Alaska Department of Environmental Conservation

Reuse & Redevelopment Initiative

Brownfield Assessment

Property Assessment and Cleanup Plan

Former Moravian Church

Kwigillingok, Alaska

Submitted to:
Department of Environmental Conservation
Reuse and Redevelopment Program

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EXECUTIVE SUMMARY

This Property Assessment and Cleanup Plan (PACP) was prepared for the former Moravian Church and property (Old Church) in Kwigillingok, Alaska (Property), by Shannon & Wilson, Inc. under contract to the Alaska Department of Environmental Conservation (DEC). The purpose of this PACP is to assist the Native Village of Kwigillingok with future plans to reuse the site. Specifically, the objective is to document known, potential, or suspected environmental conditions that could pose a threat to human health or the environment or hinder the safe use, reuse, or development of the Old Church. A shareholders teleconference; background and database research; and a September 9, 2013, field visit, community meeting, and hazardous material inspection were performed to gather the data used to prepare this document.

Based on the data collected, potential and confirmed substances were identified at the Old Church building and Property that could impact human health and/or the environment. The environmental conditions our efforts revealed include:

- Asbestos-containing materials (ACM) in the Old Church building;
- Thermostat and electrical switches that may contain mercury in the Old Church;
- A bookshelf in the Old Church that contains lead-based paint (LBP);
- One 55-gallon drum with unknown contents that showed signs of freeze/thaw damage;
- Two aboveground storage tanks (AST) on the Old Church Property;
- Heating oil releases associated with filling the Old Church AST(s); and
- Two ASTs on the adjacent property occupied by the active Moravian Church.

In our opinion, the environmental conditions identified do not preclude reuse of the Old Church building and Property. According to the hazardous materials inspection report, the ACM present in the Old Church building are classified as non-friable; therefore, the structure can be used in its current state. If the Old Church is remodeled or demolished, the ACM can remain in place. However, Alaska-certified asbestos workers will be required to perform demolition activities, and the entire waste stream must be disposed of as ACM waste. The green bookshelf in the Old Church should be removed from the structure and disposed appropriately. Evidence of gross contamination (i.e. surface stains, stressed vegetation, sheen on surface water, hydrocarbon odors, etc.) was not observed on the Old Church Property during the September 9, 2013 site visit, suggesting that incidental leaks and spills associated with the ASTs and refilling practices have not impacted the Property to the extent that requires remediation or hinders the Property's reuse or redevelopment. Note these opinions are based on our limited assessment and subject to limitations of Section 9.0.

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ACRONYMS AND ABBREVIATIONS

AAC	Alaska Administrative Code
ACD	Alaska Community Database
ACMs	Asbestos-Containing Materials
AST	Aboveground Storage Tank
bgs	Below ground surface
BTEX	Aromatic Hydrocarbons
CAB	Cement Asbestos Board
CERCLIS	Comprehensive Environmental Response Compensation and Liability Information System
CORRACTs	TSD Facilities Subject to Corrective Action
DBA	DEC Brownfield Assessment
DEC	Department of Environmental Conservation
DRO	Diesel Range Organics
EHS	EHS-Alaska, Inc.
EPA	Environmental Protection Agency
ERNS	Emergency Response Notification System
ESA	Environmental Site Assessment
^{o}F	Degree Fahrenheit
GRO	Gasoline Range Organics
IGAP	Indian General Assistance Program
LBP	Lead-based Paint
LUST	Leaking Underground Storage Tank
NONCORRACTS	TSD Facilities Not Subject to Corrective Action
NPL	National Priorities List
NTP	Notice to Proceed
NVK	Native Village of Kwigillingok
mg/cm^2	Milligram per centimeter squared
mg/L	Milligram per liter
PACP	Property Assessment and Cleanup Plan
PCBs	Polychlorinated biphenyls
PID	Photoionization detector

ACRONYMS AND ABBREVIATIONS (continued)

RCRA	Resource and Conservation and Recovery Act
RRO	Residual Range Organics
TCLP	Toxicity Characteristic Leaching Procedures
TSD	Treatment, Storage, and Disposal
USFWS	U.S. Fish and Wildlife Service
XRF	X-Ray Fluorescence

PROPERTY ASSESSMENT AND CLEANUP PLAN
FORMER MORAVIAN CHURCH
KWIGILLINGOK, ALASKA

1.0 INTRODUCTION

This report presents the results of Shannon & Wilson, Inc.'s (Shannon & Wilson's) Property Assessment and Cleanup Plan (PACP) activities conducted for the former Moravian Church and property (Old Church) in Kwigillingok, Alaska. Kwigillingok is situated on the western shore of the Kuskokwim Bay near the mouth of the Kuskokwim River. The town is 77 miles southwest of Bethel and 388 miles west of Anchorage, Alaska. The Old Church property comprises a portion of Section 35, Township 4 South, Range 81 West, Seward Meridian and has an area of approximately 0.3 acre. The Old Church is located in the southern portion of the village, adjacent south of the active Moravian Church. The Native Village of Kwigillingok (NVK) submitted an Alaska Department of Environmental Conservation (DEC) Brownfield Assessment (DBA) request in 2013 for assessment of the Old Church. Figure 1 provides an overview of the Kwigillingok vicinity. The DBA request is provided in Appendix A.

1.1 Purpose and Objectives

The overall purpose of this PACP project is to assist the NVK with future plans to reuse the Old Church, possibly for youth activities, or as a storage facility. Alternatively, if the Old Church is deemed to be unsafe for future use, the village is considering demolishing the structure and using the land as parking space for the new church. The project objective is to document known, potential, or suspected environmental conditions that could pose a threat to human health or the environment or hinder the safe use, reuse, or development of the Old Church. This document is intended to be used to support the planning and corrective actions that may be necessary to make a decision to return the Old Church to beneficial use or to demolish the structure.

1.2 Scope of Services

The work for this project included three primary tasks: (1) performing a property assessment; (2) conducting a hazardous building-materials assessment; and (3) preparing the PACP document.

The property assessment included compilation of information to document current and historical uses and activities at the Old Church and adjacent parcels. A limited field investigation was conducted to evaluate potential or suspected environmental conditions that could pose a threat to

human health or the environment or hinder the safe redevelopment of the Old Church. The hazardous building-materials assessment included an inspection of the Old Church building and collection and analysis of building material samples, and was subcontracted to EHS-Alaska, Inc. (EHS) of Anchorage, Alaska.

The work was performed for the DEC Division of Spill Prevention and Response under Term Contract 18-8036-03. The scope of work was based on the DEC's July 11, 2013 request for proposal and performed in material accordance with Shannon & Wilson's July 29, 2013 proposal. Initial authorization to proceed with the PACP effort was provided by the DEC in the form of Notice to Proceed (NTP) 18-8036-03-005, dated August 6, 2013. The NTP was modified in consultation with the DEC project manager on September 4, 2013 to included limited soil and surface water sampling and analysis.

2.0 COMMUNITY OVERVIEW

Kwigillingok is an unincorporated village in the Bethel census area. A federally-recognized tribe, the NVK, is located in Kwigillingok. Kwigillingok is a traditional Yup'ik Eskimo village with most of the residents active in subsistence fishing and hunting. Background community information is available from the online Alaska Community Database (ACD).

Kwigillingok is accessible by air and water. Bethel is the regional air hub, and regular and charter flights serve the community, using a state-owned gravel airstrip. Transportation within the village is by foot, four-wheeler, and snowmobiles. No roads connect the village with other villages.

A brief history of Kwigillingok is included in the ACD. According to the ACD, the area has long been occupied by the Yup'ik Eskimos. The first record of the community was on a 1927 map in which the village was depicted as "Quillingok." According to the ACD database, a Moravian church was established in the community in 1920.

2.1 Location and Climate

Kwigillingok is situated on the western shore of the Kwigillingok River near the mouth of the Kuskokwim River and Bay. The community lies at approximately 59.86° North Latitude and -163.13° West Longitude, and lies primarily within Sections 1 and 2, Township 4 South, Range 81 West, and Sections 35 and 36, Township 3 South, Range 81 West, Seward Meridian. The village is bound to the east by the Kwigillingok River and to the south by Kuskokwim Bay. The

landing strip is located west of the village. Numerous shallow ponds and lakes surround the village. Kwigillingok is surrounded by the Yukon Delta National Wildlife Refuge.

According to the United States Census Bureau, Kwigillingok encompasses 20.1 square miles of land, and 0.1 square mile of water. The village topography is relatively flat. Based on previous geotechnical investigations in Kwigillingok, approximately 35 feet of organic silt overlies silty sand.

The climate of Kwigillingok is dominated by a strong marine influence. Average annual precipitation is 22 inches. According ACD records, average daily temperatures during summer months range from around 41 degrees Fahrenheit (°F) to 57 °F, and daily temperatures during winter months range from 6°F to 24°F.

2.2 Community Demographics

The 2010 United States Census reports that Kwigillingok has a population of 321 people. According to the ACD, the Alaska Department of Labor data for 2012 estimates a population of 317. The ACD showed an unemployment rate of 22 percent, and 30 percent of the residents were living below the poverty level. Eighty-two of the 106 homes in the village were occupied. According to the ACD, approximately 95 percent of the population is Alaska Native or part native, primarily Yup'ik.

2.3 Community Resources and Infrastructure

2.3.1 Water and Sewer

Drinking water for the village is primarily derived from snow and rain catch basins. The school and community washeteria are supplied with water piped from a lake reservoir. The school and washeteria water systems are registered with the State of Alaska and are identified by permit numbers AK2270964 and AK2271700, respectively. Drinking water wells are not utilized in Kwigillingok.

Most residential and community structures are equipped with "flush and haul" systems. Residents then transport the waste to the sewage lagoon. Based on observations made during September 9, 2013 site visit, it appears as though "honey buckets" are still widely used in the community.

2.3.2 Energy Supply

Electrical service to the village is provided by Kwig Power via diesel-powered generators. In addition, wind turbines provide a portion of the electricity for Kwigillingok. Individual homes and structures are serviced by heating oil stored in ASTs.

2.3.3 Solid Waste

The village landfill is located approximately 0.5 mile northwest of Kwigillingok. According to the DEC Solid Waste Program database, the landfill is classified as Class III. Based on community observations during the September 9, 2013 site visit, it appears as though multiple areas of the community are used to dispose unwanted items. In addition, "burn barrels" were observed adjacent to some residential structures.

2.4 Community Involvement

This section discusses the community of Kwigillingok's concerns with respect to the Old Church site and their general interest in reusing the site.

2.4.1 Stakeholder Meeting Summary

Prior to initiating the project tasks, a stakeholder meeting was held by teleconference on August 12, 2013. The purpose of the stakeholder meeting was to review the project objectives and share information and resources. The NVK was represented by Indian General Assistance Program (IGAP) Coordinator, Darrel John and Tribal Administrator, Andrew Kiuyna. DEC representatives John Carnahan, Keri DePalma, and Melinda Brunner facilitated the meeting. Shannon & Wilson was represented by Shayla Marshall and Jennifer Simmons.

Topics discussed included funding and objectives of DECs Reuse and Redevelopment program. Program funding is through a grant from the Environmental Protection Agency (EPA) State and Tribal Response Program. The objective of the program is to return sites with environmental issues to beneficial use. The roles of the community and the DEC contractor (Shannon & Wilson) were also discussed.

Community members summarized that Kwigillingok has an out-of-use church potentially constructed with asbestos-containing materials (ACM) and lead-based paint (LBP). The community would like to renovate the Old Church structure and use the property for a storage facility, parking space for the new church, or a maintenance facility with parking. According to community members, there are no firm plans for future use of the Old Church. The community

considered demolishing the Old Church building, but is concerned with the potential presence of ACM used in building construction. Other topics discussed included property access, scheduling, and local points of contact for the project.

Shannon & Wilson discussed our scope of work. The scope includes performing historical research, and visiting the site and the community to evaluate potential or suspected environmental conditions that could pose a threat to human health or the environment or hinder the safe redevelopment of the Old Church. Shannon & Wilson noted that the hazardous-building-materials survey would be subcontracted to EHS.

2.4.2 Proposed Community Development and Land Reuse

The NVK feels that the Old Church structure may pose an unacceptable risk to the community. Specifically, they are concerned about the potential presence of asbestos and lead-based paint in the building materials. They would like to determine the extent of contamination and receive recommendations for remediation so they may address the environmental issues and reuse the Old Church structure. According to the DBA, the Council would like to use the Old Church property for youth activities, a storage facility, or parking space for the new church.

2.4.3 Interviews and Input

A community meeting was held on September 9, 2013 to provide background information on the Old Church. Mr. Andrew Beaver, a village elder, stated that the village's primary concerns are asbestos and lead in the Old Church, given its construction date in the early 1960s. Mr. Roland Lewis, Moravian Church trustee, stated that the Old Church building has only been used as a church. According to Mr. John, incidental heating oil spills have occurred in the vicinity of the Old Church AST. Mr. John stated that the spills occurred during filling activities and total less than 25 gallons cumulative. Mr. John and the other community members in attendance were not aware of additional environmental concerns regarding the Old Church site.

3.0 SITE OVERVIEW

The Old Church lies within Section 35, Township 4 South, and Range 81 West. The Old Church structure has a footprint of approximately 3,560 square feet. As shown on Figure 2, the Old Church is located adjacent south of the active church. The Old Church is approximately 890 feet west of the Kwigillingok River. Residential and vacant structures are located on adjacent properties.

3.1 Subsurface Conditions

The Old Church appears to lie on the same tundra that underlies the majority of Kwigillingok. Based on previous subsurface explorations, subsurface soils generally consist of peat over colluvium and till. Shannon & Wilson's field investigation did not expose soil to depths greater than 1.2 feet below the surface. Saturated brown peat was encountered in the test pits advanced during the September 9, 2013 site visit. In addition, surface water was observed at multiple locations on the Old Church property.

3.2 Current Site Use

The Old Church building has been abandoned since 2011. Plywood panels attached with screws over the doors of the arctic entry discourage site access.

3.3 Historical Site Use

The Old Church was constructed in the early 1960s and used for church activities and as a gathering place to hold community meetings.

A review of aerial photographs provided additional insight into the historical use of the site and surrounding properties. The photographs that are included in this report are from 1983, 1996, and 2004. These photographs are included in Appendix B as Figures B-1 through B-3, respectively, and are each enlarged to an approximate scale of 1 inch equals 100 feet.

The Old Church is visible in the aerial photograph from June 10, 1983, which is included as Figure B-1. Raised boardwalks are present along the eastern, southern, and western portions of the Old Church structure. What appear to be two ASTs and debris are visible north of the Old Church. The church bell is visible west of the Old Church. Two bodies of water are visible east and northeast of the Old Church. Structures are visible on adjacent parcels and are accessed via boardwalks. In general, development appears to be constrained to areas directly accessible via the raised boardwalks. Miscellaneous debris is present around most of the structures.

The July 4, 1996 aerial photograph, included as Figure B-2, shows what appears to be an AST near the northwest corner of the Old Church and two additional ASTs north of the Old Church. Structures have been demolished north, south, and southwest of the Old Church. Additional debris is visible around the community structures.

In the September 17, 2004 aerial photograph, included as Figure B-3, an additional boardwalk has been constructed adjacent south and west of the Old Church. A boardwalk suitable for four-

wheeler traffic has been constructed along the western portion of the Old Church parcel. Fewer structures are present north and west of the Old Church. With the exception of the construction of the new church adjacent north of the Old Church, the 2004 aerial photograph appears to be generally consistent with field observations during Shannon & Wilson's September 9, 2013 site visit.

3.4 Ownership

Ownership and transfer records for the Old Church before 1984 were not identified durng our research. Ownership of the Old Church parcel was transferred from the United States Bureau of Land Management to Kwik Incorporated via Interim Conveyance Number 974 on December 14, 1984. In February 1996, Kwik Incorporated transferred the Old Church parcel to the Native Village of Kwigillingok via a warranty deed. The available ownership records are included in Appendix D.

3.5 Records Review

The scope of work for this PACP included a review of federal and state database records for pertinent information regarding the environmental condition of the Old Church property and adjacent parcels. Data were also requested from local agencies. Environmental database records are included in Appendix E.

3.5.1 Federal Records Sources

The National Priorities List (NPL) specifies those properties assigned the EPA's highest cleanup priority. The EPA web site was reviewed for NPL sites in Alaska. There are currently no listed NPL sites in the Kwigillingok area.

The Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) is also compiled by the EPA and includes sites the EPA has investigated or is currently investigating for potential hazardous substance contamination for possible inclusion on the NPL. According to the CERCLIS list, viewed on the EPA website August 15, 2013, there are no CERCLIS sites located in the Kwigillingok area.

According to the EPA Region 10 report, there are no active Resource Conservation and Recovery Act (RCRA) treatment, storage, or disposal (TSD) facilities within Kwigillingok. Additionally, there are no listed hazardous materials TSD facilities in the Kwigillingok area.

The Emergency Response Notification System (ERNS) lists report hazardous substance releases in reportable quantities. There are no ERNS incidents reported for Kwigillingok.

Kwigillingok does not appear on the EPA Brownfield Assessment, Cleanup, and Revolving Loan Fund Grantees list.

The National Register of Historic Places is the Nation's official list of cultural resources worthy of preservation. This register does not show cultural resource sites or cultural resource districts on the Old Church property.

According to the National Wetlands Inventory online map, the Old Church property and surrounding parcels are designated wetlands.

According to U.S. Fish and Wildlife Service, 12 threatened and/or endangered animal species and one endangered plant species exist in Alaska. Five animal species are considered endangered by the Alaska Department of Fish and Game, Division of Wildlife Conservation. The village of Kwigillingok does not fall within the Eskimo Curlew, Aleutian Shield Fern, and Short-tailed Albatross ranges. The remaining species are marine animals.

3.5.2 State Records Sources

The DEC Spills List was reviewed for information regarding spills on or adjacent to the Old Church. According to the database, there are no reported spills on the Old Church property.

The State Landfill/Solid Waste Disposal Site List was reviewed on August 15, 2013. According to the DEC's list, the Kwigillingok Landfill is located approximately 2,640 feet from the village.

Registered Underground Storage Tank Database

No UST sites were listed for Kwigillingok on the DEC UST database.

Leaking Underground Storage Tank (LUST) Database

No LUST sites were listed for Kwigillingok in the DEC LUST Database.

Contaminated Sites Database

The DEC Contaminated Sites database was reviewed on August 15, 2013, for sites within 1 mile of the Property. Four contaminated sites and four informational sites, including the Old

Church, are listed on the DEC Contaminated Sites database. The following is a synopsis of the Old Church narrative and the nearest site.

The Old Church was added to the DEC Contaminated Sites database in July 2013. According to the database, "community concerns have prompted further environmental assessment at this site" and "additional site reconnaissance and evaluation will take place for implementation of site reuse and revitalization."

The next closest DEC-listed site is the Old Community Clinic, located approximately 445 feet north/northeast of the Old Church. According the DEC database a TBA Phase I Environmental Site Assessment was conducted in September 2011 to assess the parcel for petroleum, polychlorinated biphenyl, asbestos, and lead contamination. Surface soil samples collected at the Old Community Clinic contained concentrations of diesel range organics (DRO) above the DEC Method Two cleanup level and concentrations of gasoline range organics (GRO), residual range organics (RRO), and aromatic hydrocarbons (BTEX) less than the DEC cleanup level.

The remaining contaminated sites are located more than 0.5 mile from the Old Church. According to the DEC project manager of the contaminated sites, Mr. Grant Lidren, "based off the information to date, contamination from the sites is not impacting the former Moravian Church." Mr. Lidren added that petroleum is the contaminant of concern at the remaining sites and "transport over 0.5 mile is unlikely."

3.5.3 Local Agency Sources

According to the NVK, prior to construction of the Old Church, the parcel was undeveloped. With the exception of heating oil, the NVK is not aware of hazardous substances used or stored on the Old Church property.

3.6 Adjoining Property Use

The new Moravian Church is located adjacent north of the Old Church. The new church was constructed in 2011. Prior to construction, the parcel was undeveloped. What appear to be abandoned and unoccupied residential structures are present on the parcels east and south of the Old Church. The parcel west of the Old Church is currently undeveloped, but previously contained a residential structure and two outbuildings.

4.0 SITE RECONNAISANCE AND LIMITED SAMPLING

A Shannon & Wilson representative (Jennifer Simmons) visited the Old Church on September 9, 2013 to observe and document potential sources or impacts of petroleum hydrocarbons and/or hazardous substances. Ms. Simmons meets the definition of a qualified Environmental Professional as defined by 18 Alaska Administrative Code (AAC) 75.990.

4.1 Methodology

The general methodology was to visually assess the Old Church property for environmental concerns (e.g., surface stains, chemical storage containers, stressed vegetation, etc.). Based on initial field observations, two soil samples and one surface water sample were collected from the Old Church property.

4.2 Field Observations

Significant findings from our limited soil and surface water sampling and site reconnaissance activities are described below. A copy of the field notes is included in Appendix E. Photographs taken during the site reconnaissance are included in Appendix F.

4.2.1 Interior Evaluation

The Old Church is a single-story structure located in the southern portion of Kwigillingok. The Old Church is currently abandoned and access is restricted with plywood panels attached with screws over the doors and arctic entry (Photo 1).

The interior of the Old Church is divided into two main sections. According to Mr. John, the southern third of the structure was completed in the late 1970s or early 1980s and comprises two classrooms, two storage rooms, and an arctic entry. At the time of our site visit, five 5-gallon containers of paint, various electronic equipment, paper goods, and miscellaneous items (Photo 2) were observed in the classrooms. Five additional 1-gallon containers of paint were stored in the storage closet in southeastern portion of the Old Church. Evidence of leaks and/or spills was not observed in the paint storage areas.

The northern two-thirds of the building comprises the nave, altar (Photo 3), and storage areas. As noted in Photo 3, the ceiling paint is peeling off, likely due to moisture in the attic. Two rooms on either side of the altar appeared to have been used for general storage (Photo 4). Oil-fired forced-air furnaces are located in each of the two storage rooms and are the primary heat source of the nave (Photo 5). A 5-gallon container of heating oil was observed in the

eastern storage room as shown in Photo 6. According to Mr. John, the heating oil was previously used to prime the heating units. Evidence of leaks and/or spills associated with the container was not observed during the September 9, 2013 site visit.

The Old Church building does not contain restroom facilities. It does not appear as though the Old Church building has been connected to water services.

4.2.2 Exterior Evaluation

Elevated boardwalks are located along the northeastern, northwestern, and southern Old Church parcel boundaries.

Discarded construction materials are stored north and west of the Old Church as shown in Photos 7 and 8 and on Figure 2. Additional materials were observed under the Old Church structure (Photo 9). What appear to be felled utility poles are located along the northwestern portion of the structure (Photo 10).

A 300-gallon AST, situated on a wood stand, is located northeast of the Old Church building (Photo 11). Two 2-inch metal pipes convey heating oil to the furnaces inside the Old Church (Photo 12). A 55-gallon drum with unknown contents is located adjacent to the AST. The unlabeled drum showed signs of freeze/thaw damage as shown in Photo 11. According to Mr. John, the drum was most likely used to store and/or transport heating oil. Evidence of leaks and spills associated with the AST, piping, and 55-gallon drum was not observed during the September 9, 2013 site visit.

A 100-gallon portable AST and dispenser are also located northeast of the Old Church building. The portable AST was placed on wooden boards to prevent the AST from sinking into the ground. Evidence of leaks and spills associated with the portable AST and dispenser was not observed during our site visit.

4.2.3 Surrounding Properties Evaluation

The new church is located adjacent north of the Old Church building. The new church is serviced by two 300-gallon heating oil tanks as shown in Photo 11 and on Figure 2. According to Mr. John, the ASTs were installed in 2011. Evidence of leaks and/or spills associated with the ASTs was not observed during the September 9, 2013 site visit. ASTs were also observed adjacent to multiple structures as shown on Figure 2.

4.3 Site Sampling

Based on field observations, Shannon & Wilson's field representative selected three locations of potential concern for soil and water sampling.

4.3.1 Sampling Methodology

Two soil samples were collected on September 9, 2013. A hand shovel was used to expose soil in shallow test pits to depths of 0.75 to 1.2 feet below ground surface (bgs). New, disposable nitrile gloves were worn by the sampler, and the exposed soil was placed into containers using clean stainless steel spoons. The samples were screened for volatile organic vapors using a photoionization detector (PID) and an ADEC-approved headspace screening technique. The PID was calibrated before screening activities with 100 parts per million (ppm) isobutylene standard gas. The field screening samples were collected in re-sealable bags, warmed to at least 40 degrees Fahrenheit, and tested within 60 minutes following sample collection. The field-screening results were recorded in a field notebook. Following screening and photographs, the test pits were backfilled with the excavated soil.

One surface water sample was collected on September 9, 2013. The sample was collected using clean, laboratory-supplied containers. The containers were dipped into the water with care to avoid disturbing sediments on the bottom during sample collection. Field water quality measurements of pH, temperature, specific conductivity, turbidity, and oxidation-reduction potential were taken following sample collection.

Each sample container was labeled with a unique sample number, date and time of sampling, initials of collector, laboratory analysis, and preservation method. The samples were then placed in a cooler with gel ice packs.

4.3.2 Soil Screening Locations

Two soil samples were collected on the Old Church property from unsaturated soil. One soil sample (Sample S1) was collected adjacent to a discarded materials storage area on the northwest side of the Old Church building and the second soil sample (Sample S2) was collected from a walking path one the southeast side of the Old Church. The analytical soil samples were intended to characterize the unsaturated soil conditions at areas of development. Note soil samples were not collected in the vicinity of the ASTs and drum due to saturated soil conditions and the absence of evidence of hydrocarbon release(s).

4.3.3 Surface Water Sample Location

One surface water sample (Sample SW1) was collected from ponded water near the northwest corner of the Old Church. This sample location was selected based on its proximity to current site development and previous location of ASTs. A sheen was not observed on the ponded water.

4.4 Analytical Sample Selection

On September 11, 2013, Shannon & Wilson's project staff participated held a conference call with DEC's project staff to discuss analytical sample selection. Based on site observations, limited research, headspace screening results (0.1 ppm for Sample S1 and 32.7 ppm for Sample S2), and potential for natural organics to bias the test results, the DEC elected not to submit the samples for analytical testing.

5.0 HAZARDOUS BUILDING MATERIALS SURVEY

Shannon & Wilson subcontracted EHS Alaska to conduct a hazardous building materials survey. EHS performed the survey of the Old Church on September 9, 2103. The interior and exterior of the church were inspected and/or sampled for ACM and suspected LBP to determine disposal activities required if these materials are present. A limited number of fluorescent light fixtures were visually inspected for polychlorinated biphenyl (PCB)-containing ballasts.

