EXCESS SCHOOL DECOMMISSIONING AND SITE RESTORATION PLAN

BIA SCHOOL SITE
TUNTUTULIAK, ALASKA

SEPTEMBER 2012

Prepared For:

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APPENDICES

1.0 EXECUTIVE SUMMARY

The State of Alaska Department of Education and Early Development (DEED) have begun the process of addressing excessed schools in communities in rural Alaska. Some of the schools and associated structures have known environmental and hazardous materials that must be addressed prior to final disposal of the property. DEED has retained ***NORTECH*** (Contract #2012-0500-0490) to develop Excess School Decommissioning and Site Restoration Plans (ESDSRP) for excessed school buildings in the communities of Tuntutuliak, Rampart, Telida and Newtok. The ESDSRP is to identify the most appropriate and cost effective approach to decommission the buildings through analysis of historical documentation, interviews with regional and village representatives, and site visits to identify the current conditions of each facility.

This ESDSRP is specific for the Tuntutuliak BIA School buildings (the Site). The Site is located in the Village of Tuntutuliak and Bethel Recording District on the Kinak River. Sheet 2 shows the location of the school in Tuntutuliak and the general area around the school. The attached figures depict the conditions present at the time of the site visit. These include improvements that should be removed, hazardous materials that will be encountered, and other items that should be removed during the anticipated design effort

Based on the estimated project quantities identified in this ESDSRP, the projected cost of full decommissioning of the Tuntutuliak Site is $992,000. This cost estimate assumes that DEED will develop a decommissioning package for competitive bidding and the contractor will follow standard demolition practices for all improvements. The cost estimate also assumes that the contractor will transport project equipment and wastes by barge to Anchorage for disposal at either the Anchorage or Matsu permitted landfill.

Although the cost estimate utilizes standard demolition, ***NORTECH*** has the following recommendations for reducing estimated project costs while improving village of Tuntutuliak and overall public acceptance and public relations:

- Involvement of the Village and local population in the planning, design and disposal, including publishing their interest, local resources and capability in the bid documents.
- Alternative disposal method that reduces the largest project cost, waste transport, by negotiating with the ADEC and village to dispose of the project wastes in the existing Tuntutuliak unpermitted dump while cleaning up and facilitating the Village's efforts to operate a permitted class III landfill.

2.0 SCOPE OF WORK

The scope of work included assessment of applicable community and regional resources, site environmental conditions, hazardous materials present, and demolition requirements. The ESDSRP includes the development of a project decommissioning estimate for each village based on an assessment of community interest, capability and resources for re-utilization, demolition and disposal. The information was used to develop the estimates of abatement, re-utilization, demolition and site restoration costs associated with the decommissioning of the assets.

3.0 METHODOLOGY

NORTECH completed all work in accordance with the Project Specific Sampling and Analysis Plan (SAP) submitted and approved by the Alaska Department of Education and Early Development (DEED). The SAP is attached as Appendix 5.

4.0 TUNTUTULIAK BACKGROUND

The Site is located in Tuntutuliak at approximately 60.343060 North Latitude and -162.663060 West Longitude of WGS84 datum [1], (Sec. 21, T003N, R077W, Seward Meridian) and United States Survey number 4410, in the Bethel Recording District. Sheet 2 shows the location of the school in Tuntutuliak and the general area around the school.

A review of historical documentation and interviews completed have provided the following regional and cultural, village and site background information for the Tuntutuliak BIA school site. Each school district and community representatives provided, or contacted while completing the site inspection, were informally interviewed for local facility information as well as availability of equipment and manpower, salvage and local waste disposal capability that can be accessed during the site inspection and/or project development. The historical information that was reviewed is provided chronologically in Appendix 6. Efforts included preliminary identification of local contractors including air charter, equipment, and abatement and demolition contractor capability. The District, Community and Contractor Background information was used to develop the Tuntutuliak ESDSRP estimates.

4.1 Regional and Cultural

The village's Yup'ik name is Tuntutuliaq, meaning "place of many reindeer." It was originally located four miles to the east and called Qinaq, as noted in 1879 by Edward Nelson, who noted 175 residents at that time. In 1908, a Moravian missionary visited the village and reported 130 people living there. In 1909 a BIA school was built, and the first teacher was well-liked in the community. Due to lack of confidence in the subsequent teachers, the school was closed in 1917, and the building moved to the village of Eek. It is thought that some Qinaq villagers may have moved to Eek, so their children could attend school. In 1923 the first Moravian chapel was built with lumber and other support from Eek. In the late 1920s, a trading post and store was opened by John Johnson. The community moved to its present site on higher ground and was renamed Tuntutuliak in 1945. The BIA built a school in 1957. A post office opened in 1960[2].

Tuntutuliak is part of the Calista native corporation region and the Lower Kuskokwim School District. The following is the contact information developed during the project efforts.

