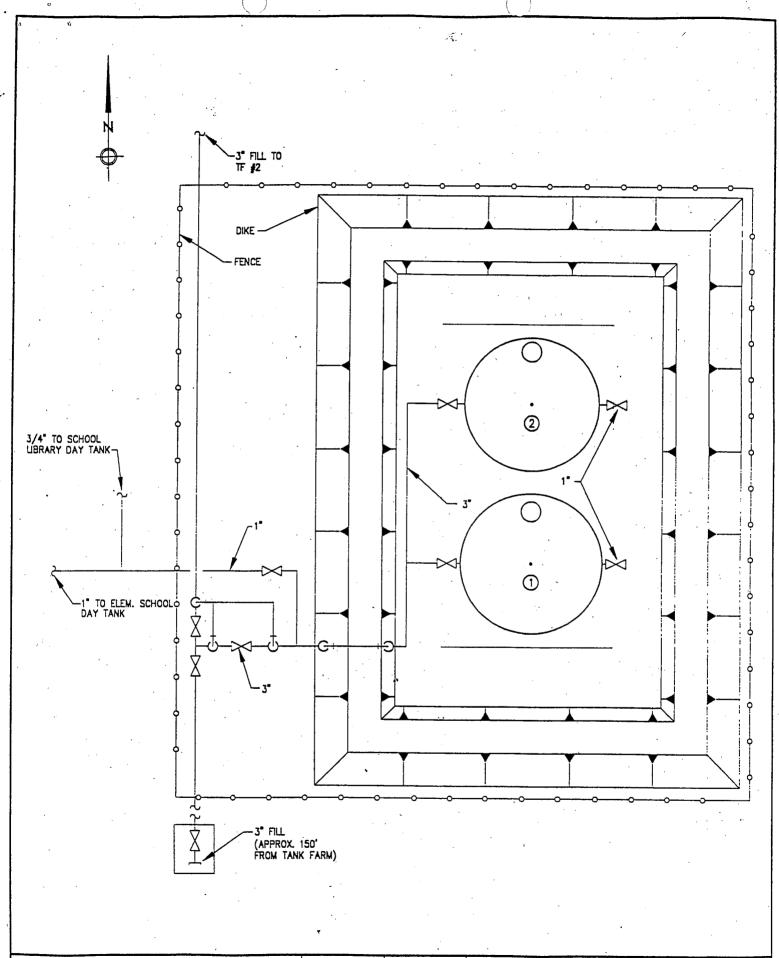
The former City of Akiak AST farm was operated until the new bulk facility in Akiak was activated. The ASTs and associated piping were reported to E & E as having been emptied. The ASTs and piping remain on site. The piping that connected this AST farm to the Kuskokwim River for refilling is capped at the southeast corner of the AST farm. The AST farm berm has collapsed in numerous locations, especially along the north edge of the AST farm. Land surrounding the AST farm has been altered recently; areas to the west, north, and east have been regraded as a result of installation of the new bulk fuel facility and the area to the south is used as storage for gravel fill. DRO was detected at a concentration above the ADEC Soil Cleanup Level on the south side of the AST farm in native soils collected under the gravel fill piles. Additional information is necessary to assess the extent of contaminant migration at the site and to provide a framework for future site needs. As described above, two approaches can be utilized to gather additional information at the site: site characterization with fixed laboratory analysis or soil removal directed by quantitative field screening in areas of suspected contamination with fixed laboratory analysis for confirmation of field screening results. The treatment of removed soil will be determined based on the volume and contaminant concentrations present and will be managed in concert with the other remedial needs at Akiak.

The AST farm is no longer in use; remaining equipment presents a possible safety concern to people utilizing the area. The priority of completely decommissioning this AST farm should be determined by ADEC and the community of Akiak. Because a number of possible scenarios exist, decisions regarding decommissioning methods, AST reuse, and investigation of potentially contaminated soil should be jointly agreed upon by ADEC and the City of Akiak.

7.0 Reference List

- Alaska Department of Environmental Conservation (ADEC), October 28, 2000, Oil and Other Hazardous Substances Pollution Control, 18 Alaska Administrative Code 75, Juneau, Alaska.
- ———, December 1, 1999a, Storage Tank Program, Underground Storage Tanks Procedures Manual, Guidance for Treatment of Petroleum-Contaminated Soil and Water and Standard Sampling Procedures, Juneau, Alaska.
- ———, November 8, 1999b, Preliminary Site Assessment Report on Akiak, Alaska, October 13-14, 1999, Division of Spill Prevention and Response, Storage Tank Program, Anchorage, Alaska.
- Department of Regional and Community Affairs (DCRA), October 13, 1998, Akiak Bulk Fuel Storage Assessment Report, State of Alaska, Division of Energy, Anchorage, Alaska.

APPENDIX A
SITE FIGURES

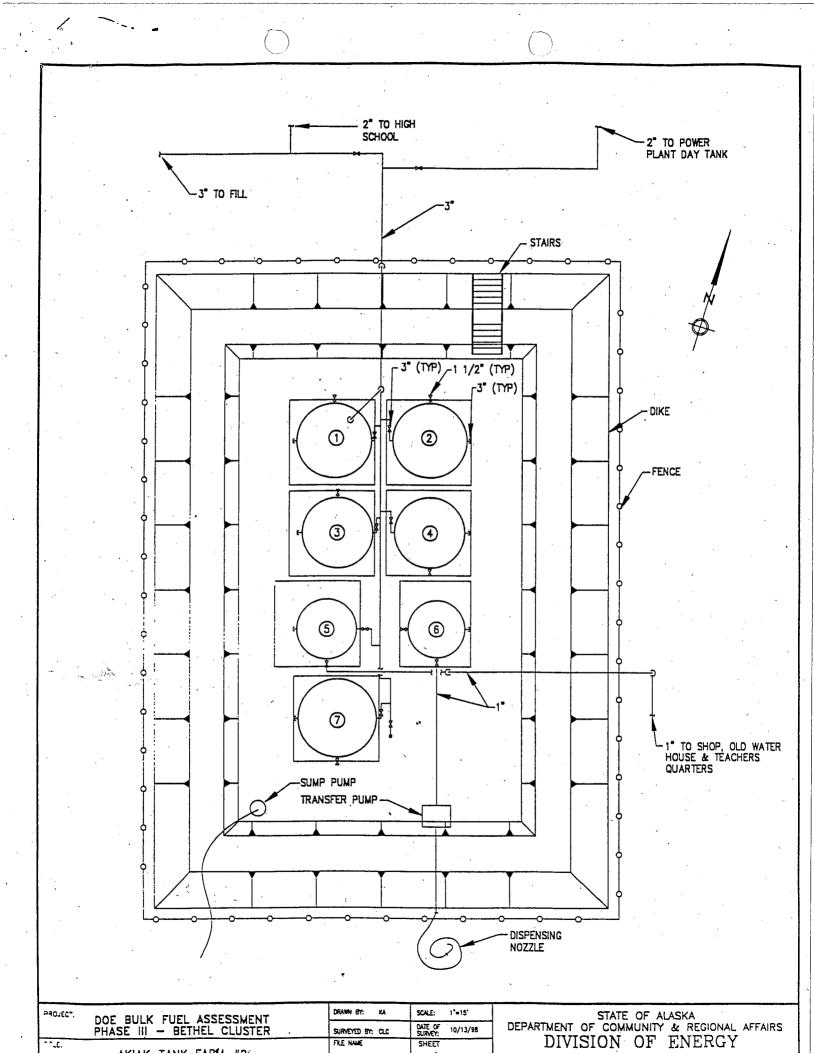


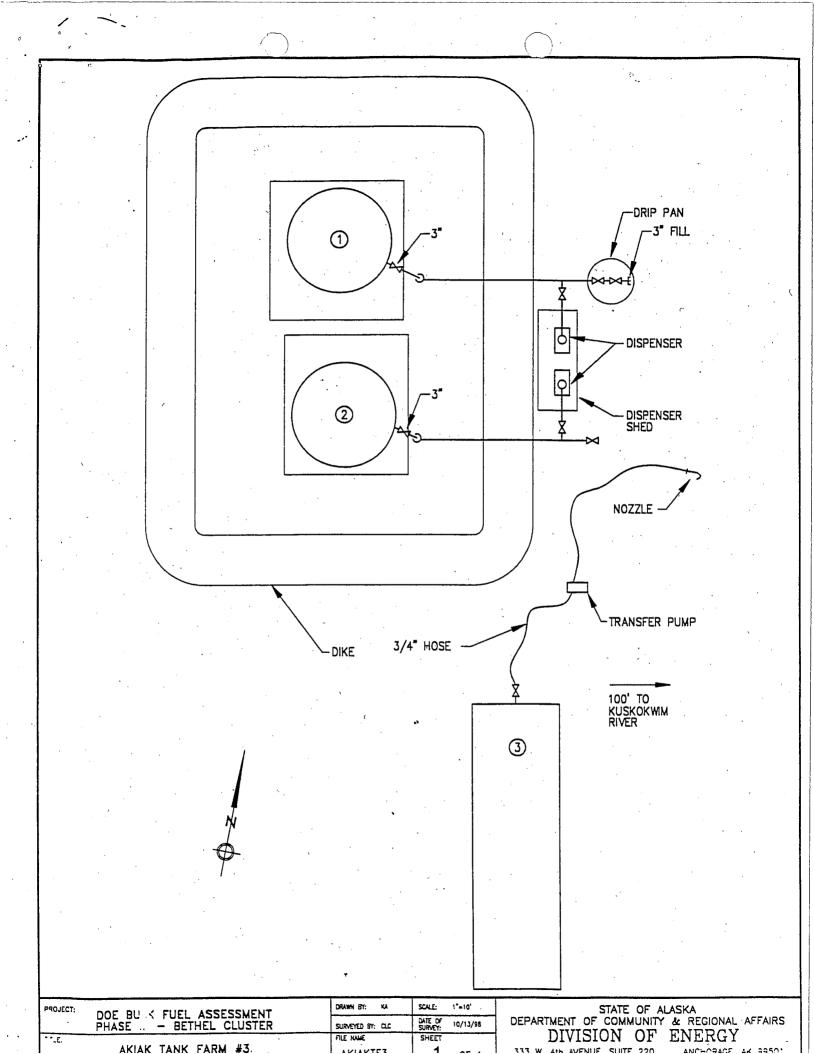
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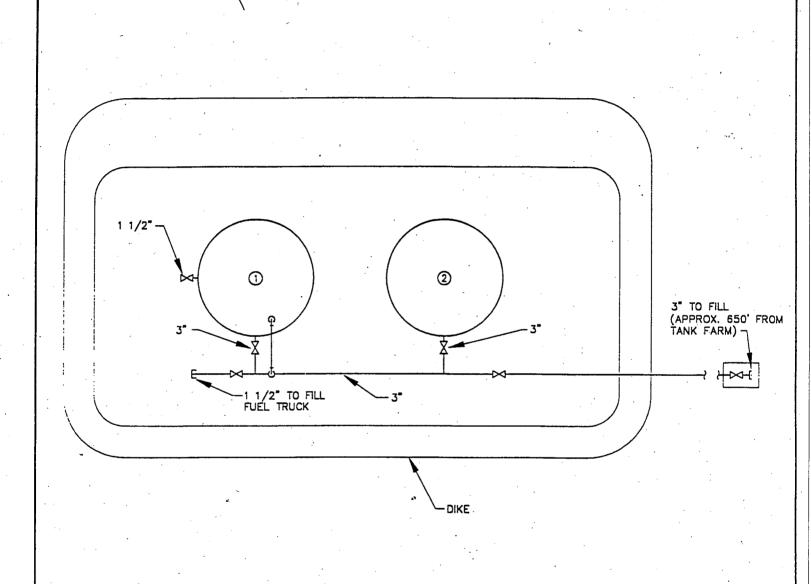
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STATE OF ALASKA
DEPARTMENT OF COMMUNITY & REGIONAL AFFAIRS
DIVISION OF ENERGY

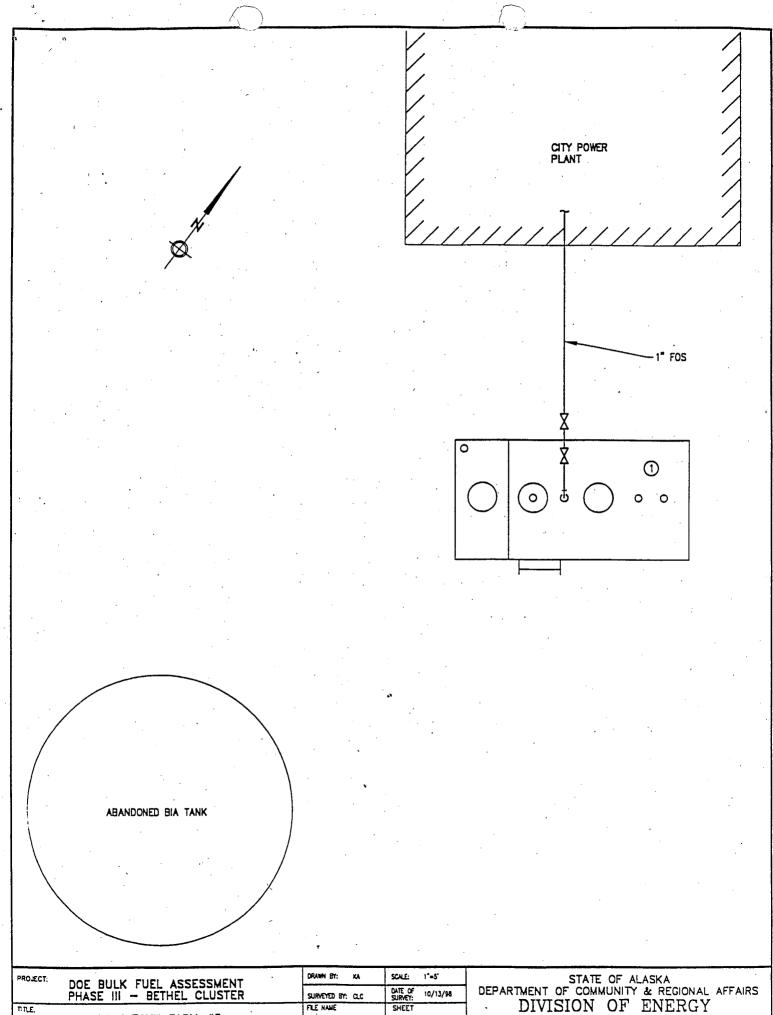
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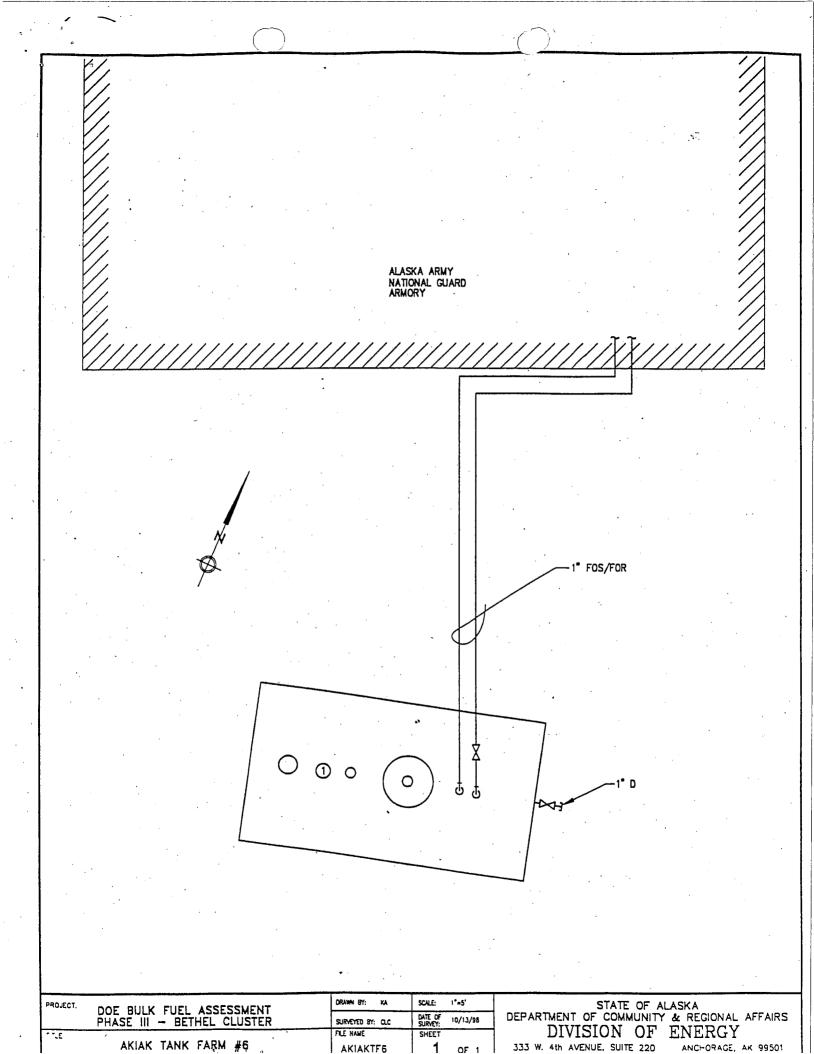


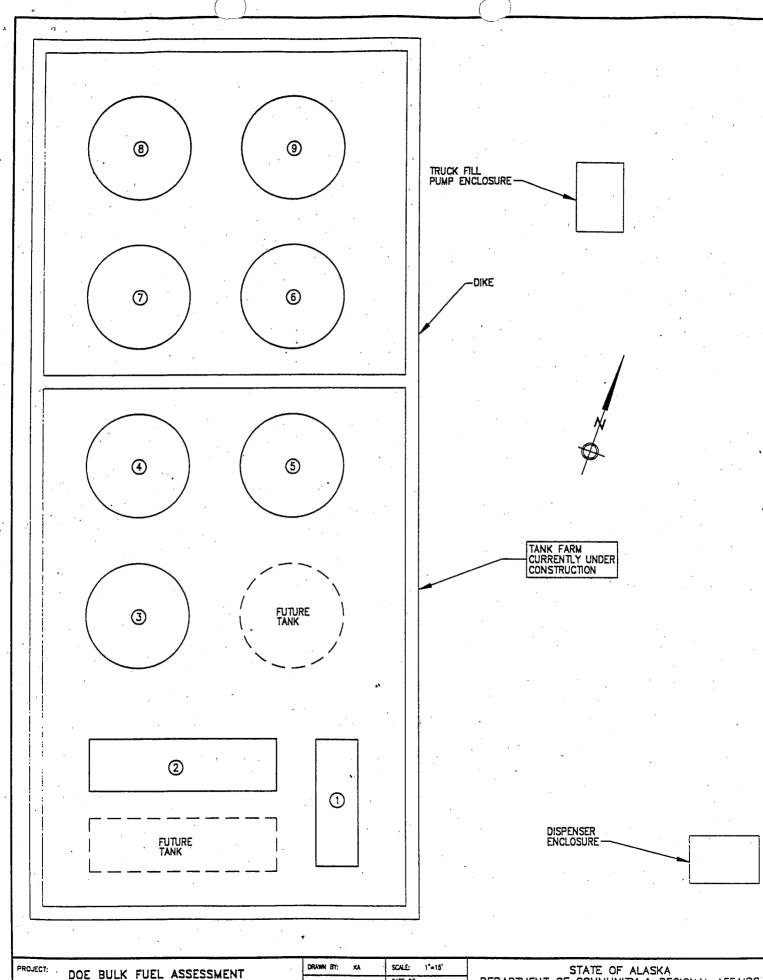
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AKIAK TANK FARM #5

DIVISION OF ENERGY SHEET 333 W. 4th AVENUE, SUITE 220 AKIAKTF5 ANCHORAGE, AK 99501





PROJECT: DOE BULK FUEL ASSESSMENT PHASE III — BETHEL CLUSTER

PROJECT: SURVEYED BY: CLC SURVEY: 10/13/98

AKIAK TANK FARM #7.