5.1 Asbestos-Containing Materials

Twenty-one discrete samples were analyzed using polarized light microscopy by EPA Method 600/M4-82-020. Nine of the samples were found to contain asbestos (defined as having over 1% asbestos content). They included samples collected from:

- Cement asbestos board (CAB) on the exterior wall of the original construction
- Window glazing
- Black exterior wall underlayment in the original construction
- Black roof wall underlayment in the original construction (assumed asbestos)
- Sealants, gaskets, and firebox insulation of furnaces (assumed asbestos)

EHS's Hazardous Materials Inspection Report dated September 30, 2013, is provided in Appendix G. Table 1a of EHS's report contains a summary of the ACMs and where they are located in the building.

According to EHS, the detected ACM materials present in the Old Church are classified as non-friable ACM. Therefore, with respect to ACM, the Old Church building can safely be used in its current state. Furthermore, EPA regulations allow the ACM to remain in place during demolition of the building. However, Alaska-certified asbestos workers will be required to perform demolition activities, and the entire waste stream must be disposed of as ACM waste. Cement board may become friable if broken, and removal before demolition is recommended.

Settled and concealed dusts were examined by EHS's field inspector but analytical sampling on the dust was beyond the scope of this project. However, based on visual inspection and experience from similar buildings, the inspector determined that the typical settled and concealed dusts are not "asbestos debris from ACMs." Furthermore, the inspector concluded that "the dusts are unlikely to contain more than one percent asbestos by weight, and therefore are not classified as ACM."

5.2 Lead-Containing Paint

EHS's field inspector tested paint at 33 discrete locations using an x-ray fluorescence (XRF) lead paint analyzer. One of the 33 paint samples had detectable concentrations of lead and is considered LBP, based on the U.S. Department of Housing and Urban Development/EPA's definition of "paint with lead concentrations equal to or greater 1.0 milligram per square centimeter (mg/cm^2)". The sample collected from a green bookshelf in the northwest corner of the Old Church contained 9 mg/cm^2. A lead analysis summary is provided in Appendix C of the EHS report.

EHS collected a composite sample of building materials for analysis of lead by the EPA Toxicity Characteristic Leaching Procedure (TCLP) Method SW846-1311. According to EHS, the TCLP result showed a concentration of 0.40 milligram per liter (mg/L), which is below the EPA allowable concentration of 5.0 mg/L. Based on the TCLP test results, the debris generated from the demolition of the Old Church are likely to be able to be disposed of as non-hazardous construction debris and would not require special handling as hazardous waste due to lead.

5.3 PCB Ballasts and Mercury Thermostats

A limited visual inspection of light fixture ballasts was conducted by the EHS field inspector to identify PCB ballasts. According to EHS, "only fluorescent light fixtures marked as 'No PCBs' were found in the building."

According to EHS, "older thermostats or other electrical switches that may contain mercury were noted in the building." All mercury-containing items removed from the Old Church are required to be disposed of as hazardous waste or recycled.

6.0 ENVIRONMENTAL REVIEW AND SUMMARY OF FINDINGS

Potential environmental concerns on the Property are discussed based on our review of databases, historical data, field observations, and laboratory results.

6.1 Historical Environmental Review

Records of reported spills, cleanup activities, or corrective actions at the Old Church property were not found in our research.

6.2 Potential and Identified Source Areas

The handling of fuel for heating is a potential source of environmental contamination at the Old Church. According to Mr. John, heating oil has been spilled while filling the Old Church AST. Releases from the Old Church AST and drum, and releases from the new church ASTs have the potential to impact the Old Church.

Hazardous construction materials, including lead-based paint and ACM, were detected in samples collected from the Old Church. For the purposes of this PACP, hazardous construction materials in the interior of the building are not considered as environmental concerns. Lead-containing paint and asbestos on the exterior of the building are potential environmental concerns. Flaking, weathered paint may release lead into the environment, and weathered or damaged ACM may release asbestos into the environment.

6.3 Data Gaps

The impact of heating oil spills has not been assessed. Analytical soil samples were not collected in the vicinity of the heating oil ASTs due to saturated soil conditions.

The presence of asbestos in near surface soil has not been evaluated. Assessing potential impacts from building materials may be incorporated if and when the village conducts building demolition activities on the structure.

6.4 Environmental Overview

The hazardous building materials, specifically ACM, present a potential health risk to occupants if the building were demolished. Additional precautions, including hiring Alaska-certified asbestos workers, will be necessary to properly dispose of the ACM and LBP materials.

7.0 CONCLUSIONS

Based on the data collected, potential and confirmed substances were identified at the Old Church building and Property that could impact human health and/or the environment. The recognized environmental conditions our efforts revealed include:

- Asbestos-containing materials (ACM) in the Old Church building;
- Thermostat and electrical switches that may contain mercury in the Old Church;
- A bookshelf in the Old Church that contains lead-based paint (LBP);
- One 55-gallon drum with unknown contents that showed signs of freeze/thaw damage;
- Two aboveground storage tanks (AST) on the Old Church Property;
- Heating oil releases associated with filling the Old Church AST(s); and
- Two ASTs on the adjacent property occupied by the active Moravian Church;
- Qualified asbestos workers will be necessary to properly dispose of the ACM materials.

In our opinion, the environmental conditions identified do not preclude reuse of the Old Church building and Property. According to the hazardous materials inspection report, the ACM present in the Old Church building are classified as non-friable; therefore, the structure can be used in its current state. If the Old Church is remodeled or demolished, the ACM can remain in place. However, Alaska-certified asbestos workers will be required to perform demolition activities, and the entire waste stream must be disposed of as ACM waste. The green bookshelf in the Old Church should be removed from the structure and disposed appropriately. Evidence of gross contamination (i.e. surface stains, stressed vegetation, sheen on surface water, hydrocarbon odors, etc.) was not observed on the Old Church Property during the September 9, 2013 site visit, suggesting that incidental leaks and spills associated with the ASTs and refilling practices have not impacted the Property to the extent that requires remediation or hinders the Property's reuse or redevelopment. Note these opinions are based on our limited assessment and subject to limitations of Section 9.0.

8.0 PERSONNEL QUALIFICATIONS

This PACP was prepared by Ms. Jennifer Simmons under the direct supervision of Ms. Shayla Marshall, and Mr. Matt Hemry, P.E. Ms. Simmons, an Environmental Scientist III, received a B.S. in Geology from the University of Arizona in 2006. Project Manager, Ms. Marshall, received a B.S. in Environmental Studies from Concordia College in 2002, and a M.S. in Environmental Science from Alaska Pacific University in 2004. Mr. Hemry, Vice President, received a B.S. in Engineering Sciences from Dartmouth College in 1990 and a M.S. in Environmental Engineering from Duke University in 1992. These individuals have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the Property, and they have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312. Shannon & Wilson declares that, to the best of our professional knowledge and belief, Ms. Marshall and Mr. Hemry meet the definition of "Environmental Professional" as defined in 40 CFR 312.10.

9.0 CLOSURE/LIMITATIONS

This report was prepared for the exclusive use of our clients and their representatives in the study of this site. The findings we have presented within this report are based on the limited research and field observations that we conducted. They should not be construed as definite conclusions regarding the site's environmental condition. As a result, our limited research and observations can only provide you with our professional judgment as to the environmental characteristics of this site, and in no way guarantees that an agency or its staff will reach the same conclusions as Shannon & Wilson, Inc. The data presented in this report should be considered representative of the time of our site assessment. Changes in site conditions can occur with time, due to natural forces or human activity. In addition, changes in government codes, regulations, or laws may occur. Because of such changes beyond our control, our observations and interpretations may need to be revised. Shannon & Wilson has prepared the attachments in Appendix H, "Important Information About Your Geotechnical/Environmental Report," to assist you and others in understanding the use and limitations of our reports.

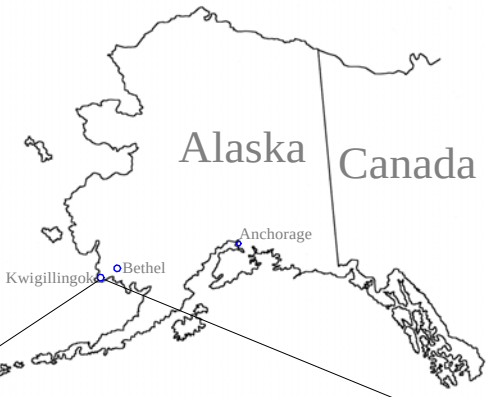
Copies of documents that may be relied upon by our client are limited to the printed copies (also known as hard copies) that are signed or sealed by Shannon & Wilson with a wet, blue ink signature. Files provided in electronic media format are furnished solely for the convenience of the client. Any conclusion or information obtained or derived from such electronic files shall be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, or you question the authenticity of the report please contact the undersigned.

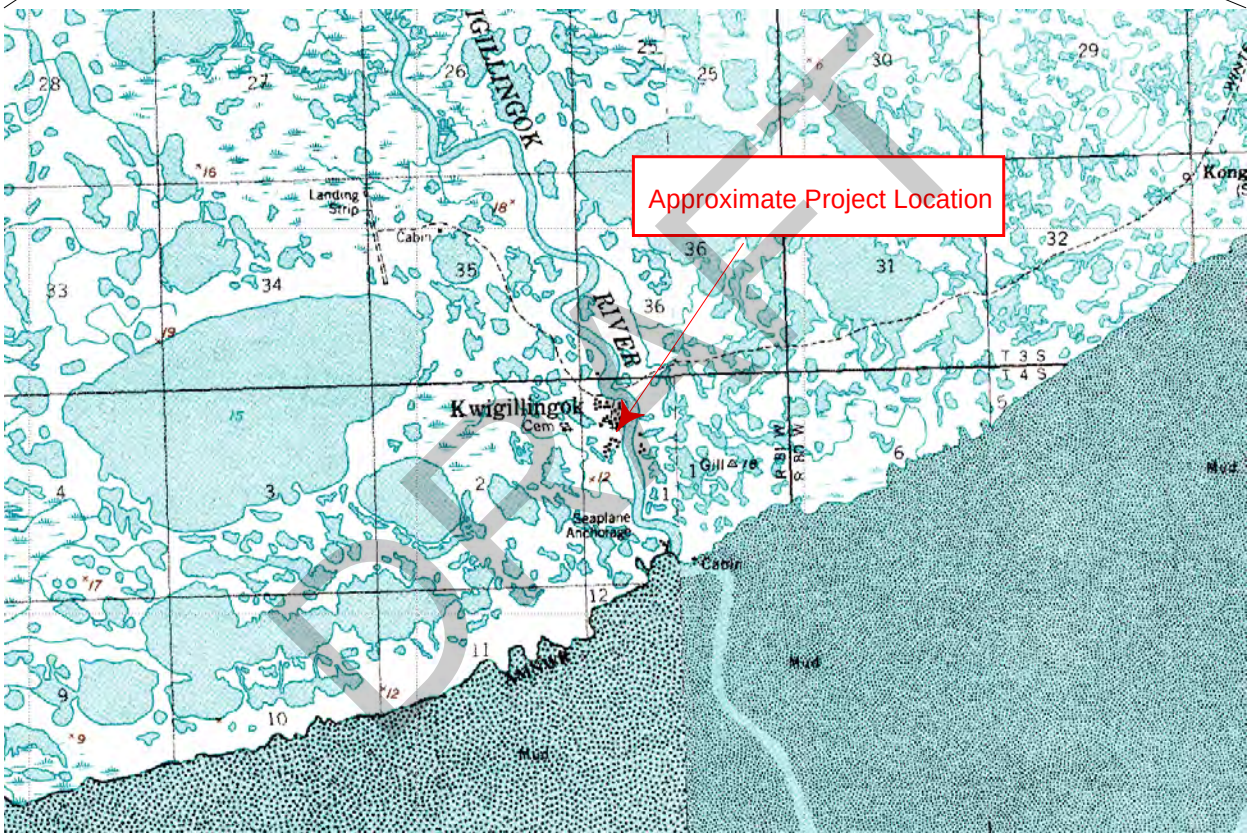
We appreciate this opportunity to be of service. Please contact Shayla Marshall or the undersigned at (907) 561-2120 with questions or comments concerning the contents of this report.

SHANNON & WILSON, INC.

Jennifer Simmons
Environmental Scientist

Matthew S. Hemry, P.E.
Vice President





0 4000 8000

APPROXIMATE SCALE IN FEET

Elevation in Meters
Contour Interval 50 feet
Taken from Kuskokwim Bay D-3 and D-4
U.S. Geological Survey Quadrangles
(1954)

N

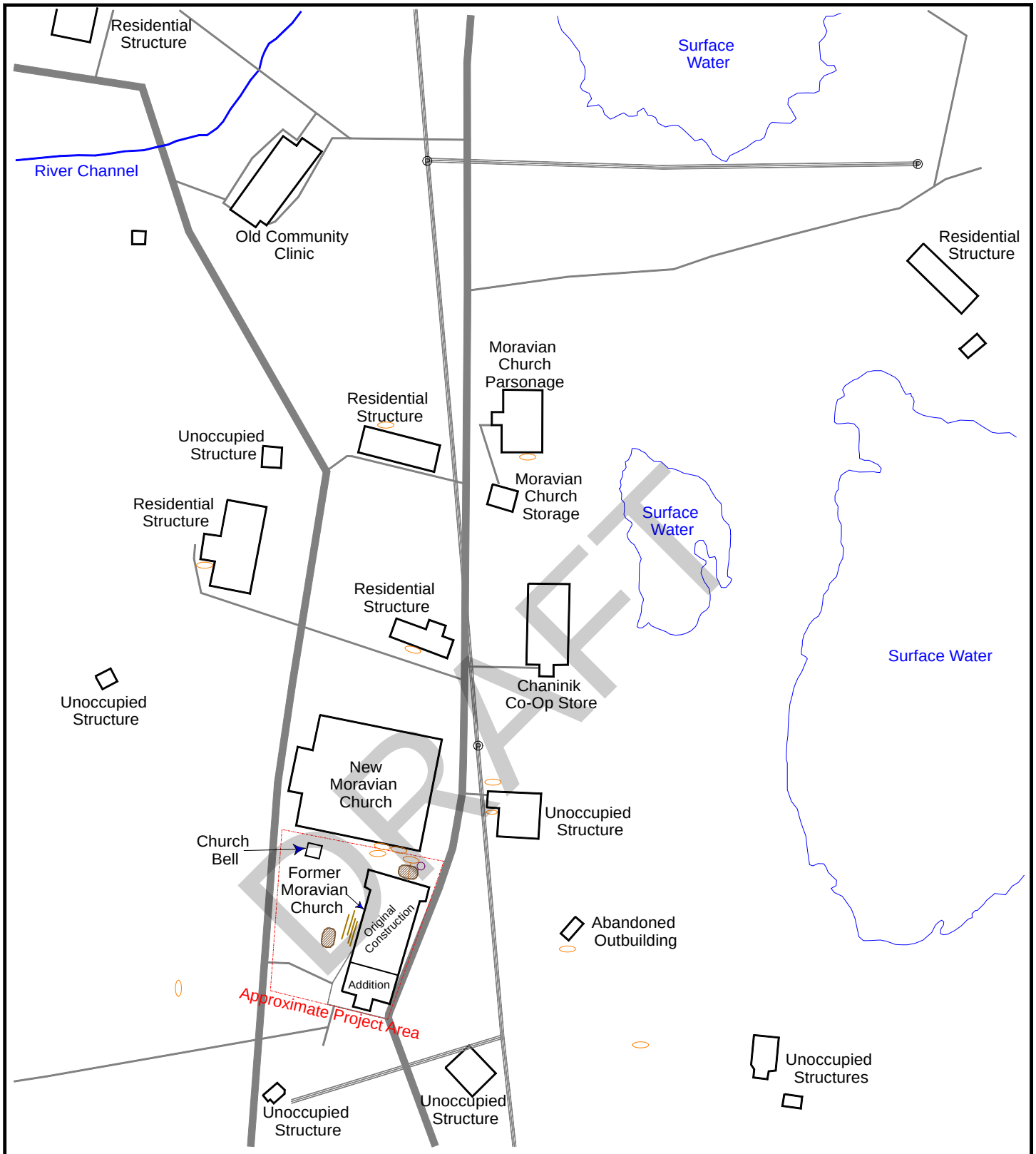
Former Moravian Church
Kwigillingok, Alaska

VICINITY MAP

November 2013 32-1-17593

SHANNON & WILSON, INC.
Geotechnical & Environmental Consultants

Fig. 1



LEGEND

- Approximate location of aboveground storage tank
- Approximate location of 55-gallon drum
- Approximate location of discarded materials storage area
- Approximate location of felled utility poles
- Approximate location of pole-mounted transformer
- Approximate location of overhead power lines
- Approximate location of boardwalk

0 100 200

APPROXIMATE SCALE IN FEET

Former Moravian Church
Kwigillingok, Alaska

SITE PLAN

November 2013 32-1-17593

SHANNON & WILSON, INC.
Geotechnical & Environmental Consultants

Fig. 2

APPENDIX A

DEC BROWNFIELD ASSESSMENT OR CLEANUP REQUEST FORM

DEC's Reuse & Redevelopment Program

DEC Brownfield Assessment or Cleanup Request Form – 2013

General Requirements: For this year's DEC Brownfield Assessment and Cleanup (DBAC) requests, we suggest submitting a site that has had prior assessment activities and now requires further site characterization or cleanup. **The site should also be one for which the community has solid reuse or redevelopment plans and for which they have explored funding opportunities for the intended reuse.** For a list of previous DEC Brownfield Assessment project sites in your area, please contact us.

The deadline for receipt of requests is February 28, 2013.

Site Name: Kwigillingok Old Church/Abandoned

Submitted by: **Native Village of Kwigillingok EPA Program**

A. THRESHOLD CRITERIA: The following must be TRUE:

1. This site **IS NOT** federally or state owned.

2. To our knowledge, this site or facility **HAS NOT** received funding for remediation from the Leaking Underground Storage Tank (LUST) Trust Fund.

3. The Applicant/Organization requesting this service **IS NOT directly** responsible for causing the potential contamination.

4. The Owner of the property is not directly responsible for causing the potential contamination, **OR** the Owner has no financial capacity to properly address the assessment or cleanup of the site.

5. There is a documented reuse or redevelopment plan for the site that is described in this request. (Documented means that it is in a resolution, business plan, or economic development plan, or that funding for reuse is actively being sought and can be documented).

If any of the above statements is NOT TRUE, your site is probably not eligible for brownfield services. If you have questions or concerns, please call us to discuss them.

B. UNRANKED CRITERIA

1. To the best of your knowledge, is the Owner of the property in question:

☐ Private ☐ City/Public ☐ Native Corp. x Tribe

2. Known or suspected contaminant(s) at the site (check one):

☐ Hazardous Substances ☐ Petroleum Only x Hazardous Substances and Petroleum

3. Is this site currently listed on DEC's *Contaminated Sites* database?

☐ Yes x No If Yes, please list the DEC file number here:

4. Is this site referred to by any other name?

☐ Yes x No ☐ Unknown If Yes, please provide name(s) here:

C. RANKING CRITERIA

The following ranking criteria will be used to prioritize and select one to three projects for our fiscal year 2014 funding (FY14 begins July 1, 2013). The number of sites selected depends on our actual FY14 funding amount. The project must provide a definite benefit to the community, and we must be able to cover the needed scope of work with our available funding. Each of these questions must have a response in order for your request to be considered.

1. Project Summary

Explain *in your own words* what you are hoping to gain through this effort; i.e., what would you like to see *in place* of the site for which you are requesting assessment or cleanup, and how will this project help you achieve your goals for the site?

Through this assessment the community will understand the health risks this old church may have on the land and how it may transfer the health risks to community members and the resources through natural occurrence's such as flood and stormy weather conditions, furthermore the efforts to clean up the old site will reduce the amount of toxins and other hazardous waste being released to our community and community members, the efforts to clean up the site will also make the site safer to walk or drive around it since the site is in a heavy traffic area and the sidewalk and atv trail is right next to the old site, last but not least the efforts to clean up the old site will eliminate the animals from gathering in the summer and winter time and prevent the youth from hanging out in the summertime.

Once the site is clean up the community recommended the site be used to develop a parking space and a storage facility since the site is in a relatively high ground.

As the environmental program coordinator for our community it is part of my responsibility to protect the community members and its resources from contaminations such as this site may be causing to our land and its resources as well as the community members and if this site qualifies to be clean up properly the program and efforts will certainly meet and qualify under my EPA workplans.

2. Applicant/Owner

Native Village of Kwigillingok

a. Applicant -

Native Village of Kwigillingok
Kwigillingok I.R.A Council
P.O. Box 90
Kwigillingok, AK 99622
kwktribal@yahoo.com
Darrel T. John, EPA-IGAP Coordinator
john.darrel@yahoo.com
907-588-8912 ext. Darrel
Santina Gay, Project Officer (Anc)
Gay.Santina@epa.gov
907-271-3413

b. Property Owner - Native Village of Kwigillingok

3. Project Team
ATTACHED Forms

Andrew Kiuyna, Tribal Administrator
907-588-8117, kwktribal@yahoo.com

Noah Andrew Sr., Kwik Inc. Board Member President
907-588-8112, AndrewSr.noah@yahoo.com

William Igkurak, Kwig Power General Manager
907-588-8626, wmigkurak@att.net

4. Site Information

a. Current Site Condition and Use – Kwigillingok Old Moravian Church
P.O. Box 116
Kwigillingok, AK 99622

The site where the Old Church is siting approximately on a 1/3 of an acre and is not in a zoning area and there is a New Church that was constructed to the North of the Old Church about 50-75 feet away, the Old Mission House which was donated to a community member is about 75-80 feet away from the Old Church on the North North East of the Old Church and the storage facility which is located to the East of the old church is about 80-90 feet away.

Attached Map (Reference #16) larger building of the #16 rated buildings.

b. Historical Site Use – The Old Moravian Church was built in 1966 and used a gathering place to hold community meetings as well as a meeting place with other communities. The old church was used for community events such as Christmas Events, Easter Events, Thanksgiving Events and other positive events that have positive impacts to the attendees from 1966 – 2011.

c. Reason for Concern – The community is concerned about the old church since it may have some harmful chemicals which may cause cancer as a result of asbestos contained materials from the old church and the old building will be hazardous to enter once it is no longer deemed safe to enter if it is time to demolish to old site, furthermore the old church is a major concern for the community members as it may be a gathering place for the youth to misbehave, etc. and also the old site has recently hosted some animals as a sanctuary and for these top reasons the community has recommended demolishing the old site.

5. Project Scoping Information

a. Findings from Past Environmental Assessments - Has the site had previous assessment activities?

x No ☐ DBA ☐ Targeted Brownfield Assessment (TBA) ☐ Other_____

b. Project Need – The project team has one main priority regarding this site and it is to find out what contaminants there are, find out if the building is deemed unsafe to be reused and confirm that the land around the site is contaminated and is reusable once the contaminates are neutralized. We have discussed the building to be reused for youth activities in the summertime once the school activities have seized for the summer and the second option was to use the old site to develop a parking space for the new church as well a storage facility. The community members have also mentioned reusing some of the materials from the old church such as the lumber that is not contaminated and safe enough to be reused to construct some form of object that will benefit the community.

If the site qualifies to be demolished, the appropriate time to work on this site will be from October to May and this is when the ground is hard enough to support heavy equipment's to land terrain vehicles and most of the barge deliveries take place starting from June to the end part of October.

6. Community Planning and Reuse

a. Reuse or Redevelopment Plans – The Reuse and Redevelopment has been discussed for this old church during the community meeting and the community members have recommended reusing the old church to develop a recreation or summer youth activity center and if the building is deemed unsafe to be reused the site has been selected to develop a parking space or a storage facility and as for the lumber that is safe enough to be reused will be stored or reused to develop a storage facility.

b. Documentation of Reuse Planning – ATTACHED

c. Other Community Plans or Projects - ANTHC Water and Sewer Project has installed Water and Sewer Flush and Haul System to homes and they will be installing a few more houses this summer to fully complete installing Flush and Haul System to each occupied homes, they will also upgrade qualified homes once the request has been approved. Under the Water and Sewer Project they have developed a New Laundry Matt, Water Treatment Facility, Flush and Haul Lagoon, Water Delivery Lagoon, Upgraded the ATV access roads to each house and the Flush and Haul Lagoon. The New Landfill construction will resume in its final stages this spring for completion and ready for use by fall time or springtime.

Dokoozian Construction is also in the process of Renovating the School Site which will last until 2015.

Association of Village Council President Weatherization Program will also be doing some home weatherization this coming fall.

The community of Kwigillingok has an Environmental Program which is funded under the Federal Government and we may have some of the resources to help DEC Brownfield Program Assess the proposed plans to Reuse and Redevelopment of the Old Church.

We have also submitted a request to Natural Resources Conservation Services to assess our erosion issues within the community.

7. Public Involvement

a. Public Benefit – The community of Kwigillingok will benefit from Youth Center or Community Gathering Center by reducing the amount of the youth misbehaving in the summertime and they will also gain some knowledge on how to be responsible adults, achieving their goals to complete their education, reduce or prevent the youth from dropping out of school without completing their education years successfully and prevent or reduce the suicide rate throughout the State of Alaska and the youth will gain some traditional values passed on from our ancestors so that one day they will be the ones to pass on the traditional values to the next generations. Option two was to develop a parking space and this idea well have some positive impacts to the community by reducing and preventing accidents from occurring within the confines of the old and new church. Option three was to develop a storage facility or youth center using the lumber from the old church and this will also have some positive impacts to the community as it will extend the use of our New Landfill Life. Of all the options above, the land will forever be conserved and used for community purpose and the program will also prevent any further contamination to our community members and the environment and it will also generate some income to those who need it the most if the site will be used to redevelop the old building for recreation or youth facility.

b. Community Support and Resources – The Native Village of Kwigillingok will have the resources such as the Heavy Equipment needed to work on site, lodging facility for DEC Contractors, local assistance for site visit, EPA IGAP Program will have the vehicles and tools to support the contractors, Native Village of Kwigillingok will have the equipment to transport the materials to the New Landfill Site and we will also be ready to set up interviews with those who are knowledgeable about the old site and we will do everything in our power to try and meet and accommodate your needs in regards to this project request.

c. Community Resources for Other Phases of the Revitalization Project – The community members of Kwigillingok are mainly concerned about the material that may have some asbestos and the soil that may be contaminated with stove oil; we have strongly recommended having a professional agency such as DEC Brownfields to properly assess the site and use the right and proper equipment to remove the contaminated materials without harming the natural environment and the community members. Once those two main concerns are neutralized we the community of Kwigillingok will have the resources to complete the process of reusing the old building or demolishing the old building and developing a new parking space, youth facility, community gathering center or storage facility.

DISCLAIMER (FINE PRINT)

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

Brownfield work focuses on clarifying environmental concerns associated with property for which there is no known viable responsible party. By applying for a DEC Brownfield Assessment or Cleanup, it should be clear to all parties associated with a request that the work requested of DEC is designed to identify, clarify, and in some cases, remediate environmental hindrances that currently impede the continued use, proposed use, redevelopment, or sale of a property. Work conducted by DEC may result in identifying a property as a contaminated site, and require the site be listed on DEC's *Contaminated Sites Database*. With listing comes the requirement of potentially responsible and liable parties to address cleanup of contamination in accordance with regulatory requirements.

