Site Assessment
Former Kake Elementary School
Kake, Alaska
ADEC File ID: 1514.57.002

December 2014

SHANNON & WILSON, INC.

GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

Excellence. Innovation. Service. Value.

Since 1954.

Submitted To:
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TABLE OF CONTENTS

TABLES

FIGURES

APPENDICES

ACRONYMS AND ABBREVIATIONS

AAC	Alaska Administrative Code
ACMs	Asbestos-Containing Materials
ADEC	Alaska Department of Environmental Conservation
ADNR	Alaska Department of Natural Resources
AK	Alaska Method
bgs	Below ground surface
BTEX	Benzene, Toluene, Ethylbenzene, and Xylenes
CAB	Cement Asbestos Board
CFR	Code of Federal Regulations
City	City of Kake
cy	Cubic Yard
DBAC	DEC Brownfield Assessment and Cleanup
DOE	Determination of Eligibility
DQO	Data Quality Objective
DRO	Diesel Range Organics
EHS	EHS-Alaska, Inc.
EPA	Environmental Protection Agency
GRO	Gasoline Range Organics
HBM	Hazardous Building Materials
IDW	Investigation Derived Waste
LBP	Lead-Based Paint
LCS/LCSD	Laboratory Control Sample/Laboratory Control Sample Duplicates
mg/cm^2	Milligram per centimeter squared
mg/kg	Milligram per kilogram
MS/MSD	Matrix Spike/Matrix Spike Duplicate
NRHP	National Register of Historic Places
PAH	Polyaromatic Hydrocarbons

ACRONYMS AND ABBREVIATIONS (continued)

PCBs	Polychlorinated biphenyls
PID	Photoionization detector
ppm	Parts per million
ROM	Rough Order of Magnitude
RPD	Relative Percent Difference
SGS	SGS Environmental Services, Inc.
TCLP	Toxicity Characteristic Leaching Procedures
TNSDS	True North Sustainable Development Solutions
UST	Underground Storage Tank
XRF	X-Ray Fluorescence

SITE ASSESSMENT
FORMER KAKE ELEMENTARY SCHOOL
KAKE, ALASKA
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1.0 INTRODUCTION

This report presents the results of Shannon & Wilson's site assessment conducted at the Former Kake Elementary School in Kake, Alaska. The site assessment includes a historical property assessment, hazardous building materials (HBM) survey, preparation of a building demolition rough order of magnitude (ROM) cost estimate, and underground storage tank (UST) removal.

This project was conducted under Shannon & Wilson's Alaska Department of Environmental Conservation (ADEC) Hazardous Substance Spill Prevention and Cleanup Term Contract 18-8036-03, in accordance with our June 4, 2014 proposal. ADEC authorization to proceed was received on July 21, 2014 with Notice to Proceed Number 18-8036-03-022 and modified as a no-cost amendment on October 6, 2014 to include the preparation of the building demolition ROM cost estimate instead of the hazardous building materials abatement cost estimate. Work was conducted in accordance with our August 27, 2014 Alaska Department of Environmental Conservation (ADEC) approved work plan.

2.0 SITE AND PROJECT DESCRIPTION

The City currently owns the former Kake Elementary School, which is located in downtown Kake at the intersection of Church Street and Fourth Avenue. The site is located at 56° 57' 27" N and 133° 54' 02" W (NAD 83) in USGS Quadrangle "Petersburg (D-6)," Alaska, Township 056 South, Range 072 East, Copper River Meridian. A vicinity map is shown in Figure 1, a site overview is shown in Figure 2, and the approximate school structure location is shown in Figure 3.

The Former Kake Elementary School was constructed in 1951 and opened its doors to students in 1952. Between 1979 and 1980, an addition was constructed to the school which included two new classrooms, a special education room, and updates to the plumbing and wiring. The school closed in 1996 after a new school was constructed at a separate location. The building has stood vacant for several decades and has become a health and safety hazard to the community due to the deterioration and recent structural collapse of the building's walls and floor.

The City of Kake (City) requested assistance from the ADEC through its DEC Brownfield Assessment and Cleanup (DBAC) Program in 2013 to assess the condemned Former Kake Elementary School so the City could move forward with plans for demolition and subsequent redevelopment of the site. We understand the City has identified the site as a potential site for a new multi-purpose community center.

The purpose of this assessment was to evaluate the site's environmental conditions and potential historical status of the school structure prior to proposed demolition and redevelopment activities. During the HBM survey, portions of the building had collapsed and deemed unsafe to enter. The original scope included cost preparation for HBM abatement. However, due to the health and safety concerns associated with the building collapse, preparation of a building demolition ROM cost estimate was instead developed as abatement of the HBM was not a viable or safe option.

True North Sustainable Development Solutions (TNSDS) of Wasilla, Alaska provided the historical property assessment, and EHS-Alaska, Inc. (EHS) of Eagle River, Alaska provided the HBM survey. SGS North America, Inc. (SGS) of Anchorage, Alaska performed the laboratory testing of analytical soil samples. Olberding White Architects of Anchorage, Alaska was subcontracted to develop drawings showing dimensions of the school structure; Alaska Demolition of Anchorage, Alaska used the information from Olberding White Architects' plans to develop a ROM cost estimate for building demolition. TNSDS, EHS, SGS, Olberding White Architects, and Alaska Demolition were subcontracted to Shannon & Wilson.

3.0 WORK PLAN VARIANCES

Two material work plan variances occurred during the field activities and included the following:

- The UST excavation extent was larger than assumed in the proposal and work plan. For planning purposes we assumed the excavation perimeter would be 52 linear feet, the excavation area would be 160 square feet, and up to 50 cubic yards (cy) would be removed. However, the final excavation perimeter and area were 68.3 linear feet and 248 square feet, respectively, and 95 cy were removed. The number of field screening and analytical samples collected for the excavation is appropriate for the assumed excavation dimensions, but is less than the number that would be collected for the actual dimensions per the ADEC's May 2010 *Draft Field Sampling Guidance*. The number of samples would, however, satisfy the regulations for a regulated UST closure assessment, although as a heating oil tank this tank was not subject to UST regulations (18 AAC 78).

- No liners or stockpile covers were used as the operator did not have the resources available at the time of the field activities.

4.0 HISTORICAL PROPERTY ASSESSMENT

TNSDS conducted an assessment of the historical status of the site. Their report *Determination of Eligibility (DOE) of the Old Kake Elementary School, Located in Kake, Alaska and Recommendations for Issuing a Section 106 Finding for Demolition and Redevelopment* is included in Appendix A.

TNSDS evaluated the site by performing a literature review and archival research, conducting a cultural resources survey, and applying the National Register Criteria for Evaluation, including evaluating the physical integrity of the building during their October 7, 2014 site visit. TNSDS concluded that the building is not eligible for inclusion in the National Register of Historic Places (NRHP) due to the loss of integrity of the building. Therefore the proposed demolition will not result in "an affect to historic properties pursuant to Section 106 of the National Historic Preservation Act of 1966 and its implementing regulations." A copy of the Alaska Department of Natural Resource's (ADNR) Office of History and Archeology: Cultural Resources Report Coversheet and TNSDS report are included in Appendix A and should be provided to the ADNR prior to demolition.

5.0 HAZARDOUS BUILDING MATERIALS SURVEY

On August 27 and 28, 2014, EHS, Alaska, Inc. performed a hazardous materials survey of the Former Kake Elementary School under subcontract to Shannon & Wilson. They provided their findings in a September 17, 2014 report titled *Hazardous Materials Survey Report*, included as Appendix B. The interior of the school was inspected and/or sampled for asbestos-containing materials (ACM), lead, polychlorinated bi-phenyls (PCBs), mercury, and radioactive materials. Partial building collapse and safety concerns restricted access to certain areas of the building. The key findings are summarized below. Note these are subject to the limitations in Appendix B.

5.1 Asbestos-Containing Materials

Seventy-three discrete samples were analyzed using polarized light microscopy by Environmental Protection Agency (EPA) Method 600/M4-82-020. Thirteen of the samples were found to contain asbestos (defined as having over 1 percent asbestos content) and included the following materials:

- Joint compound in gypsum wallboard;
- Green-faced cement asbestos board (CAB);
- Vinyl flooring and mastic located under sheet vinyl flooring;
- Various colors of 9-inch by 9-inch floor tiles and mastic (several locations);
- Hard and chalky insulation on original piping;
- Gaskets at piping and packing valves;
- Incinerator insulation and refractory materials;
- Firebrick and refractory within concrete and rock chimney wall;
- Remnants of asbestos-containing Patching Tars; and
- Asbestos-containing sealants on roof top supply air ducting.

There were additional materials that were assumed to contain ACM, although the materials were not sampled. The materials include:

- Boiler gaskets and sealants;
- Incandescent light fixture heat shields;
- High temperature wiring insulation at lights;
- Tarry sound lining in clock/speaker boxes; and
- Exterior tarry damp-proofing.

Table 1 of EHS's report contains a summary of the ACMs and their locations in the building.

According to EHS, the detected ACM materials present in floor tiles, mastic, joint compound, cement asbestos board, light fixtures and heat shields, and boiler gaskets and sealants are classified as friable ACM or may become friable if damaged. Other ACM identified in the school is classified as non-friable, but are typically in poor condition. The EPA requires that a trained asbestos worker remove all ACM that would be disturbed by the planned demolition. EHS notes that due to the structural instability of the building, the EPA may allow the City to leave all ACM in place and treat all demolition debris as asbestos-containing waste. It is the City's responsibility to coordinate this requirement waiver with the EPA. Additionally, the City may need to coordinate with authorities (i.e. EPA) having jurisdiction to develop a pre-demolition work plan.

Settled and concealed dusts were examined by EHS's field inspector but analytical sampling of the dust was not conducted. However, based on visual inspection and experience from similar buildings, the inspector opined that the settled and concealed dusts likely contain less than 1 percent asbestos and are not ACM. EHS concluded the presence of dusts with measureable concentrations of asbestos is likely insignificant compared to the volume of ACM in other building materials.

5.2 Lead-Containing Materials

EHS's field inspector tested paint and other materials at 61 discrete locations using an x-ray fluorescence (XRF) lead paint analyzer. Each of the tested samples had detectable concentrations of lead and is classified as a lead-containing material. The EHS report notes the "highest concentrations of lead were identified on structural members and miscellaneous steel, with lower levels on walls and other painted surfaces, and (the) lowest levels on pre-finished materials." Other lead-containing materials, including lead soldering at the sheet metal roof flashings and copper piping, poured lead sealants at bell and spigot joints of various piping, and lead-acid batteries in emergency lights and other battery backup equipment, were also identified. A lead analysis summary is provided in Appendix C of the EHS report.

EHS did not identify lead-based paint (LBP), defined as paint containing more than 1.0 milligrams per square centimeter (mg/cm^2). Although EHS concludes that LBP likely does not present a hazard to demolition workers in accordance with safe work practices, Federal and the State of Alaska regulations (29 Code of Federal Regulations [CFR] 1926.62 and 8 Alaska Administrative Code [AAC] Chapter 61) require lead-trained personnel, personal protective procedures, and air monitoring at work sites where employees may be exposed to lead until exposure levels can be verified and site-specific safe work practices are established.