[1] Google Earth
[2] Division of Community Affairs Website

Regional Native Corporation - Calista Corporation
301 Calista Court
Anchorage, AK 99518-3000
Phone: 907-279-5516
Fax: 907-272-5060
E-mail: calista@calistacorp.com
Web: http://www.calistacorp.com

Regional Native Health Corporation - Yukon-Kuskokwim Health Corp.
P.O. Box 528
Bethel, AK 99559
Phone: 907-543-6020
Fax: 907-543-6006
E-mail: gene_peltola@ykhc.org
Web: http://www.ykhc.org/

CDQ Group - Coastal Villages Region Fund
711 H Street, Suite 200
Anchorage, AK 99501-3461
Phone: 907-278-5151
Fax: 907-278-5150
E-mail: morgen_c@coastalvillages.org
Web: http://www.coastalvillages.org/

Lower Kuskokwim School District
P.O. Box 305
Bethel Alaska 99559
Gary Baldwin, Superintendent
Phone: 907-543-4800
E-mail: gary_baldwin@lksd.org
Dennis Cobos
Phone: 907 543-4919
E-mail: dennis_cobos@lksd.org

Additional persons and contractors knowledgeable and familiar with the Tuntutuliak area include:

Jim Saint George with STG Incorporated

4.2 Village

According to Census 2010, there were 106 housing units in the community and 96 were occupied; the current population is 428 (2011 AK Dept. of Labor estimate). A federally-recognized tribe is located in the community -- the Tuntutuliak Traditional Council. It is a traditional Yup'ik Eskimo village with a fishing and subsistence lifestyle. Salmon and seal are important food sources. Children are taught in Yup'ik until the third grade and then classes are taught in English. The sale, importation, and possession of alcohol is banned in the village.

The land surrounding the village is flat, low-lying, marshy tundra dotted with thousands of thaw-lakes and sloughs. Vegetation is primarily hair grass, sedges, and berries typical of tundra.

A flush/haul system, unpermitted landfill, sewage lagoon, and 4-mile sanitation boardwalk are available. The school has its own well and sewage lagoon. Electricity is provided by Tuntutuliak Community Service Assoc. There is one school located in the community, attended by 149 students. Local hospitals or health clinics include Kathleen Daniel Memorial Clinic. Emergency Services have coastal and air access. Emergency service is provided by a health aide.

Tuntutuliak relies on air transportation for passengers, mail, and cargo service. A state-owned 3,025' long by 75' wide gravel runway and a public seaplane base on the Qinaq River are available. Barge services deliver goods approximately six times a year. Boats and snow machines are used for local travel. Winter trails are marked to Kipnuk (77 mi), Toundra (60 mi), and Kongiganak (29 mi).

Organizations working within or working closely with the community include:

Electric Utility - Tuntutuliak Community Service Association, Inc.
P.O. Box 8127
Tuntutuliak, AK 99680-0127
Phone 907-256-2934
Fax 907-256-2934

Village Corporation - Tuntutuliak Land Limited
P.O. Box 8106
Tuntutuliak, AK 99680
Phone 907-256-2315
Fax 907-256-2441

Village Council - Native Village of Tuntutuliak
P.O. Box 8086
Tuntutuliak, AK 99680
Phone 907-256-2128
Fax 907-256-2080
E-mail tuntutuliak@aitc.org
Elsie Smith

4.3 Abandoned School Site History

The school (Building 201) was built in 1957 by the Bureau of Indian Affairs (BIA); a classroom/living quarters (Building 205) with an enclosed connecting hallway was constructed in 1976. The land and buildings (USS 4410) were conveyed from the BIA to the Alaska Department of Education January 10, 1989. A new school was built in 1980 and by 1988 the use of the old BIA School was discontinued[3]. The land and buildings were conveyed from the BIA to the Alaska Department of Education on January 10, 1989 (HD_).The school district performed a hazardous materials removal for the site including draining, removal of above

[3] Division of Community Affairs Website

ground piping, and plugging the bulk fuel storage tanks in 1997 (HD1). The village tried to acquire the property for reuse for several years, 1993-2007, but since have changed their opinion of the Site and have asked the State to demolish the structures. Removed items were packaged and shipped to Bethel for disposal. The BIA school and shop were excessed for building removal on 4/7/1998 (HD3).

The following structures were associated with the site and are shown on Sheet 3 and involved with the ESDERP:

- School Building 201 Remaining
- School Building 205 Remaining
- Quarters No longer remaining
- Utility Building 203 Remaining
- Warehouse Remaining
- Play Deck No longer remaining
- Storage Building 204 Remaining
- Sewage Lagoon partially remaining
- Bulk Oil Storage Remaining
- Boardwalk Some no longer remaining

5.0 PREVIOUS ASSESSMENTS

The following previous assessment were available and reviewed regarding the Tuntutuliak Site and the following summary of findings is provided as background to developing the necessary site restoration decommissioning requirements.

5.1 AHERA Asbestos Inspections

An Asbestos Hazard Emergency Response Act (AHERA) rule assessment was performed May 1989. The exterior was not inspected as part of the AHERA scope, although known asbestos-containing cement asbestos board (CAB) materials on the building exterior were noted on the Old BIA School. The AHERA assessment found the following list of asbestos containing materials (ACM) to be present in the Old BIA School. The ACM areas are depicted in the AHERA Management Plan for Tuntutuliak School in Appendix 6, Historical Documents and Communication. ACMs identified and remaining are depicted on project figures.