AKIAKTANK FARM #7.

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APPENDIX B
FIELD LOGBOOK

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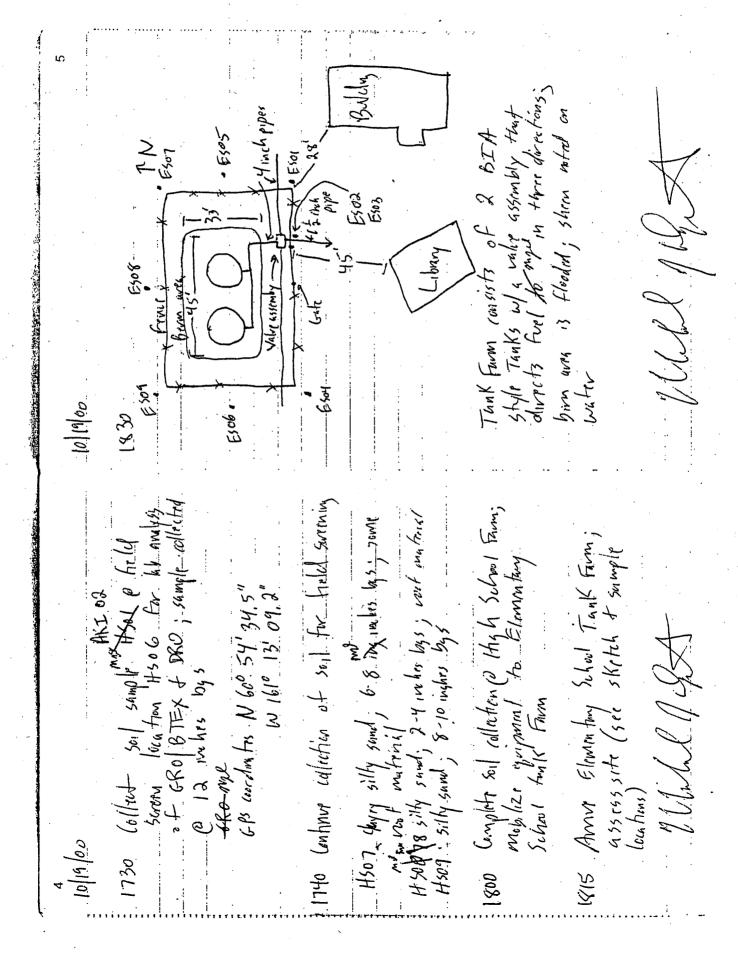
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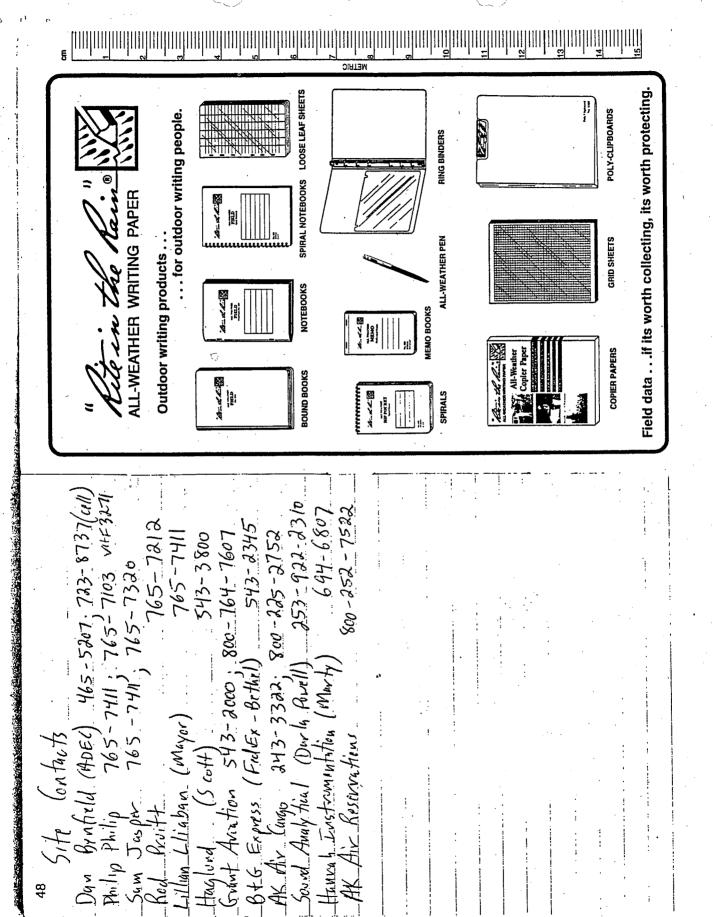
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APPENDIX C FIELD SCREENING RESULTS

YUPIK SCHOOL DISTRICT/ELEMENTARY SCHOOL TANK FARM - HEADSPACE ANALYSIS AKIAK AST TANK FARM RECONNAISSANCE AKIAK, ALASKA

			Meter	Sample Time (after	
			Response	temperature	Comments (include soil type, presence of
Sample No.	PID Reading	Temperature (°F)	Time	attainment)	organics)
			•		silty sand; root material; 6-8 inches bgs;
ES 01	38.7	57.8	0:10	15:00	SE corner
•					silty sand; root material; 6-8 inches bgs;
		,		,	main valve assembly and connection
ES 02	3.9	58.9	0:20	20:00	pipes
					gray, silty sand; 2 feet bgs; main valve
ES 03	714	59.9	0:03	22:00	assembly and connection pipes
ES 04	6.9	60.3	0:10	23:00	silty sand; 6 inches bgs; SW corner
					gray, clayey silt; root material;
ES 05	230	62.1	0:05	25:00	8 inches bgs; east-central border
					silty sand; root material; 6-8 inches bgs;
ES 06	8.3	62.8	0:18	26:00	west-central border
				•	sandy silt; root material; 6-8 inches bgs;
ES 07	4.3	63.1	0:08	27:00	NE corner
					silty sand; root material; 6-8 inches bgs;
ES 08	6.3	64	0:18		north-central border
					silty sand; root material; 6-8 inches bgs;
ES 09	6.5	65	0:30	31:00	NW corner

Key:

AST

= Aboveground storage tank.

bgs °F = Below ground surface.

NE

= Degrees Fahrenheit.

No.

= Northeast.

110.

= Number.

NW

= Northwest.

PID

= Photoionization detector.

SE

= Southeast.

· SW .

= Southwest.

YUPIK SCHOOL DISTRICT/HIGH SCHOOL TANK FARM - HEADSPACE ANALYSIS AKIAK AST TANK FARM RECONNAISSANCE AKIAK, ALASKA

		•	Meter	Sample Time (after	
			Response	temperature	Comments (include soil type, presence of
Sample No.	PID Reading	Temperature (°F)	Time	attainment)	organics)
		,			fine, silty sand; root material;
HS 01	11.1	58.9	0:15	12:00	4-6 inches bgs; SE corner; calibrate
1					silty sand; root material; 2-4 inches bgs;
•		•			wet during analysis (originally frozen);
HS 02	15.3	50.2	1:20	10:00	south-central border
					sandy silt; root material; 6-8 inches bgs;
HS 03	33.7	54.2	0:50	18:00	SW corner
					silty sand; 4 inches bgs; wet during
HS 04	1036	58.1	0:03	22:00	analysis; gasoline AST drain pipe
					clayey, silty sand; 2 feet bgs; east-central
HS 05	25.2	56.2	0:30	25:00	border, main tank farm drain pipe
	10	,			silty sand; 12 inches bgs; petroleum odor;
		·			west-central border, gasoline dispensing
HS 06	>2000	56.7	0:01	26:00	pump
					clayey, silty sand; root material;
HS 07	. 22.3	57.1	0:10	28:00	6-8 inches bgs; NE corner
					silty sand; root material; 2-4 inches bgs;
HS 08	9.9	49.9	0:30		north-central border
HS 09	48.2	53.8	0:50	34:00	silty sand; 8-10 inches bgs; NW corner

Key:

AST = Aboveground storage tank. bgs = Below ground surface.

°F = Degrees Fahrenheit.

NE = Northeast.
No. = Number.
NW = Northwest.

PID = Photoionization detector.

SE = Southeast. SW = Southwest.

OLD KOKAMIUT CORPORATION TANK FARM - HEADSPACE ANALYSIS AKIAK AST TANK FARM RECONNAISSANCE AKIAK, ALASKA

			Meter	Sample Time (after	
,		,	Response	temperature Comments (include soil type, pres	
Sample No.	PID Reading	Temperature (°F)	Time	attainment)	organics)
					brown, silty sand; root material;
OC 01		58	0:04	11:00	12-14 inches bgs; calibrate; SW corner
			· ·		gravelly sand; root material;
OC 02	3.8	57.8	0:25	12:00	8-10 inches bgs; west-central border
	,		·	•	clayey, silty sand; 10-12 inches bgs;
OC 03	1075	55.1	0:03	. 13:00	NW corner
					gray, rusty silt; oxidized root material;
OC 04	4	. 53.6	0:08	15:00	14-16 inches bgs; SE corner
		,			gray, silty sand; trace root material;
OC 05	210	54.1	0:06	17:00	10-12 inches bgs; east-central border
					gray silt; oxidized root material;
OC 06	5.7	53.8	0:45	20:00	10-12 inches bgs; NE corner
,		,			gray, silty sand; petroleum odor;
		•			15-17 inches bgs; SE corner of dispensing
OC 07	1240	. 58.5	0:03	21:00	station
					gray, silty sand; petroleum odor;
		•			5-7 inches bgs; NE corner of dispensing
OC 08	616	59.9	0:02	23:00	station
-				-	brown, silty sand; 4 feet bgs; bank of
OC 09	5.8	60.7	0:15	25:00	Kuskokwim River parallel to SE corner
,					brown, silty sand; 4 feet bgs; bank of
OC 10	4.8	59.2	0:15	26:00	Kuskokwim River parallel to NE corner

Key:

AST = Aboveground storage tank.

bgs = Below ground surface.

°F = Degrees Fahrenheit.

NE = Northeast.
No. = Number.

NW = Northwest.

PID = Photoionization detector.

SE = Southeast. SW = Southwest.

CITY OF AKIAK POWER PLANT TANK FARM - HEADSPACE ANALYSIS AKIAK AST TANK FARM RECONNAISSANCE AKIAK, ALASKA

			Meter	Sample Time (after	
			Response	temperature	Comments (include soil type, presence of
Sample No.	PID Reading	Temperature (°F)	Time	attainment)	organics)
	,				brown, silty sand; 10-12 inches bgs; SW
CB 01	3.6	61.4	1:04	30:00	corner
					gray, rusty silt; 3.5 feet bgs;
CB 02	24.4	60.7	0:07	34:00	south-central border
				,	gray, silty sand; root material;
CB 03	28.5	59.9	0:12	√ 35:00	10-12 inches bgs; SE corner
CB 04	5.8	59.4	0:09	37:00	gray, silty sand; 3 feet bgs; SE corner
				,	rusty, gray silt; trace root material;
CB 05	4.1	58.5	0:03	38:00	12-16 inches bgs; NW corner
					rusty gray silt; 12 inches bgs;
CB 06	2	• 59.2	0:22	40:00	north-central border
					gray, silty sand; 12 inches bgs; calibrate;
CB 07	6.7	59.9	0:11	42:00	NE corner

Key:

AST

= Aboveground storage tank.

bgs °F

= Below ground surface. = Degrees Fahrenheit.

NE

= Northeast.

No.

= Number.

NW

= Northwest.

PID

= Photoionization detector.

SE

= Southeast.

sw

= Southwest.

APPENDIX D
ANALYTICAL RESULTS

AERIAL PHOTOGRAPHS









ENVIRONMENTAL REGULATORY AGENCY DATABASE REPORT

Old City Power Plant and Tank Farm

Kilbuck Street Akiak, AK 99552

Inquiry Number: 2636888.2s

November 23, 2009

The EDR Radius Map™ Report with GeoCheck®

Prepared using the EDR FieldCheck® System

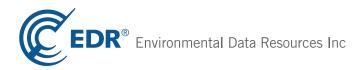


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A search of the environmental records was conducted by Environmental Data Resources, Inc. (EDR). SLR ALASKA used the EDR FieldCheck System to review and/or revise the results of this search, based on independent data verification by SLR ALASKA. The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-05) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

KILBUCK STREET AKIAK, AK 99552

COORDINATES

Latitude (North): 60.892200 - 60° 53' 31.9" Longitude (West): 161.202500 - 161° 12' 9.0"

Universal Tranverse Mercator: Zone 4 UTM X (Meters): 380483.2 UTM Y (Meters): 6752583.0

Elevation: 20 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property: N/A

Source: USGS 7.5 min quad index

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No sites were identified in following databases.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL..... National Priority List

Proposed NPL.....Proposed National Priority List Sites

NPL LIENS..... Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL..... National Priority List Deletions

Federal CERCLIS list

Federal CERCLIS NFRAP sit	e List
CERC-NFRAP	CERCLIS No Further Remedial Action Planned
Federal RCRA CORRACTS f	acilities list
CORRACTS	Corrective Action Report
Federal RCRA non-CORRAC	CTS TSD facilities list
RCRA-TSDF	RCRA - Transporters, Storage and Disposal
Federal RCRA generators lis	st
RCRA-SQG	RCRA - Large Quantity Generators RCRA - Small Quantity Generators RCRA - Conditionally Exempt Small Quantity Generator
Federal institutional controls	s / engineering controls registries
	Engineering Controls Sites List Sites with Institutional Controls
Federal ERNS list	
ERNS	Emergency Response Notification System
State and tribal landfill and/o	or solid waste disposal site lists
SWF/LF	Solid Waste Facilities
State and tribal leaking store	age tank lists
LUSTINDIAN LUST	Leaking Underground Storage Tank Database Leaking Underground Storage Tanks on Indian Land
State and tribal registered st	torage tank lists
AST	Underground Storage Tank Database Regulated Aboveground Storage Tanks Underground Storage Tanks on Indian Land
State and tribal institutional	control / engineering control registries
ENG CONTROLSINST CONTROL	Engineering Controls Site Listing Contaminated Sites with Institutional Controls
State and tribal voluntary cle	eanup sites
	Voluntary Cleanup Program sites Voluntary Cleanup Priority Listing
State and tribal Brownfields	sites
BROWNFIELDS	Identified and/or Proposed Brownfields Sites

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS..... A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

ODI..... Open Dump Inventory

Local Lists of Hazardous waste / Contaminated Sites

US CDL..... Clandestine Drug Labs

CDL..... Illegal Drug Manufacturing Sites

US HIST CDL..... National Clandestine Laboratory Register

Local Land Records

LIENS 2..... CERCLA Lien Information

LUCIS.....Land Use Control Information System

Records of Emergency Release Reports

HMIRS..... Hazardous Materials Information Reporting System

SPILLS..... Spills Database

Other Ascertainable Records

RCRA-NonGen______RCRA - Non Generators
DOT OPS______Incident and Accident Data
DOD_______Department of Defense Sites
FUDS______Formerly Used Defense Sites

CONSENT..... Superfund (CERCLA) Consent Decrees

TRIS...... Toxic Chemical Release Inventory System

TSCA...... Toxic Substances Control Act

FTTS......FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide

Act)/TSCA (Toxic Substances Control Act)

HIST FTTS....... FIFRA/TSCA Tracking System Administrative Case Listing

SSTS..... Section 7 Tracking Systems

ICIS...... Integrated Compliance Information System

PADS PCB Activity Database System
MLTS Material Licensing Tracking System
RADINFO Radiation Information Database

DRYCLEANERS..... Drycleaner Facility Listing

NPDES...... Wastewater Discharge Permit Listing

AIRS Facility Listing

INDIAN RESERV..... Indian Reservations

SCRD DRYCLEANERS...... State Coalition for Remediation of Drycleaners Listing

COAL ASH...... Coal Ash Disposal Sites

PCB TRANSFORMER...... PCB Transformer Registration Database

EDR PROPRIETARY RECORDS

EDR Proprietary Records

Manufactured Gas Plants..... EDR Proprietary Manufactured Gas Plants

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.

Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in bold italics are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

State- and tribal - equivalent CERCLIS

SHWS: State Hazardous Waste Sites. State hazardous waste site records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with where cleanup will be paid for by potentially responsible parties.