EHS collected a composite sample of building materials for total lead and Toxicity Characteristic Leaching Procedure (TCLP) lead analyses. According to EHS, the total lead concentration of 45 parts per million (ppm) is below the EPA action level of 100 ppm for further TCLP testing and the sample was not tested for TCLP lead. Based on this test result, the debris that would be generated from the demolition of the Former Kake Elementary School would not require special handling or disposal 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. EHS notes that all ballasts, including those associated with high-intensity discharge lights, should be inspected during removal. If they are not marked "No PCBs," either the manufacturer should be contacted to determine the presence of PCBs or it should be assumed the ballasts contain PCBs. No PCB-containing materials were identified in the EHS survey, noting not all areas of the building were able to be accessed due to partial building collapse. If any PCB-materials are discovered, they must be handled in accordance with regulation 40 CFR Part 761 by personnel trained and certified as outlined in regulations 29 CFR 1910.120 and 8 AAC 61.

The only mercury-containing materials identified by the EHS survey are fluorescent lamps and HID lights. The fluorescent lamps had been vandalized and the mercury had visibly impacted the building's floors. EHS notes, "no mercury-containing thermostats or electrical switches were noted in the building, but may be present in inaccessible areas due to partial building collapse." EHS recommends all mercury-containing items removed from the Former Kake Elementary School be disposed of as hazardous waste or recycled.

5.4 Other Hazardous Materials

Additional hazardous materials including smoke detectors containing radioactive materials, a variety of household chemicals, mercury- and/or asbestos-contaminated soils, and glycol are assumed to exist within the building. All construction workers who are required to handle the above materials must be properly trained and certified as required by regulations 29 CFR

1910.120 and 8 AAC 61. Refrigerants were not identified by the EHS survey, but must be removed by certified technicians if found.

6.0 DEMOLITION ROM COSTS

Alaska Demolition developed ROM costs to demolish the building and manage the HBM that were identified in EHS's assessment. As-built drawings of the 1979-1980 addition were provided by the City, but as-builts of the original building construction were not located. Representatives of Olberding White Architects were in Kake for an unrelated project and developed drawings showing dimensions of the original structure to use in developing the demolition ROM costs. Copies of the drawings prepared by Olberding White Architects are included in Appendix C.

The total ROM cost to demolish the building is $2.6 million. The cost assumes that up to 20 containers can filled and barged off-island each week. Based on information from the Kake Dock Manager, if work is conducted during July through September, export of fish products takes priority and there is no guarantee how many containers, if any, can be barged off island. Due to the presence of friable asbestos and hazardous materials such as PCB ballasts, mercury-containing materials, the contractor will manifest the materials per U.S. and Canadian regulations. The cost estimate also assumes that no contamination will be encountered and no backfill will be necessary. The site will be safe-sloped after completion of the demolition. When developing the ROM costs Alaska Demolition found that the community of Kake does not have all the appropriate qualified staff to manage hazardous materials and equipment necessary for demolition; therefore additional equipment and personnel will have to be mobilized to Kake. The ROM cost estimate for demolition is included in Appendix D.

7.0 UST REMOVAL ACTIVITIES

A 4,500-gallon heating oil UST was previously used during operation of the Former Kake Elementary School. Because the UST was used for storage of heating oil, the UST is not subject to UST regulations (18 AAC 78). The approximate UST and piping locations are shown on Figures 2 and 3.

The UST removal activities were conducted on September 16 and 17, 2014 and consisted of tank and piping removal, and characterizing the soil within limits of the excavation and in the soil stockpile. A Shannon & Wilson representative, who is an ADEC-Qualified Person as defined by 18 AAC 78.995, documented the tank removal efforts, collected field screening and analytical soil samples, and coordinated with the project laboratory for sample testing. The City provided equipment and labor for the tank removal and soil excavation. Approximate locations of the UST excavation, soil stockpile, and soil samples are shown on Figure 4. Field notes taken during the site activities are included in Appendix E. Photographs of the UST removal activities are included in Appendix F.

7.1 UST Removal Procedures

Prior to tank removal, the excavator operator removed approximately 170 gallons of heating oil from the tank on behalf of the City (Photo 1 in Appendix F). The subject UST was a cylindrical, single-wall steel vessel with its long axis oriented in an east-west direction. The 4,500-gallon UST measured 7.9 feet in diameter and 12.2 feet in length and was buried to a depth of 10 feet below ground surface (bgs). The tank was tied down with straps, which were cut prior to the tank being removed from the ground. Due to the presence of groundwater, which was initially encountered at approximately 8 feet bgs during tank removal (Photo 2) and observed at 3.7 feet bgs the following day (Photo 4), the object to which the straps were attached could not be observed and was left in place. Piping from the UST was observed extending northwest of the tank and consisted of four copper lines. The piping was disconnected from the tank and the UST was removed from the excavation. The tank appeared to be in good condition and no holes or evidence of corrosion were observed (Photo 3). The excavation after UST removal is shown in Photo 4.

The piping present in the UST excavation was inspected and traced beneath nearby playground equipment. It is assumed the piping extends to the Former Kake Elementary School. The piping route and building-connection location(s) could not be determined in the field without removing or undermining the playground equipment. Field personnel did not enter the building due to the presence of HBM and unsafe structural conditions. After tank removal, the supply lines were removed to the extent practicable without jeopardizing the stability of the playground equipment (Photo 5). The lines that could not be removed were crimped and left in place. During removal, less than 0.5 gallon of residual heating oil in the supply lines discharged onto the excavation sidewall and base beneath the piping. The fuel-impacted soil was removed and placed in the impacted soil stockpile.

The final UST excavation, as shown on Figure 4, measured approximately 15 feet along the western edge, 8.8 feet along the eastern edge, 23 feet along the north edge, and 21.5 feet along the south edge, with an average depth of approximately 7.5 feet bgs.

The soil was screened during excavation using an OVM 580B photoionization detector (PID) and direct screening method. Screening samples were collected at approximately 5-cy frequency. Approximately 95 cy of soil were generated during UST removal. Two cubic yards of potentially contaminated soil from beneath the piping was stockpiled adjacent to the northeastern corner of the excavation (Photo 6) and approximately 93 cy of soil was stockpiled adjacent to the southern edge of the excavation. No liners or stockpile covers were used.

The excavation was backfilled by the City the week of October 6, 2014. The segregated clean soil stockpile and fill from the local gravel pit were used to backfill the excavation.

7.2 Soil Sample Collection and Screening

Soil samples for field screening and laboratory analysis were collected from the excavation base, sidewalls, piping area, and from the soil stockpiles. Field screening samples were collected from 13 discrete locations within the tank excavation and from five locations within each soil stockpile. The field screening sample locations were intended to be spatially representative of the excavation base and sidewall. Due to the presence of water in the center of the excavation, samples directly beneath the tank could not be collected.

Each soil sample was screened in the field for volatile organic compounds using a PID and an ADEC-approved headspace sampling method. Headspace samples were collected in re-sealable plastic bags by filling with freshly exposed soil to about one-half capacity and then sealing the top. Headspace samples were warmed to a common temperature of about 50 to 60 degrees Fahrenheit (^{o}F) prior to field headspace screening. Field PID readings were obtained within 1 hour of the sample collection. Screening was accomplished by inserting the PID sampling probe into the air space above the soil in the bag, and recording the maximum reading. Prior to use, the PID was calibrated with isobutylene standard gas.

Field screening results were used to select project samples for chemical analysis. One analytical sample was collected from the excavation base near the west wall, and one analytical sample and a sample duplicate were collected from the excavation base beneath the supply piping release. The analytical samples were collected within six inches from the groundwater saturated soil. Two analytical samples were collected from the sidewall: one analytical sample was collected from the center of the northern excavation sidewall, and one analytical soil sample was collected from the center of the eastern excavation sidewall. One analytical soil sample was collected from the potentially impacted soil stockpile and two analytical soil samples were collected from the potentially clean stockpile. Shannon & Wilson's field representative used clean stainless steel spoons and new nitrile gloves to transfer the freshly exposed soil into laboratory-supplied containers for analysis. Samples for the analysis of volatile constituents were collected first and field extracted with methanol in accordance with Alaska Method (AK) 101 methodology.

For quality control purposes, one field duplicate sample and one trip blank were included in the analytical program. The project sample locations, screening results, and soil descriptions are summarized in Table 1. Approximate sample locations are shown on Figure 4.

7.3 Investigation Derived Waste

Investigation derived waste (IDW) generated during the UST closure assessment included the UST, associated supply piping, excavated soil, and fuel removed from the tank prior to removal activities. We understand the UST and piping remain on site. Soil from the potentially clean soil stockpile was used to backfill the excavation the week of October 6, 2014. Soil from the potentially impacted soil stockpile was transported and landspread at the "City Pit" at a location

approved by the ADEC during their September 17, 2014 site visit. The 170 gallons of fuel removed from the UST were transported to the City dock by the City and will be taken to an off-island disposal facility.

8.0 SUBSURFACE CONDITIONS

Subsurface materials encountered in the tank excavation generally consisted of brown, poorly-graded sand with silt. Groundwater was observed in the UST excavation at approximately 8 feet bgs during removal and at 3.7 feet bgs the next day.

9.0 LABORATORY ANALYSIS

The project soil samples were submitted to SGS in chilled coolers using chain-of-custody procedures. The nine soil samples, including one field duplicate, were analyzed for gasoline range organics (GRO) by AK 101; diesel range organics (DRO) by AK 102; and benzene, toluene, ethylbenzene, and xylenes (BTEX) by EPA Method 8021B. In addition, two samples were also analyzed for polynuclear aromatic hydrocarbons (PAHs) by EPA 8270D. For quality control purposes, one trip blank was included in the sampling program and was analyzed for GRO by AK 101 and BTEX by EPA Method 8021B. Soil sample identifications as delivered to the laboratory include the Shannon & Wilson job number "17678-" as a prefix. The job number prefix has been left out in the body of this report for brevity. The analytical sample results are summarized in Table 2 and the laboratory reports are included in Appendix G.

10.0 DISCUSSION OF RESULTS

The reported analyte concentrations in the project soil samples are compared to the cleanup levels listed in the Oil and Other Hazardous Substances Pollution Control Regulations (18 AAC 75, Section 341). The soil cleanup criteria are based on the most stringent ADEC Method 2 exposure pathway listed in Tables B1 and B2 for the "over 40-inch (precipitation) zone". The summary analytical results and applicable cleanup levels are listed in Table 2.

10.1 Soil Samples

Benzene, DRO, 1-methylnapthalene, and 2-methylnapthalene were detected at concentrations greater than the ADEC Method 2 cleanup levels in the potentially impacted soil stockpile sample. Concentrations of 0.0411 milligrams per kilogram (mg/kg) benzene, DRO 2,170 mg/kg DRO, 7.03 mg/kg1-methylnapthalene, and 9.68 mg/kg 2-methylnapthalene were measured; the respective cleanup levels are 0.025 mg/kg benzene, 230 mg/kg DRO, 6.2 mg/kg 1-methylnapthalene, and 6.1 mg/kg 2-methylnapthalene.

The samples collected from the excavation base, excavation sidewalls and potentially clean soil stockpile did not contain contaminants of concern concentrations greater than the ADEC Method 2 cleanup levels.