- Old BIA School, WT03
  - 5 gaskets containing 65% Chrysotile, on furnaces, boilers and water heaters.
  - 2500 sq. ft. of 5% Chrysotile 9”x9” vinyl floor tile (non-friable)
  - 1200 sq. ft. of 10% Chrysotile containing 12” x 12” vinyl floor tile. (non-friable)
  - 1600 sq. ft. of 65% Chrysotile containing cement asbestos board in the furnace room. (non-friable)
  - 20 lin. ft. of assumed asbestos insulation on wire in stove of kitchen (non-friable)
  - 2800 sq. ft. of assumed asbestos cement board on the building exterior (non-friable)
- Utility/Generator Bldg., WT11:

- Gaskets of assumed ACM on heating unit and two diesel generators
- 1250 sq. ft. of 65% Chrysotile cement asbestos board around building perimeter.

5.2 Brownfield Property Assessment and Cleanup Plan

A Brownfield Site Characterization Report was performed by SLR to ADEC in May of 2009. The assessment objectives were to provide information aimed at advancing the property through the Brownfield process to beneficially reuse the Site. Environmental sampling of soil and groundwater took place during the assessment. A conceptual site model (CSM) for the site was developed and identified the following potentially complete exposure pathways: inhalation of outdoor air and dermal absorption. The Brownfield Site Characterization Report is included as appendix 8 to this ESDSRP. Sheet 3A depicts the sampling results. The report provided the following assessment conclusions and recommendations:

- Petroleum contaminated soils were identified in four primary areas of concern, although there may be additional areas that were not discovered during the investigation. The four main areas identified are
  - east of the generator building
  - the used oil ash box
  - the tank farm, and
  - the former day tank area.
- Laboratory results from samples exceeded the ADEC cleanup levels in the following samples:
  - Diesel range organics (DRO) concentrations greater than 230 mg/kg at sample locations
    - 08TUSB5-2, 08TUSB9-1, 08TUSB13-1
  - RCRA metals
    - Sample location 08TUSB7-3 contained arsenic, chromium
    - Sample location 08TUSB7-3 had arsenic
    - These concentrations were greater than the respective ADEC cleanup levels but within the upper end of background concentrations for the area.
- The ground water and surface water samples collected did not contain hydrocarbon concentrations that exceeded the DEC cleanup levels.
  - The wellpoint sample, 08TUWP-1, was collected in the assumed downgradient ground water flow direction towards the river.
  - This sample contained hydrocarbon concentrations, but concentrations were less than the regulatory cleanup levels.
- The report noted several potential hazardous materials concerns, including:
  - The siding on the former school building contains asbestos.
  - The building materials used on the interior of the generator building are coated with lead based paints.

- If part or all of these buildings are demolished in the future, these materials will need to be managed and disposed of properly by contractors certified to perform these activities.

6.0 REGULATORY RECORDS

NORTECH has reviewed the ADEC registered underground storage tanks and reported contaminated sites databases, in addition to the EPA CERCLIS, RCRA, and Superfund databases to identify any adjacent or on-property sources of contamination. The following locations, were identified and are located within ¼ mile of the Site:

CERCLIS Database: none
SUPERFUND: none
RCRA: none
SWDS: Rural Class III Landfill – permit expired
ADEC Registered USTs: none
ADEC Contaminated Sites Database:

Tuntutuliak Former BIA School at Block 49, USS 4410
Spill/Leak and Hazardous Materials Site
Contaminated Site #2452.57.001
Hazard ID: 4546, Active
May 2009: Site Characterization Report revealed four areas of concern: area east of generator building, the used oil ash box, the tank farm, and the former day tank area. The area east of the generator building has been impacted by historical fuel releases. The used oil box area had staining in the subsurface soils and arsenic and chromium concentrations in the soil exceeding migration to groundwater cleanup levels. The former day tank area has about 40 cubic yards of DRO-contaminated soil. Samples collected from the siding of the former school building and generator building contained asbestos and the interior of the generator building was covered with lead-based paint.

Alaska Air National Guard Tuntutuliak Federal Scout Armory, No Address
Spill/Leak Site
Contaminated Site #2452.38.001
Hazard ID: 2824, Active
September 2002: Site Assessment done under the Native American Lands Environmental Mitigation Program (NALEMP). At this time the Site was reported to be the Old BIA school and the contamination related to the BIA activities; report from a 1997 assessment.
May 2011: Final Work Plan for Site Characterization was approved. Site specific work plan was developed as part of the Alaska Army National Guard Work Plan for Site Characterization at 21 Alaska Federal Scout Readiness Centers.

Tuntutuliak Washeteria on Taguuourivik Street
Spill/Leak Site
Contaminated Site #2452.38.002
Hazard ID: 3377, Active
December 2002: Soil staining was observed to the north and east of the tank farm on site.
May 2008: Washeteria was reported to have been closed down.

Tuntutuliak Electric Plant on Taguuourivik Street
Spill/Leak Site
Contaminated Site #2452.38.002
Hazard ID: 3378, Active
December 2001: DRO contamination reported. Spill occurred in mid-1980's.