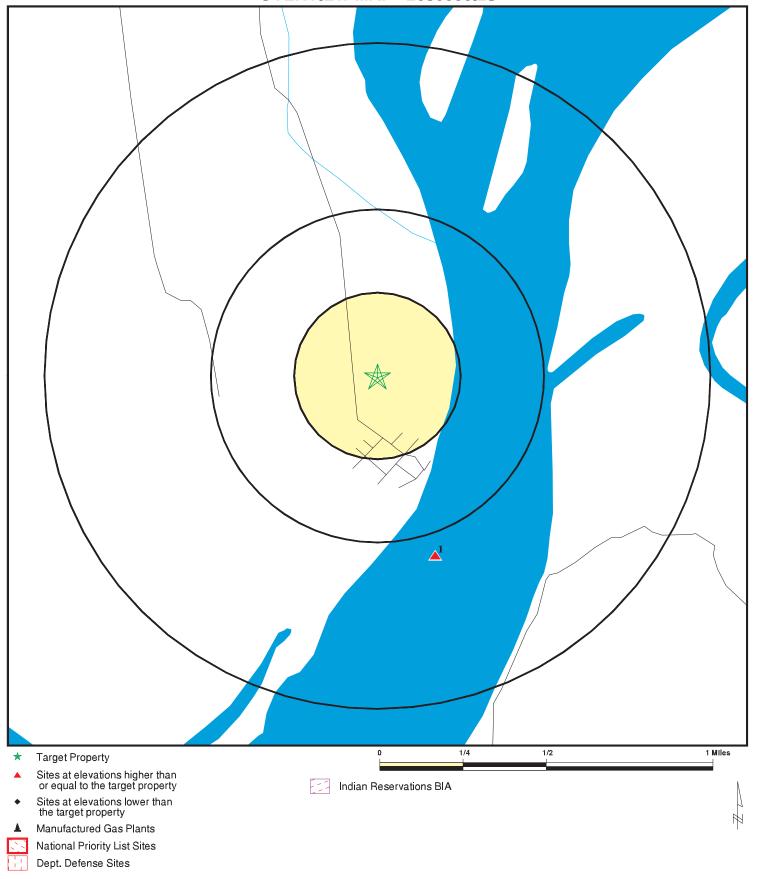
An online review and analysis by SLR ALASKA of the SHWS list, as provided by EDR, and dated 10/05/2009 has revealed that there is 1 SHWS site within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
AKARNG AKIAK FSA	MUKLUK STREET	SSE 1/2 - 1 (0.566 mi.)	1	7

Due to poor or inadequate address information, the following sites were not mapped:

Site Name	Database(s)
AKIAK HIGH SCHOOL FORMER TANK FARM	SHWS
AKIAK ELEMENTARY SCHOOL FORMER TANK FARM	SHWS
AKIAK OLD CITY TANK FARM AND POWER PLANT	SHWS, BROWNFIELDS
BETHEL PUBLIC WORKS YARD	SHWS
IHS YK DELTA REGIONAL HOSPITAL BLDG. 600 BETHEL	SHWS
IHS YK DELTA REG. HOSPITAL BETHEL	SHWS, INST CONTROL
PUBLIC HEALTH SERVICE HOSPITAL-BETHEL	SHWS
CAMAI AIR - BETHEL	SHWS
ARCTIC CIRCLE AIR SERVICES - 1994	SHWS
USFWS - BETHEL AIRPORT, TANK #1	SHWS
D & G EXPRESS	SHWS
AKARNG BETHEL OLD AAOF	SHWS
AKARNG BETHEL NEW AAOF	SHWS
ARCTIC CIRCLE AIR SERVICES - 2001	SHWS, INST CONTROL
ERA AVIATION BETHEL AIRPORT FAC.	SHWS, INST CONTROL
FAA BETHEL FLIGHT SERVICE STATION	SHWS
FAA BETHEL STATION TANK FARM	SHWS
BETHEL DUMP	SHWS, BROWNFIELDS
BANK STABILIZATION PROJECT	SHWS
FAA BETHEL STATION	SHWS
BETHEL FUEL SALES PUMPHOUSE	SHWS
ADOT&PF BETHEL MAINTENANCE FACILITY	SHWS
BETHEL BIA SPILL - WHITE ALICE TANK	SHWS, INST CONTROL
NORTH STAR GAS COMPANY - BETHEL - 1993	SHWS
YUTE AIR BANKRUPTCY PROPERTIES	SHWS
BETHEL AIRPORT (FORMER)	SHWS
BETHEL UTILITIES CORP. POWER PLANT	SHWS
AT&T ALASCOM BETHEL EARTH STATION	SHWS, INST CONTROL
BETHEL RADIO RELAY STATION	SHWS
USFWS - YUKON DELTA NWR HEADQUARTERS	SHWS
KNIK CONSTRUCTION	SHWS
ROBAIR REPAIR-BETHEL AIRPORT	SHWS
BETHEL FUEL SALES	SHWS, INST CONTROL
DOC YUKON KUSKOKWIM CORRECTIONAL CENTER	SHWS
ALASKA COMMERCIAL PROP BETHEL	SHWS, INST CONTROL
BETHEL POWER PRODUCTS	SHWS, BROWNFIELDS
AKARNG KONGIGANAK FSA	SHWS
NAPASKIAK INCORPORATED STORE FORMER TANK FARM	SHWS
NAPASKIAK FORMER BIA SCHOOL DAY TANKS	SHWS
AKARNG NAPASKIAK FSA	SHWS
AKARNG NEWTOK FSA	SHWS

OVERVIEW MAP - 2636888.2s



This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

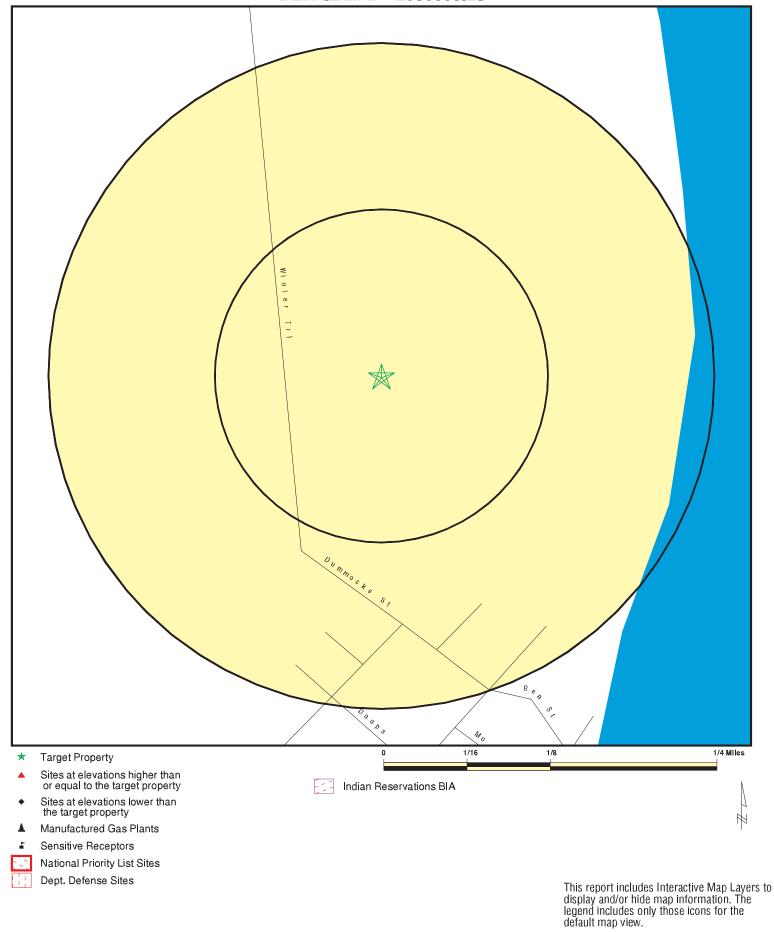
SITE NAME: Old City Power Plant and Tank Farm ADDRESS: Kilbuck Street

Akiak AK 99552 LAT/LONG: 60.8922 / 161.2025 CLIENT: SLR Alaska CONTACT: Christina Bentz INQUIRY#: 2636888.2s

DATE: November 23, 2009 5:46 pm

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DETAIL MAP - 2636888.2s



SITE NAME: Old City Power Plant and Tank Farm
ADDRESS: Kilbuck Street
Akiak AK 99552
LAT/LONG: 60.8922 / 161.2025

CLIENT: SLR Alaska
CONTACT: Christina Bentz
INQUIRY #: 2636888.2s
DATE: November 23, 2009 5:46 pm

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENT	TAL RECORDS							
Federal NPL site list								
NPL Proposed NPL NPL LIENS		1.000 1.000 TP	0 0 NR	0 0 NR	0 0 NR	0 0 NR	NR NR NR	0 0 0
Federal Delisted NPL sit	e list							
Delisted NPL		1.000	0	0	0	0	NR	0
Federal CERCLIS list								
CERCLIS		0.500	0	0	0	NR	NR	0
Federal CERCLIS NFRA	P site List							
CERC-NFRAP		0.500	0	0	0	NR	NR	0
Federal RCRA CORRAC	TS facilities li	st						
CORRACTS		1.000	0	0	0	0	NR	0
Federal RCRA non-COR	RACTS TSD fa	acilities list						
RCRA-TSDF		0.500	0	0	0	NR	NR	0
Federal RCRA generator	rs list							
RCRA-LQG RCRA-SQG RCRA-CESQG		0.250 0.250 0.250	0 0 0	0 0 0	NR NR NR	NR NR NR	NR NR NR	0 0 0
Federal institutional con engineering controls reg								
US ENG CONTROLS US INST CONTROL		0.500 0.500	0 0	0 0	0 0	NR NR	NR NR	0 0
Federal ERNS list								
ERNS		TP	NR	NR	NR	NR	NR	0
State- and tribal - equiva	lent CERCLIS	8						
SHWS		1.000	0	0	0	1	NR	1
State and tribal landfill a solid waste disposal site								
SWF/LF		0.500	0	0	0	NR	NR	0
State and tribal leaking	storage tank l	ists						
LUST INDIAN LUST		0.500 0.500	0 0	0 0	0 0	NR NR	NR NR	0 0
State and tribal registere	ed storage tan	ık lists						
UST AST		0.250 0.250	0 0	0 0	NR NR	NR NR	NR NR	0 0

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
INDIAN UST		0.250	0	0	NR	NR	NR	0
State and tribal institutio control / engineering con		es						
ENG CONTROLS INST CONTROL		0.500 0.500	0 0	0 0	0 0	NR NR	NR NR	0 0
State and tribal voluntary	cleanup site	es						
VCP INDIAN VCP		0.500 0.500	0 0	0 0	0 0	NR NR	NR NR	0 0
State and tribal Brownfie	lds sites							
BROWNFIELDS		0.500	0	0	0	NR	NR	0
ADDITIONAL ENVIRONMEN	TAL RECORDS	<u>s</u>						
Local Brownfield lists								
US BROWNFIELDS		0.500	0	0	0	NR	NR	0
Local Lists of Landfill / S Waste Disposal Sites	olid							
ODI DEBRIS REGION 9 INDIAN ODI		0.500 0.500 0.500	0 0 0	0 0 0	0 0 0	NR NR NR	NR NR NR	0 0 0
Local Lists of Hazardous Contaminated Sites	waste/							
US CDL CDL US HIST CDL		TP TP TP	NR NR NR	NR NR NR	NR NR NR	NR NR NR	NR NR NR	0 0 0
Local Land Records								
LIENS 2 LUCIS		TP 0.500	NR 0	NR 0	NR 0	NR NR	NR NR	0 0
Records of Emergency R	elease Repo	rts						
HMIRS SPILLS		TP TP	NR NR	NR NR	NR NR	NR NR	NR NR	0 0
Other Ascertainable Rec	ords							
RCRA-NonGen DOT OPS DOD FUDS CONSENT ROD UMTRA MINES TRIS TSCA		0.250 TP 1.000 1.000 1.000 1.000 0.500 0.250 TP TP	0 NR 0 0 0 0 0 0 0 NR NR	0 NR 0 0 0 0 0 0 NR NR	NR NR 0 0 0 0 0 NR NR NR	NR NR 0 0 0 NR NR NR NR	NR NR NR NR NR NR NR NR	0 0 0 0 0 0 0

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
FTTS		TP	NR	NR	NR	NR	NR	0
HIST FTTS		TP	NR	NR	NR	NR	NR	0
SSTS		TP	NR	NR	NR	NR	NR	0
ICIS		TP	NR	NR	NR	NR	NR	0
PADS		TP	NR	NR	NR	NR	NR	0
MLTS		TP	NR	NR	NR	NR	NR	0
RADINFO		TP	NR	NR	NR	NR	NR	0
FINDS		TP	NR	NR	NR	NR	NR	0
RAATS		TP	NR	NR	NR	NR	NR	0
DRYCLEANERS		0.250	0	0	NR	NR	NR	0
NPDES		TP	NR	NR	NR	NR	NR	0
AIRS		TP	NR	NR	NR	NR	NR	0
INDIAN RESERV		1.000	0	0	0	0	NR	0
SCRD DRYCLEANERS		0.500	0	0	0	NR	NR	0
COAL ASH		0.500	0	0	0	NR	NR	0
PCB TRANSFORMER		TP	NR	NR	NR	NR	NR	0
EDR PROPRIETARY RECOR	RDS							
EDR Proprietary Records	5							
Manufactured Gas Plants		1.000	0	0	0	0	NR	0

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

Map ID MAP FINDINGS

Direction Distance

Elevation Site Database(s) EPA ID Number

AKARNG AKIAK FSA SHWS S104892013
SE MUKLUK STREET N/A

SSE MUKLUK STREET 1/2-1 AKIAK, AK 99552

0.566 mi. 2986 ft.

Relative: SHWS:

Equal File Number: 2402.38.002

Staff: Debra Caillouet - 9072690298

Actual: Facility Status: Active
20 ft. Land Owner: Not reported

Latitude: Not reported 60.912201 Longitude: -161.213867

Problem: Fuel oil spilled into the soil and has allegedly contaminated the

shallow GW. The specific contaminants, amounts, time, extent of contamination and public health concerns unknown. Combined Reckey 198125X912702 and its variations into this Reckey. Former site

managers were Pinard, Roberts, Vickaryous, Howard, and Pexton. Region

changed from 22 to 25.

Actions:

Action Date: 06/15/1995

Action: Site Ranked Using the AHRM

DEC Staff: Halverson, John

Action Description: Initial ranking. Action code added because it wasnt when site was

originally ranked. Too many unknowns, score is 0.

Action Date: 08/13/2008

Action: Update or Other Action
DEC Staff: Caillouet, Debra

Action Description: Staff reviewed the site characterization work plan and provided

comment to the AKARNG.

Action Date: 07/31/1996

Action: Site Number Identifier Changed

DEC Staff: Petrik, Bill

Action Description: Combined Reckey 198125X912702 into this Reckey.

Action Date: 09/09/1997

Action: Site Ranked Using the AHRM

DEC Staff: Pexton, Scott

Action Description: Site reranked. Changed Population Density Value from 3 to 5; GW Usage

Value from 0.1 to 0.8; GW Exposure Index Value from 0.4 to 1; SW Usage Value from 0.5 to 1; and SW Environments from 0 to 2. Former

score was 8.

Action Date: 01/08/1999

Action: Update or Other Action

DEC Staff: Pexton, Scott

Action Description: Draft Remedial Investigation Report received. Prepared by CH2MHILL.

Action Date: 06/25/2008

Action: Update or Other Action DEC Staff: Caillouet, Debra

Action Description: Staff provided comment on the draft characteriation/delineation work

plan

Action Date: 02/23/1996

Action: Preliminary Assessment Approved

DEC Staff: Wright, Bill

EDR ID Number

Map ID MAP FINDINGS
Direction

Distance Elevation

ance EDR ID Number vation Site Database(s) EPA ID Number

AKARNG AKIAK FSA (Continued)

S104892013

Action Description: (Old R:Base Action Code = SA1A - Phase I Site Assessment Approval).

Phase 1 site assessment report reviewed and approved.

Action Date: 06/02/2004

Action: Update or Other Action DEC Staff: Egbejimba, Beatrice

Action Description: ADEC received Final Interim Removal Action Plan.

Action Date: 06/23/1999

Action: Update or Other Action

DEC Staff: Pexton, Scott

Action Description: Received Final Remedial Investigation Report (dated May 1999),

prepared by CH2MHILL.

Action Date: 07/02/2004

Action: Update or Other Action

DEC Staff: Pikul, David

Action Description: DEC issued a letter stating the following: DEC has completed review

of the document titled: Final Interim Removal Action Plan, Federal Scout Armory, Akiak, Alaska dated March 2004 and offers the following comments. DEC concurs with the general approach of the plan however, can not provide approval to the plan as written. The plan provides a general approach for the excavation, and handling of impacted petroleum contaminated soil but lacks site specific detail for DEC approval under 18 AAC 75. DEC understands that the AKARNG is performing this action to reduce risk to human health and the environment under 18 AAC 75.330, to provide for a partial cleanup at the site and not achieve cleanup levels. It is presumed that information gathered during this interim action will provide data to be used in determining any future actions required for site clean up.

In conclusion, DEC has no objection to the interim removal approach

provided and will defer any further regulatory decisions until review of the data collected from the site work.

Action Date: 02/19/2009

Action: Report or Workplan Review - Other

DEC Staff: Caillouet, Debra

Action Description: Final Secondary Site Characterization, Federal Scout Armory, Akiak.

The report provides additional characterization of the nature and extent of the contamination remaining at the Armory. It generally meets the requirements of 18 AAC 75 although a qualifed person did

not perform the sampling.

Action Date: 03/11/1999

Action: Update or Other Action

DEC Staff: Pexton, Scott

Action Description: Letter sent with comments on draft Remedial Investigation Report.

Action Date: 03/15/2005

Action: Update or Other Action
DEC Staff: Caillouet, Debra

Action Description: Legal description added per 5/1999 RI

Action Date: 10/11/1999

Action: Site Ranked Using the AHRM

DEC Staff: Pexton, Scott

Action Description: Site reranked based on May 1999 Akiak Remedial Investigation Report

Map ID MAP FINDINGS
Direction

Direction Distance

Elevation Site Database(s) EPA ID Number

AKARNG AKIAK FSA (Continued)

S104892013

EDR ID Number

prepared by CH2MHILL.

Action Date: 03/16/2005

Action: Update or Other Action
DEC Staff: Caillouet, Debra

Action Description: Staff reviewed the Akiak Federal Scout Amory Installation Action

Plan. The plan contains a summary of the actions to date and proposed

cleanup strategy. The summary of the actions fairly depicts the results of the site investigation, but the removal action report documenting work conducted last year has not been received yet, little information on the removal action that occurred last year is described in the IAP.DEC will need to review the removal action report prior to concurring with a clean up strategy. If you could identify when the current structure will be removed that would help

to understand the overall time period to complete cleanup.

Action Date: 12/04/2008

Action: Report or Workplan Review - Other

DEC Staff: Caillouet, Debra

Action Description: The Secondary Site Characterization report was reviewed and comments

sent to the Guard.

Action Date: 09/15/1998

Action: Site Characterization Workplan Approved

DEC Staff: Pexton, Scott

Action Description: Letter sent with approval of Final Site Sampling Plan for Remedial

Investigation prepared by CH2MHILL.

Action Date: 05/07/1981

Action: Site Added to Database DEC Staff: No Longer Assigned, Action Description: Fuel oil contaminant.

Action Date: 02/22/1996

Action: Site Ranked Using the AHRM

DEC Staff: Wright, Bill Action Description: Site ranked.

Action Date: 03/27/1996

Action: Update or Other Action

DEC Staff: Wright, Bill

Action Description: Letter sent with request for additional characterization of extent of

contamination.

Action Date: 03/13/2008

Action: Exposure Tracking Model Ranking

DEC Staff: Caillouet, Debra

Action Description: Initial ranking with ETM completed.

Action Date: 03/12/2004

Action: Update or Other Action DEC Staff: Cunningham, Sarah

Action Description: File number assigned: 2402.38.002.