10.2 Quality Assurance Summary

The project laboratory implements on-going quality assurance/quality control procedures to evaluate conformance to applicable ADEC and EPA data quality objectives (DQOs). Internal laboratory quality controls for this project included surrogates, method blanks, laboratory control sample/laboratory control sample duplicates (LCS/LCSD), and matrix spike/matrix spike (MS/MSD) duplicates. If a DQO for one of the controls is not met, the laboratory provides a brief explanation in the case narrative of their report (See Appendix G).

External quality controls include one trip blank and one field duplicate sample. Field logs and records were checked for completeness and accuracy. The relative percent difference (RPD) between the project sample and associated duplicate results is a measure of precision affected by matrix heterogeneity, sampling technique, and laboratory analyses. The ADEC recommends an RPD of less than 50 percent for soil analysis. RPDs, where calculable, met data quality objectives. Ethylbenzene and GRO concentrations were detected in the method blank associated with each project sample and the trip blank. The ethlybenzene project sample concentrations within five times the ethylbenzene concentration measured in the trip blank are flagged “B” in Table 2.

Shannon & Wilson reviewed the SGS data deliverables and completed an ADEC Laboratory Data Review Checklist for the work order for this project. The laboratory report and data review checklist are included in Appendix G. In our opinion, no non-conformances that would adversely affect the quality or usability of the data were noted.

11.0 SUMMARY

The site assessment includes a historical property assessment, HBM survey, preparation of a building demolition ROM cost estimate, and UST removal.

TNSDS conducted an assessment of the historical status of the site. TNSDS concluded that the building is not eligible for inclusion in the NRHP and the proposed demolition will not result in “an affect to historic properties pursuant to Section 106 of the National Historic Preservation Act of 1966 and its implementing regulations.”

On August 27 and 28, 2014, EHS performed a hazardous materials survey of the Former Kake Elementary School. Multiple HBM were identified by the survey that will require special handling practices prior to and/or during demolition. Upon further conversations with EHS, safe abatement of the HBM does not appear to be practicable due to the deterioration of the structural

integrity in portions of the building. Instead, EHS recommended handling the HBM materials concurrently with the structure demolition. Alaska Demolition provided a ROM cost estimate of $2.6 million to demolish the Former Kake Elementary Building and dispose of HBM.

One 4,500-gallon UST was removed from the ground. Confirmation soil samples collected from the UST excavation base and sidewalls did not contain detectable concentrations of target analytes above the applicable ADEC cleanup levels. Benzene and DRO concentrations were measured in the analytical soil sample from the 2-cy impacted soil stockpile at concentrations greater than the ADEC Method 2 cleanup level. The impacted soil stockpile was transported off site and landspread at a location approved by the ADEC. The excavation was backfilled with segregated clean material and fill material imported from the local gravel pit.

12.0 CLOSURE/LIMITATIONS

This report was prepared for the exclusive use of our client and their representatives in the study of this site. The findings we have presented within this report are based on the limited sampling and analyses that we conducted. They should not be construed as definite conclusions regarding the site's soil quality, and it is possible that our soil tests missed higher levels of petroleum hydrocarbon constituents,. As a result, the analysis and sampling performed 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. The data presented in this report should be considered representative of the time of our site assessment. Changes in site conditions can occur over 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.

You are advised that various state and federal agencies (ADEC, EPA, etc.) may require the reporting of this information. Shannon & Wilson does not assume the responsibility for reporting these findings and therefore will not disclose the results of this study, except with your permission or as required by law.

Shannon & Wilson has prepared the attachment in Appendix H "Important Information About Your Geotechnical/Environmental Report" to assist you and others in understanding the use and limitations of our report.

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 and your continued confidence in our firm. If you have questions or comments concerning this report, please call the undersigned at (907) 561-2120.

Sincerely,

SHANNON & WILSON, INC.

Shayla Marshall
Principal Scientist

Matt Hemry, P.E.
Vice President

TABLE 1
SAMPLE LOCATIONS AND DESCRIPTIONS

SHANNON & WILSON, INC.

Sample Number	Date	Sample Location (See Figures 3 and 4)	Depth (feet bgs**)	Headspace (ppm) ^	Sample Description
UST Excavation Samples					
* B1	9/16/2014	Excavation base, northeast corner	7.5	2.4	Brown, *Poorly Graded Sand with Silt (SP-SM)* ; moist; trace organics
B2	9/16/2014	Excavation base, northwest corner	6.1	0.3	Brown, *Poorly Graded Sand with Silt (SP-SM)* ; moist
B3	9/16/2014	Excavation base, southeast corner	6.5	0.1	Brown, *Poorly Graded Sand with Silt (SP-SM)* ; moist
B4	9/16/2014	Excavation base, southwest corner	5.9	0.4	Brown, *Poorly Graded Sand with Silt (SP-SM)* ; moist
* B5	9/16/2014	Excavation base, center near west wall	6.1	2.2	Brown, *Poorly Graded Sand with Silt (SP-SM)* ; moist
B6	9/16/2014	Excavation base, center near south wall	5.9	0.4	Brown, *Poorly Graded Sand with Silt (SP-SM)* ; moist
B7	9/16/2014	Excavation base, center near north wall	6.4	1.0	Brown, *Poorly Graded Sand with Silt (SP-SM)* ; moist; trace organics
* S1	9/17/2014	Excavation sidewall, northwest corner under piping	3.5	4.2	Brown, *Poorly Graded Sand with Silt (SP-SM)* ; moist
* S9	9/17/2014	Duplicate of sample S1	3.5	4.2	Brown, *Poorly Graded Sand with Silt (SP-SM)* ; moist
* S2	9/17/2014	Excavation sidewall, northwest portion	3.8	1.0	Brown, *Poorly Graded Sand with Silt (SP-SM)* ; moist
S3	9/17/2014	Excavation base, northern portion of west wall	3.9	0.4	Brown, *Poorly Graded Sand with Silt (SP-SM)* ; moist; trace organics
S4	9/17/2014	Excavation sidewall, center of north wall	4.2	0.0	Brown, *Poorly Graded Sand with Silt (SP-SM)* ; moist
S5	9/17/2014	Excavation sidewall, center of south wall	3.7	0.9	Brown, *Poorly Graded Sand with Silt (SP-SM)* ; moist
* S6	9/17/2014	Excavation sidewall, center of east wall	4.2	1.3	Brown, *Poorly Graded Sand with Silt (SP-SM)* ; moist
Excavation Stockpile Samples					
D1	9/17/2014	Potentially Impacted Soil Stockpile, west edge	1.5	0.1	Brown, *Poorly Graded Sand with Silt (SP-SM)* ; moist
D2	9/17/2014	Potentially Impacted Soil Stockpile, middle of west h	1.5	16	Brown, *Poorly Graded Sand with Silt (SP-SM)* ; moist
D3	9/17/2014	Potentially Impacted Soil Stockpile, center	1.5	3.6	Brown, *Poorly Graded Sand with Silt (SP-SM)* ; moist
* D4	9/17/2014	Potentially Impacted Soil Stockpile, middle of east ha	1.5	860	Brown, *Poorly Graded Sand with Silt (SP-SM)* ; moist; hydrocarbon odor
D5	9/17/2014	Potentially Impacted Soil Stockpile, east edge	1.5	730	Brown, *Poorly Graded Sand with Silt (SP-SM)* ; moist; hydrocarbon odor
PC1	9/17/2014	Potentially Clean Soil Stockpile, northwest edge	1.8	0.0	Brown, *Poorly Graded Sand with Silt (SP-SM)* ; moist
PC2	9/17/2014	Potentially Clean Soil Stockpile, southwest edge	1.8	0.1	Brown, *Poorly Graded Sand with Silt (SP-SM)* ; moist
PC3	9/17/2014	Potentially Clean Soil Stockpile, southeast edge	1.8	0.0	Brown, *Poorly Graded Sand with Silt (SP-SM)* ; moist
* PC4	9/17/2014	Potentially Clean Soil Stockpile, center	1.8	2.4	Brown, *Poorly Graded Sand with Silt (SP-SM)* ; moist
* PC5	9/17/2014	Potentially Clean Soil Stockpile, northeast edge	1.8	0.4	Brown, *Poorly Graded Sand with Silt (SP-SM)* ; moist
Quality Control Samples					
* STB	9/16/2014	Trip Blank	-	-	Ottawa sand with methanol added in the laboratory

Notes:

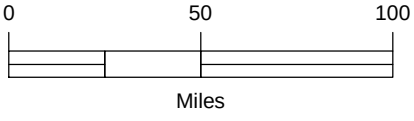
*	Sample analyzed by the project laboratory (See Table 2 and Appendix G)
**	Excavation stockpile samples are collected at a depth below stockpile surface
^	Field screening instrument was a Thermo Environmental Instruments 580B photoionization detector (PID)
-	Measurement not recorded or not applicable
bgs	below ground surface or below surface of stockpile
ppm	parts per million

TABLE 2
SOIL ANALYTICAL RESULTS

Parameter Tested	Method*	Cleanup Level**	Sample ID Number^, and Collection Depth in Feet (See Table 1, Figures 3 and 4, and Appendix G)									
			Excavation Base Samples		Excavation Sidewall Samples				Potentially Impacted Soil Stockpile Sample	Potentially Clean Soil Stockpile Samples		Quality Control
			B1	B5	S1	S9~	S2	S6	D4	PC4	PC5	STB
			7.5	6.1	3.5	3.5	3.8	4.2	1.5	1.8	1.8	-
PID Headspace Reading - ppm	580B PID	-	2.4	2.2	4.2	4.2	1.0	1.3	860	2.4	0.4	-
Gasoline Range Organics (GRO) - mg/kg	AK 101	260	<0.795	<0.740	<0.795	<0.760	<0.720	<0.765	**186 J+**	<0.725	<0.660	<1.26
Diesel Range Organics (DRO) - mg/kg	AK 102	230	<10.8	<11.4	<11.3	<11.2	<11.3	**7.73 J**	**2,170**	**17.3 J**	<11.2	-
Aromatic Volatile Organics (BTEX)												
Benzene - mg/kg	EPA 8021B	0.025	<0.00398	<0.00371	<0.00396	<0.00379	<0.00361	<0.00382	**0.411**	<0.00363	<0.00331	<0.00630
Toluene - mg/kg	EPA 8021B	6.5	<0.00795	<0.00740	<0.00795	<0.00760	<0.00720	<0.00765	**5.05**	<0.00725	<0.00660	<0.0126
Ethylbenzene - mg/kg	EPA 8021B	6.9	<0.0159 B	<0.0148 B	<0.0159 B	<0.0152 B	<0.0144 B	<0.0153 B	**4.76**	<0.0145 B	<0.0132 B	<0.0252 B
Xylenes - mg/kg	EPA 8021B	63	<0.0239	**0.00475 J**	<0.0239	<0.0228	<0.0216	<0.0230	**25.3**	<0.0218	<0.0199	<0.0378
Polynuclear Aromatic Hydrocarbons (PAHs)												
Acenaphthene - mg/kg	EPA 8270D SIM	180	-	-	<0.00282	-	-	-	**0.0690**	-	-	-
Anthracene - mg/kg	EPA 8270D SIM	3,000	-	-	<0.00282	-	-	-	**0.0120**	-	-	-
Fluorene - mg/kg	EPA 8270D SIM	220	-	-	<0.00282	-	-	-	**0.0904**	-	-	-
1-Methylnaphthalene - mg/kg	EPA 8270D SIM	6.2	-	-	<0.00282	-	-	-	**7.03**	-	-	-
2-Methylnaphthalene -mg/kg	EPA 8270D SIM	6.1	-	-	**0.00234 J**	-	-	-	**9.68**	-	-	-
Naphthalene - mg/kg	EPA 8270D SIM	20	-	-	<0.00282	-	-	-	**4.78**	-	-	-
Phenanthrene - mg/kg	EPA 8270D SIM	3,000	-	-	<0.00282	-	-	-	**0.0780**	-	-	-
Other PAHs - mg/kg	EPA 8270D SIM	Various	-	-	ND	-	-	-	ND	-	-	-