7.0 REGULATORY PROGRAM REQUIREMENTS

As an integral component to the development of the Tuntutuliak ESDSRP ***NORTECH*** contacted regional ADEC representatives for their guidance regarding options for the disposal of solid wastes and any potential recycle, reused, or salvage alternatives that could be taken into consideration. Our findings are as follows:

7.1 Private Disposal and Permitted Landfill Availability

There are no private waste disposal alternatives in Tuntutuliak. Tuntutuliak does not currently have a permitted landfill. The nearest permitted landfills to Tuntutuliak are Chefornak, Kipnuk, Quinhagak, and Bethel. The first three are Class III landfills. These communities are not interested in taking waste from somewhere else. Bethel, a Class II landfill, is only a little bit further than the other permitted landfills. However the landfill has recently denied a request for a large building demolition based on limited available space in the landfill. The closest landfills that are permitted for asbestos are located in Dillingham and Anchorage. Disposal at any of these locations outside of Tuntutuliak will require prior project specific approval by the facility.

7.2 One-Time Asbestos and Construction & Demolition Landfill

The ADEC Solid Waste Program does offer a one-time use authorization for the disposal of up to 250 cubic yards of regulated asbestos-containing materials. The application fee is $1,000 and the application is relatively short and easy; the main requirement is agreeing to comply with the operational and reporting requirements of the authorization. Documenting landowner permission is also a required part of the application process. The application form describes the conditions for approval and is available on line. ADEC also has a one-time use authorization for construction and demolition (C&D) debris that allows for disposal of up to 1,000 cubic yards of inert materials.

7.3 Burn Permits

The ADEC Division of Air Quality does not have a burn permit to authorize the burning of a building or waste. It is possible to obtain a burn permit to burn wood/brush for land clearing, or a burn permit for fire training to burn fuel or structures. Federal regulations allow the burning of solid waste within the boundaries of Class III landfills in Alaska. It should be noted that the

ADEC Solid Waste Program discourages open burning of solid waste on the ground and recommends a burn box or burn cage or other enhanced burning device. Asbestos, lead based paint and other hazardous materials may not be present in waste that is burned under any of these programs.

7.4 Sewage Lagoon Closure Criteria

ADEC requirements to close a remote village's former waste water sewage lagoon, in place, depends on what is available at the village. If there is an active lagoon system in the village, and it is relatively close to the school, dewatering the old lagoon into the active village lagoon is recommended, if possible. If that isn't possible and the school needs to dewater the lagoon for closure, it would be necessary to submit a discharge plan with representative biological oxygen demand (BOD), total suspended solids (TSS) and fecal coliform samples of the water in the lagoon for DEC – Water departments approval. Permitting would depend on how close the sample results come to meeting 30-30-200 secondary standards. Note it is easier to grant approval for discharge to land rather than a direct discharge to a water body. Further, if any solids are left in the lagoon when it is closed, it will be necessary to close the lagoon in accordance with the closure requirements for a sewage solids monofill.

8.0 SAMPLING AND ANALYSIS PLAN

The field sampling effort was completed, where feasible, in accordance with the project specific Excess School Decommissioning & Site Restoration Sampling and Analysis Plan (SAP) submitted, reviewed and approved by DEED in December 2011. A copy of the SAP is included in this report as Appendix 5.

9.0 FIELD ACTIVITIES

On July 25-26th, 2012 ***NORTECH***'s staff completed a site and building inspection of the Old BIA Tuntutuliak School site which included all structures located on the parcel that are scheduled for decommissioning as listed in Section 4.3 and shown on the Figures. The weather was rainy, windy and with ample exterior natural light to accommodate most of the work. Each building and the site was visually inspected. The condition of the site and improvements were assessed for construction, recyclable and hazardous materials and visible environmental conditions of concern. Building materials suspect of containing asbestos were sampled for laboratory analysis. A total of 24 samples were collected and submitted for laboratory analysis by polarized light microscopic (PLM) method of the following building materials suspect of containing asbestos. Samples collected for asbestos analysis were sent by standard chain of custody and overnight courier service to a laboratory certified to perform the analysis.

- Floor tile
- Sheet Vinyl
- Mastics
- Gypsum wall board and joint compound
- Roofing felts

Interior and exterior painted surfaces were assessed for lead content. A total of 51 painted and ceramic glazed surfaces throughout all structures to be decommissioned were analyzed by XRF.

Other hazardous materials were noted during a walkthrough of all rooms of every structure scheduled for decommissioning. These materials do not require laboratory confirmation for their content but require additional disposal effort and require quantification.

10.0 RESULTS WITH DISCUSSION

The project assessment results with discussion are provided in the following subsections including a summary of hazardous materials identified and a description of the improvements, site observations, salvage value and disposal alternatives.

10.1 Hazardous Materials

10.1.1 Asbestos

The summary of ACM samples, description, location and results are presented in Table 1. A total of 24 suspect ACM samples were collected, and analyzed.

Historical records and/or laboratory sample results confirmed the following Tuntutuliak School building materials contain asbestos in concentrations greater than 1%.