Submit Completed Forms by February 28, 2013, 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
Alaska Department of Environmental Conservation
610 University Avenue
Fairbanks, Alaska 99709

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

DBAC Request Submittal Checklist

Before submitting your DBAC request form, please check the following items:

1) Did you answer each question?

2) Did you attach a letter from the property owner granting access to the site, if the owner is different from the applicant, as described in Question 2.b?

3) Did you attach a letter of support from each team member for Question 3?

4) Did you attach a site map or aerial photograph of the site with the information requested in Question 4.a shown?

5) Did you attach executive summaries or summary and conclusions sections from any past environmental reports about the site, as described in Question 5?

6) Did you attach documentation of the reuse or redevelopment plans the community has for the site, as described in Question 6.a?

Kwig Power Company

P.O. Box 490
KWIGILLINGOK, AK 99622
(907) 588-8626

February 28, 2013

To: DEC - Brownsfield Reuse & Redevelopment Program

Subject: Old Kwigillingok Moravian Church

Dear Sirs/Madam,

This is a letter of support for Kwigillingok IRA Council's Environmental Department & IGAP Program.

To assess, demolish the old Moravian Church, clean-up the site, reuse useable material to build additional parking area for the new Moravian Church and ship out refuse.

Thank you for your consideration.

Sincerely,

William Igkurak, General Manager

Kwik Inc Store
P.O. Box 110
Kwigillingok, Alaska 99622

Feb 28, 2013

To: Whom it may concern.

Re: Old Moravian Church Building

Hello, this is a letter of approval for the old Moravian Church to be demolished, and make use of the space or what not. You have Kwik Inc support on this matter.

Quyana,

Noah Andrew Sr
President, Kwik Inc Board of Directors

NATIVE VILLAGE OF KWIGILLINGOK
KWIGILLINGOK IRA COUNCIL
P.O. Box 90
Kwigillingok, Alaska 99622
Phone : 907 588-8114
Fax: 907 588-8429

28 February 2013

Subject: Letter of Support

DEC Brownsfield Reuse and Redevelopment Pgm

Our local IGAP Department has been working very hard to keep our community clean, and has been doing this the last 10+ years. The community members and the Tribe has been supportive for their good works.

Therefore, IRA Council strongly support IGAP department to access and clean-up around the old Moravian Church building to prepare it to become a parking space for the tribal members.

Sincerely Yours,

NATIVE VILLAGE OF KWIGILLINGOK
Tony Phillip, President

//s//

Andrew Kiunya,
Tribal Administrator

Native Village of Kwigillingok
Kwigillingok Moravian Church
P.O. Box 116
Kwigillingok, AK 99622

February 28, 2013

DEC Brownfields Reuse and Redevelopment Program
Sonya Benson, DEC Project Officer
John B. Carnahan, Brownfield Coordinator

Re; Documentation for Reuse and Redevelopment Planning of Old Church Building

Dear Sir or Madam,

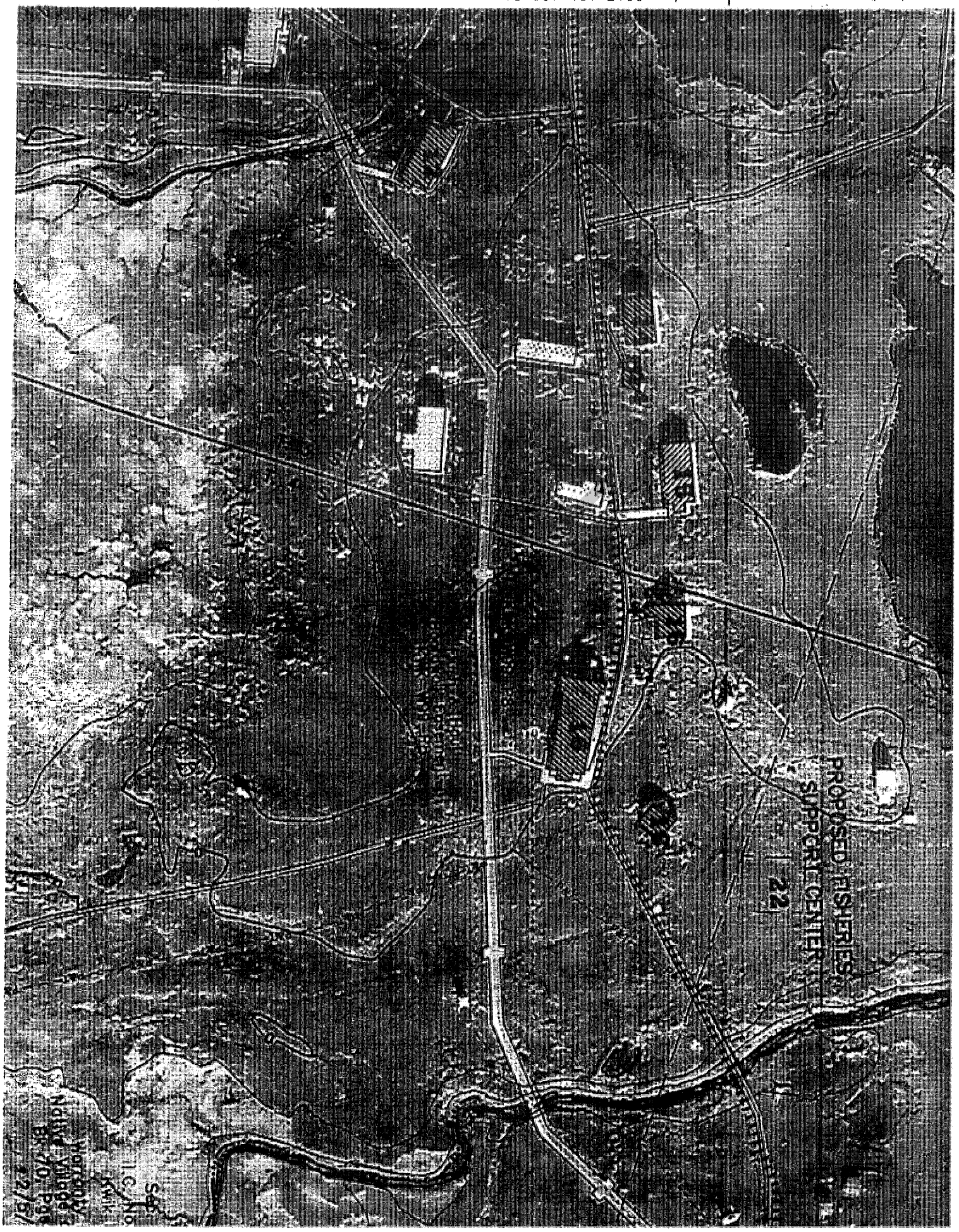
The community of Kwigillingok has met regarding this old church building and is concerned it may be a safety hazard to the community and the environment. The community members have recommended reusing the old building to host youth activities, storage facility or community meeting building. Option two was to demolish the old building if the building was deemed unsafe to be reused and develop a parking space for the new church or develop a storage facility using the lumber from the old church if the lumber is safe enough to be reused.

Sincerely,

Harry Friend, Church Board Trustee

Jesse Igleurak, Church Board Elder

Arthur Lake, Church Board Secretary


PROPOSED FISHERIES
SUPPORT CENTER
22

APPENDIX B

HISTORICAL AERIAL PHOTOGRAPHS

0 50 100 200

APPROXIMATE SCALE IN FEET

N

FORMER MORAVIAN CHURCH
KWIGILLINGOK, ALASKA

AERIAL PHOTOGRAPH
JUNE 10, 1983

NOVEMBER 2013

32-1-17593

SHANNON & WILSON, INC.
Geotechnical & Environmental Consultants

B-1

0 50 100 200

APPROXIMATE SCALE IN FEET

N

FORMER MORAVIAN CHURCH
KWIGILLINGOK, ALASKA

AERIAL PHOTOGRAPH
JULY 4, 1996

NOVEMBER 2013 32-1-17593

SHANNON & WILSON, INC.
Geotechnical & Environmental Consultants

B-2

0 50 100 200

APPROXIMATE SCALE IN FEET

N

FORMER MORAVIAN CHURCH
KWIGILLINGOK, ALASKA

AERIAL PHOTOGRAPH
SEPTEMBER 17, 2004

NOVEMBER 2013 32-1-17593

SHANNON & WILSON, INC.
Geotechnical & Environmental Consultants

B-3

APPENDIX C

OWNERSHIP DOCUMENTS

BOOK 40 PAGE 137

F-14884-A

INTERIM CONVEYANCE

WHEREAS

Kwik, Incorporated

is entitled to a conveyance pursuant to Secs. 14(a) and 22(j) of the Alaska Native Claims Settlement Act of December 18, 1971, 43 U.S.C. 1601, 1613(a), 1621(j), of the surface estate in the following-described lands:

Seward Meridian, Alaska (Unsurveyed)

T. 3 S., R. 81 W.

Sec. 35, excluding Native allotment F-15644 Parcel B and the Kwigillingok River.

Containing approximately 600 acres.

NOW KNOW YE, that there is, therefore, granted by the UNITED STATES OF AMERICA, unto the above-named corporation the surface estate in the lands above described; TO HAVE AND TO HOLD the said estate with all the rights, privileges, immunities, and appurtenances, of whatsoever nature, thereunto belonging, unto the said corporation, its successors and assigns, forever:

EXCEPTING AND RESERVING TO THE UNITED STATES from the lands so granted:

1. The subsurface estate therein, and all rights, privileges, immunities, and appurtenances, of whatsoever nature, accruing unto said estate pursuant to the Alaska Native Claims Settlement Act of December 18, 1971, 43 U.S.C. 1601, 1613(f); and

2. Pursuant to Sec. 17(b) of the Alaska Native Claims Settlement Act of December 18, 1971, 43 U.S.C. 1601, 1616(b), the following public easement, referenced by easement identification number (EIN) on the easement

Interim Conveyance No. 974

Date DEC 14 1984

map attached to this document, a copy of which will be found in case file F-14884-EE, is reserved to the United States. The easement is subject to applicable Federal, State, or Municipal corporation regulation. The following is a listing of uses allowed for the easement. Any uses which are not specifically listed are prohibited.

36 Foot Road - The uses allowed on a thirty-six (36) foot wide road easement are: travel by foot, dogsled, animals, snowmobiles, two- and three-wheel vehicles, small and large all-terrain vehicles, track vehicles, four-wheel drive vehicles, automobiles, and trucks.

(EIN 7 D1, D5) An easement, thirty-six (36) feet in width, on the existing road from Kwigillingok, in Sec. 1, T. 4 S., R. 81 W., Seward Meridian, northwesterly to the Kwigillingok Airport. The uses allowed are those listed above for a thirty-six (36) foot wide road easement.

THE GRANT OF THE ABOVE-DESCRIBED LANDS IS SUBJECT TO:

1. Issuance of a patent after approval and filing by the Bureau of Land Management of the official plat of survey confirming the boundary description and acreage of the lands hereinabove granted;

2. Valid existing rights therein, if any, including but not limited to those created by any lease (including a lease issued under Sec. 6(g) of the Alaska Statehood Act of July 7, 1958, 48 U.S.C. Ch. 2, Sec. 6(g)), contract, permit, right-of-way, or easement, and the right of the lessee, contractee, permittee, or grantee to the complete enjoyment of all rights, privileges, and benefits thereby granted to him. Further, pursuant to Sec. 17(b)(2) of the Alaska Native Claims Settlement

Interim Conveyance No. 974

Date DEC 14 1984

Act of December 18, 1971 (ANCSA), 43 U.S.C. 1601, 1616(b)(2), any valid existing right recognized by ANCSA shall continue to have whatever right of access as is now provided for under existing law;

3. The following third-party interest, identified by the U.S. Department of the Interior, Fish and Wildlife Service, as provided by Sec. 14(g) of the Alaska Native Claims Settlement Act of December 18, 1971, 43 U.S.C. 1601, 1613(g):

> Airport Lease M-112-YD, issued to the State of Alaska, Department of Transportation and Public Facilities, located in Sec. 35, T. 3 S., R. 81 W., Seward Meridian, for the purpose of establishing, operating, and maintaining the Kwigillingok Airport (formerly airport lease F-15809, issued under the provisions of the Act of May 24, 1928, as amended, 49 U.S.C. 211-214); and

4. Requirements of Sec. 14(c) of the Alaska Native Claims Settlement Act of December 18, 1971, 43 U.S.C. 1601, 1613(c), as amended, that the grantee hereunder convey those portions, if any, of the lands hereinabove granted, as are prescribed in said section.

IN WITNESS WHEREOF, the undersigned authorized officer of the Bureau of Land Management has, in the name of the United States, set her hand and caused the seal of the Bureau to be hereunto affixed on this 14th day of December, 1984, in Anchorage, Alaska.

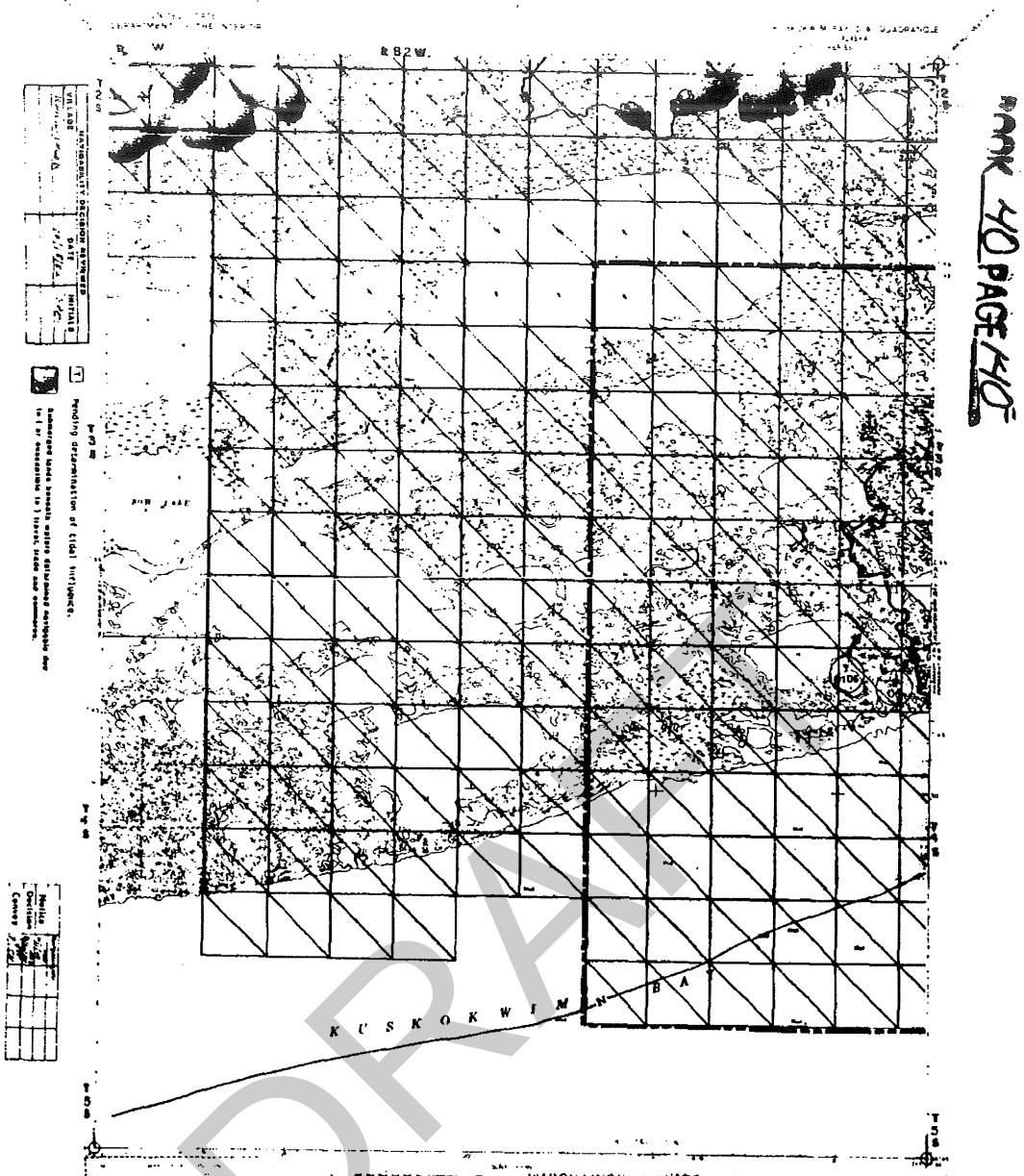
UNITED STATES OF AMERICA

Chief Branch of ANCSA
Adjudication

Interim Conveyance No. 974

Date DEC 14 1984

BOOK 40 PAGE 140



CMCIRS-

Bureau of Land Management
Alaska State Office
Anchorage, Alaska

DEC 17 1984
DATE

D-Over-Selections

I hereby certify that this reproduction is a copy of the official record on file in this office.

Edna Johnson
AUTHORIZED SIGNATURE

974

84-1748

1700

RECORDED-FILED
BETHEL RECORDING
DISTRICT

Dec 21 1 55 PM '84

REQUESTED BY Kwik Inc.
General Delivery
ADDRESS Kwigillingok, AK 99622

BOOK 70 PAGE 938

WARRANTY Deed
Kwigillingok, Alaska

This deed is made by and between Kwik Inc., an Alaskan Corporation, the Native village corporation of Kwigillingok, Alaska, hereinafter Grantor, and the Native village of Kwigillingok in the village of Kwigillingok, Alaska, hereinafter Grantee.

The Grantor, does hereby warrants and convey unto the Grantee, all present and after acquired right, title and interest, in any, in and to the surface estate of the tract of land approximately 2274.35 acres generally described as follows:

> The surface estate of that certain real property located in R81W., T3S, Sec. 26, 35, 36 and R81W, T4S, Sec. 1, 2, Seward Meridan, Alaska, being situated in the Native Village of Kwigillingok, Alaska, more particularly described in Appendix A, attached hereto.

The Grantor warrants that it has not made any prior conveyance of the land and that there are no liens, encumbrances, charges, or claims affecting the surface rights to the land being conveyed herein which were created by or are the result of any action taken by the Grantor.

The grant of the above described lands is subject to the issuance of a deed confirming the boundary description of the lands hereinabove granted by the Bureau of Land Management of the official plot of survey covering such lands pursuant to 43 CFR 2650.5-4(b)

Attachment: 1. Appendix A. Legal Description and Map

Grantor
Kwik Inc.

Attest: _____

By: George David
Chairman

(Corporate Seal)

BOOK 70 PAGE 939

Acknowledgement

State of Alaska

Kuiskillingok Judicial District

This Is To Certify That On The 1 day of February, 1996, before me, the undersigned Notary Public for the State of Alaska, or U. S. Postmaster, duly commissioned and sworn as such, personally came George David, Chairman, and Oscar L. Evon, Secretary, respectively, of Kwik Inc., a corporation organized and existing under the laws of the State of Alaska, to me known to be officers, affixed within this deed is the corporate seal of said Corporation and that said instrument was signed and sealed on behalf of said Corporation by the authority of its Board of Directors and George David, Chairman, and Oscar L. Evon, Secretary of Kwik Inc. acknowledged said instrument to the free act and deed of said Corporation.

In Witness Whereof, I have hereunto set my hand and affixed my seal the day and year first above written.

BETHEL, AK FEB 1 1996 USPS

(Seal)

Notary Public for Alaska, or U.S. Postmaster

My commission expires:_____

Attachment

Land Transfer of Approximately 2274.35 Acres

Recorded in Bethel Recording District, Fourth Judicial District, State of Alaska I.C. #591, 966, and 974, dated 12/27/82, 11/27/84, and 12/14/84 respectively.

1. Appendix A. Legal Description and Map.

T. 3 S., R. 81 W: Seward Meridan, Alaska

Sec. 26,	excluding Native Allottment F-13971 Parcel A	39.95 acres
	excluding Native Allottment F-16075	159.99 acres
Sec. 35,	excluding Native Allottment F-15644 Parcel B	40.00 acres
Sec. 36,	excluding Native Allottment F-15619 Parcel B.	79.98 acres
	excluding Native Allottment F-16067	159.99 acres

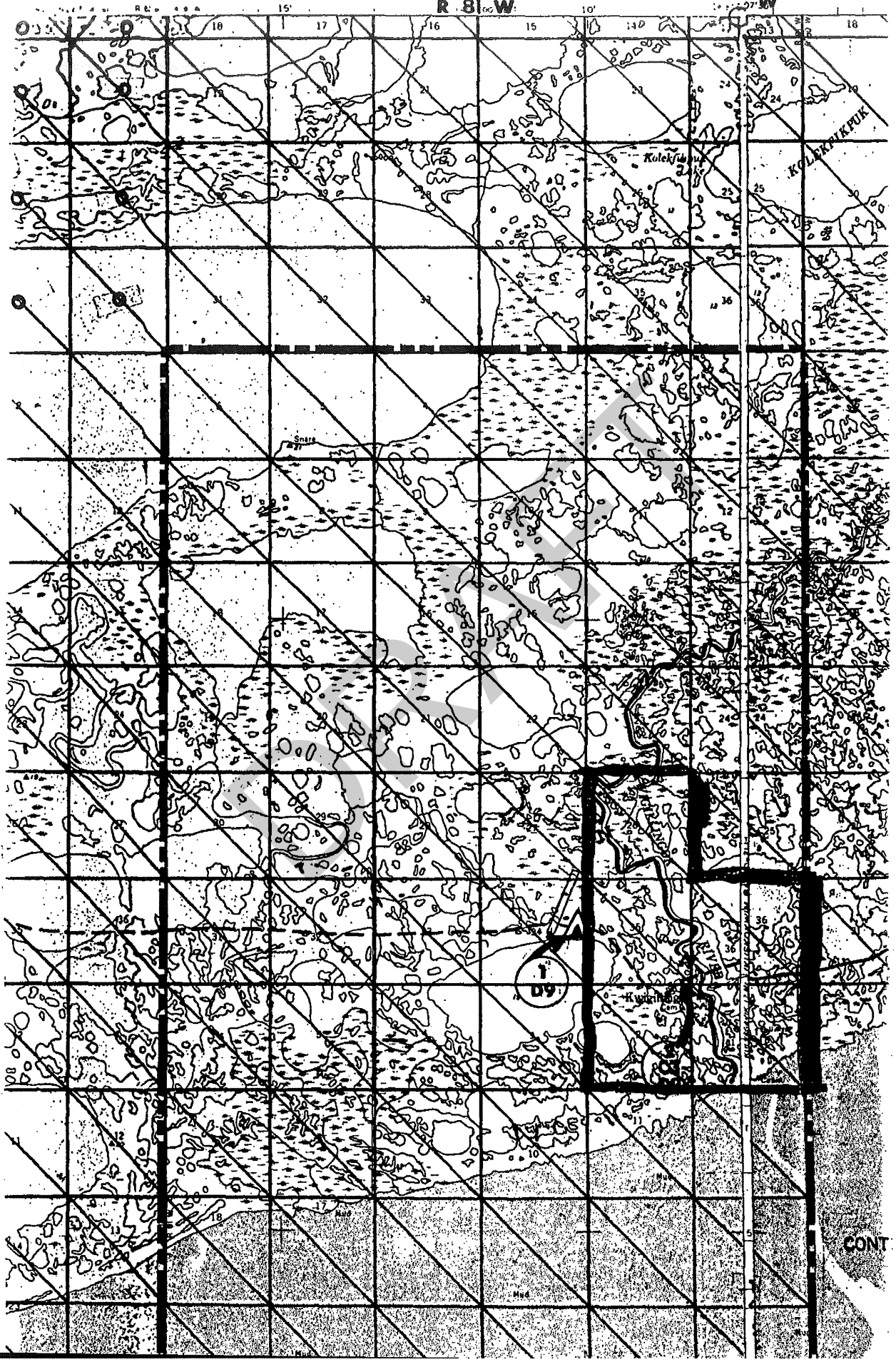
T. 4 S., R. 81 W. Seward Meridan, Alaska

Sec. 1,	(fractional) excluding U.S. Survey #2042 and Lot 1 of U.S. Survey #4098 (ANCSA Sec. 3(e) Appl. AA-37864)	4.84 acres
	excluding Lot 2 of U.S. Survey #4098 (ANCSA Sec. 3(e) Appl. AA-37863)	.92 acres
	excluding Native Allottment F-15797	119.99 acres
	excluding Native Allottment F-15855	159.99 acres
Sec. 2,	excluding Native Allottment F-16083	160.00 acres

BOOK 70 PAGE 941

KUSKOKWIM BAY (D-6) QUADRANGLE
ALASKA
1:63 360 SERIES

UNITED S.
DEPARTMENT OF T



BOOK 10 PAGE 942

RETURN DOCUMENTS TO:

KWIK INC.
P.O. BOX 50
KWIGILLINGOK, AK 99622

ATTN: WILCIE ATTI

96-0301
27

RECORDED-FILED
BETHEL RECORDING
DISTRICT

FEB 5 1 16 PM '96

REQUESTED BY KWIK INC

ADDRESS

APPENDIX D

ENVIRONMENTAL RECORDS SOURCE INFORMATION

Selected Document: 1984-001749-0
In District: 402 - BETHEL

See Index Codes Cannot view images? See Image

Document Year: 1984 Number: 001749 Suf: 0	District: 402 - BETHEL
Date Recorded: 12/21/1984 *Time:* 01:55PM *Book:* 40 *Page:* 137 *Pages:* 4	
Index: D - DEEDS	
Desc: INTERIM CONVEYANCE	
Grantor - UNITED STATES BUREAU OF LAND MANAGEMENT	
Grantee - KWIK INCORPORATED	
Location: Section: 35 *Township:* 003S *Range:* 081W *Meridian:* S	
Additional Information: PTN	

All information has been displayed

Back

UCC documents are shown as "active", "inactive" or "lapsed". UCC-1 filings will show "active" for five years along with any subsequent amendments. If it is not continued in the designated time within that five year period, the status changes from "active" to "lapsed" for one year. After that one year period as "lapsed", the status changes to "inactive".

(Please Note: A "Wildcard" reference means the filing does not tie to an "active" filing; and, a filing shown as "active" does not necessarily mean effective.)

Documents are entered in nonsequential batches. Temporary document number gaps may exist in current data.

If you identify a possible indexing error (typo, reversed names, etc) or can not locate the record you are trying to find please Contact Us

All documents are provided as a public service for your convenience. Updates and corrections occur on a daily basis; however, the State of Alaska shall not incur any liability for errors or omissions with respect to the information provided on this web site.

Last updated on 08/15/2013.

Have a question about the Recorders Office? Please contact your district office.