Action Date: 08/09/1991

Action: Site Number Identifier Changed

DEC Staff: Petrik, Bill

AKARNG AKIAK FSA (Continued)

S104892013

Action Description:

Old# 81220912702 New# 8125X912702 Western district, regular CS now.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
AKIAK	S109568137	AKIAK HIGH SCHOOL FORMER TANK FARM	W BANK OF KUSKOKWIM RIVER	99552	SHWS
AKIAK	S109568136	AKIAK ELEMENTARY SCHOOL FORMER TANK FARM	W BANK OF KUSKOKWIM RIVER	99552	SHWS
AKIAK	S109568135	AKIAK OLD CITY TANK FARM AND POWER PLANT	W BANK OF KUSKOKWIM RIVER	99552	SHWS, BROWNFIELDS
BETHEL	S109254958	BETHEL PUBLIC WORKS YARD	*	99559	SHWS
BETHEL	S107028731	IHS YK DELTA REGIONAL HOSPITAL BLDG. 600 BETHEL	AIRPORT ROAD	99559	SHWS
BETHEL	S107028733	IHS YK DELTA REG. HOSPITAL BETHEL	AIRPORT ROAD	99559	INST CONTROL, SHWS
BETHEL	S109255661	PUBLIC HEALTH SERVICE HOSPITAL-BETHEL	AIRPORT RD.;	99559	SHWS
BETHEL	S109256702	CAMAI AIR - BETHEL	BETHEL REGIONAL AIRPORT BLDG 3594	99559	SHWS
BETHEL	S109255835	ARCTIC CIRCLE AIR SERVICES - 1994	BETHEL AIRPORT; P. O. BOX 907	99559	SHWS
BETHEL	S109256810	USFWS - BETHEL AIRPORT, TANK #1	BETHEL AIRPORT	99559	SHWS
BETHEL	S106687935	D & G EXPRESS	BETHEL AIRPORT	99559	SHWS
BETHEL	S107504831	AKARNG BETHEL OLD AAOF	BETHEL AIRPORT	99559	SHWS
BETHEL	S107504763	AKARNG BETHEL NEW AAOF	BETHEL AIRPORT	99559	SHWS
BETHEL	S109254668	ARCTIC CIRCLE AIR SERVICES - 2001	BETHEL AIRPORT	99559	INST CONTROL, SHWS
BETHEL	S107028735	ERA AVIATION BETHEL AIRPORT FAC.	BETHEL AIRPORT	99559	INST CONTROL, SHWS
BETHEL	S107028732	FAA BETHEL FLIGHT SERVICE STATION	BETHEL AIRPORT	99559	SHWS
BETHEL	S109568368	FAA BETHEL STATION TANK FARM	BETHEL	99559	SHWS
BETHEL	S106687934	BETHEL DUMP	BETHEL	99559	SHWS, BROWNFIELDS
BETHEL	S109568381	BANK STABILIZATION PROJECT	BETHEL	99559	SHWS
BETHEL	S109568369	FAA BETHEL STATION	BETHEL	99559	SHWS
BETHEL	S109568328	BETHEL FUEL SALES PUMPHOUSE	BETHEL	99559	SHWS
BETHEL	S109255314	ADOT&PF BETHEL MAINTENANCE FACILITY	BETHEL	99559	SHWS
BETHEL	S107028734	BETHEL BIA SPILL - WHITE ALICE TANK	BIA ROAD	99559	INST CONTROL, SHWS
BETHEL	S109255318	NORTH STAR GAS COMPANY - BETHEL - 1993	1170 BRIDGE ST	99559	
BETHEL	S109255581	YUTE AIR BANKRUPTCY PROPERTIES	FISHER HANGAR LOT 4 BLOCK 11, BETHEL AIRPORT	99559	SHWS
BETHEL	S104892330	BETHEL AIRPORT (FORMER)	KUSKOKWIM RIVER, SE OF	99559	SHWS
BETHEL	S104892335	BETHEL UTILITIES CORP. POWER PLANT	1340 KWETHLUK LANE	99559	SHWS
BETHEL	S105074190	AT&T ALASCOM BETHEL EARTH STATION	265 MAIN STREET	99559	INST CONTROL, SHWS
BETHEL	S107504601	BETHEL RADIO RELAY STATION	5 MILES W OF	99559	SHWS
BETHEL	S109255466	USFWS - YUKON DELTA NWR HEADQUARTERS	P. O. BOX 346;	99559	SHWS
BETHEL	S105555590		1171 OLD 1ST AVENUE	99559	SHWS
BETHEL	S109255472	ROBAIR REPAIR-BETHEL AIRPORT	3241 NORTH R	99559	SHWS
BETHEL	S105961680	BETHEL FUEL SALES	STANDARD OIL ROAD	99559	INST CONTROL, SHWS
BETHEL	S109256855	DOC YUKON KUSKOKWIM CORRECTIONAL CENTER	1000 STATE HWY	99559	SHWS
BETHEL		ALASKA COMMERCIAL PROP BETHEL	STORE / MARINA	99559	INST CONTROL, SHWS
BETHEL	S109255044		262 THIRD AVE	99559	SHWS, BROWNFIELDS
KONGIGANAK	S104893541		UNNAMED ROAD	99559	SHWS
NAPASKIAK	S109347340				SHWS
NAPASKIAK	S109347341	NAPASKIAK FORMER BIA SCHOOL DAY TANKS	NORTHWEST OF Z. JOHN WILLIAMS SCHOOL	99559	SHWS
NAPASKIAK		AKARNG NAPASKIAK FSA	UNNAMED BOARDWALK	99559	
NEWTOK		AKARNG NEWTOK FSA	UNNAMED BOARDWALK		SHWS

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 10/01/2009 Source: EPA
Date Data Arrived at EDR: 10/14/2009 Telephone: N/A

Date Made Active in Reports: 11/09/2009 Last EDR Contact: 11/13/2009

Number of Days to Update: 26 Next Scheduled EDR Contact: 01/25/2010
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources

EPA's Environmental Photographic Interpretation Center (EPIC)

Telephone: 202-564-7333

EPA Region 1 EPA Region 6

Telephone 617-918-1143 Telephone: 214-655-6659

EPA Region 3 EPA Region 7

Telephone 215-814-5418 Telephone: 913-551-7247

EPA Region 4 EPA Region 8

Telephone 404-562-8033 Telephone: 303-312-6774

EPA Region 5 EPA Region 9

Telephone 312-886-6686 Telephone: 415-947-4246

EPA Region 10

Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 10/01/2009 Source: EPA
Date Data Arrived at EDR: 10/14/2009 Telephone: N/A

Date Made Active in Reports: 11/09/2009 Last EDR Contact: 11/13/2009

Number of Days to Update: 26 Next Scheduled EDR Contact: 01/25/2010
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Source: EPA

Date of Government Version: 10/15/1991 Date Data Arrived at EDR: 02/02/1994 Date Made Active in Reports: 03/30/1994

Number of Days to Update: 56

Telephone: 202-564-4267 Last EDR Contact: 08/17/2009

Next Scheduled EDR Contact: 11/16/2009 Data Release Frequency: No Update Planned

Federal Delisted NPL site list

DELISTED NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 10/01/2009
Date Data Arrived at EDR: 10/14/2009
Date Made Active in Reports: 11/09/2009

Nearly and Character Health 20

Number of Days to Update: 26

Source: EPA Telephone: N/A

Last EDR Contact: 11/13/2009

Next Scheduled EDR Contact: 01/25/2010 Data Release Frequency: Quarterly

Federal CERCLIS list

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 06/30/2009 Date Data Arrived at EDR: 08/11/2009 Date Made Active in Reports: 09/21/2009

Number of Days to Update: 41

Source: EPA

Telephone: 703-412-9810 Last EDR Contact: 11/23/2009

Next Scheduled EDR Contact: 01/11/2010 Data Release Frequency: Quarterly

Federal CERCLIS NFRAP site List

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 06/23/2009 Date Data Arrived at EDR: 09/02/2009 Date Made Active in Reports: 09/21/2009

Number of Days to Update: 19

Source: EPA

Telephone: 703-412-9810 Last EDR Contact: 09/09/2009

Next Scheduled EDR Contact: 12/14/2009 Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 09/15/2009 Date Data Arrived at EDR: 09/22/2009 Date Made Active in Reports: 11/09/2009

Number of Days to Update: 48

Source: EPA

Telephone: 800-424-9346 Last EDR Contact: 11/16/2009

Next Scheduled EDR Contact: 03/01/2010 Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Transporters, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 11/12/2008 Date Data Arrived at EDR: 11/18/2008 Date Made Active in Reports: 03/16/2009

Number of Days to Update: 118

Source: Environmental Protection Agency

Telephone: (206) 553-1200 Last EDR Contact: 11/18/2009

Next Scheduled EDR Contact: 01/18/2010 Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 11/12/2008 Date Data Arrived at EDR: 11/18/2008 Date Made Active in Reports: 03/16/2009

Number of Days to Update: 118

Source: Environmental Protection Agency

Telephone: (206) 553-1200 Last EDR Contact: 11/18/2009

Next Scheduled EDR Contact: 01/18/2010 Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 11/12/2008 Date Data Arrived at EDR: 11/18/2008 Date Made Active in Reports: 03/16/2009

Number of Days to Update: 118

Source: Environmental Protection Agency

Telephone: (206) 553-1200 Last EDR Contact: 11/18/2009

Next Scheduled EDR Contact: 01/18/2010 Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 11/12/2008
Date Data Arrived at EDR: 11/18/2008
Date Made Active in Reports: 03/16/2009

Number of Days to Update: 118

Source: Environmental Protection Agency

Telephone: (206) 553-1200 Last EDR Contact: 11/18/2009

Next Scheduled EDR Contact: 01/18/2010 Data Release Frequency: Varies

Federal institutional controls / engineering controls registries

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 10/01/2009 Date Data Arrived at EDR: 10/09/2009 Date Made Active in Reports: 11/09/2009

Number of Days to Update: 31

Source: Environmental Protection Agency

Telephone: 703-603-0695 Last EDR Contact: 09/18/2009

Next Scheduled EDR Contact: 12/28/2009 Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 10/01/2009 Date Data Arrived at EDR: 10/09/2009 Date Made Active in Reports: 11/09/2009

Number of Days to Update: 31

Source: Environmental Protection Agency

Telephone: 703-603-0695 Last EDR Contact: 09/18/2009

Next Scheduled EDR Contact: 12/28/2009 Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 08/31/2009 Date Data Arrived at EDR: 09/17/2009 Date Made Active in Reports: 11/09/2009

Number of Days to Update: 53

Source: National Response Center, United States Coast Guard

Telephone: 202-267-2180 Last EDR Contact: 10/06/2009

Next Scheduled EDR Contact: 01/18/2010 Data Release Frequency: Annually

State- and tribal - equivalent CERCLIS

SHWS: Contaminated Sites Database

State Hazardous Waste Sites. State hazardous waste site records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. Available information varies by state.

Date of Government Version: 10/05/2009 Date Data Arrived at EDR: 10/06/2009 Date Made Active in Reports: 10/22/2009

Number of Days to Update: 16

Source: Department of Environmental Conservation

Telephone: 907-451-2143 Last EDR Contact: 11/20/2009

Next Scheduled EDR Contact: 03/08/2010 Data Release Frequency: Semi-Annually

State and tribal landfill and/or solid waste disposal site lists

SWF/LF: Solid Waste Facilities

Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 10/05/2009 Date Data Arrived at EDR: 10/07/2009 Date Made Active in Reports: 10/22/2009

Number of Days to Update: 15

Source: Department of Environmental Conservation

Telephone: 907-269-7632 Last EDR Contact: 10/07/2009

Next Scheduled EDR Contact: 01/18/2010 Data Release Frequency: Semi-Annually

State and tribal leaking storage tank lists

LUST: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

Date of Government Version: 09/09/2009 Date Data Arrived at EDR: 09/09/2009 Date Made Active in Reports: 09/18/2009

Number of Days to Update: 9

Source: Department of Environmental Conservation

Telephone: 907-465-5301 Last EDR Contact: 09/09/2009

Next Scheduled EDR Contact: 12/07/2009 Data Release Frequency: Semi-Annually

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 08/24/2009 Date Data Arrived at EDR: 09/10/2009 Date Made Active in Reports: 10/22/2009

Number of Days to Update: 42

Source: EPA Region 8 Telephone: 303-312-6271 Last EDR Contact: 10/30/2009

Next Scheduled EDR Contact: 02/15/2010 Data Release Frequency: Quarterly

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 03/24/2009 Date Data Arrived at EDR: 05/20/2009 Date Made Active in Reports: 06/17/2009

Number of Days to Update: 28

Source: EPA Region 7 Telephone: 913-551-7003 Last EDR Contact: 11/04/2009

Next Scheduled EDR Contact: 02/15/2010 Data Release Frequency: Varies

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 02/19/2009 Date Data Arrived at EDR: 02/19/2009 Date Made Active in Reports: 03/16/2009

Number of Days to Update: 25

Source: EPA Region 1 Telephone: 617-918-1313 Last EDR Contact: 10/30/2009

Next Scheduled EDR Contact: 02/15/2010 Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 08/20/2009 Date Data Arrived at EDR: 08/21/2009 Date Made Active in Reports: 09/21/2009

Number of Days to Update: 31

Source: EPA Region 10 Telephone: 206-553-2857 Last EDR Contact: 10/30/2009

Next Scheduled EDR Contact: 02/15/2010 Data Release Frequency: Quarterly

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 08/21/2009 Date Data Arrived at EDR: 10/06/2009 Date Made Active in Reports: 10/22/2009

Number of Days to Update: 16

Source: Environmental Protection Agency Telephone: 415-972-3372

Last EDR Contact: 10/30/2009

Next Scheduled EDR Contact: 02/15/2010 Data Release Frequency: Quarterly

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 08/20/2009 Date Data Arrived at EDR: 08/26/2009 Date Made Active in Reports: 10/22/2009

Number of Days to Update: 57

Source: EPA Region 4 Telephone: 404-562-8677 Last EDR Contact: 10/30/2009

Next Scheduled EDR Contact: 02/15/2010 Data Release Frequency: Semi-Annually

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 08/24/2009 Date Data Arrived at EDR: 08/26/2009 Date Made Active in Reports: 09/21/2009

Number of Days to Update: 26

Source: EPA Region 6 Telephone: 214-665-6597 Last EDR Contact: 10/30/2009

Next Scheduled EDR Contact: 02/15/2010 Data Release Frequency: Varies

State and tribal registered storage tank lists

UST: Underground Storage Tank Database

Registered Underground Storage Tanks. UST's are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 09/09/2009 Date Data Arrived at EDR: 09/09/2009 Date Made Active in Reports: 09/22/2009

Number of Days to Update: 13

Source: Department of Environmental Conservation

Telephone: 907-269-7504 Last EDR Contact: 09/09/2009

Next Scheduled EDR Contact: 12/07/2009 Data Release Frequency: Semi-Annually

AST: Regulated Aboveground Storage Tanks

The list covers "regulated" facilities with storage capacities above 10,000 barrels (or 5,000 barrels of crude).

Date of Government Version: 01/05/2005 Date Data Arrived at EDR: 01/06/2005 Date Made Active in Reports: 02/02/2005

Number of Days to Update: 27

Source: Department of Environmental Conservation

Telephone: 907-465-5231 Last EDR Contact: 09/18/2009

Next Scheduled EDR Contact: 12/21/2009 Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 08/24/2009 Date Data Arrived at EDR: 09/10/2009 Date Made Active in Reports: 10/22/2009

Number of Days to Update: 42

Source: EPA Region 8 Telephone: 303-312-6137 Last EDR Contact: 10/30/2009

Next Scheduled EDR Contact: 02/15/2010 Data Release Frequency: Quarterly

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 02/19/2009 Date Data Arrived at EDR: 02/19/2009 Date Made Active in Reports: 03/16/2009

Number of Days to Update: 25

Source: EPA, Region 1 Telephone: 617-918-1313 Last EDR Contact: 10/30/2009

Next Scheduled EDR Contact: 02/15/2010 Data Release Frequency: Varies

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 08/20/2009 Date Data Arrived at EDR: 08/21/2009 Date Made Active in Reports: 09/21/2009

Number of Days to Update: 31

Source: EPA Region 10 Telephone: 206-553-2857 Last EDR Contact: 10/30/2009

Next Scheduled EDR Contact: 02/15/2010 Data Release Frequency: Quarterly

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 08/20/2009 Date Data Arrived at EDR: 08/26/2009 Date Made Active in Reports: 10/22/2009

Number of Days to Update: 57

Source: EPA Region 4 Telephone: 404-562-9424 Last EDR Contact: 10/30/2009

Next Scheduled EDR Contact: 02/15/2010 Data Release Frequency: Semi-Annually

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 09/08/2008 Date Data Arrived at EDR: 09/19/2008 Date Made Active in Reports: 10/16/2008

Number of Days to Update: 27

Source: EPA Region 5 Telephone: 312-886-6136 Last EDR Contact: 10/22/2009

Next Scheduled EDR Contact: 11/16/2009 Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 08/24/2009 Date Data Arrived at EDR: 08/26/2009 Date Made Active in Reports: 09/21/2009

Number of Days to Update: 26

Source: EPA Region 6 Telephone: 214-665-7591 Last EDR Contact: 10/30/2009

Next Scheduled EDR Contact: 02/15/2010 Data Release Frequency: Semi-Annually

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 04/01/2008 Date Data Arrived at EDR: 12/30/2008 Date Made Active in Reports: 03/16/2009

Number of Days to Update: 76

Source: EPA Region 7 Telephone: 913-551-7003 Last EDR Contact: 11/04/2009

Next Scheduled EDR Contact: 02/15/2010 Data Release Frequency: Varies

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 08/21/2009 Date Data Arrived at EDR: 08/26/2009 Date Made Active in Reports: 10/22/2009

Number of Days to Update: 57

Source: EPA Region 9 Telephone: 415-972-3368 Last EDR Contact: 10/30/2009

Next Scheduled EDR Contact: 02/15/2010 Data Release Frequency: Quarterly

State and tribal institutional control / engineering control registries

ENG CONTROLS: Engineering Controls Site Listing

A listing of sites with engineering controls in place included in the Contaminated Sites.

Date of Government Version: 10/05/2009 Date Data Arrived at EDR: 10/06/2009 Date Made Active in Reports: 10/22/2009

Number of Days to Update: 16

Source: Department of Environmental Conservation

Telephone: 907-451-2143 Last EDR Contact: 11/20/2009

Next Scheduled EDR Contact: 03/08/2010 Data Release Frequency: Quarterly

Inst Control: Contaminated Sites with Institutional Controls
Contaminated sites that have institutional controls.

Date of Government Version: 10/05/2009 Date Data Arrived at EDR: 10/06/2009 Date Made Active in Reports: 10/22/2009

Number of Days to Update: 16

Source: Department of Environmental Conservation

Telephone: 907-451-2143 Last EDR Contact: 11/20/2009

Next Scheduled EDR Contact: 03/08/2010 Data Release Frequency: Semi-Annually

State and tribal voluntary cleanup sites

INDIAN VCP R1: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 04/02/2008 Date Data Arrived at EDR: 04/22/2008 Date Made Active in Reports: 05/19/2008

Number of Days to Update: 27

Source: EPA, Region 1 Telephone: 617-918-1102 Last EDR Contact: 10/05/2009

Next Scheduled EDR Contact: 01/18/2010 Data Release Frequency: Varies

VCP: Voluntary Cleanup Program sites

Sites involved in the Voluntary Cleanup Program.