Asbestos Containing Materials (ACM)

Friable (Category 1)

- No friable Category 1 ACM observed during the inspection

Non-Friable (Category 1)

- 9”x9” Floor Tile
  Old BIA School – 2,800 sq. ft.
- Vinyl Sheet Flooring
  Old BIA School – 150 sq. ft.
- Gaskets on furnaces, boilers and water heaters
  Old BIA School – 20 linear ft.
- High Temperature Wiring Insulation
  Old BIA School Kitchen Stove – 20 lin. ft.
- Cement Asbestos Board (CAB)
  Utility/Storage Bldg. – 1250 sq. ft.
  Building 201 exterior siding except WW addition – 2,900 sq. ft.
- Tar Tank Coating
  Old BIA School – 90 sq. ft.

- Ceiling Tile Mastic
  Old BIA School – 3,800 sq. ft.

- Transite Pipe
  Utility/Storage Bldg. – 200 linear ft.

10.1.2 Lead

A total of 51 painted and glazed surfaces of structures throughout the Old BIA Tuntutuliak School properties were sampled by XRF to assess lead content. The results are tabulated in Table 3. 11 positive results above the 1.0 mg/cm2 HUD standard for lead based paint were identified as identified as follows:

- Old BIA School
  - All Exterior Window Frames, Brown – 1.60 mg/cm2
  - 4 Interior Book Shelves, Red – 10.9 mg/cm2
  - 2 Interior Utility Sinks, White Glazing – 34.8 to 47.0 mg/cm2

- Utility/Storage Building.
  - Interior Floor, Grey – 1.0 mg/cm2
  - 1 Generator Cowling, Yellow – 1.10 mg/cm2

- Fuel Storage Tanks
  - 8 Fuel Tanks, Yellow – 1.0 to 5.4 mg/cm2

10.1.3 TCLP RCRA 8 Metals

A list of XRF analyzed sampling results collected by ***NORTECH*** to facilitate the identification of lead base paint surfaces has been provided in Appendix 3. Lead Based Paint (LBP) was identified during the survey to be present on all exterior wood window trim, a few interior book and cupboard shelves and engine cowlings on generators and plywood flooring in the Utility/Storage Building. There has been little lead based paint utilized within the Tuntutuliak School, Utility/Storage Building, Pump House and Storage structures, therefore items painted with lead based paint, when combined with the waste stream of debris associated to each of these structure's demolition, the percentage of lead per volume of waste will be below action levels determined by EPA. TCLP analysis for the anticipated waste stream for each of these structures was determined unnecessary.

10.1.4 Other Hazardous Materials

The following miscellaneous hazardous materials and other wastes observed and quantified:

- 196 four-foot mercury containing fluorescent bulbs
- 86 Non-PCB light ballasts
- 17 PCB containing light ballasts
- 8 Mercury switches

- 33 Smoke detectors
- 2 Exit Signs
- 9 Hydraulic door closers
- 6 Lead acid battery
- 1 Refrigerator

Quantities are considered approximate and accurate at the time of the inspection. Prior to demolition of the buildings the mercury containing bulbs and radioactive Americium containing smoke detectors should each be segregated, properly containerized, labeled, and disposed of at a facility permitted to accept these hazardous wastes. PCB containing ballasts should be properly containerized, labeled and disposed as hazardous waste at a facility permitted to accept such waste. Ballasts that have been tested and verified non-PCB may be disposed as non-hazardous construction and demolition (C&D) debris. Ballasts should have a manufacturer label attached that will state whether the ballast is PCB or No PCB's. If no label is observed on any ballast removed it must be considered PCB containing and disposed of as hazardous waste.

10.2 Description of Improvements and Observations

The following is a description and discussion by improvement including construction, condition, recyclable/salvage opportunities, reusability, general condition, site and environmental observations, and disposal alternatives.

10.2.1 Old BIA School

The Old BIA School is comprised of two structures identified as school buildings 201 and 205. The structures are connected by a wood frame insulated and previously heated hallway. Building 201 has a small addition added that contained the Bio Pure wastewater treatment plant and sewage lagoon lift station. The total square footage of the two buildings and connecting hallway is 6,985 square feet. Both structures are wood frame structures constructed on a wood piling foundation with 2X6 exterior walls and 2X4interior partition walls. The roof and exterior walls are constructed with plywood. The roof is sheathed with corrugated metal panels. Exterior walls of building 201 are sheathed with Cement Asbestos Board (CAB) except for the lower 4' plywood skirting around the piling crawl space and the Bio-Pure addition. The interior of the structure includes three major classrooms as well as two kitchens, guest room, two living quarter bedrooms, bathrooms, storage and utility rooms. Water and wastewater were provided and removed by above ground insulated piping, lift station, Bio-Pure wastewater treatment system and discharged by lift station to the on-site sewage lagoon. The wastewater utilidor to the lagoon as well as the Bio-Pure plant no longer remain on site. The school has been vandalized and many school books, science experiments, equipment, and construction material debris remain. Hazardous Materials identified in the Old BIA School include:

- ACM
  - Transite Piping
  - Floor Tile
  - Sheet Vinyl

- Cement Asbestos Board
- Glued-on Acoustical Ceiling Tile Mastic
- High Temperature Wiring
- Tarry coating on furnace room water tank

- Non-ACM
  - Incandescent & Fluorescent Lights
  - Light Ballasts
  - Smoke Alarm Sensors
  - Fire Extinguishers
  - 5 gallon containers of stain/paint
  - 1 gallon containers of stain/paint

The school building is in poor condition and is considered to have no value. We understand there has been little interest in reuse expressed by the Village and local leaders. Limited portions of the school are recyclable and salvageable. This includes the beams, posts, framing materials, metal roofing, copper piping, select mechanical equipment and installed and remaining fixtures and equipment.