Department of Natural Resources
550 W. 7th Ave, Suite 1260, Anchorage, AK 99501-3557
Phone: 907-269-8400 || Fax: 907-269-8901 || TTY: 907-269-8411

Recorder's Office Document Display

Selected Document: 1996-000301-0
In District: 402 - BETHEL

See Index Codes Cannot view images? See Image

Document Year: 1996 Number: 000301 Suf: 0	District: 402 - BETHEL
Date Recorded: 02/05/1996 *Time:* 01:16PM *Book:* 70 *Page:* 938 *Pages:* 5	
Index: D - DEEDS	
Desc: WARRANTY DEED	
Grantor - KWIK INC	
Grantee - KWIGILLINGOK NATIVE VILLAGE OF	
Location: Section: 26 *Township:* 003S *Range:* 081W *Meridian:* S	
Location: Section: 35 *Township:* 003S *Range:* 081W *Meridian:* S	
Location: Section: 36 *Township:* 003S *Range:* 081W *Meridian:* S	

More Information for additional Legal Info.

Back More Legals

UCC documents are shown as "active", "inactive" or "lapsed". UCC-1 filings will show "active" for five years along with any subsequent amendments. If it is not continued in the designated time within that five year period, the status changes from "active" to "lapsed" for one year. After that one year period as "lapsed", the status changes to "inactive".

(Please Note: A "Wildcard" reference means the filing does not tie to an "active" filing; and, a filing shown as "active" does not necessarily mean effective.)

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Phone: 907-269-8400 || Fax: 907-269-8901 || TTY: 907-269-8411

Brownfields Grant Fact Sheet Search

Search Criteria:
Grant Type(s): **All**
Award Year(s): **All**

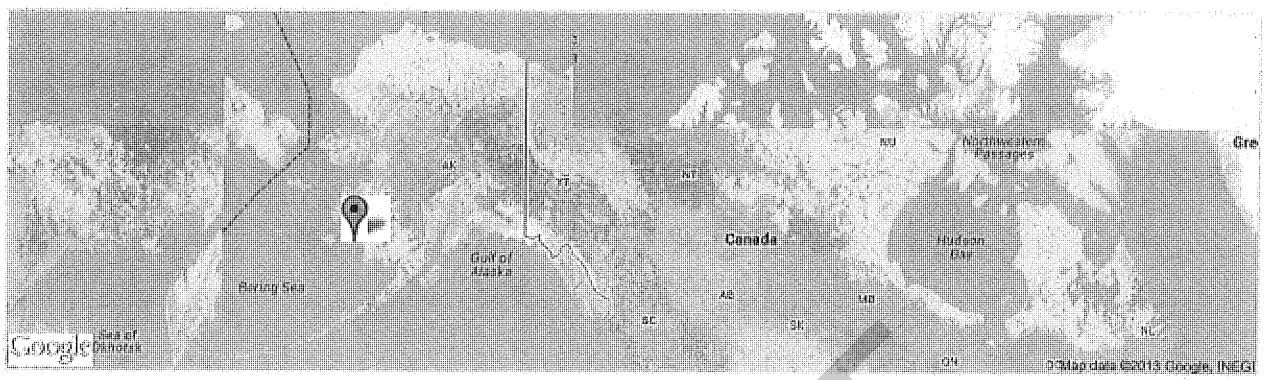
Grant Recipient Name	EPA Region	State/Territory	Grant Type	Announce Year (FY)	Hazardous Funding	Petroleum Funding	Job Training Funding	Pilot Funding
Anchorage, Municipality of	10	AK	Cleanup	2008	$200,000.00	$0.00	$0.00	$0.00
Fairbanks North Star Borough	10	AK	Assessment	2004	$148,398.00	$0.00	$0.00	$0.00
Fairbanks North Star Borough	10	AK	Assessment	2005	$200,000.00	$0.00	$0.00	$0.00
Fairbanks North Star Borough	10	AK	Cleanup	2006	$400,000.00	$0.00	$0.00	$0.00
Ketchikan Gateway Borough	10	AK	Assessment	1997	$0.00	$0.00	$0.00	$200,000.00
Metlakatla Indian Comm.	10	AK	Assessment	2001	$0.00	$0.00	$0.00	$0.00
Nome, City of	10	AK	Cleanup	2003	$0.00	$193,692.00	$0.00	$0.00
Saint Paul, City of	10	AK	Assessment	2004	$0.00	$200,000.00	$0.00	$0.00
Selawik, City of	10	AK	Job Training	2004	$0.00	$0.00	$40,000.00	$0.00
Unalaska, City of	10	AK	Cleanup	2006	$200,000.00	$0.00	$0.00	$0.00
Zender Environmental Health and Research Group	10	AK	Job Training	2011	$0.00	$0.00	$300,000.00	$0.00
Zender Environmental Health and Research Group	10	AK	Job Training	2013	$0.00	$0.00	$200,000.00	$0.00

Department of Commerce, Community, and Economic Development

Division of Community and Regional Affairs

COMMUNITY: KWIGILLINGOK

Return to Communities list



Community Information

All

General Overview

Kwigillingok

Unincorporated In the Bethel Census Area

All

Community Details

Current Population

317

Population Comment

(2012 Alaska Department of Labor Estimate)

Pronunciation/Other Names

(kwih-GILL-in-gawk); abbr. Kwig

Community's Senate District

R

Community's House District

36

Community's Judicial District

4

Recording District

Bethel

Geography and Climate

Location

Kwigillingok is on the western shore of Kuskokwim Bay near the mouth of the Kuskokwim River. It lies 77 miles southwest of Bethel and 388 miles west of Anchorage. The village of Kongiganak is nearby.

Climate

Kwigillingok is located in a marine climate. Annual precipitation averages 22 inches, with 43 inches of snowfall annually. Summer temperatures range from 41 to 57 °F, and winter temperatures average 6 to 24 °F.

Latitude

59.8639

Longitude

-163.1332

Sq Mi Land

0.0000

Sq Mi Water

0.0000

History and Culture

History

The area has long been occupied by the Yup'ik Eskimos. The first record of the village was in 1927 on an Alaska map, when it was noted as "Quillingok." A Moravian church was established around 1920.

Culture

Kwigillingok is a traditional Yup'ik Eskimo village, practicing a commercial fishing and subsistence lifestyle. The sale and importation of alcohol is banned in the village.

BIA Recognized Tribe

Yes

Facilities, Utilities, and Health Care

▼ Economy

Subsistence

Yes

Number of Commercial Fishing Permits

6

CDQ Participant

Yes

Local Labor Market Info URL

http://live.laborstats.alaska.gov/alari/index.cfm?r=6&b=4&p=177&goplace=go

▼ Transportation

Transportation

A state-owned 2,510' long by 60' wide gravel airstrip is is available. A seaplane base is also available. There are no docking facilities. In summer, resdients use skiffs and other boats for travel to Bethel and area villages. Snowmachines and ATVs provide transportation during winter. Winter trails are marked to Kipnuk (35 mi) and Kongiganak (11.1 mi).

Harbor/Dock

No

State Ferry

No

Cargo Barge

No

Road Connection

No

Coastal/River

Yes

▼ Miscellaneous Details

Web Name

Kwigilli

▼ 2010 Population and Housing Characteristics

The following Population and Housing data is from the **2010 U.S. Census**

Additional detail is available from the Alaska Department of Labor and Workforce Development, Census and Demographic Profiles.

The **FIPS code** for **Kwigillingok CDP** is 42490.

2010 Census Data ▼ All

▼ Population in 2010

Total Population	321

▼ Population by Race

Population by Race	Value	Percent
White	11	3.43 %
American Indian and Alaska Native Alone	305	95.02 %
Black or African American	0	0.00 %
Asian alone	0	0.00 %
Pacific Islander alone	0	0.00 %
Other alone	0	0.00 %
Two or More Races	5	1.56 %

Race alone or in combination with one or more other races	Value	Percent
White alone or combo	15	4.60 %

Black or African American alone or combo	0	0.00 %
American Indian and Alaska Native alone or combo	310	95.09 %
Asian alone or combo	1	0.31 %
Pacific Islander alone or combo	0	0.00 %
Other alone or combo	0	0.00 %

▼ Ethnicities

Asian	**Value**
Asian Indian	0
Filipino	0
Chinese	0
Japanese	0
Korean	0
Vietnamese	0
Other Asians	0

Native Hawaiian and Other Pacific Islander	**Value**
Native Hawaiian	0
Guamanian or Chamorro	0
Samoan	0
Other Pacific Islander	0

Hispanic or Latino by Origin	**Value**	**Percent**
Hispanic Origin (Any Race)	0	0.00 %
Not Hispanic (Any Race)	321	100.00 %
Mexican	0	0.00 %
Puerto Rican	0	0.00 %
Cuban	0	0.00 %
Other Hispanic	0	0.00 %

▼ Population by Gender

Population by Gender	**Value**
Male	169
Female	152

▶ Population by Age

▼ Census Population History

Population History	**Value**
1880	0
1890	0
1900	0
1910	0
1920	104
1930	0
1940	146
1950	245
1960	344
1970	148
1980	354
1990	278
2000	338

2010	321

▼ Housing Characteristics

Total Housing Units	Value
Total Housing Units	106
Occupied Housing (Households)	82
Vacant Housing	24
Vacant Due to Seasonal Use	4
Owner-Occupied Housing	50
Renter-Occupied Housing	32

Total Occupied Housing Units	Value
Total Households	82
Average Household Size	4
Family Households	69
Non-Family Households	13
Pop. Living in Households	319
Pop. Living in Group Quarters	2

▸ **2000 Population and Housing Characteristics**

▸ **1990 Population and Housing Characteristics**

▼ **Economy, Income, Poverty and Employment**

For current Local Labor Market Information please click here.

The following Income and Employment data is from the U.S. Census Bureau's **2007-2011 American Community Survey 5-Year Estimates.**

▸ All

▼ Income

	Estimate	Margin of Error
Per Capita Income	$9,711	$1,872 +/-
Median Household Income	$41,250	$14,121 +/-
Median Family Income	$43,750	$14,202 +/-

▼ Poverty

	Estimate	Percent
Persons in Poverty	81	29.78 %

▼ **Facilities, Utilities and Services**

▸ All

Bulk Fuel

Communications

▼ Water Distribution, Source and Treatment Systems

Kwigillingok Washeteria

DEC Water Permit #

AK2271700

Source Code

SW

Primary Source

Surface Water

System Type

Piped

Lower Kuskokwim School District

DEC Water Permit #

AK2270964

Source Code

SW

Primary Source

Surface Water

System Type

Piped

Sewage Collection Systems

Refuse/Landfill Systems

▼ Electric Utility

Kwig Power Company

Power Source

Diesel

Kilowatt Capacity

0

Power Cost Equalization (PCE) Subsidy

Yes

Total kWh Generated

1,094,129

Health Care

Visitor Accommodations/Information

Local Services and Facilities

▼ Transportation

Kwigillingok Airport

▶ **Schools**

Municipal Officials/Employees Directory

▶ **Community/Regional Contacts Information**

▶ **Business Licenses**

▶ **ANCSA - Alaska Native Claims Settlement Status**

▼ **Community Status Report**

- ▶ Financial Documents
- ▶ Municipal Elections
- ▶ Liens
- ▶ Workers Compensation
- ▶ Fuel Loans Per Entity
- ▶ PERS Debt
- ▶ Delinquent Audits

Contact Us / Staff Directory

Alaska Department of Fish and Game

State of Alaska Special Status Species
State Endangered Species

Endangered Special Concern Fish Stocks of Concern

The State of Alaska, Department of Fish and Game (ADF&G) is responsible for determining and maintaining a list of endangered species in Alaska under AS 16.20.190. A species or subspecies of fish or wildlife is considered endangered when the Commissioner of ADF&G determines that its numbers have decreased to such an extent as to indicate that its continued existence is threatened.

Species List
Biological Information

- Short-tailed Albatross
- Eskimo Curlew
- Blue Whale
- Humpback Whale
- Right Whale

The State Endangered Species List currently includes two birds (Short-tailed Albatross and Eskimo Curlew) and three marine mammals (blue whale, humpback whale, and right whale). You can find information on the ecology, life history, identification, uses, research, and management for these five species by clicking on the species name in the list to the right.

The five State listed species are also listed as endangered under the United States Endangered Species Act (ESA). Additional information about how these species became listed under the ESA can be found on the Federal Endangered Species page.

Protection of Habitat

By law, the Commissioners of the Alaska Departments of Fish and Game and Natural Resources must take measures to preserve the natural habitat of fish and wildlife species that are recognized as threatened with extinction. You can find details on protection of habitat in AS 16.20.185.

Contacts

To determine if your project will impact threatened or endangered species, contact the U.S. Fish and Wildlife Service and the National Marine Fisheries Service. These two agencies are responsible for conducting formal and informal Endangered Species Act Section 7 consultations for projects that may impact threatened and endangered species.

For more information on State of Alaska endangered species, contact the ADF&G Endangered Species Coordinator at (907) 267-2339 or douglas.vincent-lang@alaska.gov.

Alaska Department of Fish and Game

Federal Special Status Species
Federal Endangered Species

Endangered Threatened Under Consideration Agency Contacts

The purpose of the Endangered Species Act (ESA) is to conserve threatened and endangered species and their ecosystems. A species is considered endangered if it is in danger of extinction throughout all or a significant portion of its range.

Two federal agencies, the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS), are responsible for maintaining lists of species that meet the definition of threatened or endangered under the ESA. NMFS is responsible for maintaining the endangered species list for marine species and managing those species once they are listed. The USFWS is responsible for maintaining the endangered species list for terrestrial and freshwater species and managing those species once they are listed. NMFS and USFWS must determine if any species is endangered because of any of the following factors:

- The present or threatened destruction, modification, or curtailment of its habitat of range;
- Overutilization for commercial, recreational, scientific, or educational purposes;
- Disease or predation;
- The inadequacy of existing regulatory mechanisms;
- Other natural or manmade factors affecting its continued existence.

Endangered Species Special Status Information

- Aleutian Shield Fern
- Blue Whale
- Bowhead Whale
- Cook Inlet Beluga Whale
- Eskimo Curlew
- Fin Whale
- Humpback Whale
- Leatherback Sea Turtle
- North Pacific Right Whale
- Sei Whale
- Short-tailed Albatross
- Sperm Whale
- Steller Sea Lion (west of 144°)

All states contain species that are listed as endangered under the ESA. Some states are home to hundreds of endangered species. Alaska has relatively few species designed as endangered by NMFS and USFWS, with only 14 species currently listed as endangered. Many species that are rare, endangered, or have been extirpated elsewhere in the United States are thriving in Alaska. Our geographical isolation, relatively recent growth in population, limited development, small agricultural industry, conservative laws on the introduction and importation of exotic animals, and a little luck, all contribute to this favorable condition.

Alaska's primary advantage has been the state's remoteness and isolation. Alaska was still a sparsely populated Russian territory when many wildlife species elsewhere were hunted to extinction or lost due to industrial and agricultural development and a lack of knowledge about habitat requirements. Thanks to advances in science and increased awareness Alaskans have avoided many mistakes of the past.

The listing of a species as endangered makes it illegal to "take" (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to do these things) that species. Federal agencies may be allowed limited take of species through interagency consultations with NMFS or USFWS. Non-federal individuals,

agencies, or organizations may be granted limited take through special permits with conservation plans. Adverse effects on listed species must be minimized, and in some cases conservation efforts are required to offset the take.

Critical Habitat

The ESA requires that management agencies identify and protect critical habitat for all endangered species. Critical habitat consists of the land, water, and air necessary for the recovery of the endangered species, and the extent and location of critical habitat will be determined by the species' needs of open space for individual and population growth, food, water, light (or other nutritional requirements), breeding sites, dispersal, seed germination, and lack of disturbance. Critical habitat has been designated for some, but not all, endangered species that occur in Alaska. Detailed information regarding species-specific critical habitat can be found by clicking on the species name in the list on this page.

More information on applying for incidental take permits for research activities or proposed development projects, or determining if endangered species are present at proposed development sites, see Agency Contacts.

CSP Database Search Results

New CSP Database Search

Records Found: 8 **8/12/2013**

	Hazard ID	Site Name	Location	Status	File ID	Closure Details	Open Sites with Institutional Controls	Cleanup Chronology
1	3063	AKARNG Kwigillingok FSA	Unnamed Boardwalk, Kwigillingok, AK 99622	Cleanup Complete	2425.38.001			
2	3379	Kwigillingok Regional Tank Farms	General Delivery, Kwigillingok, AK 99622	Informational	2425.38.002			
3	3380	Kwigillingok Kwik Incorporated Former Tank Farm	N Shore of Kuskokwim Bay, Kwigillingok, AK 99622	Open	2425.38.004			
4	3381	Kwigillingok Pipeline Spill	N Shore of Kuskokwin Bay, Kwigillingok, AK 99622	Open	2425.38.003			
5	4338	Former BIA School (Kwigillingok)	Kwigillingok BIA Complex, Kwigillingok, AK 99622	Open	2425.57.001			
6	25889	Kwigillingok Old Head Start School	~300 Feet S of Kwigillingok River, Kwigillingok, AK 99622	Informational	2425.57.002			
7	25890	Kwigillingok Old Community Clinic	~300 Feet S of Kwigillingok River, Kwigillingok, AK 99622	Open	2425.57.002			
8	26080	Kwigillingok Former Moravian Church	S of Chaninik Co-op Store, N of Armory, Kwigillingok, AK 99622	Informational	2425.57.003			

New CSP Database Search

Back to the Top

For questions about contaminated sites information, please contact:
Evonne Reese, Environmental Program Specialist, (907) 465-5229.

For CSP database technical support or assistance, please contact:
Jeremy Frank, Analyst Programmer, (907) 465-5267.

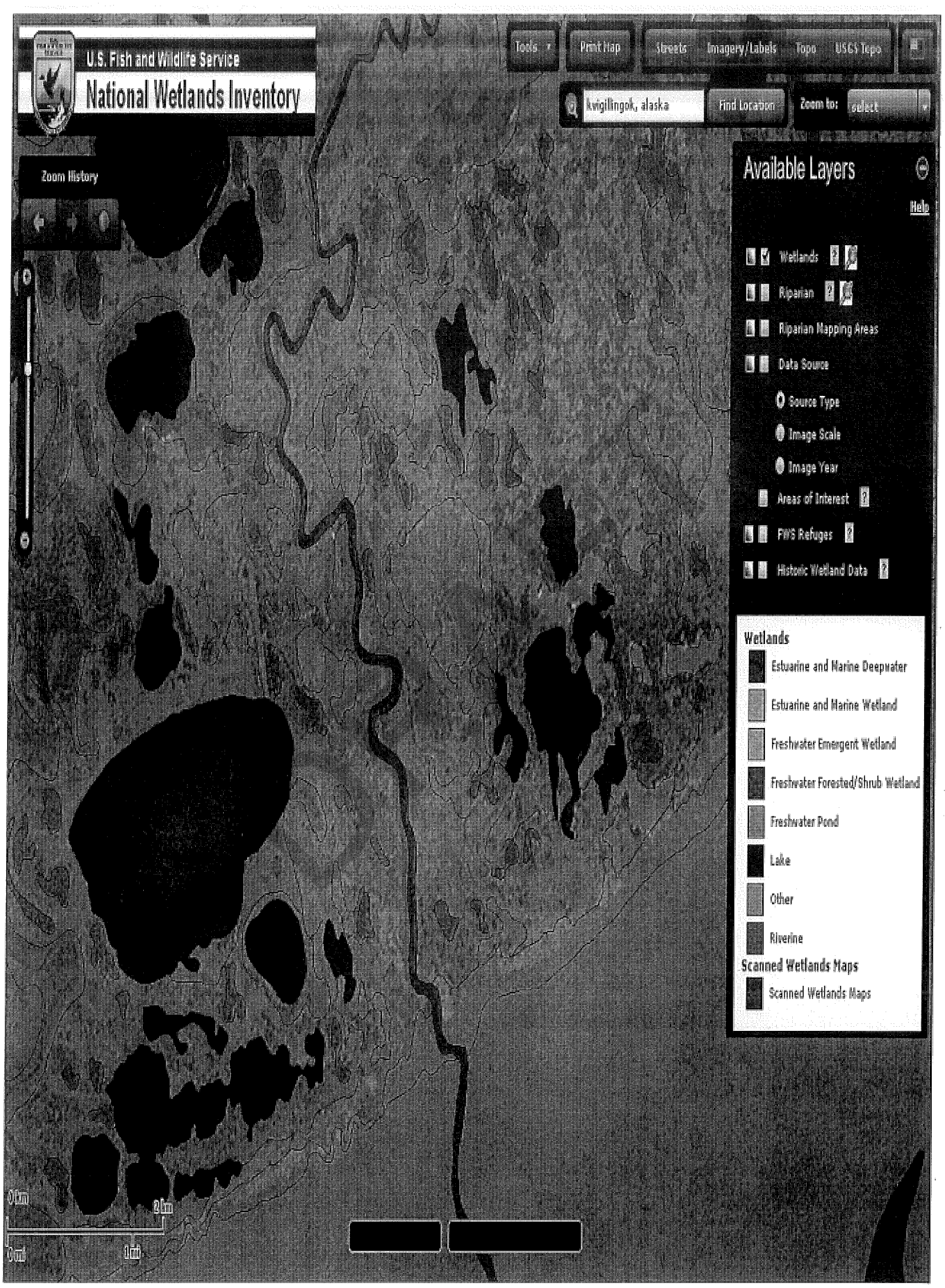
Home

Spill Search Results

Click row for more info. Click column heading to sort.

New Search

Date/Time	Spill Name	Address
2/20/1997	KWIGILLINGOK DAY TANK school	no address
9/10/1999	KWIG WASHETERIA 9/10/99 ✓ sheet #2	Kwigillingok
7/24/2000	KWIGILLINGOK ARMORY ✓	no address
2/7/2003	Kwigillingok High School ✓ sheet #2	no address
6/21/2003 12:00:00 PM	Kiunya Diesel	no address
3/1/2005	Julie Cook HHO Spill	Kwigillingok
3/6/2005	Kwigillingok Diesel	no address
6/15/2009	Kwigillingok Manchunk Residence ✓ sheet #2	Lot 2, Block 2 Naruyatalik
12/21/2011 10:30:00 AM	Yute Air Kwigillingok ✓ sheet #2	One mile northwest of airport runway 33
8/6/2012 12:00:00 PM	Kwigillingok Surface Water Spill	no address


U.S. Fish and Wildlife Service
National Wetlands Inventory
Tools
Print Map
Streets
Imagery/Labels
Topo
USGS Topo
kwigillingok, alaska
Find Location
Zoom to:
Zoom History
Available Layers
Help
Wetlands
Riparian
Riparian Mapping Areas
Data Source
Source Type
Image Scale
Image Year
Areas of Interest
FWS Refuges
Historic Wetland Data
Wetlands
Estuarine and Marine Deepwater
Estuarine and Marine Wetland
Freshwater Emergent Wetland
Freshwater Forested/Shrub Wetland
Freshwater Pond
Lake
Other
Riverine
Scanned Wetlands Maps
Scanned Wetlands Maps
5 km
2 km
3 mi
1 mi

EPA Region 10 Report: List of TSD Facilities Sorted by Handler Name

State of Alaska

Number of handlers: 6

Handler Name	Handler ID	Location Address	City	Zip Code	TSD Type	Gen Type	Transport	Used Oil
ANCHORAGE MUNICIPALITY - KINCAID PARK	AKR000202952	9401 W RASPBERRY RD	ANCHORAGE	99502	L-----	none	no	no
BP EXPLORATION ALASKA PRUDHOE BAY	AKD000643239	PRUDHOE BAY UNIT	PRUDHOE BAY	99734	---S--	LQG	no	yes
TESORO ALASKA COMPANY, KENAI REFINERY	AKD048679682	54741 TESORO RD	KENAI	99611	L-----	LQG	no	no
US DOD USAF JOINT BASE ELMENDORF-RICHARD	AK8570028649	11735 VANDENBERG AVE	ANCHORAGE	99506	---S--	LQG	no	no
USARMY FT RICHARDSON	AK1210022157	730 QUARTERMASTER ROAD	ANCHORAGE	99505	---S--	none	no	no
USDHS CG BASE SUPPORT UNIT KODIAK	AK9690330742	ANTON LARSON BAY ROAD AND REZA	KODIAK	99619	L--S--	LQG	yes	yes

*** End of Report ***

activity type designators
TSD: L - land disposal ; S - storage ; T - treatment ; I - incinerator ; B - burner/blender ;
Generator: LQG - large quantity generator ; SQG small quantity generator ; CEG - conditionally exempt small quantity generator

Search Page Tips:

Simple Search – Type a simple search in the 'Query' field. Example: 'Noorvik' will find any sites associated with the location of Noorvik.

Advanced Search – Use the Advanced Search Parameters for complex searches. Limit the amount of selections to obtain the best search results. Example: 'Site Status = Active' and 'Region = Bethel'.

Contacts:

Contact the landfill before you go. Confirm they will accept your waste. Landfills can refuse waste.

For specific site questions, contact the DEC Manager listed on the Facility Info screen. Their contact is on our contacts page.

For SWIMS help, please contact us at 907-269-7802.

Query:

kwigillingok

Search

Clear

Limit by type:

All Sites

Advanced Search Parameters +

Results

4 matching sites - Download

Site Name	Manager	Classification	Status	Permit Status	Region
Kwigillingok Former BIA School	Doug Huntman				Bethel
Kwigillingok Kwik Inc. Former Tank Farm	Doug Huntman				Bethel
Kwigillingok Kwik Inc. Fuel Storage	Doug Huntman				Bethel
Kwigillingok Landfill	Doug Huntman	Class III	Active	Expired	Bethel

Search Page Tips:

Simple Search – Type a simple search in the 'Query' field. Example: 'Noorvik' will find any sites associated with the location of Noorvik.

Advanced Search – Use the Advanced Search Parameters for complex searches. Limit the amount of selections to obtain the best search results. Example: 'Site Status = Active' and 'Region = Bethel'.

Contacts:

Contact the landfill before you go. Confirm they will accept your waste. Landfills can refuse waste.

For specific site questions, contact the DEC Manager listed on the Facility Info screen. Their contact is on our contacts page.

For SWIMS help, please contact us at 907-269-7802.

Kwigillingok Landfill

Facility Info | Authorizations | WEAR Info | Contacts

Details

				Updated:	06/19/2013
Name:	Kwigillingok Landfill				
Category:	Non-Municipal	**Classification:**	Class III		
Status:	Active	**Closure Date:**	N/A	**Retired Date:**	N/A

Location

Region:	Bethel	**Location:**	Kwigillingok	**Population:**	317
Latitude:	**59.870809**	**Longitude:**	**-163.122683**		
MTRS	T4, R81W, Section 35, Seward Meridian				
Description:	The Kwigillingok landfill is located roughly half a mile from the village.				