Notes:

*	See Appendix G for compounds tested, methods, and laboratory reporting limits.
**	Soil cleanup level is the most stringent Method 2 standard listed in Table B1 or B2, 18 AAC 75, for the "over 40-inch (precipitation) zone" (October 2014)
^	Sample ID No. preceded by "17674" on the chain of custody form
AK	Alaska Method
EPA	Environmental Protection Agency
SIM	Selective Ion Mode
STB	Soil Trip Blank
ppm	parts per million
mg/kg	milligrams per kilogram
PID	Photoionization detector
~	Field duplicate of preceding sample
-	Not applicable or sample not tested for this analyte
0.411	Analyte concentration exceeds ADEC regulatory cleanup level
5.05	Analyte detected
<0.795	Analyte not detected; laboratory limit of detection is 0.795 mg/kg
ND	Non-detect
B	Analyte concentration potentially affected by method blank and/or trip blank contamination. See the ADEC Laboratory Data Review Checklist (LDRC) for details.
J	Estimated concentration less than the limit of quantitation. See the SGS laboratory report for details.
J+	Reported concentration is an estimate (biased high) due to surrogate recovery failure. See LDRC for more details.



Former Kake Elementary School
Kake, Alaska

VICINITY MAP

December 2014

32-1-17674

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

Figure 1

0 300 600

Feet

LEGEND

- Approximate Former Underground Storage Tank Location

N

Former Kake Elementary School
Kake, Alaska

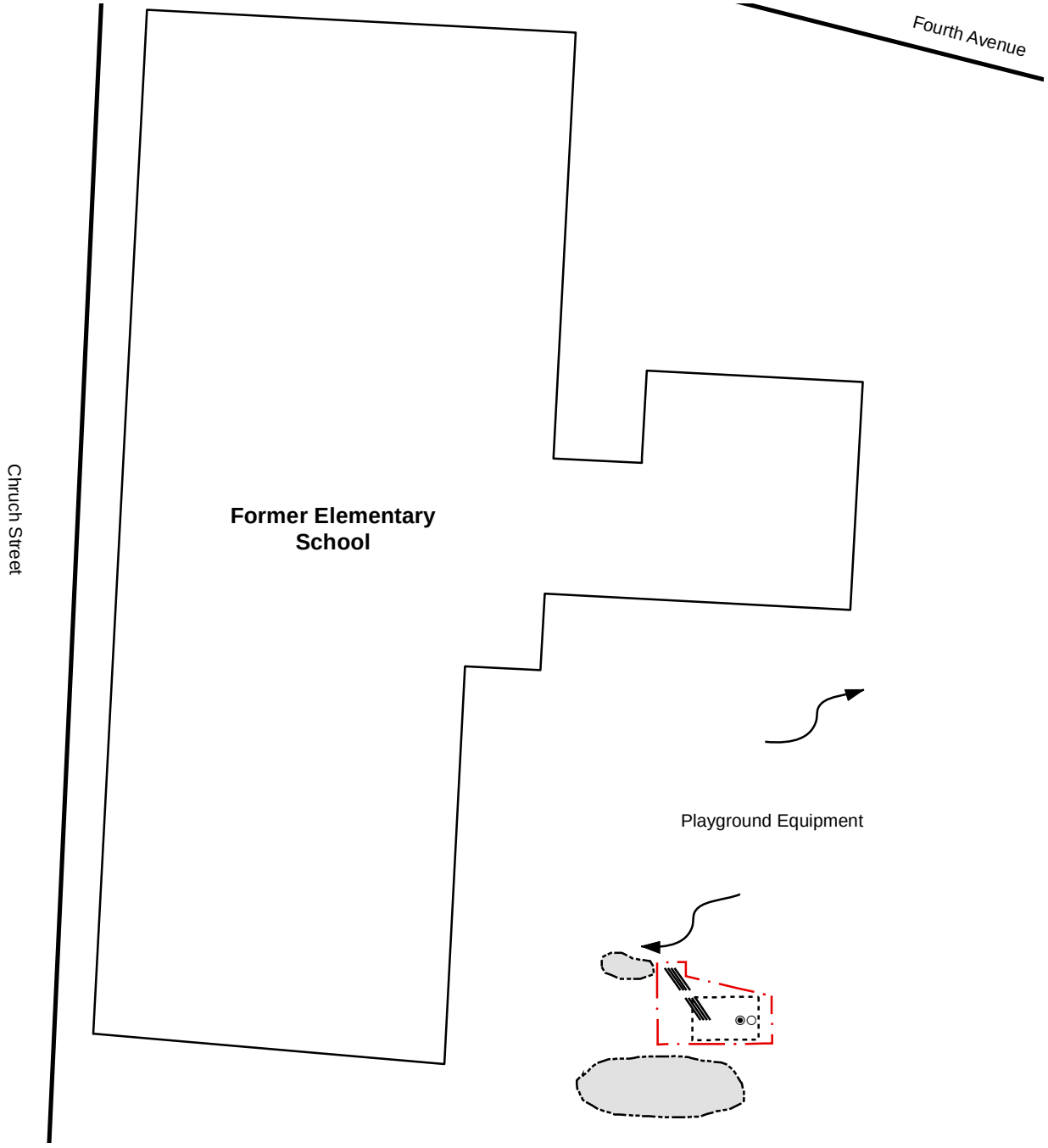
SITE OVERVIEW

December 2014

32-1-17674

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

Figure 2



LEGEND

- UST Fill
- UST Vent
- Removed Piping
- Road
- Building
- Excavation
- Soil Stockpile
- Former 4,500-Gallon UST

0 30 60

Feet

N

Former Kake Elementary School
Kake, Alaska

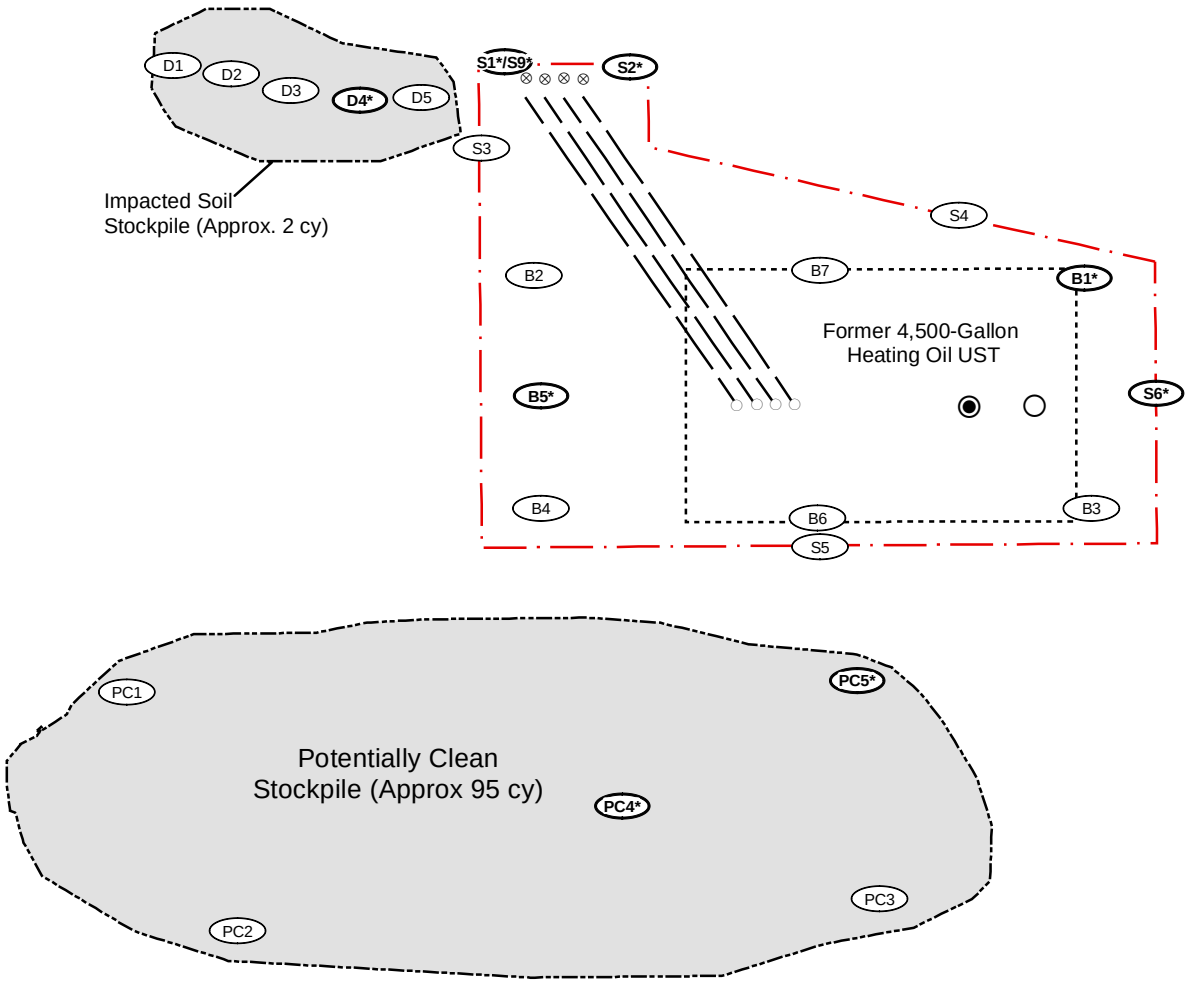
SITE PLAN

December 2014

32-1-17674

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

Figure 3



LEGEND

- PC5* Analytical Sample
- PC2 Headspace Screening Sample
- Fill
- Vent
- Piping Left in Place
- Piping Connection
- Removed Piping
- Building
- Excavation
- Temporary Stockpile
- Former UST

0 6 12

Feet

N

Former Kake Elementary School
Kake, Alaska

SOIL SAMPLING PLAN

December 2014

32-1-17674

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

Figure 4

APPENDIX A

TNSDS HISTORICAL PROPERTY ASSESSMENT REPORT

Office of History and Archaeology: Cultural Resources Report Coversheet

(Must Accompany All Compliance Reports Submitted to OHA/SHPO)

Office of History and Archaeology
Division of Parks & Outdoor Recreation
Alaska Department of Natural Resources
550 W. 7th Ave., Suite 1310
Anchorage, AK 99501-3565
Phone: (907) 269-8721 Fax (907) 269-8908
http://www.dnr.state.ak.us/parks/oha/index.htm

Was this survey/investigation(Check one): ***Negative*** [ ] ***Positive*** [X]

Negative = no cultural resource sites are reported or updated. Positive = cultural resource sites are reported or updated.