10.2.2 Utility Plant/Storage Building.

The Utility/Storage Building is comprised of two structures (utility plant and warehouse) with a total of about 1,515 square foot. Both structures are single story 2X6 wood framed structure with standard wood truss peaked roof constructed of plywood and corrugated metal roofing. The exterior of the Utility Plant building is sheathed with Cement Asbestos Board (CAB), while the warehouse addition is sheathed in plywood. The warehouse portion has a post and pad foundation while the Utility Plant Building is constructed on a piling foundation. The two generators remain. In addition a significant quantity of solid waste, consisting of parts, equipment, hazardous materials and liquids are present in the structure. The structure has been vandalized and is open to the weather. Water intrusion is occurring and resulting in severe deterioration. The floor is out of level and is considered at risk of collapsing. Hazardous Materials identified in the Shop include:

- ACM
  - Transite Piping
  - Cement Asbestos Board
- Non-ACM
  - Incandescent & Fluorescent Lights
  - Light Ballasts
  - Miscellaneous cleansers/solvents/grease
  - Fire extinguishers

This assessment considers there to be no resale value and has included demolition costs in the decommissioning alternate cost estimate.

10.2.3 Storage Shed, Warehouse, & Pump House Structures

The Storage, Warehouse, Shed, and Lift Station buildings are all small single story 2X6 wood framed structures with flat or sloped roofing constructed of dimensional lumber, plywood and corrugated metal panels. The exterior of the structures are sheathed with plywood and/or CAB. The structures have no permanent foundation and are constructed on multiple log skids & beams that would potentially permit them to be relocated. The structures have been vandalized and are open to the weather. Water intrusion is occurring and resulting in severe deterioration. CAB has broken off of the exterior of these structures and is scattered on the ground. Hazardous Materials identified in these structures include:

- ACM
  - Cement Asbestos Board
- Non-ACM
  - No Non-ACM hazardous materials identified observed during the inspection

This assessment considers there to be no resale value and has included demolition costs in the decommissioning alternate cost estimate.

10.2.4 Tank Farm

The Tuntutuliak tank farm is comprised of the bulk fuel storage tanks listed below. The eight vertical tanks comprise the former school bulk fuel tanks to be removed as part of this ESDSRP project. The tanks can be relocated, have a limited off-market resale value and can involve some cradle to grave disposal liability. All appear to be intact and whole except one which was punctured when it apparently fell, striking the platform of an adjacent tank. It would not be cost effective to have them recertified and they would have to be sold or given away "as is". This assessment considers there to be no resale value and has included demolition costs in the ESDSRP and project cost estimate.

NAME	TYPE	DIAMETER	HEIGHT	VOLUME
Tank A	Vertical	8 feet	12 feet	4,500 Gallons
Tank B	Vertical	8 feet	12 feet	4,500 Gallons
Tank C	Vertical	7 feet	12 feet	3,500 Gallons
Tank D	Vertical	7 feet	12 feet	3,500 Gallons
Tank E	Vertical	7 feet	12 feet	3,500 Gallons
Tank F	Vertical	8 feet	12 feet	4,500 Gallons
Tank G	Vertical	8 feet	12 feet	4,500 Gallons
Tank H	Vertical	7 feet	12 feet	3,500 Gallons

The bulk fuel storage tanks are installed in an enclosure 61 feet by 31 feet surrounded by a 6 foot tall chain link fence supported by metal posts, wooden 2"x2", 2"x4", and 4"x4" posts and supports. Just inside the fence is a border of 12"x12" pressure treated lumber and a sheet metal liner, with damage, forming a containment of sorts on all four sides. The tanks are placed on wooden platforms 8.5 feet square with 12"x3" wooden plank decks. The decks are supported by

12”x3,” 12”x6,” 4”x4” and 8”x8” pressure treated and untreated lumber. Two of the ten platforms no longer hold a tank. The lumber in these platforms is salvageable.

Shallow digging to 6 inches in the bulk fuel enclosure did not reveal a liner. The surface of the enclosure was overgrown with grass and the top 3-4” of soil contained heavy grass roots. Below the root layer was very dark, wet soil with strong hydrocarbon odor.