File Details

Manager:	Doug Huntman	**File Location:**	Anchorage	**File Number:**	N/A

on ... type=Beginning+With&city_name=kwigillingok&county_name=&state_code=ak&program_search=2&report=1&page_no=1&output_sql_switch=TRUE&database_type=CERCLIS

Envirofacts

Search Results

CERCLIS

Only CERCLIS facility information was searched to select facilities

<< Return

City Name: kwigillingok
State Abbreviation: ak

Results are based on data extracted on JUL-15-2013

No Results found.

Total Number of Facilities Displayed: 0

Last updated on Thursday, August 15, 2013

CERCLIS Links

- Overview
- Search
- Model
- Law
- CERCLIS Search User Guide
- Contact Us
- Superfund Home

Report an Error

Region 10: the Pacific Northwest

You are here: EPA Home Region 10 Cleanup Page

Alaska Cleanup Sites

These lists attempt to help you find information about any cleanup work ongoing in Alaska. In some cases states are responsible for the information. Please check all lists. Envirofacts Multisystem search for AK may be a starting place.

Leaking Underground Storage Tank (LUST) Sites
Indian Land Leaking Underground Storage Tank (LUST) Sites
Alaska Department of Environmental Conservation LUST sites

Brownfields, Oil, RCRA Corrective Action Superfund Sites
Click on the triangle ▲ near the row heading to re-sort the table. "Type of site" include National Priority List (NPL) and RCRA Corrective Action (RCRA CA) sites. Sites not associated with any particular city will show near the bottom of the list.

State ▲	City ▲	Title ▲	Type of Site ▲
Alaska	Adak	Adak Naval Air Station	NPL
Alaska	Fairbanks	Alaska Battery Enterprises	Deleted NPL
Alaska	Anchorage	Anchorage Terminal Reserve	NPL Equivalent
Alaska	Fairbanks	Arctic Surplus	NPL
Alaska	Deadhorse	BP Alaska GC1-GC2 Gathering Line Discharge	Oil
Alaska	Deadhorse	BP Alaska GC1-GC2 Transmission Pipeline Discharge	Oil
Alaska	Deadhorse	BP Alaska ZPad Produce Water Spill	
Alaska	Deadhorse	BP Prudoe Bay Drill Site 14	Oil
Alaska		Brownfields and Alaska	Brownfields
Alaska	Kenai	Cook Inlet Pipe Line Company's Drift River Terminal Facility	RCRA CA
Alaska	Fairbanks	Eielson Air Force Base	NPL
Alaska	Anchorage	Elmendorf Air Force Base	NPL
Alaska	Anchorage	Fort Richardson (USArmy)	NPL
Alaska	Fort Wainwright	Fort Wainwright	NPL
Alaska	Ketchikan	Ketchikan Pulp Company	NPL Equivalent
Alaska	Anchorage	Kuparuk Flowline Spill DS2M	Oil
Alaska		RCRA Corrective Action Sites in Alaska	RCRA CA
Alaska	Prince of Wales Island	Salt Chuck Mine	NPL
Alaska	Anchorage	Standard Steel & Metals Salvage Yard (USDOT)	Deleted NPL

EPA United States Environmental Protection Agency

Kwigillingok, AK

Select a new Location: How to use this page

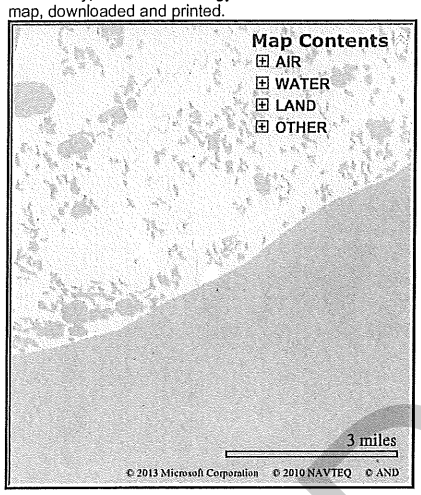
GO

MyReports

Where can I find the latest environmental report for my state and county? MyReports provides a variety of reports for your area.

MyMaps

View maps of EPA and partner data specific to your area of interest. Information on Air, Water, Land, Community, Health and Energy can be visualized on map, downloaded and printed.



More Maps

MyAir

The AQI is an index for reporting daily air quality. It tells you how clean or polluted your air is, and what associated health effects might be a concern for you. Read More

	Current:	N/A
	Forecast:	N/A

YUKON-KOYUKUK (C) County, Alaska

August Average Data (2006 - 2008)

Air Quality

Pollutants	%
Ozone	100.0
PM2.5	0.0
PM10	0.0
SO2	0.0
NO2	0.0
CO	0.0

More info...

August Historical Data (2000-2002)

Air Quality

Pollutants	%
Ozone	0.0
PM2.5	100.0
PM10	0.0
SO2	0.0
NO2	0.0
CO	0.0

More Air

MyWater

The Assessment Total Maximum Daily Load (TMDL) Tracking and Implementation System (ATTAINS) provides information reported by the states to EPA about the conditions in their surface waters. This information is required every two years under Clean Water Act Sections 305(b) and 303(d). Read More

The Water Quality Assessment data are not available at this map scale. Zoom out on the map in MyMaps and click the 'Update Contents on Page' button to view the data.

More Water

MyEnergy

The State Energy Data System (SEDS) is the U.S. Energy Information Administration's (EIA) source for comprehensive State energy statistics. Included are estimates of energy production, consumption, prices, and expenditures broken down by energy source and sector.

State Data **Comparisons**

Alaska: 2010 Energy Production vs. Consumption by Source

Data Source: DOE EIA

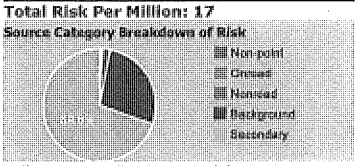
MyHealth

Toxic air pollutants, or air toxics, are those pollutants known or suspected of causing cancer or other serious health problems, such as birth defects. Not all air pollutants are considered - please visit the NATA Web site for more information on the 2002 NATA data.

2005 Cancer Risk Estimates (Inhalation)
Bethel County, Alaska
More info...

Total Risk Per Million: 17

Source Category Breakdown of Risk



Pollutant Contributions to Risk

Pollutant	Percentage
Formaldehyde	60.10
Carbon tetrachloride	16.65
Acetaldehyde	10.77
Benzene	5.51
Arsenic compounds (inorganic, may include arsine)	1.66

click to get the whole list

MyLand

The National Priorities List (NPL) is the list of national priorities among the known releases or threatened releases of hazardous substances, pollutants, or contaminants throughout the United States and its territories. Read More

There are no Proposed, Final or Deleted NPL Sites in this area.

More Land

More Energy

More Health

MyCommunity

Give a shout out! Tell us what's happening that's good for the environment in your area, and we'll post it here!

There are currently no shout outs in this area. Be the first to create a shout out.

More Community

MyEnvironmental Reports

The Environmental Reports site helps people understand environmental conditions in their community. Many communities and states have analyzed environmental conditions near them and have packaged them into reports.

- 2008 Air Quality Monitoring Data Summary
- 2008 Community and Environmental Indicators
- 2008 Oregon Air Quality Data Summaries

More Environmental Reports

Social Networking

Share the information, experience and your findings within MyEnvironment with others.

APPENDIX E

FIELD NOTES

505 JDS to airport for 630 AK Airlines flight to Bethel

1014 JDS and Martin Schwann (EHS) arrive in Kwig
gentleman at landing strip takes us to the Old Church.
I explain that we have been working with Darrel and his assistant Gavin.
the gentleman says that Darrel is back from hunting and will ask him to meet us at the old church
another gentleman brings my sampling gear that was sent out on Friday

1042 Darrel and Gavin arrive at the Old Church
the doors are boarded up so Darrel rips off plywood to allow access
Darrel says he will arrange a community meeting tonight at 700 so I can talk with other villagers
Darrel says that other than the fuel tank, the Old Church property has not been used to store petroleum products or other chemicals
JDS to collect three soil samples and one surface water sample today and will return tomorrow morning if new info is brought to light during the community meeting this evening

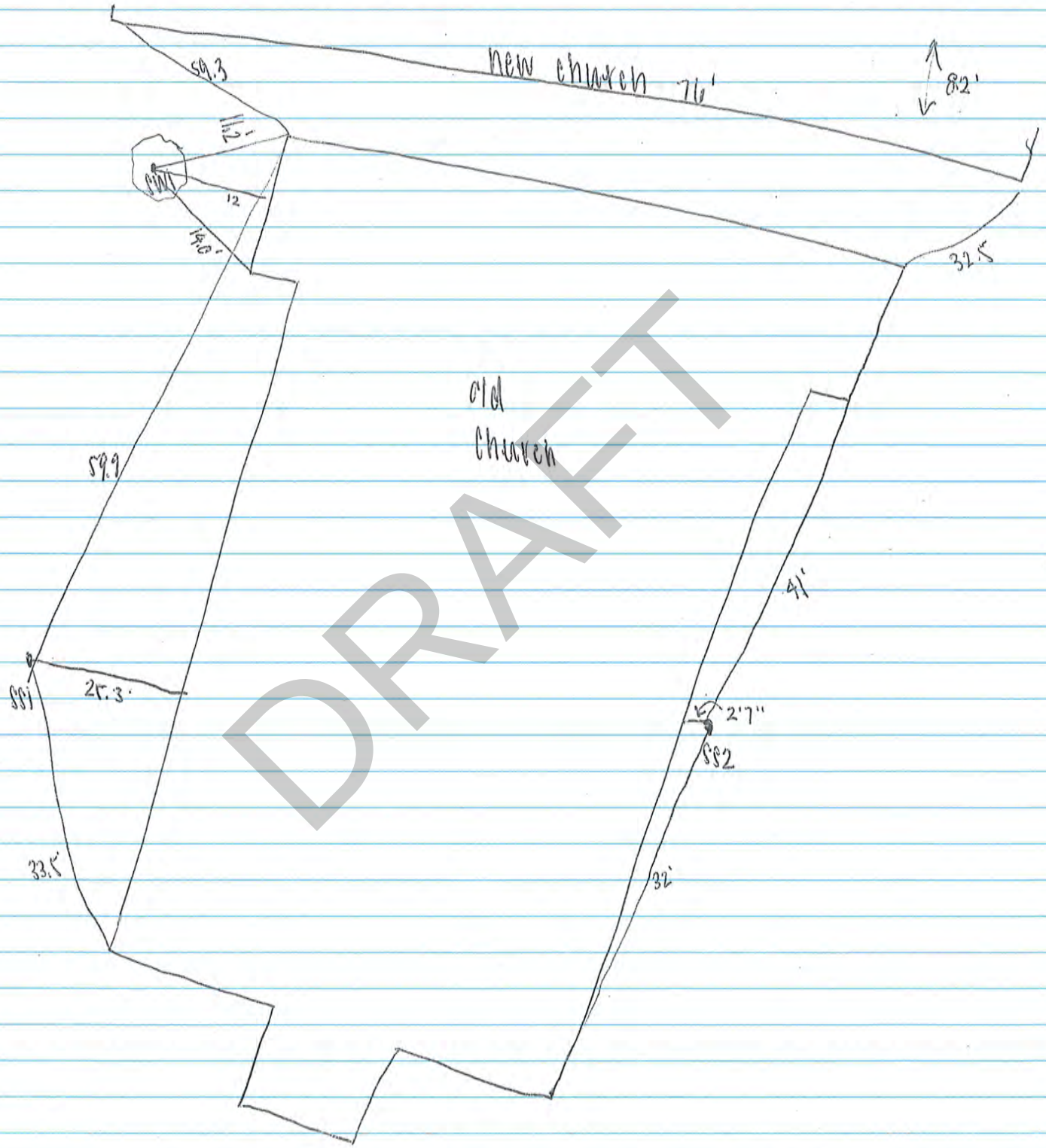
1103 JDS does a walk through of the Property. Photo log follows
1. exterior, N
2 boardwalk, liner, plywood debris, N
3 abandoned structure, E
4. utility pole, conex, tank, debris. E
5. Old Church from boardwalk, NW
6. Old Church side entrance
7. Old Church on Left, new church right, HO tank, drum, W
drum has liquid no HC odor, weathered, on ~~pall~~ wooden planks, vegetation all around
HO tank raised on a stand. 2 1" pipes connect to Old Church
no visible leaks, no HC odors or staining
8 new church HO tanks Old Church HO, construction debris
9. ground around Old Church tank
note the ground is a peat bog - sink ~ 4" with my weight.
does not make sense to collect surface soil sample
10 Old Church looking south
11 tanks, trailer, mobile tank

11 old church exterior . E
12. construction debris. NW
13. old Church exterior. NW
14. old Church exterior . N
15 under south end of old Church - lumber, pipes, misc. building supplies
yes did not crawl under building to affect ground surface
16. utility pole north of old church and adjacent to new church
transformer not labelled with any markers
17. entry of old church
18 entry way - right 2 bags of trash
19. storage closet, low right - floor
5 1-gallon cans of oil-base enamel
20 storage closet left - putty, ice melt, round paper
21 entry - left empty - boot rack
22 storage room right - 7 5-gal buckets of paint (classroom)
23 storage heater on right
24 storage room left paper, magazines, books
25 church looking N
26. Interior looking S
note the room with exposing marks the original construction (1962)
southern portion of building (2 classrooms and 2 storage closets)
were constructed in the late 1970s or early 1980s per books
Also note that the building did not have electricity during site
visit so camera flash is as good as it gets
27. north office - right (east)
28. Sunday school books
29 heating unit - right
30 passage between offices
31 left office
32 heating unit left
33 gas can in west side entrance

217 Calibrate Hanna #1

226 collect surface water sample #1
temp 10.5°C
pH 5.14 su
turbidity 21.48 ntu
specific conductivity 232 uS
ORP 131 mV

note: we could not find a third location to collect a soil sample from that layer not saturated



note, during sampling activities, the weather was cloudy ~ 50°F

1323 calibrate PID #4
0.0 ppm ambient
102.2 ppm cal gas

Note: no place to warm headspace samples (old church building is not heated and it is colder inside than out) so will direct screen instead.

JDS to find 3 locations around old church that aren't a swampy mess.

1338 surface soil sample 1 (photo 34)
debris pile west of old church
9" bgs brown, silty organic mat; roots, moist
PID reading 0.1 ppm
seems unlikely to submit since peaty - will at least come back with something

1354 surface soil sample 2 (photo 36)
unvegetated path adjacent east of old church
14" bgs brown, peat; moist
PID reading 32.7 ppm

Note third sample not collected. all other soil is saturated. there is no other surface water large enough for a sample either - not naturally anyway. If I stomp my feet on the marsh/bog long enough, then water pools but this doesn't seem to be representative. And, the small areas of ponded water I do see (smaller than a dollar bill) the sheen is biogenic in nature.

JDS cleans up field gear, preps for shipping, assists Martin while he does HazMat survey

1730 JDS and Martin to check in at school before community meeting

1915 Gavin arrives at school to tell us its time for the meeting.

Darrel leads the meeting in the native tongue
attendees:
Darrel
Gavin and five others
Andrew Beaver — Darrel's Boss
Charles Swett: elder
Roland Lewis
Harry Frankin — church trustee

3,2-1-17593 Kwilingok PACP September 9, 20

need to clarify at community meeting

water source
treatment plant?
chlorine no water collectors for each house
Fluoride
water wells as back up? no wells as back up

sewer? flush and haul system is the dog house structure
flush and haul - bucket haul to lagoon on their own

energy - wind turbine - for laundromat boiler and excess to thermal
diesel generators? yes airport on left for primary power
in home

fuel storage
who owns? Kwig Power?

landfill
what happens to waste
household
appliances

Yugtun - native tongue

who originally constructed church
Moravian church missionary

church age - 1964/1965 per elders (Roland)
ceiling age 2003 - repairs have been made per elders
321 population of Kwig per Darrel
Property not used to store any chemicals - simply used as a church
celotex - layered in the interior walls is an environmental concern
tribes main concern is asbestos
not sure if vermiculite was used (elders aren't sure)
Snyder - Bethel constructions built old church they may know more
no PCBs in ballasts per Martin
no lead in building materials - just in bookshelf - per Martin
entrance is pulling away from building - safety hazard per Martin
Martin says he saw mold attributable to water damage

goal for building
torn down because they think it contains asbestos
eleven trustees (5 total, Darrel, Tracy and three others) want to demolish
if unsafe
can also be used for youth activities, community gathering space

paint on ceiling - circa 2011
peeling

Martin tells them to seal there roof to stop water damage, not properly sealed

old fluorescent lights installed through grant money

Darrel disappointed in assessment - he thought Brownfield workers were coming to do the assessment. JDS explains that we are subcontractors working for the Brownfield department.

no suspect for friable material - per Martin
no potential immediate danger per Martin

vent for air lock for the furnace

Andrew says one concern he has is leaks from heating oil. JDS explains that I didn't see soil stains since tank is on wooden stand with wood below. I didn't see sheen on surface water between cracks, no the color. No soil sample due to swampy muck

Darrel says there have been a few no spills around tank less than 25 gallons total. No other problems with tank. Tank location has always been the same location

Kwigillingok - "the river" documentary on Kuug

11:50 JDS / Martin back to school for the night. Meeting adjourned

32-1-1793 Nunapitchuk PACP September 16

730 wake up. breakfast, pack belonging
change sample ice
interview school staff for community details
Barb- special Ed Barb whitecomb
Becky ~~Jenny~~ - special Ed
Mike- teacher

910 load 4-wheeler for 930 flight to Bethel
Gavin to call when plane is on its way

1040 Gavin calls to say that our flight has been cancelled
may be able to rebook on a later flight but might make connecting
flight to Anchorage
JDS calls Shayla to give update- left message
JDS works on report while we wait

1341 learn from Gavin that 2 planes are on their way from Bethel
to Kwig

1407 JDS/Martin to Kwig landing strip to wait for the plane(s)
only one seat on passenger, one seat on caravan with JDS field
gear. Due to weight on passenger craft, JDS must go on
passenger craft and Martin will go on the caravan flight
with my cargo

1500 JDS arrives in Bethel after stop in Kong to drop off passengers
wait at ERA office for Martin to arrive with my gear
call Alaska Air to book later flight while I wait. Alaska Airlines
agent says that I have to request the change in person
wait 10 more minutes
ask ERA agent about caravan flight. She said it landed already
but I dont see my stuff or Martin
look all over ERA warehouse, no coolers and no Martin- his
name wasn't on the passenger list

1530 JDS gives up for the time being. ERA says next flight from Kwig at 7
Go to Alaska Air office to change ticket
My gear is at the airlines! but, they don't have a hazmat-
certified employee in the Bethel office so I have to take
coolers to ERA.

load gear in courtesy van to go to ERA cargo.
At ERA cargo I notice that I dont have the small ~~water~~ cooler with the three vools
check 4 pieces of gear with ERA then back to AK Airlines to make sure they dont have the little cooler.
AK Airlines doesnt have water sample.
Back to ERA to find out what happened to little cooler.
ERA agent says it must have been left on the plane- plane has since left to other villages. She (Jody) will contact pilot and have him look for cooler and add it to my Anchorage waybill

1630 back at Alaska Air terminal.
agent says that Martin checked in and walked down street to eat
JS to meet Martin

1700 back to Alaska Air terminal. wait for boarding at 830

1015 land in Anchorage

construction debris

0 100 200

APPROXIMATE SCALE IN FEET

N

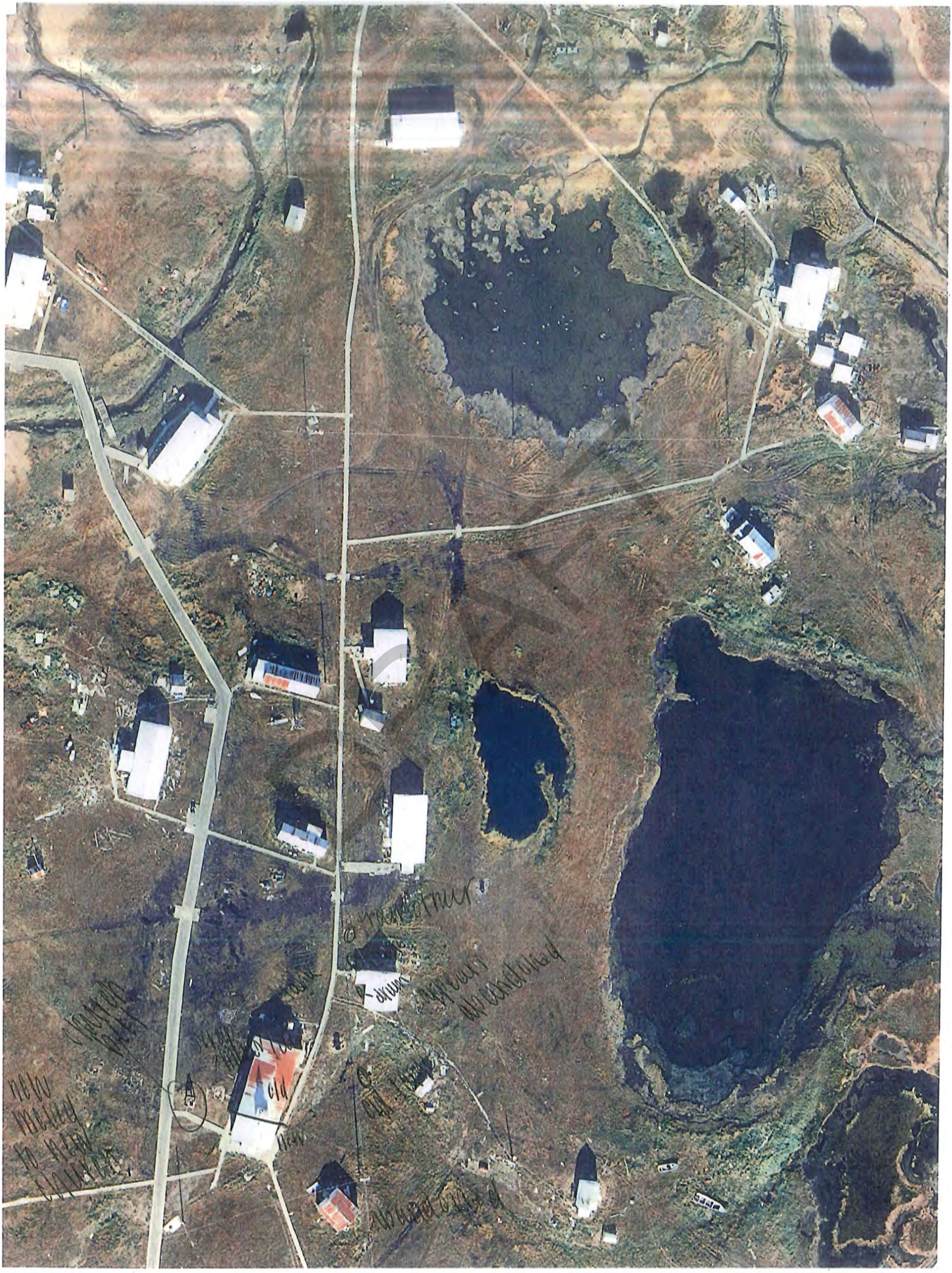
Former Moravian Church
Kwigillingok, Alaska

SITE PLAN

December 2013 32-1-17593

SHANNON & WILSON, INC.
Geotechnical & Environmental Consultants

Fig. 2



APPENDIX F

SITE PHOTOGRAPHS

Photo 1: Exterior of the Old Church; looking north. (September 9, 2103)

Photo 2: Interior of eastern classroom in the Old Church structure. (September 9, 2013)

Former Moravian Church
Kwigillingok, Alaska

PHOTOS 1 AND 2

November 2013 32-1-17593

SHANNON & WILSON, INC.
Geotechnical & Environmental Consultants

Photo 3: Interior of the Old Church. (September 9, 2103)

Photo 4: The two rooms on either side of the altar appeared to have been used for general storage. (September 9, 2013)

Photo 5: Oil-fired forced-air furnaces are located in each of the two storage rooms near the altar. (September 9, 2013)

Photo 6: A 5-gallon container of gasoline was observed in the eastern storage room near the altar. (September 9, 2013)

Former Moravian Church Kwigillingok, Alaska	
PHOTOS 5 AND 6	
November 2013	32-1-17593
SHANNON & WILSON, INC. Geotechnical & Environmental Consultants	F-3

Photo 7: Discarded construction materials stored on the west side of the Old Church building; looking north/northeast. (September 9, 2103)

Photo 8: Additional discarded construction materials stored north of the Old Church building; looking east. (September 9, 2013)

Photo 9: Discarded construction materials stored under the Old Church building. (September 9, 2103)

Photo 10: Felled utility poles are stored west of the Old Church building; looking north/northeast. (September 9, 2013)

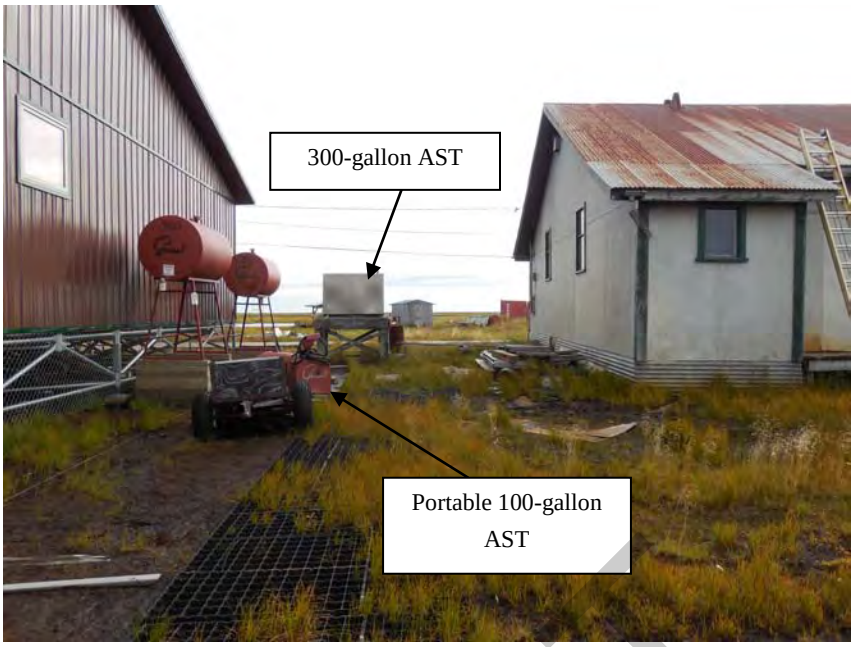


Photo 11: Two ASTs are located north of the Old Church building; looking east. (September 9, 2103)

Photo 12: AST stand, piping, and 55-gallon drum located north of the Old Church building; looking north/northeast. (September 9, 2013)

APPENDIX G

EHS-ALASKA HAZARDOUS MATERIALS INSPECTION REPORT

HAZARDOUS MATERIALS SURVEY REPORT

FORMER MORAVIAN CHURCH PROPERTY ASSESSMENT & CLEANUP PLAN

KWIGILLINGOK, ALASKA

Surveyed
September 9, 2013

Report Date
September 30, 2013

EHS-ALASKA, INC.
ENGINEERING, HEALTH & SAFETY CONSULTANTS
11901 BUSINESS BLVD., SUITE 208
EAGLE RIVER, ALASKA 99577-7701

HAZARDOUS MATERIALS SURVEY REPORT
FORMER MORAVIAN CHURCH PROPERTY ASSESSMENT & CLEANUP PLAN

ANCHORAGE, ALASKA

TABLE OF CONTENTS

APPENDICES

HAZARDOUS MATERIALS SURVEY REPORT

FORMER MORAVIAN CHURCH PROPERTY ASSESSMENT & CLEANUP PLAN

KWIGILLINGOK, ALASKA

OVERVIEW

The former Moravian Church, located in Kwigillingok, Alaska, was surveyed for the presence of asbestos-containing materials (ACM), and other potentially hazardous materials as a part of the design services for the Former Moravian Church Property Assessment & Cleanup Plan. The survey also provided a "good faith" inspection for hazardous materials that may be disturbed during the construction. The proposed work includes the disturbance, demolition, removal and disposal of lead-containing paints and/or lead-containing materials that is incidental to the renovation and remodeling project. Mr. Martin K. Schwan, of EHS-Alaska, Inc. (EHS-Alaska) conducted the inspections in September 2013.