*Note: Alaska Heritage Resources Survey (AHRS) numbers are **required** for reported cultural resource sites, including buildings. AHRS numbers can be obtained by contacting Joan Dale at 907-269-8718).*

Project/Report Information:

- Report Title: Determination of Eligibility (DOE) of the Old Kake Elementary School, Located in Kake, Alaska and Recommendations for Issuing a Section 106 Finding for Demolition and Redevelopment
- Report Author(s): Robert Meinhardt, Casey Woster, Amy Ramirez
- Report Date: November 2014
- Submitting Organization/Agency DEC
- Project Name and Project Number:
- Principal Investigator (PI) name: Robert Meinhardt/Casey Woster, M.A.

Geographic Information (attach an extra sheet or cite report page numbers if necessary)

- USGS Mapsheet (1:63,360 if available) Petersburg D-6
- Meridian/Township / Range / Section (MTRS) location: (all affected sections)

Format example: "F021N018E|13-14" C056S072E Sec 34

- Verbal description of survey area property lot on southeast corner of the intersection of Totem Way and Church Street, in Kake

(for example: "123 Acme Street," "confluence of Fish and Moose creeks," "Milepost 9-16 …"

- Does this report contain boundary coordinates for the surveyed area? Yes [ ] No [X] Page #(s) _____
- Does this report contain boundary coordinates for reported sites? Yes [ ] No [X] Page #(s) _____
- Land owner(s): City of Kake
- Answer one: Acres Surveyed ~1.7 Hectares Surveyed _____

Cultural Resources Management (CRM) Information

- List AHRS numbers of <u>new</u> and <u>updated</u> sites – (do not list sites that are merely described in the background section).
  PET-00753

- Is the report part of a National Historic Preservation Act - Section 106 consultation? Yes [X] No [ ]
- Is the report part of an Alaska Historic Preservation Act compliance consultation? Yes [ ] No [X]
- Does the report's data support a submitting agency's determination of eligibility? Yes [X] No [ ]
- Does the report's data support a submitting agency's determination of effect? Yes [X] No [ ]
- Was this report submitted to fulfill State Field Archaeology Permit requirements?
  Permit No.: _____ Yes [ ] No [X]
- Was this project and/or report overseen or authored by someone meeting the minimum qualifications of the Sec. of the Interior's Standards and Guidelines (48 FR 44738-44739)? Yes [X] No [ ]
- Is the Principal Investigator's resume' appended to the report or on file at OHA? Yes [X] No [ ]

TNSDS

true north | sustainable development solutions

DETERMINATION OF ELIGIBILITY (DOE) OF THE OLD KAKE ELEMENTARY SCHOOL, LOCATED IN KAKE, ALASKA AND RECOMMENDATIONS FOR ISSUING A SECTION 106 FINDING FOR DEMOLITION AND REDEVELOPMENT

Prepared for:

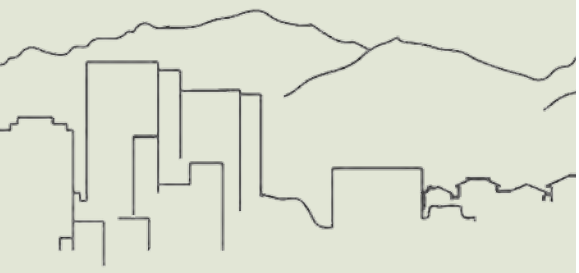
Shannon & Wilson, Inc.

Prepared by:

Robert L. Meinhardt, M.A.
Casey Woster, M.A.
Amy Ramirez
of
True North Sustainable Development Solutions, LLC
PO Box 874135 · Wasilla, Alaska 99687-4135

NOVEMBER 2014

CONTENTS



EXECUTIVE SUMMARY

The Old Kake Elementary School, located in Kake, Alaska, is proposed for redevelopment by the City of Kake. The school, which operated from 1952 to 1996, has stood vacant for several decades and is considered to be a health and safety hazard to the residents of the village. The City of Kake has applied to the Alaska Department of Environmental Conservation (DEC) for financial assistance through the United States Environmental Protection Agency (EPA) Brownfields Program to demolish the building, remove hazardous materials, and cleanup the school site to clear the way for redevelopment as a multi-purpose community center. DEC contracted Shannon & Wilson, Inc., to coordinate demolition and hazardous materials removal.

The National Historic Preservation Act (NHPA) of 1966 requires an assessment of federal undertakings to determine whether or not they will result in effects to historic properties. As the school is older than 50 years of age and federal assistance constitutes an federal undertaking pursuant to 36 CFR §800.16(y), an investigation into the history and construction of the school to determine its significance is necessary so that the effects the proposed redevelopment will have on historic properties can be assessed. Shannon & Wilson, Inc., does not have professional expertise on staff to provide Section 106 findings and recommendations. True North Sustainable Development Solutions (TNSDS), LLC, was subcontracted to perform a historic structures evaluation and assessment within a proposed APE, and provide such recommendations. TNSDS architectural historian Casey Woster conducted a site visit on October 7, 2014 to document and record the building. It is important to note, however, the deterioration of the building has progressed to the point that only the exterior was documented. Research was then conducted at various repositories in Juneau to locate records, plats, and historic photographs so evaluation of the historic building and an assessment of effects to historic properties could be carried out pursuant to the Act. Principal Preservation Consultant Robert L. Meinhardt, III, M.A., and Project Coordinator Amy Ramirez assisted in the preparation of a comprehensive report intended to provide Shannon & Wilson, Inc., with information necessary for making recommendations to EPA for compliance with Section 106 of the NHPA. A summary of the results from the literature review, archival research, and on-site survey is included in this report. Also included in this report is a historic context for the Old Kake Elementary School, a description of survey methodology, and Section 106 recommendations.

TNSDS initiated its evaluation and assessment by conducting a literature and archival review of previous cultural resources surveys and sites in the area that have been recorded in the Alaska Heritage Resources Survey (AHRS) database, which was followed by defining a proposed APE and carrying out an intensive survey. Neither the literature and archival review nor the site visit revealed any cultural resources in the project area that constitute historic properties pursuant to Section 106 of the NHPA. As such, a finding of no historic properties affected is recommended for the proposed development of the Old Kake Elementary School.

INTRODUCTION

Project Location and Physical Setting

The Old Kake Elementary School is located in Kake, Alaska. Kake comes from the Tlingit word, *Kéix'*, meaning "Town that Never Sleeps." Traditionally a Tlingit village, demographics have changed over the years, now reflecting a population of diverse Alaskan Native cultures, including Tsimshian, Haida, and Yupik Eskimo peoples. Kake is located in the southeastern panhandle of Alaska, along the northwestern coast of Kupreanof Island. It is located approximately 95 air miles southwest of Juneau,[1] and is accessible by air or sea via scheduled or chartered flights from Juneau or other nearby communities, or the Alaska Marine Highway system (Figure 1).

Kake's location on Keku Strait allows for several sunny days, which explains why so many of its residents refer to this area as a "banana belt." Kake has a maritime climate characterized by cool summers and mild winters. It receives much less precipitation than is typical of Southeast Alaska, averaging 54 inches a year, with 44 inches of snow. Average summer temperatures range from 44 to 62 °F; winter temperatures average 26 to 43 °F. Temperature extremes have been recorded from -14 to 88 °F. The community is set between the beach to the west and rolling hills that are part of the Tongass National Forest to the east. Several anadromous streams flowing out of the hills, in combination with the abundant life in the surrounding marine waters, have helped to provide economic and subsistence opportunities for the residents of Kake. The population is currently 497, which is approximately 30% less than what it was in 2000.[2]

Figure 1. A portion of USGS 1:63,360 quadrangle map Petersburg D-6, showing location of Kake, Alaska.

1 "Community Profile, Kake," Alaska Department of Commerce, Community, and Economic Development (ADCCED), Accessed November 19, 2014, http://commerce.state.ak.us/cra/DCRAExternal/community/Details/9aa30fae-6452-4097-83b9-10a4cd761165.

2 "Community Profile: Kake," ADCCED.

The Old Kake Elementary School is located in Section 34 of Township 56 South, Range 72 East of the Copper River Meridian. The building is situated on a corner lot that encompasses a portion of Tract A of U.S. Survey 858, at the intersection of Church Street and Totem Way (Figure 2). The subject property occupies the southeastern corner of this intersection, and extends to the south and east. The lot is bound by Totem Way to the north, 2nd Street on the south, 2nd Avenue to the south, and Church Street on its west side. It contains the school, a blacktop basketball court south of the school, and playground equipment set in a small clearing to the east of the building. The clearing backs into a hill that rises north to Totem Way and east to 2nd Street. The property lot is in an area of mixed development that includes residential dwellings, small commercial establishments, civic and religious facilities, and educational properties, including the currently used elementary school to the northeast, which is also located on Totem Way.

Figure 2. Project location map with Old Kake Elementary School outlined in red.

Project Description

The City of Kake is facilitating a cleanup effort and subsequent redevelopment of the site of the Old Kake Elementary School to improve the health and social well-being of its residents. Funding for the project has come from a variety of sources, including the Alaska Department of Environmental Conservation (DEC) and the United States Environmental Protection Agency

(EPA) Brownsfield Program. A previous survey deemed the school a health and safety hazard to Kake residents. Hazardous materials contained in the construction of the school was identified in this survey. An underground oil tank on the site that is leaking material into the surrounding soils poses additional environmental and human safety concerns.[3] In addition to removing hazardous materials, the property on which the Old Kake Elementary School is situated was identified as an ideal location for the construction of a multi-purpose community center that is ADA accessible. DEC contracted with Shannon and Wilson, Inc., to coordinate demolition of the Old Kake Elementary School and the removal of hazardous materials prior to the proposed redevelopment of the site.

Given federal funds are being allocated and therefore the project is considered a federal undertaking pursuant to 36 CFR §800.16(y), TNSDS was subcontracted by Shannon and Wilson, Inc., to help provide DEC and EPA with recommendations for issuing a Section 106 finding on whether or not historic properties will be affected by the demolition, hazardous materials removal, and subsequent site redevelopment. An evaluation of the Old Kake Elementary School for inclusion in the National Register of Historic Places (NRHP) was necessary for providing the lead federal agency with such recommendations. TNSDS conducted research and performed a site visit to both evaluate the building for inclusion in the NRHP and provide the lead federal agency recommendations for issuing a Section 106 finding.

Project Purpose

The Old Kake Elementary School is over 50 years of age and therefore may qualify for inclusion in the NRHP. The purpose of this project is to evaluate the building for inclusion in the NRHP pursuant to the National Register Criteria specified in 36 CFR §60.4 and *National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation*. Research into the building's history and an assessment of its location, design, setting, materials, workmanship, feeling, and association is necessary to evaluate historic significance for inclusion in the NRHP. From this evaluation, recommendations are provided to EPA for issuing a finding pursuant to Section 106 of NHPA and its implementing regulations (36 CFR §800).