10.2.5 Lagoon

The former sewage lagoon is immediately to the northeast of the tank farm and is surrounded by a 6 foot tall chain link fence supported by wooden 2”x2,” 2”x4,” and 4”x4” posts. The enclosure is approximately 56 feet by 39 feet and the bermed lagoon is 36 feet by 25 feet. The lagoon was overgrown with water plants with grass and shrubs growing in the enclosure. There is standing water in the lagoon approximately two feet deep and water levels correspond to the surrounding water table. The ground surrounding the lagoon is marshy with standing water on a majority of it. No odor was noted or commented on by neighbors. Standing water appeared visually clear and clean looking. A water sample collected and submitted for analysis for coliform contamination. Due to the remoteness of the site and travel delays the sample was received and analyzed outside the method specific holding times for fecal coliform (6 hours) and total coliform (30 hours). The results reported no fecal coliform bacteria above the method reporting limit (MRL) of 9.0 colony forming units (CFU) per 100 ml, E. Coliform passed with MRL of 1.0, Total Coliform failed with a MRL of 1.0 While the negative results for fecal is in question due to sample analysis being outside the method specified holding time the results suggest no fecal or human wastewater contamination remains present in the clear standing water present in the lagoon area. The ESDSRP assumes the standing water is background surface water. The ESDSRP includes costs for only removal of the fence and filling of the remaining depression with locally available soils.

10.2.6 Site

The site is generally littered with debris and overgrown with heavy surface vegetation and a growth of alders and shrubs with 1” - 2” diameters and grasses at the time of the inspection. Marshy wetland with a high water table with excessive standing water dominates the landscape. The following is a brief synopsis of the type of general debris and materials that were observed on site and would be included in the ESDSRP.

- Barrels
- Wood and metal debris
- Transite Pipe
- Electrical wiring
- Personal belongings and waste
- School contents

11.0 DECOMMISSIONING AND SITE RESTORATION

11.1 ESDSRP and Cost Estimate Assumptions

The attached preliminary cost estimate for the Tuntutuliak School ESDSRP includes the following primary assumptions and limitations. Improvements, materials and equipment to be included in the Tuntutuliak ESDSRP are as identified above and as shown on the drawings.

Contaminated Site Management
Hydrocarbon contamination from bulk petroleum storage in the tank farm is apparent on the soil surface. Based on the Brownfield Site Characterization Report (Appendix 8), hydrocarbon contamination exists at levels above ADEC clean up guidance in generator building, the used oil ash box, the tank farm, and the former day-tank areas. Analytical laboratory results in the same report indicated surface soil levels of diesel, arsenic and chromium concentrations in the soil exceeding DEC cleanup levels. Migration of hydrocarbons could have occurred since the 2009 soil boring samples. Only a limited quantity of contaminated soil removal as necessary to remove existing improvements, is included in the project cost estimate. Following demolition a comprehensive subsurface soil and groundwater site assessment including a standard environmental consultant and drill rig approach and laboratory analysis of the known and identified areas of visibly site surface contamination located around the fuel tank farm has been included. This information will be necessary and important to developing a cost effective subsurface soil and groundwater corrective action plan acceptable to the Dept. of Environmental Conservations Contaminated Site Program requirements. No environmental subsurface corrective action costs have been included in the ESDSRP.

Contract Requirements
This preliminary planning level estimate of probable demolition costs is based on the available data at the time of its preparation. The cost estimating approach assumes a unit price, competitive bid contracting mechanism. The estimating methods and procedures utilized represent the typical methods used by the construction industry. Standard construction contract assumed without restrictive bidding clauses. Pricing is based on current material, equipment and freight rates. Labor rates are in accordance with A.S. Title 36 Working 60 Hours/Week (70% Premium Time). Competitive bids are assumed. Geographic location multiplier of 67% was used as provided for by the 12th addition Updated Revised Alaska Department of Education and Early Development (DEED) Program Demand Cost Model for Schools dated April 2012. For escalation purposes we have assumed legislative funding spring of 2013, bid period fall 2013, demolition winter of 2013/2014 with site restoration completed in spring/summer of 2014.

The estimate does not include:

1. A/E Design fees
2. Administrative, management and other project costs
3. Project coordination with the land owner, village and tribe
4. The project is assumed to be Tax Exempt. Sales and use taxes are “Not Included”.
5. Savings for reuse, recycling or salvage
6. Savings for alternative disposal strategies

11.2 Alternatives

11.2.1 Reusable, Recyclable and Salvageable

The following building materials and equipment present on site were identified during the assessment as having some recycle, reuse or salvage value.

- Building materials from BIA School, Utility/Storage Building, Storage Shed, Warehouse, & Pump House Structures
  - Dimensional lumber, glue laminate beams, posts
  - Copper Piping
  - Steel: siding, roofing and structural
  - Foundation thermopiles
  - Diesel generators
  - Electrical wiring, unused and out of service
  - Appliances
- Tank Farm
  - Dimensional Lumber from Platforms
  - Bulk Storage Tanks

Reuse of the facilities should be made available as an alternative to demolition. However, considering the remote site location, the cost to relocate, reuse or salvage the materials and manage the effort the ESDSRP assessment assumes no reuse, recycle or salvage value or savings and has included demolition costs for these materials in the project cost estimate.