A. GENERALIZED REQUIREMENTS FOR HAZARDOUS MATERIALS

Potentially hazardous materials have been identified in the former Moravian Church that will be affected by the proposed demolition. Those materials include asbestos, lead, and radioactive materials. Other potentially hazardous materials, exterior to the building, such as contamination from underground fuel tanks may be present, but are not part of this report.

Buildings or portions of buildings that were constructed prior to 1978 which are residences, or contain day care facilities, kindergarten classes or other activities frequently visited by children under 6 years of age are classified as *child occupied facilities*. All work classified as a "renovation" or disturbing more than 6 square feet of lead-based painted surfaces per room for interior activities or more than 20 square feet for exterior activities in child occupied facilities must comply with the requirements of 40 CFR 745. This building could potentially be classified as a *child occupied facility* and it is the Owner's/Contractor's responsibility to insure the requirements of 40 CFR 745 are met. See lead testing results for locations of lead-based paints present in the project areas.

Only the materials that will be directly affected by this project are required to be removed. It is the Owner's/Contractors responsibility to take this baseline data to coordinate and fully develop a hazardous materials removal design that will identify the presence, locations and quantities of asbestos and/or other hazardous materials that will be affected by ant future project. The removal and disposal of potentially hazardous materials are highly regulated, and it is anticipated that removal and disposal of asbestos, lead and chemical hazards will be conducted by a subcontractor to the general contractor who is qualified for such removal. It is anticipated that the general contractor and other trades will be able to conduct their work using engineering controls and work practices to control worker exposure and to keep airborne contaminants out of occupied areas of the building.

Settled and concealed dusts in areas not subject to routine cleaning are present throughout the building, including the roof, and inside and on top of architectural, mechanical, electrical, and structural elements, and those dusts are assumed to contain regulated air contaminants. This should not be read to imply that there is an existing hazard to building occupants (normal occupants of the building as opposed to construction workers working in the affected areas). However, depending on the specific work items involved and on the means and methods employed when working in the affected areas, construction workers could be exposed to regulated air contaminants from those dusts in excess of the OSHA Permissible Exposure Limits (PELs).

The settled and concealed dusts were examined by an EPA Certified Building Inspector but were not sampled. The inspector determined that the dusts are not "asbestos debris" from an asbestos-containing building material (ACBM). Based on similar sampling from similar buildings, the inspector also determined

that the dusts are unlikely to contain more than one percent (1%) asbestos by weight, and therefore are not an asbestos-containing material (ACM). Reference 40 CFR 763.83.

"Awareness training" (typically 2 hours) and possibly respiratory protection will be required for all Contractor Personnel who will be disturbing the dusts. The extent of the training and protective measures will depend upon the airborne concentrations measured during air monitoring of the contractors work force, which depends on the means and methods employed to control the dusts. The air monitoring may be discontinued following a "negative exposure assessment" showing that worker exposures are below the OSHA permissible exposure limits for the type of work and means and methods employed. Previous air monitoring from similar jobs with similar conditions may be used as historical data to establish a "negative exposure assessment".

B. BUILDING DESCRIPTION

The former Moravian Church was originally constructed in 1966 and used as a gathering place to hold community meetings, is approximately 1680 square feet. The village elders believe the approximately 600 square foot addition to the south side was constructed in the late 1970's. The original portion of the building consists of a main room with eight rows of pews on each side of a center aisle for the congregation located on the south two-thirds, and a raised floor at the north one-third for the priest. The very north end has a sanctuary separated from the main room by non-structural walls. The 1970's addition included two classrooms with windows looking into the main room and a 8'x10' arctic entrance with doors on both the east and west sides. The low roof of the arctic entrance was not flashed along the wall of the south wall of the addition and extensive water damage was observed both at the roof and at the ledger.

The original portion of the building has interior partitions that are primarily of framed construction with one or two layers of fiberboard. The interior walls of the addition have painted wood paneling attached to wood members.

The exterior walls of the original construction are unpainted, exposed cement asbestos board known as Transite, with underlayment and fiber board underneath attached to wood framing. The transite was attached with nails and no sealants were visible at the seams. The exterior walls of the addition are T1-11. The hip roof was metal with an underlayment on the original portion over ¾" roof sheathing; the addition did not have an underlayment. The trusses/rafters are wood and the attic was insulated but it did not appear to be vented. The ridge of the roof was straight and showed no signs of failure.

The ceiling in the original construction was gypsum wallboard and painted plywood in the addition.
Floor finishes were painted plywood over wood joist and the whole structure is supported by cribbing. The floor of the building was fairly level but there was some delamination of the plywood floor observed in the south end of the main room in the original portion.

The building was heated by two oil fired heaters, located on each side of the sanctuary, conveying circulated heat through a single vent, and a single oil fired heater located in the east side classroom. No heating or domestic water piping was found and no restroom facilities were located in the building.

C. SAMPLING AND ANALYSIS

1. Asbestos-Containing Materials

The surveys included sampling of suspect ACM materials that had not been sampled in prior asbestos surveys, or samples of materials where previous sampling had been inconsistent. The samples were analyzed for the presence of asbestos by polarized light microscopy (PLM), the method of analysis recommended by the U.S. Environmental Protection Agency (EPA) to determine the composition of suspected asbestos-containing materials (EPA method 600/M4-82-020). Only materials containing more than 1% total asbestos were classified as "asbestos-containing" based on EPA and the Occupational Safety and Health Administration (OSHA) criteria. Samples that were analyzed to have less than 10% asbestos

were "point-counted" by the laboratory for more accuracy. Samples that are listed as having a "Trace by Point Count" had asbestos fibers found in the material, but the fibers were not present at the counting grids. Table 1 in Part D below contains a summary list of the asbestos bulk samples and the applicable results. Field survey data sheets and laboratory reports of the bulk samples are included in Appendix A. Drawings showing sample locations are included as Appendix D.

2. Lead-Containing Materials

Nearly all surfaces in the building were coated with paint and most surfaces had been repainted. EHS-Alaska tested paint throughout the affected areas of the building using a XLp300A X-Ray Fluorescence (XRF) lead paint analyzer (Serial # 81530 with software version 5.2F). Refer to the Lead Paint Screening Table in Appendix C that identifies the surfaces tested, and the results. All surfaces affected by this project may not have been tested and therefore additional sampling may be required to refute the presence of lead-based paints in child occupied facilities regulated by 40 CFR 745. The Paint Test Locations are shown in Appendix D.

EPA and the Department of Housing and Urban Development (HUD) have defined lead-based paint as any paint or other surface coating that contains lead equal to or in excess of 1.0 milligram per square centimeter (mg/cm^2) or 0.5 percent by weight. XRF results are classified as positive (lead is present at 1.0 mg/cm^2 or greater), negative (less than 1.0 mg/cm^2 of lead was present) or inconclusive (the XRF could not make a conclusive positive or negative determination). Tests that were invalid due to operator error are shown as void tests.

A Performance Characteristic Sheet (PCS) for the NITON XLp300A is available upon request. This PCS data provides supplemental information to be used in conjunction with Chapter 7 of the "HUD Guidelines". Performance parameters provided in the PCS are applicable when operating the instrument using the manufacturer's instructions and the procedures described in Chapter 7 of the "HUD Guidelines". The instrument was operated in accordance with manufacturer's instructions and Chapter 7 of the HUD Guidelines. No substrate correction is required for this instrument. There is no inconclusive classification for this instrument when using the 1.0 mg/cm^2 threshold.

Toxicity Characteristics Leaching Procedure Testing
One composite sample of representative portions of the various materials from the Building was collected and analyzed for lead content in accordance with the EPA Toxicity Characteristic Leaching Procedure.

The composite sample contained approximately 20 sub-samples of appropriate proportions of building materials expected to be part of the building waste stream. The proportionate number of sub-samples of each building components were determined by estimating the area of each component and calculating a ratio from the total areas of all components. Core sub-samples were obtained from each material sampled using a hole saw drill for soft materials and a hammer drill or sledgehammer for hard materials such as concrete masonry units and concrete. Chain of custody sheets and lab results are included in Appendix C.

The sample was thoroughly mixed/homogenized by the laboratory before preparing it for analysis. Solid samples were extracted using EPA method 1311 and the samples were analyzed using EPA Method 7420. The composite TCLP sample was analyzed by International Asbestos Testing Laboratories (IATL), Mt. Laurel, New Jersey. IATL is an American Industrial Hygiene Association (AIHA) accredited laboratory.

D. SURVEY RESULTS

1. Asbestos-Containing Materials

Asbestos field survey data sheets and laboratory reports are included as Appendix A. Refer to Appendix D for sample locations. The following TABLE 1A lists the samples taken in September 2013, and the results of the laboratory analysis.

TABLE 1A

SAMPLE NUMBER	*MATERIAL*	*LOCATION*	*ASBESTOS CONTENT*
KWI1309-A01	Black fibrous, thin (~1/16") roofing underlayment	Roof-west side at north entrance between metal roofing and ¾" plywood. Photo 45.	None Detected
KWI1309-A02	**Gray ¼" Cement asbestos board exterior siding.**	**West exterior wall covering on original portion of building. Photo 53.**	**20% Chrysotile**
KWI1309-A03	Black fibrous, thin (~1/16") siding underlayment.	West exterior wall between fiberboard and CAB, north end, lower wall at metal skirting. Photo 55.	None Detected
KWI1309-A04	**Thin layer of white window sealant.**	**West side, middle window between glass and wood casing. Photo 62.**	**2.2% Chrysotile**
KWI1309-A05	**Gray ¼" Cement asbestos board exterior siding.**	**East exterior wall covering on original portion of building near addition. Photo 121.**	**20% Chrysotile**
KWI1309-A06	Black fibrous, thin (~1/16") roofing underlayment.	East side of roof at original portion of building near addition. Photo 126.	None Detected
KWI1309-A07	**Gray ¼" Cement asbestos board exterior siding.**	**North exterior wall, lower wall at metal skirting. Photo 141.**	**20% Chrysotile**
KWI1309-A08	**Black fibrous, thin (~1/16") siding underlayment.**	**North exterior wall between fiberboard and CAB, lower wall at metal skirting. Photo 141.**	**Trace Chrysotile**
KWI1309-A09	**White with green paint window sealant.**	**North side, east window between glass and casing. Photo 143.**	**2.3% Chrysotile**
KWI1309-A10	Tan carpet mastic.	Red carpet to plywood mastic at raised platform in main room. Photo 251.	None Detected
KWI1309-A11	White gypsum wallboard.	Main room ceiling at east wall mounted speaker. Photo 260.	None Detected
KWI1309-A12	Painted white, white joint compound.	Main room ceiling at curtain near east wall mounted speaker. Photo 261.	None Detected
KWI1309-A13	Brown fiber board.	Main room under north window on east wall behind paneling. Photo 262	None Detected
KWI1309-A14	White gypsum wallboard.	East vestibule behind heater behind heat shield. Photo 263.	None Detected
KWI1309-A15	Tan carpet mastic.	Red carpet to plywood mastic at step from east vestibule to main room. Photo 264.	None Detected

SAMPLE NUMBER	MATERIAL	LOCATION	ASBESTOS CONTENT
KWI1309-A16	**White window sealant.**	**North window in east vestibule between glass and window trim. Photo 273.**	**1.6% Chrysotile**
KWI1309-A17	**Black, hard "glass-like" tar.**	**Attic side of north roof penetration from heater between plywood and metal roofing. Photo 278.**	**10% Chrysotile**
KWI1309-A18	White gypsum wallboard with visible fibers on ceiling.	South end of main room at water damage. Photo 286.	None Detected
KWI1309-A19	**Black, hard "glass-like" tar.**	**Attic side of south roof penetration from heater between plywood and metal roofing. Photo 292.**	**2.0% Chrysotile**
KWI1309-A20	Painted white, white joint compound.	Main room ceiling at curtain near west wall mounted speaker. Photo 322.	None Detected
KWI1309-A21	Black paper and darker fiberboard.	East interior wall at west side, north entrance between a lighter brown fiberboard ~1/2" thick and a darker brown fiberboard ~5/8" thick. Photo 355.	None Detected
The testing method used (polarized light microscopy [PLM]) is not consistently reliable in detecting asbestos in floor coverings and similar non-friable organically bound materials. Before this material can be considered or treated as non-asbestos containing, confirmation should be made by quantitative transmission electron microscopy (TEM).			

The following materials have been found to contain asbestos in this surveys.

1. Cement asbestos board (CAB) on the exterior wall of the original construction.
2. White window glazing.
3. Roof tars at roof penetrations.
4. Black exterior wall underlayment in the original construction.
5. Black roof wall underlayment in the original construction (assumed asbestos).
6. Sealants and gaskets and firebox insulation of furnaces (assumed asbestos).

The effects of the following asbestos-containing materials on the proposed renovation (assumed to be building demolition) are discussed below. If the choice is made to renovate the building, these effects may change.

Cement Asbestos Board
The exterior walls of the original construction have CAB panels which are mechanically fastened with nails but there were no seam sealants visible. The cement asbestos board will be removed by this project.

Window Glazing Compound
Windows throughout the project buildings contained an asbestos-containing glazing compound. This material was visible around the glass of windows. An asbestos-containing sealant is assumed to be present behind molding on fixed window panes. The sealants and glazing compounds will be removed by this project.

Penetration Sealants
Sealants on the heater exhaust stacks at the roof penetrations were an asbestos-containing. The sealants will be removed by this project.

Wall Underlayment
The CAB underlayment on the original portion of the building contained trace amounts of asbestos. The underlayment will be removed by this project.

Roofing Underlayment
The metal roof over the original portion of the building has an underlayment that should be assumed to contain asbestos. The underlayment will be removed by this project.

Furnace sealants, gaskets, and firebox insulation
Sealants and gaskets and firebox insulation of furnaces should be assumed to contain asbestos. The furnaces will be removed by this project.

2. Asbestos in Dusts

The settled and concealed dusts were examined by an EPA Certified Building Inspector but no samples for asbestos in dusts were authorized for this project. Based on their visual inspection and experience from similar buildings, the inspector determined that the typical settled and concealed dusts are not "asbestos debris" from an asbestos-containing building material (ACBM). Based on similar sampling from similar buildings, the inspector also determined that the dusts are unlikely to contain more than one percent (1%) asbestos by weight, and therefore are not an asbestos-containing material (ACM).

3. Lead-Containing Materials

Lead-Testing
EHS-Alaska tested paint and other materials throughout the affected areas of the building using a NITON XRF lead paint analyzer. Lead in paints tested varied from a trace amount to 9.0 mg/cm^2. Refer to the Lead Paint Screening Table in Appendix C that identifies the surfaces tested, and the results. The Paint Test Locations are shown in the Drawings in Appendix D.

Paints
There were varying lead contents found in the paints, based on what surfaces they are on, with most surfaces containing little lead (but are still classified as lead-containing materials by OSHA). The highest levels of lead was found on a green cabinet, with lower levels on walls, floors, and other painted surfaces; and lowest levels on pre-finished materials.

Lead based paints (paint containing more than 1.0 mg/cm^2 of lead) were only identified on a green cabinet located in the west sanctuary. Lead was detected at very low levels in most of the painted floor, wall and ceiling surfaces. Low levels of lead found by XRF testing does not mean that the paints are free of lead, the paints may contain lead. However, these paints may not present a hazard to occupants or workers performing renovation or demolition if lead-safe work practices are followed.

Demolition Waste
EHS-Alaska, Inc. took representative samples of the various construction materials from the Building and had one composite sample analyzed for leachable lead content by means of the EPA Toxicity Characteristic Leaching Procedure (TCLP). The chain of custody sheets and lab results are included in Appendix B.

The result of the TCLP test for this building showed a concentration of 0.40 mg/L of lead. The result is well below the allowable EPA concentration of 5.0 mg/L and indicates that the debris generated from the demolition of these buildings are likely to be able to be disposed of as non-hazardous construction debris and would not require special handling as a hazardous waste with respect to lead. Since the entire building may not be demolished as one waste stream, additional TCLP samples corresponding to the waste stream(s) produced by the Contractor's means and methods are required.

The following TABLE 4 lists the TCLP tests sample taken in September 2013 in the building and the results of the laboratory analysis. TCLP field survey data sheets and laboratory reports are included as Appendix B, locations of the sub-samples are not shown, as they were scattered throughout the buildings.

TABLE 4

SAMPLE NUMBER	*MATERIAL*	*LOCATION*	*LEAD CONTENT, mg/l*
KWI1309-TCLP-01	Assorted construction materials	Various locations in Church	0.40 mg/l

4. PCB-Containing Materials

Light Ballasts
Older fluorescent lights typically have PCB-containing ballasts. PCB-containing ballasts in fluorescent lights were banned in 1978, but manufacturers were allowed to use up existing stocks, and lights may have been reused from other facilities. The survey included examination of what were considered to be representative light fixtures, but not all fixtures were able to be accessed. All lights shall be inspected during removal. Unless ballasts were marked "No PCBs," they must be assumed to contain PCBs and must be disposed of as a hazardous waste when removed for disposal. Only fluorescent light fixtures marked "No PCBs" were found in the building.

Older HID lights may have PCB-containing ballasts. No HID lights fixtures were present inside or outside of the building.

5. Mercury-Containing Materials

Fluorescent Lamps
Fluorescent lamps use mercury to excite the phosphor crystals that coat the inside of the lamp. These lamps contain from 15 to 48 milligrams of mercury depending on their age and manufacturer. Fluorescent light fixtures will be removed if the building is demolished.

Thermostats
Older thermostats or other electrical switches that may contain mercury were noted in the building.

High Intensity Discharge Lamps
High Intensity Discharge (HID) lamps use mercury and sodium vapors in the lamp, and also typically have lead-containing solders at the bases. These lamps contain varying amounts of mercury depending on their age and manufacturer. No HID light fixtures were present inside or outside of the building.

All mercury-containing items being removed by this project are required to be disposed of as hazardous waste or recycled.

6. Other Hazardous Materials

Household Chemicals
Common household chemicals, including quantities of construction repair materials, paint products, cleaners, sealants and adhesives were present in the building. These loose containers were present in the storage closet and in the east classroom and may be relocated by the owner. These chemicals may also be utilized or recycled by the contractor, if they meet project specifications.

Soil Contamination
The scope of work for EHS-Alaska, Inc. did not include investigation of soils for petroleum or other contaminations.

E. REGULATORY CONSTRAINTS

1. Asbestos-Containing Materials

The Federal Occupational Safety and Health Administration (29 CFR 1926.1101) and the State of Alaska Department of Labor (8 AAC 61) have promulgated regulations requiring testing for airborne asbestos fibers; setting allowable exposure limits for workers potentially exposed to airborne asbestos fibers; establishing contamination controls, work practices, and medical surveillance; and setting worker certification and protection requirements. These regulations apply to all workplace activities involving asbestos-containing materials.

The EPA regulations, 40 CFR 61, National Emission Standards for Hazardous Air Pollutants (NESHAP), established procedures for handling ACM during removal and disposal. The NESHAP regulations address three categories of ACM in a building being demolished:

1. Friable, or regulated ACM (RACM) which must be removed from a building before the building is demolished
2. Category I non-friable ACM (resilient flooring, asphalt roofing products, packing and gaskets)
3. Category II non-friable ACM (non-friable ACM other than Category I ACM).

If allowed by the disposal site, the EPA allows Category I and II non-friable ACM to remain in a building during demolition if: (1) Category I ACM is not in poor condition and is not friable and (2) the probability is low that Category II ACM will become crumbled, pulverized or reduced to powder during demolition. The condition of the ACM and method of demolition will generally determine if Category I and II non-friable ACM may be left in the building during demolition. This EPA standard also requires that no visible emissions be generated from the ACM during removal and transportation and does not allow intentional burning of any building containing ACM.

This regulation requires an owner (or the owner's contractor) to notify the EPA of asbestos removal operations and to establish responsibility for the removal, transportation, and disposal of asbestos-containing materials.

The disposal of asbestos waste is regulated by the EPA, the Alaska Department of Environmental Conservation, and the disposal site operator. Wastes being transported to the disposal site must be sealed in leak tight containers prior to disposal and must be accompanied by disposal permits and waste manifests.

2. Dusts with Asbestos

Settled and concealed dusts above ceilings, and at other areas that are not routinely cleaned (such as inside ducts and at roofs, etc.) are assumed to have measurable concentrations of asbestos. Based on sampling of similar settled and concealed dusts at similar buildings, those dusts are assumed to contain less than 1 percent asbestos. Normal settled and concealed dusts are distinct and treated differently from debris resulting from damaged asbestos-containing materials.

Background levels of asbestos in dusts for a particular location will depend on many factors, including whether or not asbestos occurs naturally in soils in the area.

Likely sources of asbestos in dusts include natural occurrences of asbestos

The types of asbestos found in settled and concealed dusts often contain actinolite, anthophylite, and tremolite forms of asbestos which are not commonly found in bulk samples taken of materials from buildings. Those forms of asbestos may come from natural occurrences of asbestos in an outside source, such as rock or ore deposits, which appear to be common in Alaska.

Because the type of disturbance, concentration of asbestos in the dusts, cohesiveness of the dusts and

room sizes will change, the airborne asbestos levels expected during the project will depend on the contractor's means and methods of conducting the work. The mere presence of asbestos in the dusts does not necessarily imply that a "hazard" exists which would require the use of specially trained workers to "abate" the "hazard". All dusts will likely be required to be removed from the areas where asbestos-containing materials are being removed (abatement areas) in order to achieve clearances. The dusts in the other areas are to be controlled so as to limit worker exposures and prevent contamination of occupied areas of the building.

There is no established correlation between settled or adhered dusts with measureable concentrations of asbestos and airborne concentrations. The definition in the OSHA regulations of asbestos-containing materials as those materials that contain 1 percent or more asbestos by weight, apply to cohesive materials and not to dusts. The OSHA regulations are essentially "performance based", if workers are exposed above the permissible exposure limits, then all of the requirements in the regulations become effective.

3. Lead-Containing Materials

The EPA Standard 40 CFR 745, Lead-Base Paint Poisoning Prevention in Certain Residential Structures, defines lead–based paint hazards and regulates lead based paint activities in target housing and child-occupied facilities. The requirements of this regulation include training certification, pre-work notifications, work practice standards and record keeping. Areas typically classified as child occupied facilities may include but are not limited to: day care facilities, preschools, kindergarten classrooms, restrooms, multipurpose rooms, cafeterias, gyms, libraries and other areas routinely used by children under 6 years of age. New training requirements for Firms (Contractors) and Renovators (Workers) became effective on April 22, 2010. Depending on the eventual use, the building may not be classified as a child occupied facility, therefore the requirements of 40 CFR 745 may not apply.

The requirements apply to renovation, repair or painting activities when at least six square feet of lead-based paint is disturbed in a room or more than 20 square feet of lead-based paint is disturbed on the exterior. It is anticipated that only small amounts of lead based paint (if present) will be required to be disturbed for this renovation work, and the work would be classified as minor repair and maintenance activities, therefore most requirements of 40 CFR 745 do not apply.

Federal OSHA (29 CFR 1926.62) and the State of Alaska (8 AAC Chapter 61) have promulgated regulations that apply to all construction work where employees may be exposed to lead. The disturbance of any surfaces painted with lead-containing paint requires lead-trained personnel, personnel protective procedures, and air monitoring until exposure levels can be determined. If initial monitoring verifies that the work practices being used are not exposing workers, monitoring and protection procedures may be relaxed. Experience has shown that some paints in most buildings will contain low concentrations of lead and disturbance of those paints are still regulated under the OSHA lead standard, 29 CFR 1926.62. Low levels of lead found by XRF testing does not mean that the paints are free of lead, the paints may contain lead, and OSHA regulations apply anytime measurable amounts of lead are present in paints.

Settled and concealed dust above ceilings, and at other areas that are not routinely cleaned are assumed to have measurable concentrations of lead. Background levels of lead in dusts for a particular location will depend on many factors, including whether or not engines utilizing leaded gasoline were run in or near a building, and upon the age of the building, and thus the age of the dusts. Because the type of disturbance, quantity of lead dusts, cohesiveness of the dusts and room sizes will change, the airborne lead levels expected during the project will depend on the contractor's means and methods of conducting the work. The mere presence of lead in the dusts does not necessarily imply that a "hazard" exists which would require the use of specially trained workers to "abate" the "hazard".

There is no established correlation between settled or adhered lead dust concentrations and airborne concentrations. The OSHA regulations are essentially "performance based", if workers are exposed above the permissible exposure limits, then all of the requirements in the regulations become effective.

The EPA requires that actual construction or demolition debris that contains lead or lead-containing paint or other heavy metals be tested using the TCLP to determine if the waste must be treated as hazardous waste. All federal, state and local standards regulating lead and lead-containing wastes are required to be followed during the renovation or demolition of portions of this building.

There are no hazardous waste landfills in Alaska and the lead-containing wastes (if shown to be hazardous waste) will have to be packaged for shipping and disposal. This report assumes that disposal will take place in Seattle or elsewhere in the Pacific Northwest.

4. PCB-Containing Materials

No PCB-containing materials were found by this survey. If any PCB-containing materials are discovered and if they will be removed, the EPA has promulgated regulations (40 CFR Part 761) that cover the proper handling and disposal of PCB-containing equipment. All construction workers who are required to remove or handle PCB-containing or PCB-contaminated equipment or to transport or dispose of PCB wastes shall be trained and certified as required by the U.S. Department of Labor (29 CFR 1910.120) and the State of Alaska Department of Labor (8 AAC 61).