PROPOSED AREA OF POTENTIAL EFFECTS (APE)

A direct APE coextensive with the property lot within Tract A of US Survey 858 and located on the southeast corner of the intersection of Church Street and Totem Way is proposed for this project (Figure 3). An expanded indirect APE including most of downtown Kake is also proposed. The entire proposed APE is located in Section 34 of township 56 South, Range 72 East of the Copper River Meridian.

Figure 3. Kake city plat with the direct APE noted in red, indirect APE noted as blue circle.

METHODS

Methods used to conduct a determination of eligibility and provide recommendations for issuing a Section 106 finding for the demolition of the Old Kake Elementary School included a literature review of relevant studies and various file searches, including those held at the Alaska Office of History and Archaeology (OHA) in Anchorage and the Alaska State Library and Alaska State Archives in Juneau. The file searches were followed by an intensive historic structure survey of the proposed direct APE. Precursory research focused on the location, size, and age of historic resources reported within and/or near the proposed project area (direct and indirect APEs), thus providing context for the historic development patterns of Kake and, more specifically, the Old Kake Elementary School. Information gathered from this research also helped to identify the types and assess the likelihood of there being historic properties extant within the proposed direct and indirect APEs that may be affected by the federal undertaking.

Literature Review and Archival Research

Prior to fieldwork, the Integrated Business Suite (IBS) online da-

3 Engineering, Health and Safety Consultants (EHS Alaska), Hazardous Materials Survey Report, Former Kake Elementary School, Kake, Alaska. (Kake, Alaska: Organized Village of Kake, 2014), 3.

tabase at OHA was reviewed to determine the extent of previous cultural resource studies carried out in the area, document prehistoric and/or historic archaeological sites, and to identified previously inventoried historic buildings within and/or around the proposed APEs. In addition, reports not readily available on file at OHA were obtained from Anchorage area libraries and reviewed for relevance to the project.

Literature Review

A literature review was conducted in coordination with project background research. As a part of this, relevant sources including archives, online databases, agency databases, and public database resources were consulted and reviewed in an effort to yield information pertinent to the project. The IBS online database at OHA was researched to locate reports that could help determine the extent of cultural resources research and surveys previously conducted in the area. Investigation into the history of the school led to the examination of building plans for the two additions to the school and investigation into the architect of the first addition, Linn A. Forrest, who was an architect for the U.S. Forest Service Architect and a prominent architect in Alaska and Oregon. Literature searches were undertaken at the University of Alaska Anchorage Library, the Anchorage Municipal Library, Alaska Resources Library and Information Services (ARLIS), and their associated collections. Additionally, information was used from previous research projects, including previous investigations in Kake, for both professional and academic purposes. This review helped to better understand the types of resources that might be encountered within the proposed APE during the survey and to aid in the development of a historic context from which such cultural resources can be evaluated for inclusion in the NRHP.

Archival Research

The search of the IBS Portal at the OHA covered all available modules: AHRS Location Editor, AHRS cards, OHA Citations Database, Determinations of Eligibility and National Register Nomination Status, Surveys, RS-2477 Historic Trails Data Layer, BIA Numbers Data Layer, and the Document Repository.[4] The search area focused on the indirect and direct APE. The search was expanded to gain an understanding of the historic resources and development patterns in Kake. The data retrieved from this precursory review was also used to better comprehend the types of resources that might be encountered within the proposed APE during the cultural resource survey.

Archival research was undertaken on October 10, 2014 at the Alaska State Library and Alaska State Archives located in Juneau, Alaska. These searches focused on the examination of articles published in the Kake High School newspaper, the *Thunderbird Press*, from the 1980s, during which time additions to the Old Kake Elementary School were being completed.[5]

Historic Photographs

An historic photograph of the school was located in the Historical Collections of the Alaska State Library. Although the date is unknown, notation in pencil on the reverse of the photograph credits it to Linn A. Forrest, U.S. Forest Service Architect. Forrest undertook the design and construction of the first addition to the school in 1980.

Cultural Resources Survey

The cultural resources survey methodology was borrowed from *National Register Bulletin 24, Guidelines for Local Surveys: A Basis for Preservation Planning*,[6] which outlines the vocabulary and techniques for both historical and archaeological survey methodology preferred by the NRHP.

An intensive survey for the Old Kake Elementary School was undertaken on October 7, 2014. TNSDS architectural historian Casey Woster and an independently contracted architect conducted a site visit to take photographs and measurements to draft professional-quality renderings of the existing building. Due to the deteriorated condition of the school, only the exterior was documented, and no attempt was made to enter the building. Documentation was completed in the course of one day, and additional time was spent gathering information from sources in Juneau, Alaska.

Applying National Register Criteria for Evaluation

Section 101 of the National Historic Preservation Act (NHPA) (16 USC 470a[a]) established the NRHP as a means to catalog historic properties significant in American history, architecture, archaeology, engineering, and culture. NHPA defines "historic properties" as prehistoric and historic districts, sites, buildings, structures, and objects listed or eligible for inclusion on the NRHP including artifacts, records, and material remains related to the property (16 USC 470w, Sec. 301.5). A determination of eligibility for the NRHP is based on a description and evaluation of a property; a statement of significance; a selected list of sources; and maps, photographs, or other illustrations. Consideration is given to both the criteria of significance and integrity of the site condition. The evaluation should consider the historic context of the

4 Alaska Office of History and Archaeology (OHA). Integrated Business Suite. Accessed October 27, 2014 https://dnr.alaska.gov/ohasecurity/portal.

5 Linn A. Forrest, An Addition to the Kake Elementary School – Blueprints, (Juneau, Alaska: Linn A. Forrest Architects, AIA), 1951.

6 U.S. Department of the Interior, National Park Service (USDOI, NPS), *National Register Bulletin 24, Guidelines for Local Surveys: A Basis for Preservation Planning,* (Washington, D.C., Interagency Resource Division), 1985.

property, including its relation to other known historic properties.[7] The NRHP (36 CFR 60.4) outlines the criteria (A-D) for determining the eligibility for a historic property as follows:

> The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and
>
> *(a) that are associated with events that have made a significant contribution to the broad patterns of our history; or*
> *(b) that are associated with the lives of persons significant in our past; or*
> *(c) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or*
> *(d) that have yielded, or may be likely to yield, information important in prehistory or history (36 CFR Part 60.4).*

Certain classes of historic properties that are not ordinarily eligible for the NRHP, but may be determined eligible under certain considerations include cemeteries, birthplaces or graves of important people, religious properties, moved structures, reconstructed buildings, commemorative properties or properties achieving significance within the last fifty years. Such properties will qualify if they are integral parts of districts that do meet the criteria if they fall within the following categories:

(a) A religious property deriving primary significance from architectural or artistic distinction or historical importance; or
(b) A building or structure removed from its original location but which is significant primarily for architectural value, or which is the surviving structure most importantly associated with a historic person or event; or
(c) A birthplace or grave of a historical figure of outstanding importance if there is no appropriate site or building directly associated with his productive life.
(d) A cemetery which derives its primary significance from graves of persons of transcendent importance, from age, from distinctive design features, or from association with historic events; or
(e) A reconstructed building when accurately executed in a suitable environment and presented in a dignified manner as part of a restoration master plan, and when no other building or structure with the same association has survived; or
(f) A property primarily commemorative in intent if design, age, tradition, or symbolic value has invested it with its own exceptional significance; or
(g) A property achieving significance within the past 50 years if it is of exceptional importance.

According to the National Register Bulletin 15, issued by the National Park Service as an aid to evaluating historic properties, an historic district "possesses a significant concentration, linkage, or continuity of sites, buildings, structures, or objects united historically or aesthetically by plan or physical development."[8] In essence, a district needs to visually convey the sense of a unified whole, either in appearance or purpose. A district must also be significant for historic, architectural, archaeological, engineering, or cultural values. Therefore, a district that is significant will usually meet Criterion C, in addition to Criteria A or B. While a district can have both individual and uniform features and one or more focal points, the grouping must "achieve significance as a whole within its historic context." [9] A district may contain properties that do not contribute to the district, but the proportion of contributing to non-contributing properties will vary with each evaluation. Finally, "a district must be a definable geographic area that can be distinguished from the surrounding properties."[10]

Evaluating Physical Integrity

The requirements for a site or property to be listed on the NRHP must demonstrate or display the attributes necessary to qualify as significant, possessing certain aspects of integrity consistent with the evaluation criteria of the NRHP. The integrity of a structure, site, or property is categorized and evaluated by its ability to retain integrity and express significance in accordance with the NRHP criteria. This criterion provides seven characteristics that are to be utilized to assess integrity and assist in making a determination as to whether or not a property is eligible for inclusion in the NRHP. These seven attributes are location, design, setting, materials, workmanship, feeling, and association. The following tables give an illustration of how these attributes can be applied while demonstrating a basis for asking the what, when, and why questions of a specific site, structure, or property that will sustain assessments of integrity and provide the foundation for determinations of eligibility. The information displayed in Table 1 shows the seven aspects of integrity, and explains how they can be united to produce integrity. The information provided in Table 2 discusses the seven aspects of integrity in relation to the NRHP criteria A through D.

7 Alaska Department of Natural Resources [ADNR], Alaska Office of History and Archaeology (OHA), *Standards and Guidelines for Investigating and Reporting Archaeological And Historic Properties in Alaska Series No. 1*, (Anchorage, Alaska, Department of Natural Resources and State Parks, 2003).

8 NR Bulletin 15, 5

9 NR Bulletin 15, 5

10 NR Bulletin 15, 5

Table 1. Seven Aspects of Integrity in Evaluating Properties for Inclusion in the NRHP	
Location	Location is the place where the historic property was constructed or the place where the historic event occurred. The relationship between the property and its location is often important to understanding why the property was created or why something happened. The actual location of a historic property, complemented by its setting, is particularly important in recapturing the sense of historic events and persons. Except in rare cases, the relationship between a property and its historic associations is destroyed if the property is moved.
Design	Design is the combination of elements that create the form, plan, space, structure, and style of a property. It results from conscious decisions made during the original conception and planning of a property (or its significant alteration) and applies to activities as diverse as community planning, engineering, architecture, and landscape architecture. Design includes such elements as organization of space, proportion, scale, technology, ornamentation, and materials. A property's design reflects historic functions and technologies as well as aesthetics. It includes such considerations as the structural system; massing; arrangement of spaces; pattern of fenestration; textures and colors of surface materials; type, amount, and style of ornamental detailing; and arrangement and type of plantings in a designed landscape.
Setting	Setting is the physical environment of a historic property. Whereas location refers to the specific place where a property was built or an event occurred, setting refers to the *character* of the place in which the property played its historical role. It involves *how*, not just where, the property is situated and its relationship to surrounding features and open space. Setting often reflects the basic physical conditions under which a property was built and the functions it was intended to serve. In addition, the way in which a property is positioned in its environment can reflect the designer's concept of nature and aesthetic preferences. The physical features that constitute the setting of a historic property can be either natural or manmade, including such elements as: • Topographic features (a gorge or the crest of a hill); • Vegetation; • Simple manmade features (paths or fences); and • Relationships between buildings and other features or open space. These features and their relationships should be examined not only within the exact boundaries of the property, but also between the property and its *surroundings*. This is particularly important for districts.
Materials	Materials are the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property. The choice and combination of materials reveal the preferences of those who created the property and indicate the availability of particular types of materials and technologies. Indigenous materials are often the focus of regional building traditions and thereby help define an area's sense of time and place. A property must retain the key exterior materials dating from the period of its historic significance. If the property has been rehabilitated, the historic materials and significant features must have been preserved. The property must also be an actual historic resource, not a recreation; a recent structure fabricated to look historic is not eligible. Likewise, a property whose historic features and materials have been lost and then reconstructed is usually not eligible.
Workmanship	Workmanship is the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory. It is the evidence of artisans' labor and skill in constructing or altering a building, structure, object, or site. Workmanship can apply to the property as a whole or to its individual components. It can be expressed in vernacular methods of construction and plain finishes or in highly sophisticated configurations and ornamental detailing. It can be based on common traditions or innovative period techniques. Workmanship is important because it can furnish evidence of the technology of a craft, illustrate the aesthetic principles of a historic or prehistoric period, and reveal individual, local, regional, or national applications of both technological practices and aesthetic principles. Examples of workmanship in historic buildings include tooling, carving, painting, graining, turning, and joinery. Examples of workmanship in prehistoric contexts include projectile points, beveled adzes, and worked bone pendants.