Date of Government Version: 09/16/2009 Date Data Arrived at EDR: 09/17/2009 Date Made Active in Reports: 09/22/2009

Number of Days to Update: 5

Source: Department of Environmental Conservation

Telephone: 907-451-2143 Last EDR Contact: 09/17/2009

Next Scheduled EDR Contact: 12/21/2009

Data Release Frequency: Varies

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008 Date Data Arrived at EDR: 04/22/2008 Date Made Active in Reports: 05/19/2008

Number of Days to Update: 27

Source: EPA, Region 7 Telephone: 913-551-7365 Last EDR Contact: 04/20/2009

Next Scheduled EDR Contact: 07/20/2009

Data Release Frequency: Varies

State and tribal Brownfields sites

BROWNFIELDS: Identified and/or Proposed Brownfields Sites

Brownfield properties are defined by U.S Environmental Protection Agency (EPA) as "real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contamination." DEC is developing resources to assist eligible entities in Alaska in applying for EPA brownfields grants. The program also will provide technical assistance and perform some site assessments, The purpose of these assessments is to assist local redevelopment efforts on previously contaminated properties that are vacant or underused.

Date of Government Version: 10/05/2009 Date Data Arrived at EDR: 10/06/2009 Date Made Active in Reports: 10/22/2009

Number of Days to Update: 16

Source: Department of Environmental Conservation

Telephone: 907-451-2166 Last EDR Contact: 11/20/2009

Next Scheduled EDR Contact: 03/08/2010

Data Release Frequency: Varies

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites

Included in the listing are brownfields properties addresses by Cooperative Agreement Recipients and brownfields properties addressed by Targeted Brownfields Assessments. Targeted Brownfields Assessments-EPA's Targeted Brownfields Assessments (TBA) program is designed to help states, tribes, and municipalities--especially those without EPA Brownfields Assessment Demonstration Pilots--minimize the uncertainties of contamination often associated with brownfields. Under the TBA program, EPA provides funding and/or technical assistance for environmental assessments at brownfields sites throughout the country. Targeted Brownfields Assessments supplement and work with other efforts under EPA's Brownfields Initiative to promote cleanup and redevelopment of brownfields. Cooperative Agreement Recipients-States, political subdivisions, territories, and Indian tribes become Brownfields Cleanup Revolving Loan Fund (BCRLF) cooperative agreement recipients when they enter into BCRLF cooperative agreements with the U.S. EPA selects BCRLF cooperative agreement recipients based on a proposal and application process. BCRLF cooperative agreement recipients must use EPA funds provided through BCRLF cooperative agreement for specified brownfields-related cleanup activities.

Date of Government Version: 07/01/2009 Date Data Arrived at EDR: 09/11/2009 Date Made Active in Reports: 11/09/2009

Number of Days to Update: 59

Source: Environmental Protection Agency

Telephone: 202-566-2777 Last EDR Contact: 11/04/2009

Next Scheduled EDR Contact: 01/11/2010 Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985 Date Data Arrived at EDR: 08/09/2004 Date Made Active in Reports: 09/17/2004

Number of Days to Update: 39

Source: Environmental Protection Agency

Telephone: 800-424-9346 Last EDR Contact: 06/09/2004 Next Scheduled EDR Contact: N/A

Data Release Frequency: No Update Planned

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009 Date Data Arrived at EDR: 05/07/2009 Date Made Active in Reports: 09/21/2009

Number of Days to Update: 137

Source: EPA, Region 9 Telephone: 415-972-3336 Last EDR Contact: 09/23/2009

Next Scheduled EDR Contact: 12/21/2009 Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands

Location of open dumps on Indian land.

Date of Government Version: 12/31/1998 Date Data Arrived at EDR: 12/03/2007 Date Made Active in Reports: 01/24/2008

Number of Days to Update: 52

Source: Environmental Protection Agency

Telephone: 703-308-8245 Last EDR Contact: 11/09/2009

Next Scheduled EDR Contact: 02/22/2010 Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 03/01/2009 Date Data Arrived at EDR: 06/22/2009 Date Made Active in Reports: 09/21/2009

Number of Days to Update: 91

Source: Drug Enforcement Administration

Telephone: 202-307-1000 Last EDR Contact: 03/26/2009

Next Scheduled EDR Contact: 06/22/2009 Data Release Frequency: Quarterly

CDL: Illegal Drug Manufacturing Sites

A list of properties that have been determined to be illegal drug manufacturing sites.

Date of Government Version: 09/11/2009 Date Data Arrived at EDR: 09/11/2009 Date Made Active in Reports: 09/22/2009

Number of Days to Update: 11

Source: Department of Environmental Conservation

Telephone: 907-269-7543 Last EDR Contact: 09/11/2009

Next Scheduled EDR Contact: 12/07/2009 Data Release Frequency: Varies

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 09/01/2007 Date Data Arrived at EDR: 11/19/2008 Date Made Active in Reports: 03/30/2009

Number of Days to Update: 131

Source: Drug Enforcement Administration

Telephone: 202-307-1000 Last EDR Contact: 03/23/2009

Next Scheduled EDR Contact: 06/22/2009 Data Release Frequency: No Update Planned

Local Land Records

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 08/18/2009 Date Data Arrived at EDR: 08/21/2009 Date Made Active in Reports: 09/21/2009

Number of Days to Update: 31

Source: Environmental Protection Agency

Telephone: 202-564-6023 Last EDR Contact: 11/02/2009

Next Scheduled EDR Contact: 02/15/2010 Data Release Frequency: Varies

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 12/09/2005 Date Data Arrived at EDR: 12/11/2006 Date Made Active in Reports: 01/11/2007

Number of Days to Update: 31

Source: Department of the Navy Telephone: 843-820-7326 Last EDR Contact: 11/20/2009

Next Scheduled EDR Contact: 03/08/2010 Data Release Frequency: Varies

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 10/05/2009 Date Data Arrived at EDR: 10/05/2009 Date Made Active in Reports: 11/09/2009

Number of Days to Update: 35

Source: U.S. Department of Transportation

Telephone: 202-366-4555 Last EDR Contact: 10/05/2009

Next Scheduled EDR Contact: 01/11/2010 Data Release Frequency: Annually

SPILLS: Spills Database

Oil and hazardous substance releases to be reported to the Department of Environmental Conservation.

Date of Government Version: 10/09/2009 Date Data Arrived at EDR: 10/13/2009 Date Made Active in Reports: 10/22/2009

Number of Days to Update: 9

Source: Department of Environmental Conservation

Telephone: 907-465-5242 Last EDR Contact: 10/09/2009

Next Scheduled EDR Contact: 01/25/2010 Data Release Frequency: Semi-Annually

Other Ascertainable Records

RCRA-NonGen: RCRA - Non Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous

waste.

Date of Government Version: 11/12/2008 Date Data Arrived at EDR: 11/18/2008 Date Made Active in Reports: 03/16/2009

Number of Days to Update: 118

Source: Environmental Protection Agency

Telephone: (206) 553-1200 Last EDR Contact: 11/18/2009

Next Scheduled EDR Contact: 01/18/2010 Data Release Frequency: Varies

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 05/14/2008 Date Data Arrived at EDR: 05/28/2008 Date Made Active in Reports: 08/08/2008

Number of Days to Update: 72

Source: Department of Transporation, Office of Pipeline Safety

Telephone: 202-366-4595 Last EDR Contact: 11/10/2009

Next Scheduled EDR Contact: 02/22/2010 Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005 Date Data Arrived at EDR: 11/10/2006 Date Made Active in Reports: 01/11/2007

Number of Days to Update: 62

Source: USGS

Telephone: 703-692-8801 Last EDR Contact: 10/23/2009

Next Scheduled EDR Contact: 02/01/2010 Data Release Frequency: Semi-Annually

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 12/31/2007 Date Data Arrived at EDR: 09/05/2008 Date Made Active in Reports: 09/23/2008

Number of Days to Update: 18

Source: U.S. Army Corps of Engineers

Telephone: 202-528-4285 Last EDR Contact: 09/30/2009

Next Scheduled EDR Contact: 12/28/2009

Data Release Frequency: Varies

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 08/03/2009 Date Data Arrived at EDR: 10/27/2009 Date Made Active in Reports: 11/09/2009

Number of Days to Update: 13

Source: Department of Justice, Consent Decree Library

Telephone: Varies

Last EDR Contact: 10/06/2009

Next Scheduled EDR Contact: 01/18/2010 Data Release Frequency: Varies

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 09/01/2009 Date Data Arrived at EDR: 09/22/2009 Date Made Active in Reports: 10/22/2009

Number of Days to Update: 30

Source: EPA

Telephone: 703-416-0223 Last EDR Contact: 09/22/2009

Next Scheduled EDR Contact: 12/28/2009 Data Release Frequency: Annually

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 01/05/2009 Date Data Arrived at EDR: 05/07/2009 Date Made Active in Reports: 05/08/2009

Number of Days to Update: 1

Source: Department of Energy Telephone: 505-845-0011 Last EDR Contact: 09/14/2009

Next Scheduled EDR Contact: 12/14/2009 Data Release Frequency: Varies

MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 08/07/2009 Date Data Arrived at EDR: 09/18/2009 Date Made Active in Reports: 11/09/2009

Number of Days to Update: 52

Source: Department of Labor, Mine Safety and Health Administration

Telephone: 303-231-5959 Last EDR Contact: 09/18/2009

Next Scheduled EDR Contact: 12/21/2009 Data Release Frequency: Semi-Annually

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2007 Date Data Arrived at EDR: 04/09/2009 Date Made Active in Reports: 06/17/2009

Number of Days to Update: 69

Source: EPA

Telephone: 202-566-0250 Last EDR Contact: 09/14/2009

Next Scheduled EDR Contact: 12/14/2009 Data Release Frequency: Annually

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2002 Date Data Arrived at EDR: 04/14/2006 Date Made Active in Reports: 05/30/2006

Number of Days to Update: 46

Source: EPA

Telephone: 202-260-5521 Last EDR Contact: 10/07/2009

Next Scheduled EDR Contact: 01/11/2010 Data Release Frequency: Every 4 Years

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009 Date Data Arrived at EDR: 04/16/2009 Date Made Active in Reports: 05/11/2009

Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances

Telephone: 202-566-1667 Last EDR Contact: 09/10/2009

Next Scheduled EDR Contact: 12/14/2009 Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act) A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009 Date Data Arrived at EDR: 04/16/2009 Date Made Active in Reports: 05/11/2009

Number of Days to Update: 25

Source: EPA

Telephone: 202-566-1667 Last EDR Contact: 09/10/2009

Next Scheduled EDR Contact: 12/14/2009 Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing

A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006 Date Data Arrived at EDR: 03/01/2007 Date Made Active in Reports: 04/10/2007

Number of Days to Update: 40

Source: Environmental Protection Agency

Telephone: 202-564-2501 Last EDR Contact: 12/17/2007

Next Scheduled EDR Contact: 03/17/2008 Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing

A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006 Date Data Arrived at EDR: 03/01/2007 Date Made Active in Reports: 04/10/2007

Number of Days to Update: 40

Source: Environmental Protection Agency

Telephone: 202-564-2501 Last EDR Contact: 12/17/2008

Next Scheduled EDR Contact: 03/17/2008 Data Release Frequency: No Update Planned

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2007 Date Data Arrived at EDR: 05/19/2009 Date Made Active in Reports: 09/21/2009

Number of Days to Update: 125

Source: EPA

Telephone: 202-564-4203 Last EDR Contact: 11/02/2009

Next Scheduled EDR Contact: 02/15/2010 Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 08/21/2009 Date Data Arrived at EDR: 08/27/2009 Date Made Active in Reports: 10/22/2009

Number of Days to Update: 56

Source: Environmental Protection Agency

Telephone: 202-564-5088 Last EDR Contact: 09/28/2009

Next Scheduled EDR Contact: 01/11/2010 Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 05/27/2009 Date Data Arrived at EDR: 08/05/2009 Date Made Active in Reports: 09/29/2009

Number of Days to Update: 55

Source: EPA

Telephone: 202-566-0500 Last EDR Contact: 10/21/2009

Next Scheduled EDR Contact: 02/01/2010 Data Release Frequency: Annually

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 07/06/2009 Date Data Arrived at EDR: 07/13/2009 Date Made Active in Reports: 09/21/2009

Number of Days to Update: 70

Source: Nuclear Regulatory Commission

Telephone: 301-415-7169 Last EDR Contact: 09/21/2009

Next Scheduled EDR Contact: 12/28/2009 Data Release Frequency: Quarterly

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 07/28/2009 Date Data Arrived at EDR: 07/28/2009 Date Made Active in Reports: 09/21/2009

Number of Days to Update: 55

Source: Environmental Protection Agency

Telephone: 202-343-9775 Last EDR Contact: 10/16/2009

Next Scheduled EDR Contact: 01/25/2010 Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 07/23/2009 Date Data Arrived at EDR: 07/28/2009 Date Made Active in Reports: 09/21/2009

Number of Days to Update: 55

Source: EPA

Telephone: (206) 553-1200 Last EDR Contact: 09/18/2009

Next Scheduled EDR Contact: 12/28/2009 Data Release Frequency: Quarterly

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995 Date Data Arrived at EDR: 07/03/1995 Date Made Active in Reports: 08/07/1995

Number of Days to Update: 35

Source: EPA

Telephone: 202-564-4104 Last EDR Contact: 06/02/2008

Next Scheduled EDR Contact: 09/01/2008 Data Release Frequency: No Update Planned

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2007 Date Data Arrived at EDR: 02/19/2009 Date Made Active in Reports: 05/22/2009

Number of Days to Update: 92

DRYCLEANERS: Drycleaner Facility Listing A listing of drycleaning facilities in Alaska.

> Date of Government Version: 02/15/2006 Date Data Arrived at EDR: 02/16/2006 Date Made Active in Reports: 03/15/2006

Number of Days to Update: 27

NPDES: Wastwater Discharge Permit Listing A listing of permitted wastewater facilities.

> Date of Government Version: 11/24/2006 Date Data Arrived at EDR: 11/27/2006 Date Made Active in Reports: 12/21/2006

Number of Days to Update: 24

AIRS: AIRS Facility Listing

A listing of permitted airs facilities.

Date of Government Version: 10/21/2009 Date Data Arrived at EDR: 10/22/2009 Date Made Active in Reports: 11/09/2009

Number of Days to Update: 18

Source: EPA/NTIS Telephone: 800-424-9346 Last EDR Contact: 11/20/2009

Next Scheduled EDR Contact: 03/05/2010 Data Release Frequency: Biennially

Source: Department of Environmental Conservation

Telephone: 907-269-7577 Last EDR Contact: 10/05/2009

Next Scheduled EDR Contact: 01/18/2010 Data Release Frequency: No Update Planned

Source: Department of Environmental Conservation

Telephone: 907-465-5480 Last EDR Contact: 09/28/2009

Next Scheduled EDR Contact: 01/11/2010 Data Release Frequency: Varies

Source: Department of Environmental Conservation

Telephone: 907-451-2103 Last EDR Contact: 10/19/2009

Next Scheduled EDR Contact: 02/01/2010 Data Release Frequency: Varies

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater

than 640 acres.

Date of Government Version: 12/31/2005 Date Data Arrived at EDR: 12/08/2006 Date Made Active in Reports: 01/11/2007

Number of Days to Update: 34

Source: USGS

Telephone: 202-208-3710 Last EDR Contact: 10/23/2009

Next Scheduled EDR Contact: 02/01/2010 Data Release Frequency: Semi-Annually

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 09/09/2009 Date Data Arrived at EDR: 09/09/2009 Date Made Active in Reports: 10/22/2009

Number of Days to Update: 43

Source: Environmental Protection Agency

Telephone: 615-532-8599 Last EDR Contact: 11/09/2009

Next Scheduled EDR Contact: 02/08/2010

Data Release Frequency: Varies

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005 Date Data Arrived at EDR: 02/06/2006 Date Made Active in Reports: 01/11/2007

Number of Days to Update: 339

Source: U.S. Geological Survey Telephone: 888-275-8747 Last EDR Contact: 10/23/2009

Next Scheduled EDR Contact: 02/01/2010

Data Release Frequency: N/A

COAL ASH: Coal Ash Disposal Sites

A listing of coal ash disposal site locations.

Date of Government Version: 10/05/2009 Date Data Arrived at EDR: 10/06/2009 Date Made Active in Reports: 10/22/2009

Number of Days to Update: 16

Source: Department of Environmental Conservation

Telephone: 907-451-2135 Last EDR Contact: 10/05/2009

Next Scheduled EDR Contact: 01/18/2010 Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database

The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 01/01/2008 Date Data Arrived at EDR: 02/18/2009 Date Made Active in Reports: 05/29/2009

Number of Days to Update: 100

Source: Environmental Protection Agency

Telephone: 202-566-0517 Last EDR Contact: 11/13/2009

Next Scheduled EDR Contact: 02/15/2010 Data Release Frequency: Varies

EDR PROPRIETARY RECORDS

EDR Proprietary Records

Manufactured Gas Plants: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A Date Data Arrived at EDR: N/A Date Made Active in Reports: N/A Number of Days to Update: N/A Source: EDR, Inc. Telephone: N/A Last EDR Contact: N/A

Next Scheduled EDR Contact: N/A

Data Release Frequency: No Update Planned

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

NY MANIFEST: Facility and Manifest Data

Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 07/28/2009 Date Data Arrived at EDR: 08/27/2009 Date Made Active in Reports: 09/21/2009

Number of Days to Update: 25

Source: Department of Environmental Conservation

Telephone: 518-402-8651 Last EDR Contact: 11/10/2009

Next Scheduled EDR Contact: 02/22/2010 Data Release Frequency: Annually

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

Electric Power Transmission Line Data Source: PennWell Corporation Telephone: (800) 823-6277

This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its

fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:

Source: American Hospital Association, Inc.