5. Mercury-Containing Materials

Thermostats and mercury-containing lamps are classified by the EPA as Universal Wastes. The EPA encourages that all Universal Wastes be recycled in accordance with 40 CFR 273. Mercury and mercury-containing products are considered hazardous waste if TCLP testing of the waste for mercury confirms the mercury content to be greater than the EPA criteria of 0.2 mg/l.

6. Other Hazardous Materials

Chemical Hazards
The EPA has promulgated regulations (40 CFR Parts 260 to 299 amongst others) that cover the proper handling and disposal of waste chemicals, including listed wastes, which are ignitable, corrosive, reactive, toxic, or an acute hazardous waste or wastes that exhibit the characteristics of toxicity. All construction workers who are required to remove or handle chemical hazards or to transport or dispose of chemical wastes shall be trained and certified as required by the U.S. Department of Labor (29 CFR 1910.120) and the State of Alaska Department of Labor (8 AAC 61). Transportation of chemical hazards are regulated by Department of Transportation regulations under 49 CFR Parts 171 to 178 amongst others.

F. RECOMMENDATIONS

1. Asbestos-Containing Materials

The asbestos-containing materials identified in the building are typically in intact condition and are classified as non-friable ACM. All asbestos-containing materials that will be disturbed by the planned renovation work are required to be removed by trained asbestos workers.

2. Dusts with Asbestos

Dusts with measurable concentrations of asbestos are assumed to be present, but are not classified as asbestos-containing materials, or as debris from asbestos-containing materials. Workers disturbing dusts are required to have hazard communication training in accordance with OSHA regulations, but are not required to receive 40 hours of training, which is required for asbestos workers. At least an initial exposure assessment or data from previous air monitoring is required to show that the contractor's chosen means and methods of controlling worker exposure to airborne contaminants below the OSHA permissible exposure limits (PELs) is required.

3. Lead-Containing Materials

Federal OSHA (29 CFR 1926.62) and the State of Alaska (8 AAC Chapter 61) have promulgated regulations that apply to all construction work where employees may be exposed to lead, including disturbance of paints with low concentrations of lead.

The EPA Standard 40 CFR 745, Lead-Base Paint Poisoning Prevention in Certain Residential Structures, defines lead–based paint hazards and regulates lead based paint activities in target housing and child-occupied facilities. Contractors disturbing lead-based paints in target housing and child occupied facilities must comply with 40 CFR 745.

Worker exposure to lead may be able to be controlled below the OSHA permissible exposure limit if proper engineering controls and procedures are used during renovation. Lead is a potentially hazardous waste and the EPA requires that all wastes that contains lead be tested to determine if they must be treated as hazardous waste. A TCLP test of the waste stream(s) produced by the Contractor's means and methods are required to be performed to determine if those wastes will be hazardous or non-hazardous.

4. PCB-Containing Materials

IF any PCB-containing ballasts are discovered, and they are removed or replaced, they will need to be removed, handled, packaged and disposed of in accordance with all regulations.

5. Mercury-Containing Materials

Mercury-containing materials scheduled for removal or replacement will need to be removed, handled, packaged and disposed of in accordance with all regulations. IF any mercury-containing materials are removed or replaced, they will need to be removed, handled, packaged and disposed of in accordance with all regulations. If mercury-containing lamps and thermostats are handled and disposed of in accordance with the Universal Waste Regulations, no TCLP test is required. If the Contractor chooses to perform a TCLP test of fluorescent lamps, the test shall be conducted in accordance with the requirements of ANSI/NEMA Standard Procedure for Fluorescent Lamp Sample Preparation and Toxicity Characteristic Leaching Procedure, C78.LL 1256-2003 or latest version.

6. Other Hazardous Materials

The common household chemicals that are the responsibility of the contractor shall be properly disposed of in accordance with all regulations and the requirements of the disposal site. These chemicals may alternatively be utilized or recycled by the contractor.

G. LIMITATIONS

The conclusions and recommendations contained in this report are based upon professional opinions with regard to the subject matter. These opinions have been arrived at in accordance with currently accepted environmental consulting and engineering standards and practices and are subject to the following inherent limitations:

1. Accuracy of Information

The laboratory reports utilized in this assessment were provided by the accredited laboratories cited in this report. Although the conclusions, opinions, and recommendations are based in part, on such information, our services did not include the verification of accuracy or authenticity of such reports. Should such information provided be found to be inaccurate or unreliable, EHS-Alaska, Inc. reserves the right to amend or revise its conclusions, opinions, and/or recommendations.

2. Site Conditions

This limited survey did not include investigation of the entire site and may not be valid outside the survey area. The intent of this survey was to identify hazardous materials that may be disturbed during routine maintenance or renovations. This survey is not intended to be utilized as the sole design document for abatement. This survey was conducted while the site was occupied. All inspections were performed with furniture, equipment and/or stored items in place. Although a concerted effort was made to identify all hazardous materials, some hazardous materials may have been hidden by furniture, equipment or stored items and may not have been identified. The survey investigated representative materials and items, such as lights and mechanical components. Variations may occur between materials and items that appear to be the same, but are actually of different construction or materials. Other asbestos-containing or potentially hazardous materials may be present in the facilities that were concealed by structural members, walls, ceilings or floor coverings.

3. Changing Regulatory Constraints

The regulations concerning hazardous materials are constantly changing, including the interpretations of the regulations by the local and national regulating agencies. Should the regulations or their interpretation be changed from our current understanding, EHS-Alaska, Inc. reserves the right to amend or revise its conclusions, opinions, and/or recommendations.

APPENDIX A

Asbestos Bulk Sample Field Survey Data Sheets and Laboratory Reports

RECEIVED SEP 27 2013 EHS-ALASKA, INC.

EHS ALASKA INCORPORATED

EHS-Alaska, Inc.
11901 Business Blvd., Suite 208, Eagle River, AK 99577
(907) 694-1383 • (907) 694-1382 fax
e-mail • ehsak@ehs-alaska.com

PROJECT NO.:	PROJECT NAME:	FACILITY:	COLLECTION DATE:
7227-01	DEC Kwigillingok	Former Moravian Church	9/9/2013

CHAIN OF CUSTODY RECORD

ANALYSIS REQUESTED: ☒ PLM BULK ☐ PLM DUST ☐ TEM BULK ☐ LEAD DUST ☐ LEAD TCLP ☐ LEAD PPM ☐ TEM MICROVAC DUST (ASTM 5756)

TYPE:	TURNAROUND:	DISPOSAL:	QUANTITY
☐ ASBESTOS ☐ LEAD	5 DAYS	NORMAL	21

COLLECTED BY (signature): Martin Schwan (signature)

PRINTED NAME: Martin Schwan

CERT# / AHERA#: 20110842/TBI24-11-147

SHIPPING METHOD: Fed-Ex

COURIER (signature): 7966 6440 9788

DATE/TIME: 9-11-13 12:45pm

SELECTED LABORATORY: IATL

RECEIVED

SAMPLES ACCEPTED BY: IATL By

DATE/TIME: SEP 13 2013

ANALYST'S SIGNATURE: (signature)

DATE:

SPECIAL INSTRUCTIONS / COMMENTS:

LAB: RETURN A SIGNED COPY OF THIS FORM WITH THE FINAL REPORT TO EHS-ALASKA, INC.

E-MAILED Kee 9-20

Ana© 9/18/13 Rdlbc 9-20-13

DRAFT

FIELD SURVEY DATA

ND = None Detected

EHS SAMPLE NO. / LAB ID NO	SAMPLE DESCRIPTION, (COLOR, MATERIAL TYPE, LAYERS, FRIABILITY)	LOCATION/COMMENTS (INCLUDING PHOTO/XREF)	RESULTS FOR EHS-ALASKA USE ONLY
KWI1309-A01 5121747	Black fibrous, thin (~1/16") roofing underlayment	Roof-west side at north entrance between metal roofing and ¾" plywood. Photo 45.	ND
KWI1309-A02 5121748	¼" Cement asbestos board exterior siding.	West exterior wall covering on original portion of building. Photo 53.	20% Chrysotile
KWI1309-A03 5121749	Black fibrous, thin (~1/16") siding underlayment.	West exterior wall between fiberboard and CAB, north end, lower wall at metal skirting. Photo 55.	ND
KWI1309-A04 5121750	Thin layer of white window sealant.	West side, middle window between glass and wood casing. Photo 62.	2.2% Chrysotile
KWI1309-A05 5121751	¼" Cement asbestos board exterior siding.	East exterior wall covering on original portion of building near addition. Photo 121.	20% Chrysotile
KWI1309-A06 5121752	Black fibrous, thin (~1/16") roofing underlayment.	East side of roof at original portion of building near addition. Photo 126.	ND
KWI1309-A07 5121753	¼" Cement asbestos board exterior siding.	North exterior wall, lower wall at metal skirting. Photo 141.	20% Chrysotile
KWI1309-A08 5121754	Black fibrous, thin (~1/16") siding underlayment.	North exterior wall between fiberboard and CAB, lower wall at metal skirting. Photo 141.	PC Trace Chrysotile
KWI1309-A09 5121755	White with green paint window sealant.	North side, east window between glass and casing. Photo 143.	2.3% Chrysotile

RECEIVED
SEP 27 2013
EHS-ALASKA, INC.

EHS ALASKA INCORPORATED

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PROJECT NO:	PROJECT NAME:	FACILITY:	COLLECTION DATE:
7227-01	DEC Kwigillingok	Former Moravian Church	9/9/2013

FIELD SURVEY DATA

ND = None Detected

EHS SAMPLE NO. / LAB ID NO	SAMPLE DESCRIPTION, (COLOR, MATERIAL TYPE, LAYERS, FRIABILITY)	LOCATION/COMMENTS (INCLUDING PHOTO/XREF)	RESULTS FOR EHS-ALASKA USE ONLY
KWI1309-A10 5121756	Tan carpet mastic.	Red carpet to plywood mastic at raised platform in main room. Photo 251.	ND
KWI1309-A11 5121757	White gypsum wallboard.	Main room ceiling at east wall mounted speaker. Photo 260.	ND
KWI1309-A12 5121758	Painted white, white joint compound.	Main room ceiling at curtain near east wall mounted speaker. Photo 261.	ND
KWI1309-A13 5121759	Brown fiber board.	Main room under north window on east wall behind paneling. Photo 262	ND
KWI1309-A14 5121760	White gypsum wallboard.	East vestibule behind heater behind heat shield. Photo 263.	ND
KWI1309-A15 5121761	Tan carpet mastic.	Red carpet to plywood mastic at step from east vestibule to main room. Photo 264.	ND
KWI1309-A16 5121762	White window sealant.	North window in east vestibule between glass and window trim. Photo 273.	1.6% Chrysotile
KWI1309-A17 5121763	Black, hard "glass-like" tar.	Attic side of north roof penetration from heater between plywood and metal roofing. Photo 278.	10% Chrysotile
KWI1309-A18 5121764	White gypsum wallboard with visible fibers on ceiling.	South end of main room at water damage. Photo 286.	ND
KWI1309-A19 5121765	Black, hard "glass-like" tar.	Attic side of south roof penetration from heater between plywood and metal roofing. Photo 292.	2.0% Chrysotile
KWI1309-A20 5121766	Painted white, white joint compound.	Main room ceiling at curtain near west wall mounted speaker. Photo 322.	ND
KWI1309-A21 5121767	Black paper and darker fiberboard.	East interior wall at west side, north entrance between a lighter brown fiberboard ~1/2" thick and a darker brown fiberboard ~5/8" thick. Photo 355.	ND
END	END	END	END

IATL International Asbestos Testing Laboratories

9000 Commerce Parkway Suite B Mt. Laurel, NJ 08054
Telephone: 856-231-9449 Fax: 856-231-9818

CERTIFICATE OF ANALYSIS

RECEIVED
SEP 27 2013
EHS-ALASKA, INC.

Client: EHS Alaska Incorporated
11901 Business Blvd., Ste 208
Eagle River AK 99577-7701

Report Date: 9/19/2013
Report No.: 314675
Project: Former Moravian Church
Project No.: 7227-01

BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5121747
Client No.: KWI1309-A01
Description / Location: Black Tar Paper
RoofWSideAtNEntBtwnRoof/Plywood

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
None Detected	None Detected	50	Cellulose	50

Lab No.: 5121748
Client No.: KWI1309-A02
Description / Location: Grey Transite
WestExtWallCoveringOnOriginalPtnOfBldg

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
20	Chrysotile	None Detected	None Detected	80

Lab No.: 5121749
Client No.: KWI1309-A03
Description / Location: Grey Tar Paper
WestExtWallNEnd,LwrWallAtMtlSkirting

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
None Detected	None Detected	60	Cellulose	40

Lab No.: 5121750
Client No.: KWI1309-A04
Description / Location: Off-White Glazing
West Side,MiddleWndwBtwnGlass/WoodCasing

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
PC 2.2	Chrysotile	None Detected	None Detected	PC 97.8

Accreditations: NIST-NVLAP No. 101165-0 NY-DOH No. 11021 AIHA-LAP, LLC No. 100188

Analytical Method: EPA 600/R-93/116, by Polarized Light Microscopy

Comments: Quantification at <0.25% by volume is possible with this method. (PC) Indicates Stratified Point Count Method performed. (PC-Trace) means that asbestos was detected but is not quantifiable under the Point Counting regimen. Analysis includes all distinct separable layers in accordance with EPA 600 Method. If not reported or otherwise noted, layer is either not present or the client has specifically requested that it not be analyzed (ex. analyze until positive instructions). Small asbestos fibers may be missed by PLM due to resolution limitations of the optical microscope. Therefore, PLM is not consistently reliable in detecting asbestos in non-friable organically bound (NOB) materials. Quantitative transmission electron microscopy (TEM) is currently the only method that can pronounce materials as non-asbestos containing.

Analysis Performed By: S. Clay

Approved By: Frank E. Ehrenfeld, III
Laboratory Director

Date: 9/19/2013

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CERTIFICATE OF ANALYSIS

Client: EHS Alaska Incorporated
11901 Business Blvd., Ste 208
Eagle River AK 99577-7701

Report Date: 9/19/2013
Report No.: 314675
Project: Former Moravian Church
Project No.: 7227-01

BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5121751
Client No.: KWI1309-A05
Description / Location: Grey Transite EastExtWallCvrngOnOrgPrtnOfBldgNrAddtn

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
20	Chrysotile	None Detected	None Detected	80

Lab No.: 5121752
Client No.: KWI1309-A06
Description / Location: Grey Tar Paper EastSideOfRoofAtOrgPrtnOfBldgNrAddtn

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
None Detected	None Detected	60	Cellulose	40

Lab No.: 5121753
Client No.: KWI1309-A07
Description / Location: Grey Transite NoExteriorWallLwrWallAtMetalSkirting

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
20	Chrysotile	None Detected	None Detected	80

Lab No.: 5121754
Client No.: KWI1309-A08
Description / Location: Grey Tar Paper NoExtWallBtwnFbrbrd/CabLwrWall/MtlSkrtng

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
PC Trace	Chrysotile	60	Cellulose	40

Accreditations: NIST-NVLAP No. 101165-0 NY-DOH No. 11021 AIHA-LAP, LLC No. 100188

Analytical Method: EPA 600/R-93/116, by Polarized Light Microscopy

Comments: Quantification at <0.25% by volume is possible with this method. (PC) Indicates Stratified Point Count Method performed. (PC-Trace) means that asbestos was detected but is not quantifiable under the Point Counting regimen. Analysis includes all distinct separable layers in accordance with EPA 600 Method. If not reported or otherwise noted, layer is either not present or the client has specifically requested that it not be analyzed (ex. analyze until positive instructions). Small asbestos fibers may be missed by PLM due to resolution limitations of the optical microscope. Therefore, PLM is not consistently reliable in detecting asbestos in non-friable organically bound (NOB) materials. Quantitative transmission electron microscopy (TEM) is currently the only method that can pronounce materials as non-asbestos containing.

Analysis Performed By: S. Clay

Date: 9/19/2013

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CERTIFICATE OF ANALYSIS

Client: EHS Alaska Incorporated
11901 Business Blvd., Ste 208
Eagle River AK 99577-7701

Report Date: 9/19/2013
Report No.: 314675
Project: Former Moravian Church
Project No.: 7227-01

BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5121755
Client No.: KWI1309-A09
Description / Location: Off-White Glazing NoSideEastWndwBtwnGlass/Casing

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
PC 2.3	Chrysotile	None Detected	None Detected	PC 97.7

Lab No.: 5121756
Client No.: KWI1309-A10
Description / Location: Tan Mastic AtRaisedPlatfromInMainRoom

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
None Detected	None Detected	1	Cellulose	99

Lab No.: 5121757
Client No.: KWI1309-A11
Description / Location: White Sheetrock MainRoomClgAtEastWallMountedSpeaker

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
None Detected	None Detected	10	Cellulose	90

Lab No.: 5121758
Client No.: KWI1309-A12
Description / Location: Off-White Joint Compound MainRmClgAtCrtnNrEastWallMountedSpeaker

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
None Detected	None Detected	None Detected	None Detected	100

Accreditations: NIST-NVLAP No. 101165-0 NY-DOH No. 11021 AIHA-LAP, LLC No. 100188

Analytical Method: EPA 600/R-93/116, by Polarized Light Microscopy

Comments: Quantification at <0.25% by volume is possible with this method. (PC) Indicates Stratified Point Count Method performed. (PC-Trace) means that asbestos was detected but is not quantifiable under the Point Counting regimen. Analysis includes all distinct separable layers in accordance with EPA 600 Method. If not reported or otherwise noted, layer is either not present or the client has specifically requested that it not be analyzed (ex. analyze until positive instructions). Small asbestos fibers may be missed by PLM due to resolution limitations of the optical microscope. Therefore, PLM is not consistently reliable in detecting asbestos in non-friable organically bound (NOB) materials. Quantitative transmission electron microscopy (TEM) is currently the only method that can pronounce materials as non-asbestos containing.

Analysis Performed By: S. Clay

Date: 9/19/2013

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Telephone: 856-231-9449 Fax: 856-231-9818

CERTIFICATE OF ANALYSIS

Client: EHS Alaska Incorporated
11901 Business Blvd., Ste 208
Eagle River AK 99577-7701

RECEIVED
SEP 27 2013
EHS-ALASKA, INC.

Report Date: 9/19/2013
Report No.: 314675
Project: Former Moravian Church
Project No.: 7227-01

BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5121759 **Description / Location:** Brown Fiberboard
Client No.: KWI1309-A13 MainRmUnderNoWndwOnEWallBhndPnling

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
None Detected	None Detected	95	Cellulose	5

Lab No.: 5121760 **Description / Location:** White Sheetrock
Client No.: KWI1309-A14 EastVestibuleBhndHtrBhndHeatShield

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
None Detected	None Detected	15	Cellulose	85

Lab No.: 5121761 **Description / Location:** Tan Mastic
Client No.: KWI1309-A15 AtStepFromEastVestibuleToMainRoom

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
None Detected	None Detected	2	Cellulose	98

Lab No.: 5121762 **Description / Location:** Tan Caulk
Client No.: KWI1309-A16 NoWndwInEVestBtwnGlass/WindowTrim

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
PC 1.6	Chrysotile	None Detected	None Detected	PC 98.4

Accreditations: NIST-NVLAP No. 101165-0 NY-DOH No. 11021 AIHA-LAP, LLC No. 100188

Analytical Method: EPA 600/R-93/116, by Polarized Light Microscopy

Comments: Quantification at <0.25% by volume is possible with this method. (PC) Indicates Stratified Point Count Method performed. (PC-Trace) means that asbestos was detected but is not quantifiable under the Point Counting regimen. Analysis includes all distinct separable layers in accordance with EPA 600 Method. If not reported or otherwise noted, layer is either not present or the client has specifically requested that it not be analyzed (ex. analyze until positive instructions). Small asbestos fibers may be missed by PLM due to resolution limitations of the optical microscope. Therefore, PLM is not consistently reliable in detecting asbestos in non-friable organically bound (NOB) materials. Quantitative transmission electron microscopy (TEM) is currently the only method that can pronounce materials as non-asbestos containing.

Analysis Performed By: S. Clay

Date: 9/19/2013

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CERTIFICATE OF ANALYSIS

Client: EHS Alaska Incorporated
11901 Business Blvd., Ste 208
Eagle River AK 99577-7701

Report Date: 9/19/2013
Report No.: 314675
Project: Former Moravian Church
Project No.: 7227-01

BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5121763 **Description / Location:** Black/Tan Tar/Mastic
Client No.: KWI1309-A17 AtticSideNoRoofPntnFrHtrBtwnPlywd/MtRfg

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
10	Chrysotile	2	Cellulose	88

Lab No.: 5121764 **Description / Location:** Grey Sheetrock
Client No.: KWI1309-A18 SouthEndOfMainRmAtWaterDamage

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
None Detected	None Detected	5	Cellulose	85
		10	Fibrous Glass	

Lab No.: 5121765 **Description / Location:** Black Tar
Client No.: KWI1309-A19 AtticSideSoRfPntrtnFrHtrBtwnPlywd/MtlRfg

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
PC 2.0	Chrysotile	None Detected	None Detected	98

Lab No.: 5121766 **Description / Location:** Off-White Joint Compound
Client No.: KWI1309-A20 MainRmClgAtCrtnNrWWallMntdSpkr

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
None Detected	None Detected	None Detected	None Detected	100

Accreditations: NIST-NVLAP No. 101165-0 NY-DOH No. 11021 AIHA-LAP, LLC No. 100188

Analytical Method: EPA 600/R-93/116, by Polarized Light Microscopy

Comments: Quantification at <0.25% by volume is possible with this method. (PC) Indicates Stratified Point Count Method performed. (PC-Trace) means that asbestos was detected but is not quantifiable under the Point Counting regimen. Analysis includes all distinct separable layers in accordance with EPA 600 Method. If not reported or otherwise noted, layer is either not present or the client has specifically requested that it not be analyzed (ex. analyze until positive instructions). Small asbestos fibers may be missed by PLM due to resolution limitations of the optical microscope. Therefore, PLM is not consistently reliable in detecting asbestos in non-friable organically bound (NOB) materials. Quantitative transmission electron microscopy (TEM) is currently the only method that can pronounce materials as non-asbestos containing.

Analysis Performed By: S. Clay

Date: 9/19/2013

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CERTIFICATE OF ANALYSIS

Client: EHS Alaska Incorporated
11901 Business Blvd., Ste 208
Eagle River AK 99577-7701

RECEIVED
SEP 27 2013
EHS-ALASKA, INC.

Report Date: 9/19/2013
Report No.: 314675
Project: Former Moravian Church
Project No.: 7227-01

BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5121767
Client No.: KWI1309-A21

Description / Location: Brown/Black Fiberboard/Mastic
ElWallAtWSideNEntBtwnLghtr/DkrFbrbrd

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
None Detected	None Detected	90	Cellulose	10

Accreditations: NIST-NVLAP No. 101165-0 NY-DOH No. 11021 AIHA-LAP, LLC No. 100188

Analytical Method: EPA 600/R-93/116, by Polarized Light Microscopy

Comments: Quantification at <0.25% by volume is possible with this method. (PC) Indicates Stratified Point Count Method performed. (PC-Trace) means that asbestos was detected but is not quantifiable under the Point Counting regimen. Analysis includes all distinct separable layers in accordance with EPA 600 Method. If not reported or otherwise noted, layer is either not present or the client has specifically requested that it not be analyzed (ex. analyze until positive instructions). Small asbestos fibers may be missed by PLM due to resolution limitations of the optical microscope. Therefore, PLM is not consistently reliable in detecting asbestos in non-friable organically bound (NOB) materials. Quantitative transmission electron microscopy (TEM) is currently the only method that can pronounce materials as non-asbestos containing.

Analysis Performed By: S. Clay

Date: 9/19/2013

APPENDIX B

TCLP Sample
Field Survey Data Sheets
and
Laboratory Reports

EHS ALASKA INCORPORATED

EHS-Alaska, Inc.
11901 Business Blvd., Suite 208, Eagle River, AK 99577
(907) 694-1383 • (907) 694-1382 fax
e-mail • ehsak@ehs-alaska.com

PROJECT NO:	PROJECT NAME:	FACILITY:	COLLECTION DATE:
7227-01	DEC Kwigillingok	Former Moravian Church	9/9/2013

CHAIN OF CUSTODY RECORD

ANALYSIS REQUESTED:
- ☐ PLM BULK
- ☐ PLM DUST
- ☐ TEM BULK
- ☐ LEAD DUST
- ☒ LEAD TCLP
- ☐ LEAD PPM
- ☐ TEM MICROVAC DUST (ASTM 5756)

TYPE:	TURNAROUND:	DISPOSAL:	QUANTITY
☐ ASBESTOS ☒ LEAD	5 DAYS	NORMAL	1

Martin Schwan
COLLECTED BY (signature)

Martin Schwan
PRINTED NAME

20110842/TBI24-11-147
CERT# / AHERA#

Fed-Ex
SHIPPING METHOD

7966 6440 9788
COURIER (signature)

9-17-13 12:45pm
DATE/TIME

IATL
SELECTED LABORATORY

RECEIVED
SEP 13 2013
DATE/TIME

IATL - By
ANALYST'S SIGNATURE

DATE

SPECIAL INSTRUCTIONS / COMMENTS:

LAB: RETURN A SIGNED COPY OF THIS FORM WITH THE FINAL REPORT TO EHS-ALASKA, INC.

RECEIVED
SEP 2 3 2013
EHS-ALASKA, INC.

E-MAILED
9/17/13 CSD + Asbestos

FIELD SURVEY DATA

EHS SAMPLE NO. / LAB ID NO	SAMPLE DESCRIPTION, (COLOR, MATERIAL TYPE, LAYERS, FRIABILITY)	LOCATION/COMMENTS (INCLUDING PHOTO/XREF)	RESULTS FOR EHS-ALASKA USE ONLY
KWI1309-TCLP-01 512086	One composite building materials sample.	Various locations throughout the building representing potential waste stream.	25% Chrysotile Composite Sample
END	END	END	END
			10% Grey Transite

(R) dlb 9-17-13

PLM
9-17-13

IATL International Asbestos Testing Laboratories

9000 Commerce Parkway Suite B Mt. Laurel, NJ 08054
Telephone: 856-231-9449 Fax: 856-231-9818

CERTIFICATE OF ANALYSIS

Client: EHS Alaska Incorporated
11901 Business Blvd., Ste 208
Eagle River AK 99577-7705

Report Date: 9/17/2013
Report No.: 314640
Project: DEC Kwigillingok
Project No.: 7227-01

BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5120866 **Description / Location:** Grey Transite
Client No.: KWI1309-TCLP-01 Potential Waste Stream

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
25	Chrysotile	None Detected	None Detected	75

Lab No.: 5120866 **Description / Location:** Various Debris **Layer No.:** 2
Client No.: KWI1309-TCLP-01 Potential Waste Stream

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
10	Chrysotile	60	Cellulose	15
		15	Synthetic	

Accreditations: NIST-NVLAP No. 101165-0 NY-DOH No. 11021 AIHA-LAP, LLC No. 100188

Analytical Method: EPA 600/R-93/116, by Polarized Light Microscopy

Comments: Quantification at <0.25% by volume is possible with this method. (PC) Indicates Stratified Point Count Method performed. (PC-Trace) means that asbestos was detected but is not quantifiable under the Point Counting regimen. Analysis includes all distinct separable layers in accordance with EPA 600 Method. If not reported or otherwise noted, layer is either not present or the client has specifically requested that it not be analyzed (ex. analyze until positive instructions). Small asbestos fibers may be missed by PLM due to resolution limitations of the optical microscope. Therefore, PLM is not consistently reliable in detecting asbestos in non-friable organically bound (NOB) materials. Quantitative transmission electron microscopy (TEM) is currently the only method that can pronounce materials as non-asbestos containing.