table continues on next page

Table 1. Seven Aspects of Integrity in Evaluating Properties for Inclusion in the NRHP — *Continued*	
Feeling	Feeling is a property's expression of the aesthetic or historic sense of a particular period of time. It results from the presence of physical features that, taken together, convey the property's historic character. For example, a rural historic district retaining original design, materials, workmanship; petroglyphs, unmarred by graffiti and intrusions, can evoke a sense of tribal spiritual life.
Association	Association is the direct link between an important historic event or person and a historic property. A property retains association if it is the place where the event or activity occurred and is sufficiently intact to convey that relationship to an observer. Like feeling, association requires the presence of physical features that convey a property's historic character. For example, the Sitka National Monument, the remains of a Tlingit fort and battleground upon which Tlingit and Russians fought in 1804 whose natural and manmade elements have remained intact since the battle.

*** U.S. Department of the Interior, National Park Service (USDOI, NPS), National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation, (Washington, D.C., Interagency Resource Division, 1997), 44-45.*

Table 2. Assessing Integrity of Historic Properties		
Criteria	**Integrity Retained If:**	**Integrity Lost If:**
A & B	The property is still on its original site (**Location**), and The essential features of its setting are intact (**Setting**), and It retains most of its historic materials (**Materials**), and It has the essential features expressive of its design and function, such as configuration, proportions, and patterns (**Design**), and these features are visible enough to convey their significance.	The property has been moved during or after its Period of Significance (**Location, Setting, Feeling, and Association**), except for portable structures, or Substantial amounts of new materials have been incorporated (**Materials, Feeling, and Workmanship**), or It no longer retains basic design features that convey its historic appearance or function (**Design, Workmanship, and Feeling**).
C	The essential features of the property's design are intact, such as walls, roofs, windows, and doors, and the features are visible enough to convey their significance (**Design, Workmanship, and Feeling**), and Most of the historic materials are present (**Materials, Workmanship, and Feeling**), and Evidence of the craft of construction remains, such as the structural system, and original details (**Workmanship**), and The property is still sited on its original lot (except in the case of portable structures) (**Setting, Location, Feeling, and Association**).	The essential features of the structure's design such as walls, roofs, windows, and doors are substantially altered (**Design, Workmanship, and Feeling**), or Considerable amounts of new materials are incorporated (**Materials, Workmanship, and Feeling**), or It is no longer in a place that conveys its original function and purpose (S**etting, Location, Feeling, and Association**).
D	The property must have, or have had, information that contributes, or can contribute to our understanding of human history or prehistory, and The information must be considered important.	Generally not applicable to historic period structures, buildings, or objects. Most commonly applies to historic or prehistoric archaeological sites.

*** USDOI, NPS, National Register Bulletin 15, 44-45.*

CONTEXT STATEMENT

Kake, Alaska, is a small village of approximately 500 residents located on the northwest coast of Kupreanof Island in the Alexander Archipelago in Southeast Alaska. When Alaska was purchased from Russia in 1869, Kake was a Tlingit village with a long history and strongly rooted traditions. Formal Western education was first organized for Alaska under the Alaska Organic Act of 1884. The Act allowed for public contracts between five religious denominations and the Bureau of Education within the territory of Alaska. Under this agreement, Alaska was divided into five regions to be overseen by the five denominations, with the Presbyterian Church being given jurisdiction in Southeast Alaska.[11]

Although officially considered to be under the missionary jurisdiction of the Presbyterian Church, the school in Kake was established ca. 1892 by a group of Quaker missionaries who had already established a mission at Douglas Island. An agreement between the Quakers and the Presbyterian missionaries gave the Quakers permission to carry out their work in Kake until 1912, at which time the Quakers traded the mission in Kake for a Presbyterian mission in Jamaica.[12]

In 1905, education throughout the territory was transferred from the various missionary groups to the direct supervision of the Bureau of Education under the Nelson Act. The Bureau of Education provided funds at this time for the construction of a dedicated public school in Kake and the work was undertaken by the Quaker missionaries (Figure 4). This building still stands in Kake and is considered historically significant. In 1931, Secretary's Order 494 transferred the responsibility of education in Kake and other Alaska Native villages to the Office of Indian Affairs, a move intended to ensure the fair treatment of Alaska Natives in receiving adequate funding for education.[13]

Figure 4. "United States Public School, Kake, Alaska," c. 1910.[14]

Beginning in 1945, during a period of dispute over the administration of Alaska Native schools between the Office of Indian Affairs and the Territorial Government, the residents of Kake undertook a move to create their own incorporated school district, administered directly by the community. Interference by P.E. Harris and Company, owners of the cannery in Kake, delayed the action, but the Kake School District was officially established under the Alaska Territorial Government on May 22, 1947. All educational property was transferred to the community soon after from the Alaska Native Service, a division of the Office of Indian Affairs. Kake became the first Alaska Native community to have established an incorporated school district, and the move began to spark interest in Native villages across Alaska. Eventually 22 Native schools would be transferred from the Alaska Native Service to the Territorial Government by 1954.[15]

The new Kake School District recognized the need in the community for new, updated school facilities. Construction began on the Kake Elementary School in 1951; it opened its doors to students in 1952 (Figure 5). The new school was constructed in a Contemporary style, complete with an asymmetrical plan, low-pitched roof, large overhangs, recessed entrances, and a massive stone chimney. The school contained four classrooms, an office/administration area, a boiler room, and restrooms. It was located near the original 1905 school, which continued to be used for educational purposes.

11 Donald Craig Mitchell, *Sold in America: The Story of Alaska Natives and their Land, 1867-1959*, (Hanover, New Hampshire: University Press of New England), 1970.

12 Arthur O. Roberts, *Tomorrow is Growing Old: Stories of the Quakers in Alaska*, (Newberg, Oregon: The Barclay Press), 1978.

13 National Institute of Education (NIE). 1978. The Governance, Organization, and Financing of Education for Alaska Natives. Report prepared by Dr. Don M. Dafoe, Adjunct Professor of Education, Center of Northern Educational Research, University of Alaska. #NIE-P-77-0241. Center for Northern Educational Research, University of Alaska, Fairbanks, Alaska.

14 *"United States Public School, Kake, Alaska,"* Alaska State Library, accessed November 4, 2014, http://vilda.alaska.edu/cdm/singleitem/collection/cdmg21/id/817/rec/1.

15 United States Bureau of Indian Affairs (USBIA). Miscellaneous Correspondence, Education, 1912-1977. Record Group 75, Box 6, 04/07/09/6, File 806.5 Kake #1. National Archives and Records Administration, Pacific-Alaska Region, Anchorage, Alaska.

Figure 5. Kake Elementary School after initial construction, south and west facades, 1952 (Alaska State Library Historical Collection).

The growth of the village and the school during the 1950s and 1960s resulted in the construction of small temporary portable buildings adjacent to the elementary school. These portables provided extra classroom space for the growing population. By 1979, there were five portables in use, placed across the cleared space directly east of the school.[16] The Kake School District, through the efforts of resident Dan Stachowiak, was able to secure a $500,000 appropriation for the construction of a new wing to the school to would provide much-needed space. [17] The addition to the school was begun during the summer of 1979 and included the construction of two classrooms, a special education room, and updates to the existing plumbing and wiring. The form of the addition was cohesive with the design of the original building, adding to the original Contemporary design by creating a butterfly roof and using deep fascia. Additionally, all the portable units were given new roofing and prepared for sale to the general public. One portable in particular was outfitted with soundproofing and converted into a music room for the school. The rehabilitation and addition project was completed by January 1980, when students were welcomed in the new wing at the start of the spring semester that year.[18]

The design of the new wing was undertaken by former U.S. Forest Service Regional Architect Linn A. Forrest, Sr. Forrest was an influential architect throughout Alaska and Oregon, and is considered to be an important figure in Northwest architecture. Born on August 8, 1905, in Bucyrus, Ohio, Forrest attended Franklin High School in Portland and the University of Oregon. He studied architecture while at the university, although he never completed his degree. While attending the university, however, Forrest supervised construction of the First Baptist Church of Eugene and worked for F. Mason White, architect. After leaving the University of Oregon in 1927, Forrest worked as chief draftsman for architect Hugh Thompson in Bend, Oregon, until he enrolled at the Massachusetts Institute of Technology (MIT) to study architectural and structural design in 1928. Following studies at MIT, Forrest returned to Portland and worked as an architectural draftsman with architect Roi L. Morn. His work with Morn included commercial buildings, residences, theaters, and schools; design of furniture suites, ornamental bronzes, and cast stone; and planning the proposed layout for Morningside Hospital.

Linn Forest, 1952 (MRV Architects 2014).

In 1929, Forrest entered the firm of Whitehouse, Stanton & Church. He was responsible for all phases of architectural work: preliminary sketches, perspective scale, and full-size drawings and supervision in the shops and on the job. The firm's resume included schools, hospitals, large residences, a U.S. Federal Courthouse building, and commercial buildings. The quality of Forrest's work was regarded as exceptional among members of the architectural community, and on June 23, 1931, he was awarded the first Ion Lewis Traveling Fellowship. The award was given annually by the University of Oregon to an exceptional architect between 20 and 30 years of age who was either an alumnus of an architecture school or who had at least six years of architectural experience.

After spending a year traveling in Europe, Forrest returned to Portland in June 1932 during the height of the Great Depression. He was placed in charge of a group collecting data and making measured drawings for the planned redesign of several blocks of buildings facing a proposed waterfront esplanade. During this period, Forrest finally obtained his Oregon State architect's license.

In June 1934, Forrest was working with the War Department's Bonneville Dam project as a draftsman. He left the Bonneville Dam project in February to take a position with the U.S. Forest Service. In his first position, he compiled a handbook of acceptable Forest Service building designs for Region-wide use. He also designed recreation facilities such as ski resorts, bathing fa-

16 Forrest, An Addition, 1951.

17 "Superintendent's Corner," *Thunderbird Press*, Kake High School newspaper, May 1979.