Telephone: 312-280-5991

The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing

Source: Centers for Medicare & Medicaid Services

Telephone: 410-786-3000

A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services,

a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes

Source: National Institutes of Health

Telephone: 301-594-6248

Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools

Source: National Center for Education Statistics

Telephone: 202-502-7300

The National Center for Education Statistics' primary database on elementary

and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools

Source: National Center for Education Statistics

Telephone: 202-502-7300

The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Child Care Facilities Database

Source: Department of Education & Early Development

Telephone: 907-465-2800

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetlands Inventory Data Source: Department of Fish & Game

Telephone: 907-465-4100

Scanned Digital USGS 7.5' Topographic Map (DRG)

Source: United States Geologic Survey

A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

STREET AND ADDRESS INFORMATION

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GEOCHECK®-PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

OLD CITY POWER PLANT AND TANK FARM KILBUCK STREET AKIAK, AK 99552

TARGET PROPERTY COORDINATES

Latitude (North): 60.89220 - 60° 53' 31.9" Longitude (West): 161.2025 - 161° 12' 9.0"

Universal Tranverse Mercator: Zone 4 UTM X (Meters): 380483.2 UTM Y (Meters): 6752583.0

Elevation: 20 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property: N/A

Source: USGS 7.5 min quad index

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

- 1. Groundwater flow direction, and
- 2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

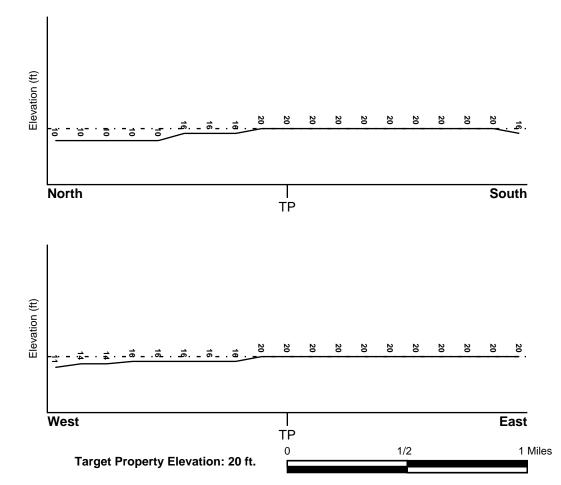
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General NW

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

FEMA Flood
Target Property County Electronic Data

BETHEL, AK Not Available

Flood Plain Panel at Target Property: Not Reported

Additional Panels in search area: Not Reported

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property Data Coverage

Not Reported N

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

LOCATION GENERAL DIRECTION
MAP ID FROM TP GROUNDWATER FLOW

Not Reported

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

GEOLOGIC AGE IDENTIFICATION

Era: - Category: -

System: -Series: -

Code: N/A (decoded above as Era, System & Series)

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps. The following information is based on Soil Conservation Service STATSGO data.

Soil Component Name: HISTIC PERGELIC CRYAQUEPTS

Soil Surface Texture: peat

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high

water table, or are shallow to an impervious layer.

Soil Drainage Class: Poorly. Soils may have a saturated zone, a layer of low hydraulic

conductivity, or seepage. Depth to water table is less than 1 foot.

Hydric Status: Soil meets the requirements for a hydric soil.

Corrosion Potential - Uncoated Steel: HIGH

Depth to Bedrock Min: > 60 inches

Depth to Bedrock Max: > 60 inches

	Soil Layer Information											
	Boundary			Classif	ication							
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil	Permeability Rate (in/hr)	Soil Reaction (pH)					
1	8 inches	0 inches	peat	A-8	Highly organic soils, Peat.	Max: 2.00 Min: 0.60	Max: 5.00 Min: 4.50					
2	9 inches	60 inches	ice or frozen soil	Not reported	Not reported	Max: 0.00 Min: 0.00	Max: 0.00 Min: 0.00					

OTHER SOIL TYPES IN AREA

Based on Soil Conservation Service STATSGO data, the following additional subordinant soil types may appear within the general area of target property.

Soil Surface Textures: silt loam Surficial Soil Types: silt loam

Shallow Soil Types: No Other Soil Types

Deeper Soil Types: stratified

very gravelly - sand

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE SEARCH DISTANCE (miles)

Federal USGS 1.000

Federal FRDS PWS Nearest PWS within 1 mile

FEDERAL USGS WELL INFORMATION

MAP ID WELL ID FROM TP

No Wells Found

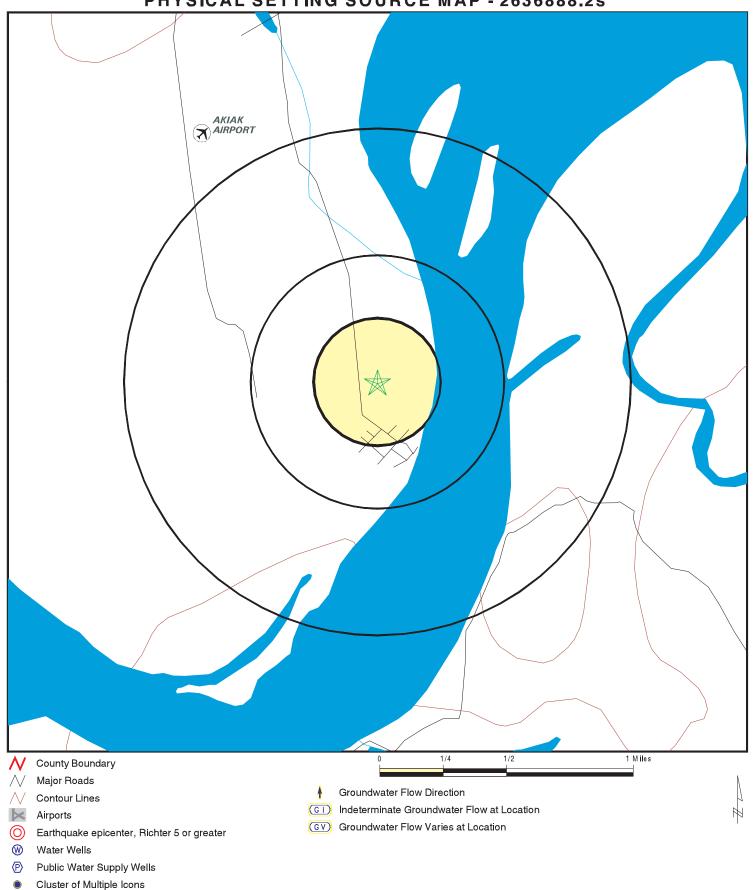
FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID WELL ID FROM TP

No PWS System Found

Note: PWS System location is not always the same as well location.

PHYSICAL SETTING SOURCE MAP - 2636888.2s



SITE NAME: Old City Power Plant and Tank Farm ADDRESS: Kilbuck Street

Akiak AK 99552 LAT/LONG: 60.8922 / 161.2025 CLIENT: SLR Alaska CONTACT: Christina Bentz INQUIRY#: 2636888.2s

DATE: November 23, 2009 5:46 pm

GEOCHECK®- PHYSICAL SETTING SOURCE MAP FINDINGS RADON

AREA RADON INFORMATION

Federal EPA Radon Zone for BETHEL County: 3

Note: Zone 1 indoor average level > 4 pCi/L.

: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.

: Zone 3 indoor average level < 2 pCi/L.

Not Reported

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)

Source: United States Geologic Survey

EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Scanned Digital USGS 7.5' Topographic Map (DRG)

Source: United States Geologic Survey

A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

HYDROLOGIC INFORMATION

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetlands Inventory Data Source: Department of Fish & Game

Telephone: 907-465-4100

HYDROGEOLOGIC INFORMATION

AQUIFLOW^R Information System

Source: EDR proprietary database of groundwater flow information

EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit

Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Services

The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Services (NRCS)

Telephone: 800-672-5559

SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Services, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems

Source: EPA/Office of Drinking Water

Telephone: 202-564-3750

Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data

Source: EPA/Office of Drinking Water

Telephone: 202-564-3750

Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)

This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

OTHER STATE DATABASE INFORMATION

RADON

State Database: AK Radon

Source: University of Alaska Fairbanks

Telephone: 907-474-7201 Radon Information

Area Radon Information

Source: USGS

Telephone: 703-356-4020

The National Radon Database has been developed by the U.S. Environmental Protection Agency

(USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at

private sources such as universities and research institutions.

EPA Radon Zones Source: EPA

Telephone: 703-356-4020

Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor

radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities

Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater

Source: Department of Commerce, National Oceanic and Atmospheric Administration

STREET AND ADDRESS INFORMATION

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Old City Power Plant and Tank Farm

Kilbuck Street Akiak, AK 99552

Inquiry Number: 2636888.3

November 12, 2009

Certified Sanborn® Map Report



Certified Sanborn® Map Report

11/12/09

Site Name: Client Name:

Old City Power Plant and Tank
Kilbuck Street
Akiak, AK 99552

SLR Alaska
4601 Business Park Blvd
Anchorage, AK 99503

EDR Inquiry # 2636888.3 Contact: Christina Bentz



The complete Sanborn Library collection has been searched by EDR, and fire insurance maps covering the target property location provided by SLR Alaska were identified for the years listed below. The certified Sanborn Library search results in this report can be authenticated by visiting www.edrnet.com/sanborn and entering the certification number. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by Sanborn Library LLC, the copyright holder for the collection.

Certified Sanborn Results:

Site Name: Old City Power Plant and Tank Farm

Address: Kilbuck Street
City, State, Zip: Akiak, AK 99552

Cross Street:

P.O. # 005.0065.09015
Project: Akiak Old City
Certification # 159A-4E6F-A38A



Sanborn® Library search results Certification # 159A-4E6F-A38A

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

The Sanborn Library includes more than 1.2 million Sanborn fire insurance maps, which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

✓ Library of Congress

University Publications of America

✓ EDR Private Collection

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Old City Power Plant and Tank Farm

Kilbuck Street Akiak, AK 99552

Inquiry Number: 2672003.1

January 07, 2010

The EDR Historical Topographic Map Report



EDR Historical Topographic Map Report

Environmental Data Resources, Inc.s (EDR) Historical Topographic Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topographic Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the early 1900s.

Thank you for your business.
Please contact EDR at 1-800-352-0050 with any questions or comments.

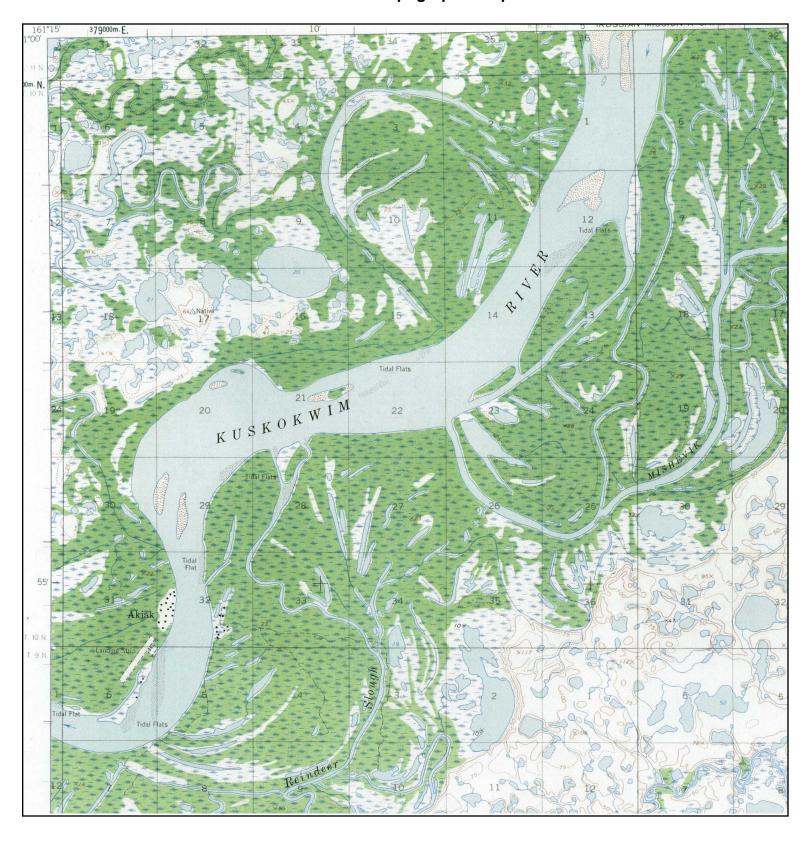
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Historical Topographic Map





TARGET QUAD

NAME: Bethel (D-6), AK

MAP YEAR: 1954

SERIES: 15

SCALE: 1:63,360

SITE NAME: Old City Power Plant

and Tank Farm

ADDRESS: Kilbuck Street

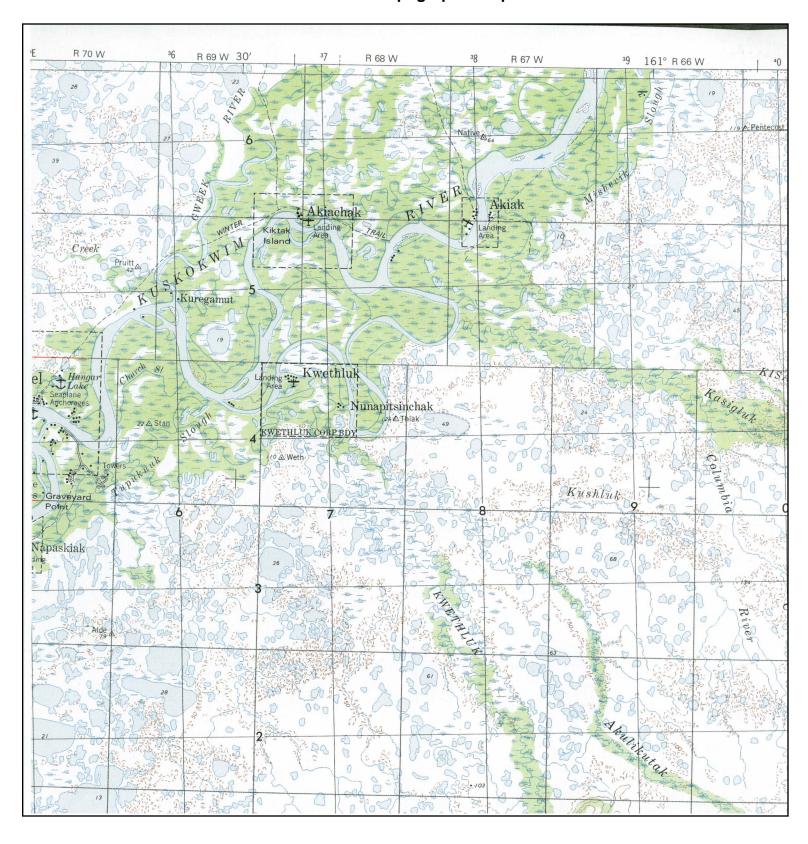
Akiak, AK 99552

LAT/LONG: 60.9164 / 161.2211

CLIENT: SLR Alaska CONTACT: Christina Bentz INQUIRY#: 2672003.1

RESEARCH DATE: 01/07/2010

Historical Topographic Map





TARGET QUAD NAME: Bethel, AK

MAP YEAR: 1980

SERIES: 60

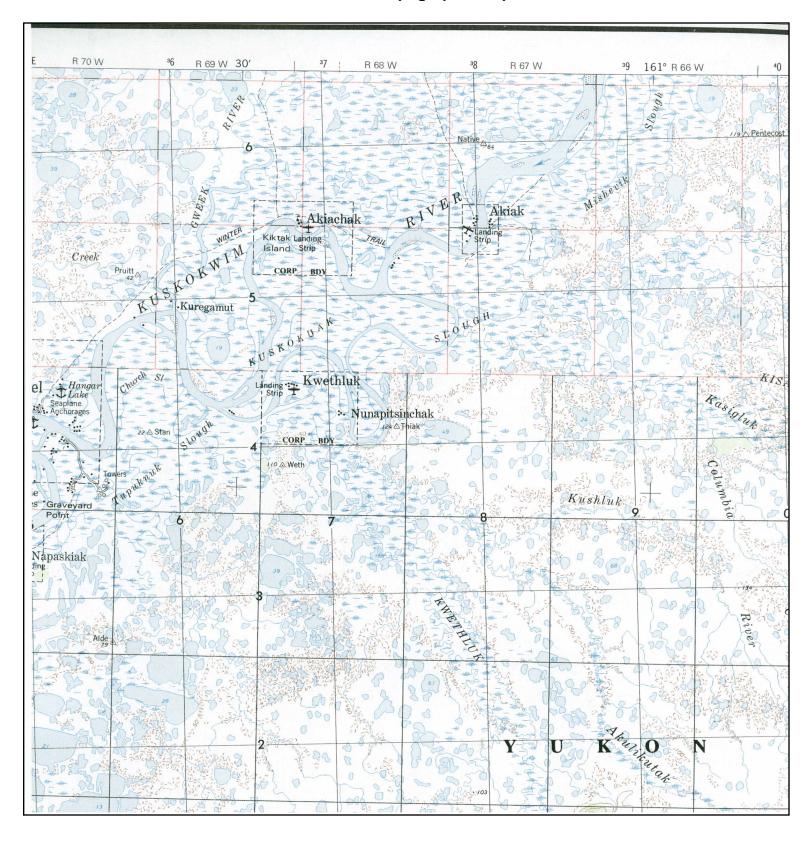
SCALE: 1:250,000

SITE NAME: Old City Power Plant

and Tank Farm ADDRESS: Kilbuck Street

Akiak, AK 99552 LAT/LONG: 60.9164 / 161.2211 CLIENT: SLR Alaska
CONTACT: Christina Bentz
INQUIRY#: 2672003.1
RESEARCH DATE: 01/07/2010

Historical Topographic Map





TARGET QUAD

NAME: Bethel, AK

MAP YEAR: 1987

REVISED FROM:1980

SERIES: 60

SCALE: 1:250,000

SITE NAME: Old City Power Plant

and Tank Farm

ADDRESS: Kilbuck Street

Akiak, AK 99552 LAT/LONG: 60.9164 / 161.2211 CLIENT: SLR Alaska
CONTACT: Christina Bentz
INQUIRY#: 2672003.1

RESEARCH DATE: 01/07/2010

STATEMENT OF LIMITATIONS

STATEMENT OF LIMITATIONS

The conclusions presented in this report are professional opinions based on data described in this report. These opinions have been arrived at in accordance with currently accepted environmental industry standards and practices applicable to the work described in this report. The opinions presented are subject to the following inherent limitations:

- 1. This report was prepared for the exclusive use of the entity referenced in Section 1.6. No other entity may rely on the information presented in the report without the expressed written consent of SLR.
- 2. This Phase I ESA report is subject to the terms and conditions in the SLR proposal referenced in Section 1.4 and in the contract between SLR and its client under which the work was performed. Any use of the Phase I report constitutes acceptance of the limits of SLR's liability specified in the contract. SLR's liability extends only to its client and not to any other parties who may obtain the Phase I report.
- 3. SLR derived the data in this report primarily from visual inspections, examination of records in the public domain, and interviews with individuals having information about the *Site*. 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 reevaluation of the findings, observations, and conclusions in the report.
- 4. The data reported and the findings, observations, and conclusions expressed in the report are limited by the scope of work. The scope of work is presented in Section 1.4 and was agreed to by the client.
- 5. SLR's Phase I ESA reports present professional opinions and findings of a scientific and technical nature. The report shall not be construed to offer legal opinion or representations as to the requirements of, nor compliance with, environmental laws, rules, regulations, or policies of federal, state, or local governmental agencies.
- 6. The conclusions presented in this report are professional opinions based on data described in this report. They are intended only for the purpose, *Site* location, and project indicated. This report is not a definitive study of contamination at the *Site* and should not be interpreted as such. An evaluation of subsurface soil and groundwater conditions was not performed as part of this investigation, unless indicated in Section 1.4. No sampling or chemical analyses of structural materials or other media was completed as part of this study unless explicitly stated in Section 1.4.
 - 7. This report is based, in part, on unverified information supplied to SLR by third-party sources. While efforts have been made to substantiate this third-party information, SLR cannot guarantee its completeness or accuracy.