Analysis Performed By: T. Fisher

Approved By: Frank E. Ehrenfeld, III
Laboratory Director

Date: 9/17/2013

APPENDIX C

Lead Analyzer Test Results

LEAD BASED PAINT SCREENING SUMMARY

NITON XLp-300A, Serial No. 81530

No.	SITE	INSPECTOR	ROOM	COMPONENT	SUBSTRATE	CONDITION	COLOR	Duration	Time	Depth Index	Results		
											LBP	mg/cm^2	+/- ERROR
1	FORMER MORAVIAN CHURCH	SCHWAN	-	SHUTTER CAL	-	-	-	96.5	9/9/2013 16:20	-	-	3.28	0.0
2	**FORMER MORAVIAN CHURCH**	**SCHWAN**	**-**	**CALIBRATION CK**	**-**	**-**	**RED**	**20.92**	**9/9/2013 16:22**	**1.11**	**Positive**	**1.1**	**0.1**
3	**FORMER MORAVIAN CHURCH**	**SCHWAN**	**-**	**CALIBRATION CK**	**-**	**-**	**RED**	**20.88**	**9/9/2013 16:22**	**1.12**	**Positive**	**1.2**	**0.1**
4	**FORMER MORAVIAN CHURCH**	**SCHWAN**	**-**	**CALIBRATION CK**	**-**	**-**	**RED**	**20.95**	**9/9/2013 16:23**	**2.72**	**Positive**	**1.2**	**0.1**
5	FORMER MORAVIAN CHURCH	SCHWAN	MAIN	WALL	WOOD	FAIR	WHITE	2.29	9/9/2013 16:26	3.34	Negative	0.08	0.13
6	FORMER MORAVIAN CHURCH	SCHWAN	MAIN	WALL	WOOD	FAIR	WHITE	1.64	9/9/2013 16:27	2.56	Negative	0.22	0.22
7	FORMER MORAVIAN CHURCH	SCHWAN	MAIN	WALL	WOOD	FAIR	WHITE	1.97	9/9/2013 16:27	3.69	Negative	0.1	0.17
8	FORMER MORAVIAN CHURCH	SCHWAN	W SANTUARY	WALL	WOOD	FAIR	WHITE	6.56	9/9/2013 16:28	1.73	Negative	0.8	0.1
9	FORMER MORAVIAN CHURCH	SCHWAN	E SANTUARY	WALL	WOOD	FAIR	WHITE	1.97	9/9/2013 16:28	1.6	Negative	0.6	0.3
10	FORMER MORAVIAN CHURCH	SCHWAN	MAIN	WALL	WOOD	FAIR	WHITE	1.97	9/9/2013 16:29	4.11	Negative	0.2	0.25
11	FORMER MORAVIAN CHURCH	SCHWAN	MAIN	DOOR TRIM	WOOD	FAIR	GRAY	1.64	9/9/2013 16:30	1.9	Negative	0.4	0.2
12	FORMER MORAVIAN CHURCH	SCHWAN	S ENTRANCE	DOOR TRIM	WOOD	FAIR	GRAY	2.29	9/9/2013 16:30	1	Negative	0	0.02
13	FORMER MORAVIAN CHURCH	SCHWAN	W CLASSRM	DOOR TRIM	WOOD	FAIR	GRAY	1.65	9/9/2013 16:30	4.05	Negative	0.02	0.09
14	FORMER MORAVIAN CHURCH	SCHWAN	MAIN	DOOR TRIM	WOOD	FAIR	GRAY	1.98	9/9/2013 16:31	1.25	Negative	0.28	0.15
15	FORMER MORAVIAN CHURCH	SCHWAN	NW ENTRANCE	WINDOW CASING	WOOD	FAIR	RED	2.3	9/9/2013 16:32	1.47	Negative	0.6	0.2
16	FORMER MORAVIAN CHURCH	SCHWAN	E SANTUARY	WINDOW CASING	WOOD	FAIR	RED	1.63	9/9/2013 16:32	1.46	Negative	0.6	0.3
17	FORMER MORAVIAN CHURCH	SCHWAN	NE ENTRANCE	WINDOW CASING	WOOD	FAIR	RED	1.63	9/9/2013 16:32	1.4	Negative	0.4	0.2
18	FORMER MORAVIAN CHURCH	SCHWAN	NE ENTRANCE	WINDOW CASING	WOOD	FAIR	BROWN	1.65	9/9/2013 16:33	1.04	Negative	0.28	0.15
19	FORMER MORAVIAN CHURCH	SCHWAN	E SANTUARY	WINDOW CASING	WOOD	FAIR	BROWN	1.96	9/9/2013 16:33	1.12	Negative	0.27	0.14
20	FORMER MORAVIAN CHURCH	SCHWAN	MAIN	WINDOW CASING	WOOD	FAIR	WHITE	1.64	9/9/2013 16:34	2.34	Negative	0.6	0.4
21	FORMER MORAVIAN CHURCH	SCHWAN	MAIN	WINDOW CASING	WOOD	FAIR	WHITE	1.98	9/9/2013 16:34	1.89	Negative	0.6	0.3
22	FORMER MORAVIAN CHURCH	SCHWAN	MAIN	FLOOR	WOOD	FAIR	GRAY	1.96	9/9/2013 16:35	1	Negative	0.04	0.05
23	FORMER MORAVIAN CHURCH	SCHWAN	E CLASSRM	FLOOR	WOOD	FAIR	GRAY	1.64	9/9/2013 16:35	1	Negative	0	0.02
24	FORMER MORAVIAN CHURCH	SCHWAN	S ENTRANCE	DOOR	METAL	FAIR	GRAY	1.63	9/9/2013 16:36	1	Negative	0	0.02
25	FORMER MORAVIAN CHURCH	SCHWAN	MAIN	CEILING	WOOD	PEELING	WHITE	2.29	9/9/2013 16:39	2.31	Negative	0.4	0.2
26	FORMER MORAVIAN CHURCH	SCHWAN	MAIN	CEILING	WOOD	PEELING	WHITE	2.28	9/9/2013 16:39	1.85	Negative	0.15	0.13
27	FORMER MORAVIAN CHURCH	SCHWAN	W SANTUARY	MECH EQUIP	METAL	PEELING	GREEN	1.96	9/9/2013 16:40	1	Negative	0	0.02
28	FORMER MORAVIAN CHURCH	SCHWAN	W SANTUARY	MECH EQUIP	METAL	PEELING	GREEN	1.64	9/9/2013 16:40	1	Negative	0.03	0.05
29	**FORMER MORAVIAN CHURCH**	**SCHWAN**	W SANTUARY	**CABINET**	**WOOD**	**PEELING**	**GREEN**	**1.31**	**9/9/2013 16:41**	**1.35**	**Positive**	**9**	**4.1**
30	FORMER MORAVIAN CHURCH	SCHWAN	MAIN	PODIUM	WOOD	FAIR	RED	2.95	9/9/2013 16:42	1.21	Negative	0.4	0.1
31	FORMER MORAVIAN CHURCH	SCHWAN	MAIN	PODIUM	WOOD	FAIR	BLUE	1.98	9/9/2013 16:42	1.24	Negative	0.18	0.12
32	FORMER MORAVIAN CHURCH	SCHWAN	MAIN	PODIUM	WOOD	FAIR	GREEN	3.93	9/9/2013 16:43	1.02	Negative	0.6	0.1
33	FORMER MORAVIAN CHURCH	SCHWAN	E SANTUARY	SHELF	WOOD	PEELING	BEIGE	1.97	9/9/2013 16:43	1.06	Negative	0	0.02
34	FORMER MORAVIAN CHURCH	SCHWAN	EXT	WINDOW TRIM	WOOD	PEELING	GREEN	7.21	9/9/2013 16:46	1.11	Negative	0.9	0.1
35	FORMER MORAVIAN CHURCH	SCHWAN	EXT	DOOR TRIM	METAL	PEELING	YELLOW	1.64	9/9/2013 16:47	1	Negative	0	0.02
36	FORMER MORAVIAN CHURCH	SCHWAN	EXT	CAB SIDING	CONCRETE	PEELING	BEIGE	2.29	9/9/2013 16:49	1	Null	0	0.02
37	FORMER MORAVIAN CHURCH	SCHWAN	EXT	WALL TRIM	WOOD	PEELING	GREEN	3.61	9/9/2013 16:50	1	Negative	0.8	0.1
38	**FORMER MORAVIAN CHURCH**	**SCHWAN**	**-**	**CALIBRATION CK**	**-**	**-**	**RED**	**6.54**	**9/9/2013 16:52**	**1.13**	**Positive**	**1.2**	**0.1**
39	**FORMER MORAVIAN CHURCH**	**SCHWAN**	**-**	**CALIBRATION CK**	**-**	**-**	**RED**	**8.84**	**9/9/2013 16:53**	**1.12**	**Positive**	**1.2**	**0.1**
40	**FORMER MORAVIAN CHURCH**	**SCHWAN**	**-**	**CALIBRATION CK**	**-**	**-**	**RED**	**16.02**	**9/9/2013 16:53**	**2.72**	**Positive**	**1.2**	**0.1**

Table Heading Descriptions: See next page.

LEAD BASED PAINT SCREENING SUMMARY

No.	SITE	INSPECTOR	ROOM	COMPONENT	SUBSTRATE	CONDITION	COLOR	Duration	Time	Depth Index	Results		
											LBP	mg/cm^2	+/- ERROR

Duration: This is the nominal time in seconds that each sample was analyzed.

Depth Index: Indicates the relative depth of the lead. A Depth Index (DI) of less than 1.5 indicates lead very near the surface layer of paint. A DI between 1.5 and 4.0 indicates moderately covered lead. A DI greater than 4.0 indicates the lead paint is deeply buried beneath multiple layers of paint.

LBP: Results are shown as positive (POS $\geq$ 1.0 mg/cm^2), inconclusive (INC) or negative (NEG < 1.0 mg/cm^2). The results are based on the combined results of the K and L shell readings. L shell and K shell readings are not provided, but are available. Positive results are shown in bold print.

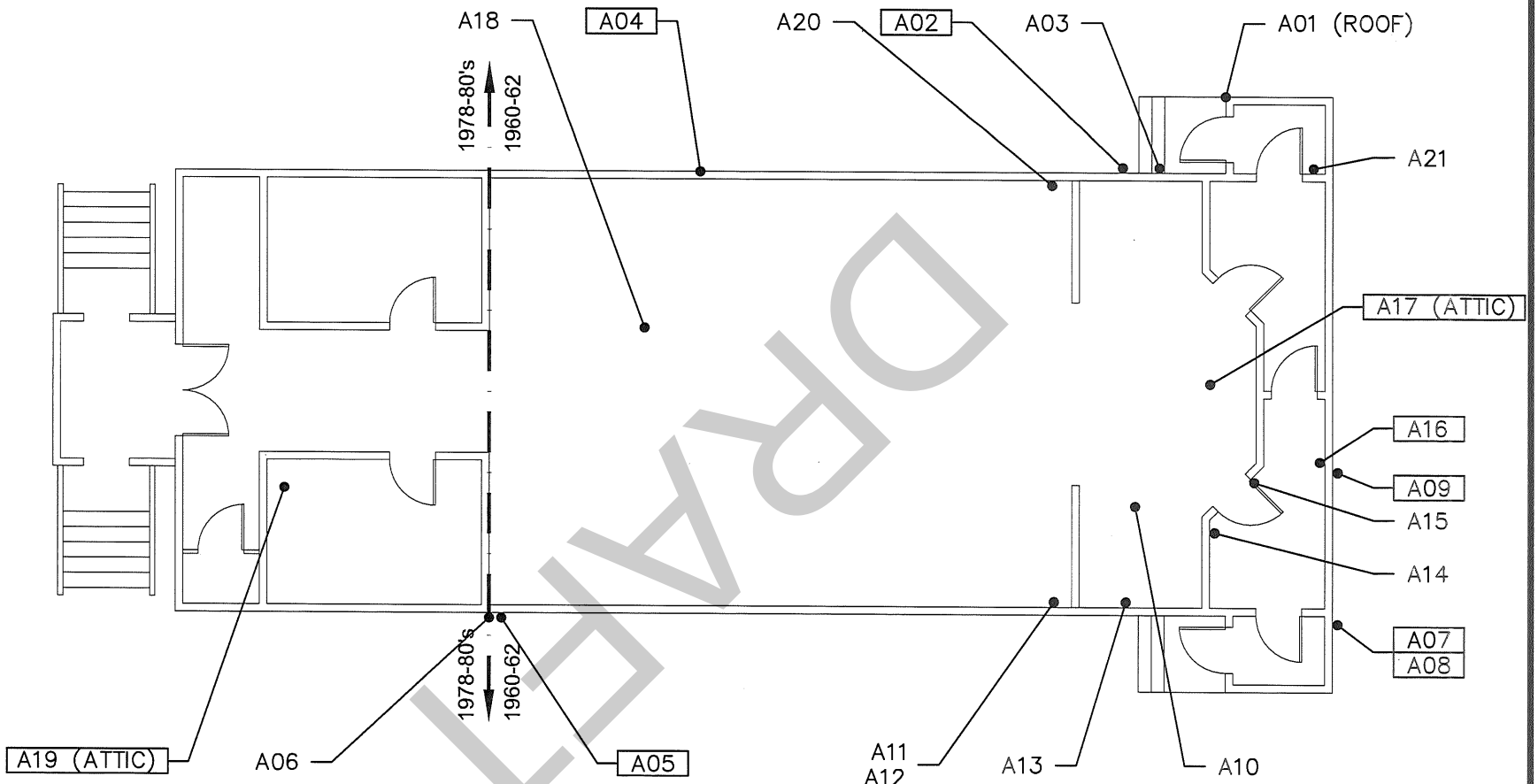
mg/cm2: This is the testing results produced by the NITON XLp-300A instrument in milligrams of lead per square centimeter (mg/cm^2). The EPA defines lead based paint as paint containing lead at 1.0 mg/cm^2 or greater. A negative number is a result of an internal computation made by the instrument and should be interpreted as zero. Even though paint may be termed negative (less than 1.0 mg/cm^2) by EPA definition, disturbance of the paint may still be regulated by OSHA under 29 CFR 1926.62. Where lead is present at any level, appropriate engineering controls, work practices and personal protective equipment should be used until a negative exposure assessment can be determined. <LOD indicates that the lead present was less than the limits of detection of the instrument (very little or no lead present).

VOID: This indicates that the test was intentionally terminated by the operator due to operator error (e.g. - operator moved analyzer while testing).

Substrate: Where ceramic is shown as a substrate, lead content is typically from the glazing on the tile unless the tile is painted.

APPENDIX D

Drawings of Sample Locations



1 / C-1 FLOOR PLAN
NTS

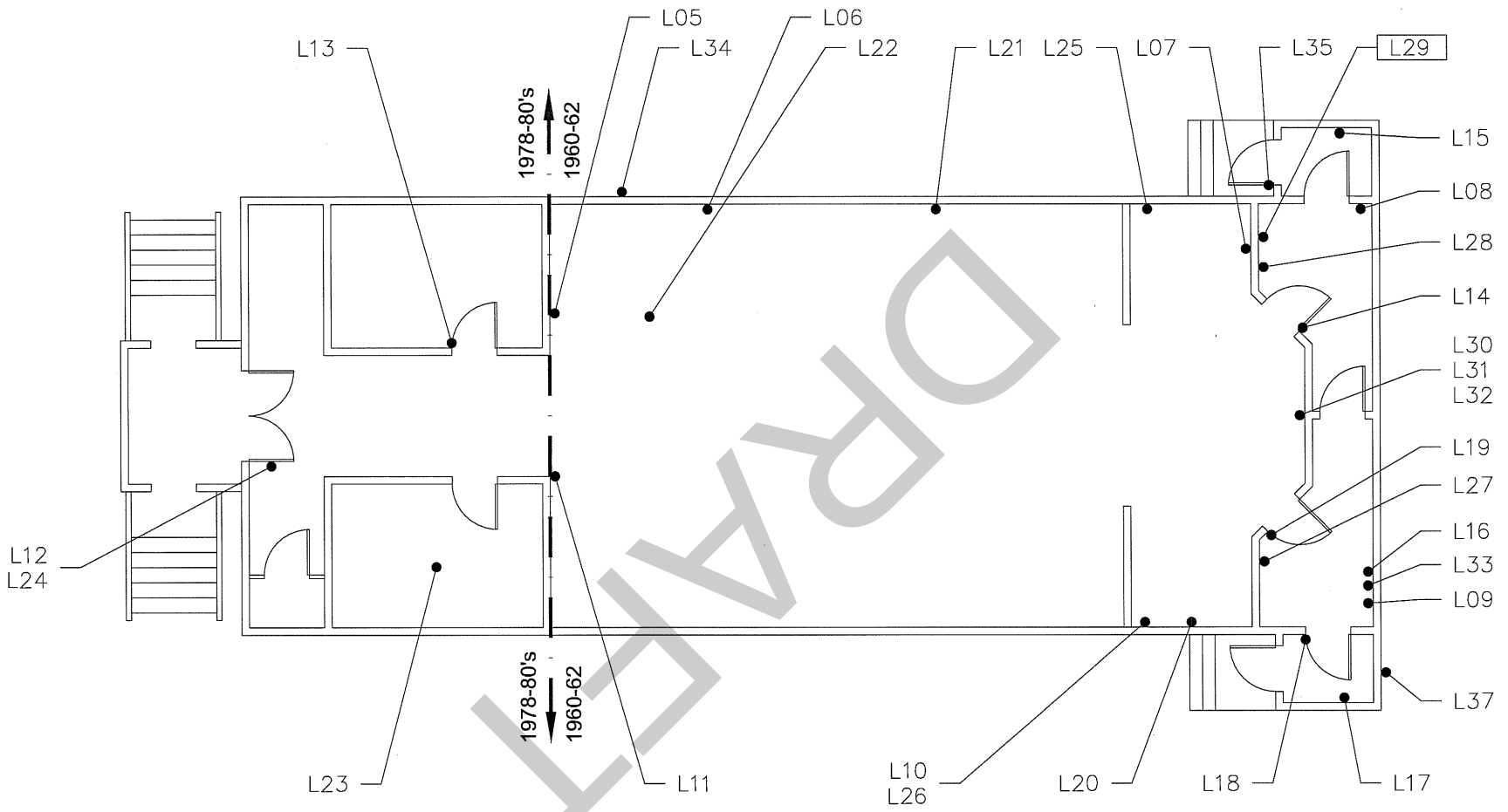
N

LEGEND

- AXX ASBESTOS TEST LOCATION
- AXX LAB TEST RESULTS POSITIVE FOR ASBESTOS

REFER TO TESTING SUMMARY IN REPORT FOR FULL DETAILS. ALL SAMPLES HAVE KWI1309– PREFIX.

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION	FORMER MORAVIAN CHURCH KWIGILLINGOK, ALASKA ASBESTOS SAMPLE LOCATIONS	EHS ALASKA INCORPORATED ENGINEERING, HEALTH & SAFETY CONSULTANTS	DRAWN: CTO CHECK: RAF	DATE: 09/09/2013
			FILE #: 7227-SL	DWG.NO: C-1



LEGEND

- LXX LEAD TEST LOCATION
- [LXX] LEAD TEST LOCATION

REFER TO TESTING SUMMARY IN REPORT FOR FULL DETAILS.

1 / C-2 FLOOR PLAN NTS

N

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION	FORMER MORAVIAN CHURCH KWIGILLINGOK, ALASKA LEAD SAMPLE LOCATIONS	EHS ALASKA INCORPORATED ENGINEERING, HEALTH & SAFETY CONSULTANTS	DRAWN: CTO CHECK: RAF	DATE: 09/09/2013	
			FILE #: 7227-SL	DWG.NO: C-2	

APPENDIX H

IMPORTANT INFORMATION ABOUT YOUR GEOTECHNICAL/ENVIRONMENTAL SITE REPORT

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

Attachment to and part of Report 32-1-17593

Date:	November 2013
To:	Alaska Department of Environmental Conservation
Re:	Former Moravian Church, Kwigillingok, Alaska

Important Information About Your Geotechnical/Environmental Report

CONSULTING SERVICES ARE PERFORMED FOR SPECIFIC PURPOSES AND FOR SPECIFIC CLIENTS.

Consultants prepare reports to meet the specific needs of specific individuals. A report prepared for a civil engineer may not be adequate for a construction contractor or even another civil engineer. Unless indicated otherwise, your consultant prepared your report expressly for you and expressly for the purposes you indicated. No one other than you should apply this report for its intended purpose without first conferring with the consultant. No party should apply this report for any purpose other than that originally contemplated without first conferring with the consultant.

THE CONSULTANT'S REPORT IS BASED ON PROJECT-SPECIFIC FACTORS.

A geotechnical/environmental report is based on a subsurface exploration plan designed to consider a unique set of project-specific factors. Depending on the project, these may include: the general nature of the structure and property involved; its size and configuration; its historical use and practice; the location of the structure on the site and its orientation; other improvements such as access roads, parking lots, and underground utilities; and the additional risk created by scope-of-service limitations imposed by the client. To help avoid costly problems, ask the consultant to evaluate how any factors that change subsequent to the date of the report may affect the recommendations. Unless your consultant indicates otherwise, your report should not be used: (1) when the nature of the proposed project is changed (for example, if an office building will be erected instead of a parking garage, or if a refrigerated warehouse will be built instead of an unrefrigerated one, or chemicals are discovered on or near the site); (2) when the size, elevation, or configuration of the proposed project is altered; (3) when the location or orientation of the proposed project is modified; (4) when there is a change of ownership; or (5) for application to an adjacent site. Consultants cannot accept responsibility for problems that may occur if they are not consulted after factors, which were considered in the development of the report, have changed.

SUBSURFACE CONDITIONS CAN CHANGE.

Subsurface conditions may be affected as a result of natural processes or human activity. Because a geotechnical/environmental report is based on conditions that existed at the time of subsurface exploration, construction decisions should not be based on a report whose adequacy may have been affected by time. Ask the consultant to advise if additional tests are desirable before construction starts; for example, groundwater conditions commonly vary seasonally.

Construction operations at or adjacent to the site and natural events such as floods, earthquakes, or groundwater fluctuations may also affect subsurface conditions and, thus, the continuing adequacy of a geotechnical/environmental report. The consultant should be kept apprised of any such events, and should be consulted to determine if additional tests are necessary.

MOST RECOMMENDATIONS ARE PROFESSIONAL JUDGMENTS.

Site exploration and testing identifies actual surface and subsurface conditions only at those points where samples are taken. The data were extrapolated by your consultant, who then applied judgment to render an opinion about overall subsurface conditions. The actual interface between materials may be far more gradual or abrupt than your report indicates. Actual conditions in areas not sampled may differ from those predicted in your report. While nothing can be done to prevent such situations, you and your consultant can work together to help reduce their impacts. Retaining your consultant to observe subsurface construction operations can be particularly beneficial in this respect.

A REPORT'S CONCLUSIONS ARE PRELIMINARY.

The conclusions contained in your consultant's report are preliminary because they must be based on the assumption that conditions revealed through selective exploratory sampling are indicative of actual conditions throughout a site. Actual subsurface conditions can be discerned only during earthwork; therefore, you should retain your consultant to observe actual conditions and to provide conclusions. Only the consultant who prepared the report is fully familiar with the background information needed to determine whether or not the report's recommendations based on those conclusions are valid and whether or not the contractor is abiding by applicable recommendations. The consultant who developed your report cannot assume responsibility or liability for the adequacy of the report's recommendations if another party is retained to observe construction.

THE CONSULTANT'S REPORT IS SUBJECT TO MISINTERPRETATION.

Costly problems can occur when other design professionals develop their plans based on misinterpretation of a geotechnical/environmental report. To help avoid these problems, the consultant should be retained to work with other project design professionals to explain relevant geotechnical, geological, hydrogeological, and environmental findings, and to review the adequacy of their plans and specifications relative to these issues.

BORING LOGS AND/OR MONITORING WELL DATA SHOULD NOT BE SEPARATED FROM THE REPORT.

Final boring logs developed by the consultant are based upon interpretation of field logs (assembled by site personnel), field test results, and laboratory and/or office evaluation of field samples and data. Only final boring logs and data are customarily included in geotechnical/environmental reports. These final logs should not, under any circumstances, be redrawn for inclusion in architectural or other design drawings, because drafters may commit errors or omissions in the transfer process.

To reduce the likelihood of boring log or monitoring well misinterpretation, contractors should be given ready access to the complete geotechnical engineering/environmental report prepared or authorized for their use. If access is provided only to the report prepared for you, you should advise contractors of the report's limitations, assuming that a contractor was not one of the specific persons for whom the report was prepared, and that developing construction cost estimates was not one of the specific purposes for which it was prepared. While a contractor may gain important knowledge from a report prepared for another party, the contractor should discuss the report with your consultant and perform the additional or alternative work believed necessary to obtain the data specifically appropriate for construction cost estimating purposes. Some clients hold the mistaken impression that simply disclaiming responsibility for the accuracy of subsurface information always insulates them from attendant liability. Providing the best available information to contractors helps prevent costly construction problems and the adversarial attitudes that aggravate them to a disproportionate scale.

READ RESPONSIBILITY CLAUSES CLOSELY.

Because geotechnical/environmental engineering is based extensively on judgment and opinion, it is far less exact than other design disciplines. This situation has resulted in wholly unwarranted claims being lodged against consultants. To help prevent this problem, consultants have developed a number of clauses for use in their contracts, reports and other documents. These responsibility clauses are not exculpatory clauses designed to transfer the consultant's liabilities to other parties; rather, they are definitive clauses that identify where the consultant's responsibilities begin and end. Their use helps all parties involved recognize their individual responsibilities and take appropriate action. Some of these definitive clauses are likely to appear in your report, and you are encouraged to read them closely. Your consultant will be pleased to give full and frank answers to your questions.

The preceding paragraphs are based on information provided by the
ASFE/Association of Engineering Firms Practicing in the Geosciences, Silver Spring, Maryland