Allowing uncontrolled salvage prior to a holistic decommissioning effort is not recommended because this will create a liability and likely increase demolition costs by removing any remaining value to a demolition contractor. Knowledgeable prime contractors will recognize reuse, recycle and salvage value and would provide DEED this savings in the lowest competitive bid. In order to maximize the potential reuse, recycle, and salvage savings, the project design documents should identify and highlight these materials, as well as identify potential local available resources. Project documents should also clearly identify DEED's interest in reuse, recycle and salvage savings.

Involving the Village and local population during project design and development of bid documents obtaining there input and further identifying local resources including local labor, equipment, housing as well as reuse, recycle and salvage interest is recommended. The identified local resources including contact information provided in this report should be included in the project design documents to insure bidders all have access to the knowledge during the bid process. Ideally, the procurement process should provide a bid incentive for reuse, recycle and salvage efforts. A mandatory site inspection and meeting with the Village is recommended to insure maximum value of this alternate.

11.2.2 Disposal Alternatives

One Time Landfill: A cost saving alternative would be the utilization of the ADEC Solid Waste Program one-time use authorization for the disposal of up to 250 cubic yards of regulated asbestos-containing materials and/or 1,000 cubic yards of inert materials. The estimated

quantities of asbestos and general demolition waste is less than the permit maximum. Available sites are not ideal for this alternative in that the area is predominantly low wetlands, whereas ideal locations for landfills are upland dry sites. The effort would incur additional costs for geotechnical assessment, permitting, siting, and development, but would eliminate transport and handling costs to remove waste materials from Tuntutuliak that are currently estimated to be on the order of $274,000, approximately 27% of the total estimated costs.

Clean Up of Existing Dump: There is also precedent for large village project prime contractors to negotiate a temporary use of a non-permitted dump with significant project cost savings as way to provide the village a one-time clean up and upgrade of the landfill as part of the project. This type of cooperative assessment is generally negotiated during the design process or after the award of the project due to the multiple parties and funding sources that can be involved. This specific approach was recommended by the school principal that the project wastes should be disposed of at the existing dump and that project funds should be used to clean up the existing dump. It is anticipated that with the support of the Village the ADEC would approve utilization of the onetime landfill permitting mechanism to achieve a cleanup of the existing dump.

12.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the available historical record, the field site inspection, and the laboratory sample results, ***NORTECH*** has developed the following conclusions for the Tuntutuliak School Site Excess School Decommissioning and Site Restoration Plan (ESDSRP).

- The attached sheets and tables identify the variety of structures and materials that are present at the Site and will require decommissioning, including:
  - improvements to be removed
  - hazardous materials that will be encountered
  - Estimated quantities of hazardous and non-hazardous wastes
  - site conditions to be addressed.
- The preliminary ESDSRP cost estimate projects the decommissioning effort costs will be approximately $992,000 based on the following assumptions:
  - DEED will utilize standard procurement through competitive bidding to issue a standard contract
  - Standard demolition methods will be utilized
  - Non-hazardous waste materials will be transported to Anchorage area for appropriate disposal at the permitted Landfill ‘
  - Hazardous waste materials will be transported for disposal to a permitted facility
  - Subsurface environmental assessment work will be completed following decommissioning

While the cost estimate is based on the assumptions described above, ***NORTECH*** has identified several alternatives that may reduce project costs. These may also improve the Village of Tuntutuliak and generate greater public acceptance of the overall project. These recommendations include:

- Involvement of the Village and local population in the planning and design process, including
    - Additional interviews to obtain current information about local resources during design
    - Publishing local interest, resources, and capability in the bid documents
    - Requiring a mandatory site visit and local meeting for potential bidders
- Utilizing the ADEC's onetime landfill and cleaning up of the Village dump

13.0 SIGNATURES OF ENVIRONMENTAL PROFESSIONALS

NORTECH is a Fairbanks-based, professional consulting firm, established in 1981, offering environmental engineering, civil engineering, and industrial hygiene consulting services. ***NORTECH*** has offices in Fairbanks, Anchorage and Juneau and has completed numerous Phase I ESAs, hazardous materials assessments, and demolition design projects across Alaska.

John M. Hargesheimer, PE, CIH, CSBA is the Principal-In-Charge of ***NORTECH***, Inc. Mr. Hargesheimer is a Certified Industrial Hygienist (ABIH#7343), licensed Civil Engineer (CE 4703), and a registered Environmental Engineer (#92-20026) with degrees in Chemical (Cornell University) and Environmental Engineering (University of Alaska, Fairbanks). As of 2009, Mr. Hargesheimer is a Certified Sustainable Building Advisor (CSBA) advocating for sustainable design and energy efficiency. He has over thirty years of seasoned Alaskan Civil/Environmental engineering and Industrial Hygiene experience, encompassing industry, regulatory and consulting services. Mr. Hargesheimer has managed or reviewed most of ***NORTECH's*** projects for the last 20 years, including RCRA cleanup, hazardous materials inspections, abatement design and project monitoring, contaminated site investigation and remediation, NEPA environmental assessments, ASTM property transfers, human health risk assessments, occupational exposure monitoring, indoor air quality and noise assessments. He maintains current EPA accreditation for lead and asbestos inspections, abatement design, risk assessment and project monitoring.

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