QUALIFICATIONS OF ENVIRONMENTAL PROFESSIONALS

Eugene T. Watson, P. Geo. (VA)

Principal Financial & Professional Services

Biography

Mr. Watson has over 29 years of professional experience in the petroleum and environmental consulting fields. His environmental experience has focused primarily on providing due diligence services to the legal and corporate sectors. This has included site assessment, contamination assessment, cost estimating, and site remediation for commercial, industrial and utility properties. Mr. Watson manages SLR's Timberland Specialty Group. This group provides due diligence and assessment services to the Timberland and Forest Products Sectors, including contamination assessment and compliance services. Mr. Watson has assisted several Fortune 100 companies in their site acquisition programs involving hundreds of facilities throughout North America, and in Europe. South America and Southeast Asia. His areas of responsibility have included project planning, cost estimating, budgeting, contract compliance, and technical review of environmental assessment projects. Mr. Watson has authored and coauthored Phase I and Phase II Environmental Site Assessments (ESAs) involving thousands of real estate transactions, as well as performed peer reviews of similar work performed by other consultants. He has also prepared site characterization reports, Corrective Action Plans (CAPs), and remediation designs for leaking underground storage tanks (LUSTs) and other sources of subsurface contamination. Mr. Watson is also actively involved in the development of standards for the industry through his membership on the ASTM E50 Committee and the 1527 and 2247 Task Groups, which produced the ASTM Phase I Practices, as well as other real estate transactional assessment guidelines. Mr. Watson has given numerous presentations at environmental seminars and training sessions, addressing such topics as Environmental Due Diligence, UST Management, Lender Liability, and Corporate Management of Environmental Liability. In addition, Mr. Watson has performed surveys for asbestos-containing materials (ACM), developed management plans, and prepared specifications for ACM abatement. He has also lectured at the Medical College of Virginia EPA-accredited Asbestos Training Series.

Career Experience

- Managed and performed timberland and sawmill due diligence projects throughout the U.S. on behalf of both sellers and buyers. Having been actively involved on the ASTM committee that produced the E 1527-05 and 2247-08 standard practices, Mr. Watson has also performed peer reviews of due diligence reports prepared by other consultants for compliance to the ASTM and AAI protocol.
- Conducted environmental due diligence on corporate acquisitions in the U.S., Europe and Southeast Asia, and also provided environmental compliance services to acquired operations.
- Managed several national programs of Phase I and II ESAs for commercial and light industrial properties throughout the U.S. that involved hundreds of properties per year. Responsible for coordinating services from a large number of SLR offices in the US and Europe in order to produce a consistent work product for facilities throughout the world.
- Provided underground storage tank services, including management compliance issues, tank removal and disposal, closure reports, and soil and groundwater contamination investigations and mitigation.
- Conducted compliance audits for light industrial facilities, including review of hazard communication procedures, status of required permitting, and development of baseline assessments for future monitoring.
- Developed and implemented a personnel monitoring protocol for construction workers in a potentially hazardous environmental of naturally occurring asbestos.

1/2



EDUCATION

- B.A. Environmental Sciences, University of Virginia, 1977
- M. Sc. Geological Engineering, University of Missouri, 1980

MAIN SPECIALTY

 M&A Environmental Due Diligence/Timberland Acquisition and Divestiture/Environmental Compliance Management

AREAS OF EXPERTISE

- Corporate M&A and Timberland Due Diligence
- Environmental Regulatory Compliance Management
- Due Diligence/Environmental Expenditure Analysis
- Environmental Approvals/Permitting
- Contaminant Assessment
- Mitigation/Remediation Design
- Baseline Environmental Studies

RELEVANT INDUSTRY EXPERIENCE

- Commercial Real Estate
- Industrial M&A
- Timberland and Forest Products
- Automotive & Transportation
- Retail Commercial
- Oil & Gas



| Eugene T. Watson, P. Geo. (VA)

Principal Financial & Professional Services

 Provided project administration, including the preparation of specifications and bid documents, for the abatement of asbestos in an occupied, 12-story office building.

Project Experience (continued)

- Responsible for all aspects of the development and operation of a regional environmental consulting and contracting firm. Services provided included removal and closure of USTs, testing and disposal of hazardous wastes, application for state reimbursement of UST cleanup costs, and site characterization studies of contaminated UST sites.
- Vice President and General Manager of an environmental and engineering consulting company that provided a broad range of environmental and geotechnical services, including UST management, M&A due diligence, and contaminated site mitigation and closure.
- Vice President of Engineering and Production for an oil and gas exploration and production company, responsible for all engineering and production matters involved in the production of oil and gas from fields in Pennsylvania and Virginia.
- Served as Senior Geological Engineer for an international oil and gas company, performing geological assessments of known petroleum producing areas with the objective of developing additional reserves and increasing existing production.



2/2

CHRISTINA BENTZ





Ms. Bentz has over 6 years of experience as a geologist in the environmental consulting field with over 5 years in Alaska. In the office, Ms. Bentz has been involved in the preparation of work plans, technical reports, conceptual site models, property assessment and cleanup plans, phase I site assessments, exploration and monitoring well logs, and other related documents. In the field, Ms. Bentz has acted as a site manager, site safety and health officer, geologist, and lead sampler on several projects. In addition, Ms. Bentz has experience overseeing subcontractors, working as a rig geologist, collecting soil, sediment, and ground water samples, and acting as a quality control/quality assurance representative. Ms. Bentz has provided support for projects for the government and private sector clients including: Alaska Department of Environmental Conservation, Alyeska Pipeline Services Company, British Petroleum, Northern Dynasty Mines, The Pebble Partnership, U.S. Army Engineering District, Alaska, the U.S. Air Force Center for Environmental Excellence, and the U.S. Coast Guard,. Ms. Bentz has primarily been involved with the planning and implementation of environmental baseline studies, site investigations, and remediation projects across the State of Alaska.

SELECTED PROJECT EXPERIENCE

- Ms. Bentz has been involved in several site assessments and site visits for the State of Alaska Department of Environmental Conservation. As part of these, Ms. Bentz has coordinated worked closely with members of villages across the state to develop cleanup plans to assist communities in moving through the Brownfield process.
- Ms. Bentz has written more than twenty Conceptual Site Models (CSMs) for sites across the state of Alaska in accordance with State of Alaska Department of Environmental Conservation regulations. These CSMs involve a complete review of site specific conditions, historical operations, and sampling results to assess risks to human receptors.
- Project lead for routine monitoring and testing of a Westbay multilevel ground water monitoring well. Ms. Bentz performs monthly profiles, manages data, and has been involved with pumping tests. In addition, Ms. Bentz coordinates directly with the client.
- Ms. Bentz has provided support for hydrogeologic testing including observing core to determine the locations of water-bearing zones, set-up and administering pumping tests, managing and reviewing data from twenty-one transducers, communicating results and testing status to key project and client personnel.
- Project lead for a complex helicopter-portable drilling program in Iliamna, Alaska. Ms. Bentz oversaw the drilling and installation of piezometers and monitoring wells in 2007 and 2008. Her role included logistics planning and coordination, sampling and logging cuttings collected via ODEX air and mud rotary drilling, conducting flow tests, transmission of information, and coordination with project personnel on a daily basis. As the onsite geologist, Ms. Bentz, was also responsible for ensuring compliance with permits and protection of the environment.
- Ms. Bentz provides expertise in the area of boring log and monitoring well completion log creation, editing, and management using gINT. Ms. Bentz has created and modified templates to meet project and client needs as well as developed innovative ways for

CHRISTINA BENTZ





entering data in the field. Ms. Bentz has completed over 200 logs using gINT and has trained others in the use of the program.

- Preparation of a comprehensive report of spills and contaminated sites at pump stations along the Trans-Alaska Pipeline to assess potential environmental liabilities. This project included extensive research of existing information to compile text, lists, and corresponding figures presenting relevant information. This report is an invaluable tool to our client.
- Conducted site assessments including work plan preparation; drilling oversight; lithologic
 descriptions; field screening; well development; soil and ground water sampling; and
 reporting activities for the State of Alaska Department of Environmental Conservation.
 Ms. Bentz has been involved in multiple projects of this nature for this specific client.
- Managed the subsurface investigation of a 3,200 barrel crude oil spill. Ms. Bentz directed
 the installation of trenches and excavations to delineate the vertical and lateral extent of
 contamination. Ms. Bentz was responsible for coordinating personnel and equipment and
 designed the sampling plan. The site investigation identified the area of impact and will
 be used to develop a corrective action plan.
- Provided management and technical support for the preparation, execution, and technical reporting for an investigation/remedial action in Yakutat, Alaska. Under Ms. Bentz's leadership, the Yakutat project was completed successfully ahead of schedule, under budget, accident free, and with excellent client satisfaction.
- Provided management and technical support for a treatability study based in Kodiak, Alaska. On this project, Ms. Bentz took an active roll in field work, preparing and reviewing technical reports, conducting cost estimates, preparation of requests for proposals, and coordination of field work. In addition, Ms. Bentz was responsible for managing a \$1.2 million dollar budget, schedule, overseeing the execution of work done by others, and communicating directly with the client. Under Ms. Bentz's leadership, deliverables were submitted to the client on schedule, work was being completed within the allocated budget, and client perception and satisfaction improved.
- Offered technical support to multiple projects in the form of preparation and revision of technical reports, planning and procurement activities, document reviews, coordination with clients and regulators, and field support (rig geologist overseeing drilling, lead sampler and assistant sampler performing soil, sediment, and groundwater development and sampling, and onsite training of personnel in sampling, shipping, and proper documentation procedures).

EDUCATION

M.S., Geology, The University of Michigan, Ann Arbor, Michigan, 2003

B.S., Geosciences, Pacific Lutheran University, Tacoma, Washington, 2001

APPENDIX I COST ESTIMATE SPREADSHEETS

	Clerical	Drafting	Environmental Scientist	Project Manager	Project Director		Total	Comments / Backup
irect Labor	\$55.00	\$90.00	\$90.00	\$100.00	\$130.00	Hours	Cost	
Task 1 - Remedial Work Plan Preparation	6	24	40	16	4	90	\$8,210.00	Work plan preparation
Task 2 - Debris Removal, Tank Decommissioning, Soil and Ground Water Investigation		8	138	16	4	166	\$15,260.00	Assumes 16 hours for consultant to mobilize for field work and coordinate certified tank removal subcontractor for decommissioning of 2 ASTs and removal of ASTs. Consultant will perform field screening to estimate contamination limits during tank decommissioning, building demolition, and waste removal. Assumes one week (12-hour days) for consultant and labor to be on site during tank decommissioning (the tank decommissioning subcontractor will be on site approximately one week) and tank removal are two 12-hour days for building demolition and disposal of non-hazardous defor-site. This task includes 12 hours for round trip travel from Anchorage to Akiak.
Task 3A - Construction Landfarm area			24	8	2	34	\$3,220.00	Will require one day on site for cell construction (12-hour day). This time is needed to prep the roughly 52'x52' square area for the landfarm. This task includes 12 hours for round trip travel from Anchorage to Akiak. It is assur all scope items for Task 3A-3D will be performed in a single site visit.
Task 3B - Excavation of Contaminated Soils, Spreading Landfarm Soils			24	4	2	30	\$2,820.00	Assumes a 10-yard capacity dump truck. Total 12-hour operating day of hauling and excavation. One contingency day added for equipment maintenance. Excavation floor sampling/mapping will take place during excavation. Dump trucks will dump soils in an area next to the landfarm are and the loader will require one day to spread after initial spreading by tructions.
Task 3C - Backfilling Excavations (100 cubic yards)			24	4	2	30	\$2,820.00	complete. Assume one day required to load and haul material to excavation site and compact site in 1-foot lifts. One contingency day added for equipment maintenance.
Task 3D - Tilling and Fertilizing landfarm			72	16	8	96	\$9,120.00	Set up equipment and start tilling and fertilizing process to be performed b local labor and travel time (one way). This task also assumes time to purchase and ship the rototiller, fertilizer spreader, and fertilizer to Elim. Project report for excavation and backfill, and landfarm construction.
Task 4 - Landfarm Maintenance 2011		6	48	8	2	64	\$5,920.00	Assume one trip for sample collection (one 12 hour day and 12-hours trav time) and 24 hours for environmental scientist to prepare letter interim repassumes village labor to do two rounds of tilling and fertilizing
Task 5 - Landfarm Maintenance 2012		6	48	8	2	64	\$5,920.00	Assume one trip for sample collection (one 12 hour day and 12-hours trav time) and 24 hours for environmental scientist to prepare letter interim rep Assumes village labor to do two rounds of tilling and fertilizing
Task 6 - Decommission landfarm 2013		4	36	18	4	62	\$5,920.00	Will require up to one 12 hour day for cell confirmation sampling, one 12 h
Task 7 - Reporting	12	24	72	24	8	140	\$12,740.00	Final report of landfarm sampling and decommissioning.

Task 1 - Remedial Work Plan Preparation	No. of Units	Unit	Cost Per Unit	Subtotal	Comments				
Reproduction	1	estimate	\$250	\$250					
					_				
						Subtotal Task 1 (ODC)	\$250		
					_	Subtotal Task 1 (Labor)	\$8,210		
					_	Task 1 - Total Costs	\$8,460		
					_				

rask 2 - Debris Removal, rank Decommissioning, Son	No. of Units	Unit	Cost Per Unit	Subtotal	Comments
Consultant RT Airfare, Anchorage to Akiak	2	each	\$784	\$1,568	Alaska Airlines from Anchorage to Bethel, Frontier Alaska from Bethel to Akiak
ATV Rental	9	12-hr days	\$75	\$675	Estimated rate
ATV Fuel	36	gallons	\$10	\$360	Assumes 4 gallons per day of ATV use
Dump Truck	9	12-hr days	\$700	\$6,300	Estimated rate; There is no dump truck in Akiak; Assume City of Native Village will purchase or will borrow from other future project
Loader	11	12-hr days	\$900	\$9,900	Based on City of Akiak Rates. Daily Rate (8 Hours) Plus 4 Hours Prorated Daily Rate
Equipment Fuel	264	gallons	\$10	\$2,640	Assumes 3 gallons per hour of equipment use
Equipment Operator #1	132	Hour	\$52	\$6,882	Assume one week for tank decommissioning and disposal, 2 days for building demolition and disposal of non-hazardous debris, and 2 days for test pitting. Davis Bacon wage rates for Group I Operator and Group I Laborer. Rate includes Fringe Costs.
Equipment Operator #2	108	Hour	\$52	\$5,631	Assume one week for tank decommissioning and disposal, and 2 days for building demolition and disposal of non-hazardous debris. Davis Bacon wage rates for Group I Operator and Group I Laborer. Rate includes Fringe Costs.
Laborer #1	108	Hour	\$43	\$4,692	Assume one week for tank decommissioning and disposal, and 2 days for building demolition and disposal of non-hazardous debris. Davis Bacon wage rates for Group I Operator and Group I Laborer. Rate includes Fringe Costs.
Laborer #2	108	Hour	\$43	\$4,692	Assume one week for tank decommissioning and disposal, and 2 days for building demolition and disposal of non-hazardous debris. Davis Bacon wage rates for Group I Operator and Group I Laborer. Rate includes Fringe Costs.
Debris disposal	16	truckload	\$500	\$8,000	Assumes all items with beneficial use will be reused and NOT disposed of. Assumes 5 truckloads for the ASTs, 10 truckloads for building debris, and 1 truckload for miscellaneous equipment and debris. It is assumed that waste oil will be used in a waste oil burner in Akiak. Estimated rate.
Bucket Sample Analysis - Method 1311 TCLP for SW-846 Method 8260 for Volatiles	8	samples	\$265	\$2,120	One sample per 10 buckets with one duplicate sample.
Bucket Sample Analysis - Method 1311 TCLP for SW-846 Method 8270 for Semi volatiles	8	sample	\$305	\$2,440	One sample per 10 buckets with one duplicate sample.
Bucket Sample Analysis - Method 1311 TCLP for SW-846 Method 6020 for Metals	8	sample	\$245	\$1,960	One sample per 10 buckets with one duplicate sample.
Soil Sample Analysis - BTEX EPA 8021B	22	samples	\$85	\$1,870	Delineate Contamination
Soil Sample Analysis - DRO/RRO AK101/AK102	22	samples	\$85	\$1,870	Delineate Contamination
Soil Sample Analysis PAH SIM SW 8270	5	sample	\$185	\$925	Confirm of deny presence of contaminant onsite during targeted investigation.
Soil Sample Analysis - PCBs	5	samples	\$85	\$425	Confirm of deny presence of contaminant onsite during targeted investigation.
Soil Sample Analysis - RCRA Metals	5	samples	\$155	\$775	Confirm of deny presence of contaminant onsite during targeted investigation.
Soil Sample Analysis - Chlorinated Solvents	5	samples	\$185	\$925	Confirm of deny presence of contaminant onsite during targeted investigation.
Soil Sample Travel Blank - BTEX EPA 8021B	1	samples	\$43	\$43	Travel blank
Water Sample Analysis - BTEX EPA 8021B	4	samples	\$85	\$340	One sample per well plus one duplicate sample
Water Sample Analysis - DRO/RRO AK101/AK102	4	samples	\$85	\$340	One sample per well plus one duplicate sample
Water Sample Triavel Blank - BTEX EPA 8021B	1	samples	\$43	\$43	Travel blank
Hydraulic Powered-Auger	1	lump sum	\$6,000	\$6,000	Includes shipping to Akiak
Drilling Services	1	lump sum	\$43,120	\$43,120	Not included in total cost; (includes mobilization of drill rig, soil investigation (15 borings to 15' and installation of 3 wells to 30'), and personnel required)
Transportation of Consultant Equip/Materials to Akiak	1	estimate	\$2,000	\$2,000	
Lodging	9	man-day	\$100	\$900	
Meals	9	man-day	\$65	\$585	Estimated daily cost for food and meals.
PID Rental	9	days	\$50	\$450	
Tank Decommissioning Contractor	1	each	\$50,000	\$50,000	Includes general estimate from Rockwell Engineering for decommissioning of 2 ASTS.
Digital Camera	9	days	\$15	\$135	
PPE	45	days	\$20	\$900	

Subtotal Task 2 (ODC)	\$126,385
Subtotal Task 2 (Labor)	\$15,260
Task 2 - Total Costs	\$141,645

Task 3A - Construction Landfarm area	No. of Units	Unit	Cost Per Unit	Subtotal	Comments
Task 3A - Collstruction Landiaini area	INO. OI OIIIIS	Offic	Cost Fel Ollit	Subiolai	Comments
Consultant RT Airfare, Anchorage to Akiak	1	each	\$784	\$784	Alaska Airlines from Anchorage to Bethel, Frontier Alaska from Bethel to Akiak
ATV Rental	1	12-hr days	\$75	\$75	Estimated rate
ATV Fuel	4	gallons	\$10	\$40	Assumes 4 gallons per day of ATV use
Backhoe	1	12-hr days	\$900	\$900	Based on City of Akiak Rates. Daily Rate (8 Hours) Plus 4 Hours Prorated Daily Rate
Dump Truck	1	12 -hr days	\$700	\$700	Estimated rate; There is no dump truck in Akiak; Assume City of Native Village will purchase or will borrow from other future project
Equipment Fuel	24	gallons	\$10	\$240	Assumes 3 gallons per hour of equipment use
Operator #1	12	Hour	\$52	\$626	Assume one day for preparation of landfarm area. Davis Bacon wage rates for Group I Operator and Group I Laborer. Rate includes Fringe Costs.
Operator #2	12	Hour	\$52	\$626	Assume one day for preparation of landfarm area. Davis Bacon wage rates for Group I Operator and Group I Laborer. Rate includes Fringe Costs.
Laborer #1	12	Hour	\$43	\$521	Assume one day for preparation of landfarm area. Davis Bacon wage rates for Group I Operator and Group I Laborer. Rate includes Fringe Costs.
Laborer #2	12	Hour	\$43	\$521	Assume one day for preparation of landfarm area. Davis Bacon wage rates for Group I Operator and Group I Laborer. Rate includes Fringe Costs.
20-mil HDPE Liner Material	3600	sq ft	\$0.35	\$1,260	Polar Supply quote 10/12/2009 assumes 52'x52' landfarm area with 4' on each side for the berm.
20-mil HDPE Liner Material cut fee	1	each	\$31.50	\$32	Polar Supply quote 10/12/2009.
Felt Liner	3364	sq ft	\$0.10	\$336	Assumes 52'x52' landfarm area with 4' on each side for the berm.
Calgon carbon water treatment unit	1	each	\$900	\$900	
Water Pump	1	each	\$200	\$200	
Lodging	1	man-day	\$100	\$100	
Meals	1	man-day	\$65	\$65	Estimated daily cost for food and meals.
Surveying equipment	1	weeks	\$300	\$300	Surveyor's Exchange: laser level that can be operated by one person.
Digital Camera	1	days	\$15	\$15	
PID Rental	1	days	\$50	\$50	
PPE / Consumables	5	days	\$20	\$100	Based upon costs of Level D PPE during the effort.

Subtotal Task 3A (ODC)	\$8,391
Subtotal Task 3A (Labor)	\$3,220
Task 3A - Total Costs	\$11,611

Task 3B - Excavation of Contaminated Soils, Spreading Landfarm Soils	No. of Units	Unit	Cost Per Unit	Subtotal	Comments
Hitachi Excavator	2	12-hr days	\$900	\$1,800	Based on City of Akiak Rate. Daily Rate (8 Hours) Plus 4 Hours Prorated Daily Rate
Dump Truck	2	12-hr days	\$700	\$1,400	Estimated rate; There is no dump truck in Akiak; Assume City of Native Village will purchase or will borrow from other future project
Equipment Fuel	48	gallons	\$10	\$480	Assumes 3 gallons per hour of equipment use
ATV Rental	2	12-hr days	\$75	\$150	Estimated rate
ATV Fuel	8	gallons	\$10	\$80	Assumes 4 gallons per day of ATV use
Equipment Operator #1	24	Hour	\$52	\$1,251	Assume two days for excavation. Davis Bacon wage rates for Group I Operator and Group I Laborer. Rate includes Fringe Costs.
Equipment Operator #2	24	Hour	\$52	\$1,251	Assume two days for excavation. Davis Bacon wage rates for Group I Operator and Group I Laborer. Rate includes Fringe Costs.
Laborer #1	24	Hour	\$43	\$1,043	Assume two days for excavation. Davis Bacon wage rates for Group I Operator and Group I Laborer. Rate includes Fringe Costs.
Laborer #2	24	Hour	\$43	\$1,043	Assume two days for excavation. Davis Bacon wage rates for Group I Operator and Group I Laborer. Rate includes Fringe Costs.
Soil Sample Analysis (Floor Characterization) - BTEX EPA 8021B	7	samples	\$85	\$595	Needed to characterize excavation floor levels, assumes one excavation planned to be 2500 square feet. This will require six samples (two for first 250 square feet and one additional for next 250). Total samples is 6, plus 1 for QC. Thus, per UST procedures manual, sample requirements will be 7 based on estimated excavation limits.
Soil Sample Analysis (Floor Characterization) - DRO/RRO AK101/AK102	7	sample	\$85	\$595	As above for excavation floor.
Soil Sample Analysis (Sidewall Characterization) - BTEX SW 8021B	9	samples	\$85	\$765	Sidewall characterization based on one sample per 20 linear feet with 10% QC duplicate frequency.
Soil Sample Analysis (Sidewall Characterization) - DRO/RRO AK101/AK102	9	sample	\$85	\$765	As above for excavation sidewall.
Soil Sample Analysis (Sidewall and Floor) PAH SIM SW 8270	3	sample	\$185	\$555	PAH analysis on selected sidewall and floor samples exhibiting highest screening results.
Soil sample analysis (Sidewall and Floor) VOC 8260B	3	sample	\$185	\$555	VOC analysis on selected sidewall and floor samples exhibiting highest screening results or areas indicative of solvent or gasoline use.
Soil Sample Analysis (Sidewall Characterization) - BTEX Travel Blanks	1	trip blank	\$43	\$43	Trip blanks for GRO/BTEX analyses.
Soil sample analysis (Sidewall and Floor) VOC Travel Blanks	1	trip blank	\$92	\$92	Trip blanks for VOC analyses.
Soil Sample Analysis (Landfarm Characterization) - BTEX	4	samples	\$85	\$340	Four samples, includes one duplicate, for 100 cubic yards (ex situ volume) per Table C of 18 AAC 78.605(b).
Soil Sample Analysis (Landfarm Characterization) - DRO/RRO	4	sample	\$95	\$380	Four samples, includes one duplicate, for 100 cubic yards (ex situ volume) per Table C of 18 AAC 78.605(b).
Lodging	2	days	\$100	\$200	
Meals	2	days	\$65	\$130	
PPE	10	days	\$20	\$200	-
Digital Camera	3	days	\$10	\$30	
PID Rental	3	days	\$50	\$150	
Consultant RT Airfare, Anchorage to Akiak	1	each	\$784	\$784	Alaska Airlines from Anchorage to Bethel, Frontier Alaska from Bethel to Akiak

Subtotal Task 3B (ODC)	\$14,676
Subtotal Task 3B (Labor)	\$2,820
Task 3B - Total Costs	\$17,496

Task 3C - Backfilling Excavations (100 cubic yards)	No. of Units	Unit	Cost Per Unit	Subtotal	Comments
Hitachi Excavator	2	12-hr days	\$900	\$1,800	Based on City of Akiak Rates. Daily Rate (8 Hours) Plus 4 Hours Prorated Daily Rate
Dump Truck	2	12-hr days	\$700	\$1,400	Estimated rate; There is no dump truck in Akiak; Assume City of Native Village will purchase or will borrow from other future project
Equipment Fuel	48	gallons	\$10	\$480	Assumes 3 gallons per hour of equipment use
ATV Rental	2	12-hr days	\$75	\$150	Estimated rate
ATV Fuel	8	gallons	\$10	\$80	Assumes 4 gallons per day of ATV use
Equipment Operator #1	24	Hour	\$52	\$1,251	Assume two days to backfill and compact excavation areas. Davis Bacon wage rates for Group I Operator and Group I Laborer. Rate includes Fringe Costs.
Equipment Operator #2	24	Hour	\$52	\$1,251	Assume two days to backfill and compact excavation areas. Davis Bacon wage rates for Group I Operator and Group I Laborer. Rate includes Fringe Costs.
Laborer #1	24	Hour	\$43	\$1,043	Assume two days to backfill and compact excavation areas. Davis Bacon wage rates for Group I Operator and Group I Laborer. Rate includes Fringe Costs.
Laborer #2	24	Hour	\$43	\$1,043	Assume two days to backfill and compact excavation areas. Davis Bacon wage rates for Group I Operator and Group I Laborer. Rate includes Fringe Costs.
20-mil HDPE Liner Material	2500	sq ft	\$0.35	\$875	Polar Supply quote 10/12/2009 with 1000 square feet as contingency to cutting losses and excavation expansion
Purchase of small plate compactor and shipping with liner material	1	estimate	\$2,500	\$2,500	16" by 21" plate compactor is \$1,995 at CMI in Fairbanks May 2009
Lodging	2	day	\$100	\$200	
Meals	2	day	\$65	\$130	
PPE	10	day	\$20	\$200	
Digital Camera	5	day	\$10	\$50	
Backfill gravel for Excavations	100	cubic yards	\$2.00	\$200	Estimate

Subtotal Task 3C (ODC)	\$12,653
Subtotal Task 3C (Labor)	\$2,820
Task 3C - Total Costs	\$15,473

Task 3D - Tilling and Fertilizing landfarm	No. of Units	Unit	Cost Per Unit	Subtotal	Comments
Rototiller	1	estimate	\$3,000	\$3,000	
Laborer #1	48	hours	\$43	\$2,064	Assume one day to spread fertilizer and till soil using local labor. This will be performed twice annually. Also assumes 24 hours annually to dewater the landfarm, performed as needed.
Transportation of Equip/Materials to Akiak	1	estimate	\$1,000	\$1,000	Ship fertilizer and rototiller from Anchorage.
Fertilizer Spreader	1	estimate	\$150	\$150	Purchase of broadcast spreader.
Fertilizer	1	estimate	\$200	\$200	35 pounds of 8-32-16 fertilizer for approximate 10-12 pounds per 1,000 square feet. Two applications per summer season.
ATV Rental	4	vehicle-day	\$75	\$300	Vehicle rental for laborer to drive to and from landfill landfarm area.
ATV Fuel	16	gallons	\$10	\$160	Assumes 4 gallons per day of ATV use
Rototiller Fuel	30	gallons	\$10	\$300	
Meals	4	man-day	\$65	\$260	Based upon worker for four days in the field.
PPE	4	day	\$20	\$80	

\$7,514
\$9,120
\$16,634

Task 4 - Landfarm Maintenance 2011	No. of Units	Unit	Cost Per Unit	Subtotal	Comments
Consultant RT Airfare, Anchorage to Akiak	1	each	\$784	\$784	Alaska Airlines from Anchorage to Bethel, Frontier Alaska from Bethel to Akiak
Laborer #1	48	hours	\$43	\$2,064	Assume one day to spread fertilizer and till soil using local labor. This will be performed twice annually. Also assumes 24 hours annually to dewater th
					landfarm, performed as needed.
Transportation of Equip/Materials to Akiak	1	estimate	\$200	\$200	Ship fertilizer and rototiller from Anchorage
Fertilizer	1	estimate	\$200	\$200	35 pounds of 8-32-16 fertilizer for approximate 10-12 pounds per 1,000 square feet. Two applications per summer season.
ATV	5	vehicle-day	\$75	\$375	Vehicle rental for laborer to drive to and from landfill landfarm area.
ATV Fuel	20	gallons	\$10	\$200	Assumes 4 gallons per day of ATV use
Rototiller Fuel	30	gallons	\$8	\$240	Rototiller fuel
Lodging	1	man-day	\$100	\$100	
Calgon Carbon Canister	1	each	\$450	\$450	
Soil Sample Analysis (Landfarm Characterization) -	4	aamalaa	\$85	\$340	Four complex includes one duplicate for 400 cubic yords (ay city yollyma) and Table C of 40 AAC 70 COS(b)
GRO/BTEX	4	samples	φου	φ340	Four samples, includes one duplicate, for 100 cubic yards (ex situ volume) per Table C of 18 AAC 78.605(b).
Soil Sample Analysis (Landfarm Characterization) -	4	aamala	\$95.00	\$380	Four samples, includes one duplicate, for 100 cubic yards (ex situ volume) per Table C of 18 AAC 78.605(b).
DRO/RRO	4	sample	φ95.00	φ30U	rout samples, includes one duplicate, for 100 cubic yards (ex situ volume) per Table C of 10 AAC 70.005(b).
Water Sample Analysis (Landfarm Discharge) - DRO/RRO	6	samples	\$85.00	\$510	Landfarm water discharge water sample. Assumes two samples and one duplicate sample will be collected two times per year.
AK101/AK102		Samples	φου.υυ	φυιυ	Landiann water discrizing water sample. Assumes two samples and one duplicate sample will be conected two times per year.
Meals	5	man-day	\$65	\$325	Based upon worker for 5 days in the field.
PID	1	instr-day	\$50	\$50	
PPE	5	day	\$20	\$100	
Digital Camera	1	day	\$15	\$15	Based upon one Digital Camera.
Miscellaneous	1	estimate	\$1,000	\$1,000	

Subtotal Task 4 (ODC)	\$7,333
Subtotal Task4 (Labor)	\$5,920
Task 4 - Total Costs	\$13,253

Task 5 - Landfarm Maintenance 2012	No. of Units	Unit	Cost Per Unit	Subtotal	Comments
Consultant RT Airfare, Anchorage to Akiak	1	each	\$784	\$784	Alaska Airlines from Anchorage to Bethel, Frontier Alaska from Bethel to Akiak
Laborer #1	48	hours	\$43	\$2,064	Assume one day to spread fertilizer and till soil using local labor. This will be performed twice annually. Also assumes 24 hours annually to dewater the
Laborot II I		110010	Ψ10	Ψ2,001	landfarm, performed as needed.
Transportation of Equip/Materials to Akiak	1	estimate	\$200	\$200	Ship fertilizer and rototiller from Anchorage.
Fertilizer	1	estimate	\$200	\$200	35 pounds of 8-32-16 fertilizer for approximate 10-12 pounds per 1,000 square feet. Two applications per summer season.
ATV	5	vehicle-day	\$75	\$375	Vehicle rental for laborer to drive to and from landfill landfarm area.
ATV Fuel	20	gallons	\$10	\$200	Assumes 4 gallons per day of ATV use
Rototiller Fuel	30	gallons	\$8	\$240	Rototiller fuel
Lodging	1	man-day	\$100	\$100	
Calgon Carbon Canister	1	each	\$450	\$450	
Soil Sample Analysis (Landfarm Characterization) -	4	samples	\$85	\$340	Four samples, includes one duplicate, for 100 cubic yards (ex situ volume) per Table C of 18 AAC 78.605(b).
GRO/BTEX	4	Samples	φου	φ340	Tour samples, includes one adjuicate, for 100 capic yards (ex situ voidine) per Table 6 of 10 AAC 70.000(b).
Soil Sample Analysis (Landfarm Characterization) -	4	sample	\$95.00	\$380	Four samples, includes one duplicate, for 100 cubic yards (ex situ volume) per Table C of 18 AAC 78.605(b).
DRO/RRO	т				, our campion, included one depinded, i.e. 100 dated facilities for the control of the control o
Water Sample Analysis (Landfarm Discharge) - DRO/RRO	6	samples	\$85.00	\$510	Landfarm water discharge water sample. Assumes two samples and one duplicate sample will be collected two times per year.
AK101/AK102		- Campioo			
Meals	5	man-day	\$65	\$325	Based upon worker for 5 days in the field.
PID	1	instr-day	\$50	\$50	
PPE	5	day	\$20	\$100	
Digital Camera	1	day	\$15	\$15	Based upon one Digital Camera.
Miscellaneous	1	estimate	\$1,000	\$1,000	

Subtotal Task 5 (ODC)	\$7,333
Subtotal Task5 (Labor)	\$5,920
Task 5 - Total Costs	\$13,253

Task 6 - Decommission landfarm 2013	No. of Units	Unit	Cost Per Unit	Subtotal	Comments	
Consultant RT Airfare, Anchorage to Akiak	1	each	\$784	\$784	Alaska Airlines from Anchorage to Bethel, Frontier Alaska from Bethel to Akiak	
Hitachi Excavator	2	12-hr days	\$900	\$1,800	Based on City of Akiak Rates. Daily Rate (8 Hours) Plus 4 Hours Prorated Daily Rate	
Dump Truck	2	12-hr days	\$700	\$1,400	Estimated rate; There is no dump truck in Akiak; Assume City of Native Village will purchase or will borrow from other future project	
Equipment Fuel	48	gallons	\$10	\$480	Assumes 3 gallons per hour of equipment use	
ATV	2	12-hr days	\$75	\$150	Vehicle rental for laborer to drive to and from landfill landfarm area.	
ATV Fuel	8	gallons	\$10	\$80	Assumes 4 gallons per day of ATV use	
Operator #1	24	hour	\$52	\$1,251	Assume two days to decomission landfarm. Davis Bacon wage rates for Group I Operator and Group I Laborer. Rate includes Fringe Costs.	
Operator #2	24	hour	\$52	\$1,251	Assume two days to decomission landfarm. Davis Bacon wage rates for Group I Operator and Group I Laborer. Rate includes Fringe Costs.	
Laborer	24	hour	\$43	\$1,043	Assume two days to decommission landfarm. Davis Bacon wage rates for Group I Operator and Group I Laborer. Rate includes Fringe Costs.	
Transportation of Equip/Materials to Akiak	2	estimate	\$200	\$400		
Lodging	2	man-day	\$100	\$200		
Meals	2	man-day	\$65	\$130	Based upon worker for two days in the field.	
PID	2	instr-day	\$50	\$100		
Digital Camera	2	day	\$15	\$30	Based upon one Digital Camera.	
Soil Sample Analysis (Landfarm Characterization) - GRO/BTEX	4	samples	\$85	\$340	Four samples, includes one duplicate, for 100 cubic yards (ex situ volume) per Table C of 18 AAC 78.605(b).	
Soil Sample Analysis (Landfarm Characterization) -	4	sample	\$95	\$380	Four samples, includes one duplicate, for 100 cubic yards (ex situ volume) per Table C of 18 AAC 78.605(b).	
PPE	8	days	\$20	\$160		
					Subtotal Task 6 (ODC) \$9,979	
					Subtotal Task 6 (Labor) \$5,920	
					Task 6 - Total Costs \$15,899	

Task 7 - Reporting	No. of Units	Unit	Cost Per Unit	Subtotal	Comments
Phone/FAX	1	estimate	\$50	\$50	
Reproduction - B&W	1000	each	\$0.10	\$100	
Reproduction - Color	100	each	\$1	\$100	

Subtotal Task 7 (ODC)	\$250
Subtotal Task 7 (Labor)	\$12,740
Task 7 - Total Costs	\$12,990

Total, Labor \$71,950	
Total, Other Direct Costs \$194,764	
10% Contingency \$26,671	
TOTAL PROJECT COST (Akiak Remediation)	\$293,386