18 Article in *Thunderbird Press*, May 1980.

cilities, and related structures.[19] One such facility was the famed Timberline Lodge project on Mount Hood in Oregon. Working drawings of the plans and elevations of the lodge were signed "L.A.F."[20]

In the late 1930s, the U.S. Forest Service contracted Forrest and Regional Forester, B. Frank Heintzleman, to oversee various Civilian Conservation Corps (CCC) operations to restore and preserve totem poles and traditional Native architecture in Southeast Alaska. Linn immediately immersed himself in Southeast Alaska cultural history. From 1937 to 1939, via a $24,000 U.S. Government grant to the Alaska Native Brotherhood for use on a CCC project, Forrest oversaw the construction of the Shakes Island Community House and totems at Wrangell, Alaska.[21] In 1939, he also oversaw totem pole restoration work at the Sitka National Park. Through these and other efforts, Forrest become highly involved in local Native life and began working directly on the restoration of historic totem poles throughout the region, and on the reconstruction of Native Clan Houses. These projects included Chief Shakes House, Totem Bight, House of Chief Son-I-Hat, and Saxman. Forrest employed a corps of Native master-carvers, working from original cultural objects to produce the best historic reconstructions possible. He developed an appreciation of Native cultural history, leading him to co-author the text "The Wolf and the Raven, Totem Poles of Southeastern Alaska" with anthropologist Viola Garfield.[22] Until the CCC program was disbanded in 1942, Forrest also had a hand in the design and construction of many administration and recreation buildings across the Pacific Northwest and Alaska.

In 1946, Forrest was permanently transferred to Alaska to serve as USFS Regional Architect and develop buildings similar to, but smaller than, those in similar regions in Oregon and Washington. The Forest Service work was not challenging architecturally, so Forrest left the agency in the late 1940's,[23] opening a private office in Juneau in 1952.

In 1960, his firm, which then included his son, Linn, Jr., was selected to design the visitor center for the Mendenhall Glacier, just outside of Juneau and the restroom facility for the Portage Glacier, just outside of Anchorage on the Chugach National Forest.[24] Forest was a registered member of the American Institute of Architects beginning in 1950 until his death in 1987,[25] and maintained registry to practice architecture in both Oregon and Alaska. A.P. DiBenedetto sponsored Forrest's election to the College of Fellows of the American Institute of Architects in 1979 for his design work on Timberline Lodge and the Mendenhall Glacier Visitor Center, both of which are listed on the NRHP.

The addition designed by Forrest on the Old Kake Elementary School was cohesive and added the needed additional space, but a few years later it was recognized that further work on the school was warranted. A second addition was undertaken in 1985 and completed in early 1986 by Quadra Architecture. This addition had the specific purpose of constructing a new library for the school, as well as adding a workroom, office, health classroom, and storage space to the existing school.[26] The addition, on the east side of the building, deviated slightly from the original design of the school, with a flat roof and slightly larger massing. Nonetheless, the addition contained adequate features of the Contemporary style to maintain a relative cohesiveness of design.

The Kake Elementary School continued to serve its purpose until 1996, when a new, modern school was constructed at a different location. After the opening of the new school, the old school was closed to the public, boarded over, and abandoned.[27]

RESULTS OF CULTURAL RESOURCE INVESTIGATION

Previous Investigations

Previous investigations in the Kake area have primarily resulted in the identification of historic buildings. Past investigations in the Kake area have been completed as part of on-going preservation planning and Section 106 compliance efforts related to infrastructure improvements. The previous investigations show that the proposed APE has not been subject to any previous cultural resources investigations.

Review of the OHA's Surveys Module and Document Repository revealed documentation of 12 previous investigations located within Kake, beginning in 1980 (Table 3). Eight of the previous investigations have associated Alaska Cultural Resource Permit survey identification numbers. In general, the past investigations were triggered by state and federal compliance laws and regulations.

19 Ann Wood, pp. 19-24.

20 Ibid., pp. 47-48.

21 Sealaska Heritage Institute Archives, Linn A Forrest Photograph Collection, C. 1930 – 1950, Juneau, Alaska, 2012.

22 MVR Architects, *Profile: Linn Argyle Forrest*, 2009.

23 Dick Forrest, *A Tribute to my Father, Linn Argile Forrest*, 3.

24 Forrest, *A Tribute*, 3.

25 American Institute of Architects, Historical Directory, Lynn A. Forrest, 2014.

26 Quadra Architecture, Kake School Addition, 1985.

27 City of Kake, DEC's Reuse and Redevelopment Program, Brownfield Assessment or Cleanup Request Form, 2013.

Table 3. Previous Investigations in Kake

Record ID	Survey ID	Level	Document	Reference
16115462		Level IIC - Pedestrian	Archeological Survey for the Proposed Tyee Lake Hydro-electric Project Southeastern Alaska-Summer	Andrews 1980, Maps A and B
3576	15954366	Level I - Literature Review	USFS Historical, Cultural, And Archaeological Overview And Study Plan For The Bohemia Timber Sale Area	Roberts 1980
6991	15959241	Level I - Literature Review	USFS The Tyee Power Project Revisited	Roberts 1981a
16115472		Level I - Literature Review	Letter RE: Archeological Survey for the Proposed Tyee Lake Hydroelectric Project Southeastern Alaska	Roberts 1981b
15987203		Level II - Reconnaissance Survey	Report Of Archeological Investigations In Kake, Alaska	Staley 1992
15987211		Level II - Reconnaissance Survey	Archaeological Survey Of A Proposed Sanitation Project In Kake, Alaska.	Yarborough 1992
3454	15954427 15954428	Level II - Reconnaissance Survey	AK ARNG Final Arch Survey For Federal Scout Readiness Center At Kake, AK	Morris et al 2001
2681	15952712	Level I - Literature Review	Letter Report Re: Kake Elementary School Addition, Kake	John 2002
8303	15961633	Level I - Literature Review	Letter Re Renovation Of Existing Medical Clinic In Kake	Christner 2006
16175338	16175340	Level IIB - Architectural	Kake Historic Structures Survey Report	Meinhardt 2009
16115273	16115277	Level IIC - Pedestrian	Cultural Resources Inventory of the Proposed Kake to Petersburg Transmission Line Intertie Project, Kupreanof and Mitkof Islands, Alaska	Greiser and Carlson 2013
16221590	16221556	Level I - Literature Review	Cultural Resources Survey Report for the Water Distribution System and Sewer Upgrades Plan,	Schnieder and Simmons 2014

In 1980, the Arctic Environmental Information and Data Center of the University of Alaska completed a cultural resources investigation for the International Engineering Company, Inc., for the proposed Tyee Lake hydroelectric project. The surveyed areas covered portions of the Stikine Area in the Tongass National Forest. A literature review and pedestrian survey were completed, as well as a technical report indicating potential impacts to cultural resources identified during the investigation.[28]

The U.S. Forest Service completed an overview and study plan for the proposed Bohemia Timber Sale in 1980. The document provided a synopsis of previous investigations in the area and recommended areas of potential for reconnaissance survey. All coastal areas were recommended to be surveyed, and all areas of ground disturbing activities were recommended to have subsurface testing.[29]

Following the completion of the initial archaeological survey in 1980 for the Tyee Hydroelectric Project, the U.S. Forest Service recommended the completion of additional investigative work prior to construction. Areas located within the proposed transmission corridor that were deemed as high potential for containing archaeological materials were tested, as were

28 Elizabeth Andrews, *Archeological Survey for the Proposed Tyee Lake Hydroelectric Project Southeastern Alaska-Summer 1980.* (Anchorage, Alaska: Robert W. Retherford Associates Division, International Engineering Company, Inc., 1980), 1.

29 Larry Roberts, *Historical, Cultural, And Archaeological Overview And Study Plan For The Bohemia Timber Sale Area.* (Petersburg, Alaska: U.S. Forest Service, 1980), 2.

all areas lower than 100 feet above sea level, and all areas of major stream crossings.[30] Additional background information relating to land use, which was omitted from the 1980 investigative report[31] was also supplied for incorporation into the final report.[32]

In May of 1992, an investigation related to sanitation improvements was completed by Cultural Resource Consultants, in which limited testing along proposed sewer line routes was completed and impacts to sites assessed.[33] Later that same year, the Environment and Natural Resources Institute (ENRI) of the University of Alaska completed a cultural resources investigation in conjunction with the project. The investigation focused on four previously documented sites, however, no determination of eligibility was issued. The Kake Cannery, PET-00197, was mentioned as having potential for NRHP listing but that the sanitation project would not impact the resource. [34]

The Alaska Army National Guard completed an archaeological survey in 2001 in anticipation of constructing a Federal Scout Readiness Center in Kake. Hart Crowser, Inc., completed a background literature review, a pedestrian survey with discretionary subsurface testing, and a review of facility records. The National Guard issued a finding of no effect to significant historic properties.[35]

In 2002, the South East Regional Resource Center contacted the Alaska SHPO to assist in providing archaeological clearance for a planned addition to the elementary school. Information gathered from local informants indicated the lot was previously used as a vehicle dump and was capped with gravel. The Alaska SHPO issued a finding of no historic properties affected. [36]

In 2006, South East Alaska Regional Health Consortium (SEARHC) planned expansion activities at the Kake Clinic. In a letter to the Alaska SHPO, SEARHC requested concurrence for their finding that the Kake Clinic building was 22 years old at the time of the investigation and therefore the project would have no effect on historic properties; the Alaska SHPO concurred. [37]

In 2009, a Historic Structures Survey Report was prepared by the Bureau of Indian Affairs (BIA) to obtain baseline data on the built environment in Kake and to determine if there are resources with enough integrity located within Kake to warrant a historic district. The investigation revealed the building stock was not significant on a national level, but rather on a local level as a local historic district. The report recommended two potential local historic districts that may be eligible for inclusion in the NRHP, and three individual buildings that retain enough integrity to warrant further evaluation for inclusion on the NRHP.[38]

The cultural resources survey for the Kake to Petersburg Transmission Line Intertie Project was conducted in 2011. The effort surveyed over 55 miles of linear route, with a width of 91 meters. Both newly and previously recorded resources were encountered within the APE. Relocation of previously documented sites was difficult, and sensitive areas located adjacent to the APE were monitored. USFS asked for concurrence with several DOE's of which SHPO concurred, but did not ask for a finding of effect because- they had not decided on a final route for the project.[39]

In 2014, the Alaska Native Tribal Health Consortium (ANTHC) contracted ASRC Energy Services Alaska, Inc. (AES) to conduct an identification-level cultural resources investigation for the proposed water distribution system and sewer upgrades plan in Kake, Alaska. The results of the investigation are pending.[40]

Previously Documented Resources

The project area for the current investigation is located in Section 34 of Township 56 South, Range 72 East, of the Copper River Meridian. The building lot is set at the southeast corner of the intersection of Church Street and Totem Way (Figure 6). The proposed APE and adjacent lands within ½ mile were reviewed to obtain an understanding of the cultural context of the area. Investigations conducted directly in the village of Kake have primarily resulted in the documentation of historic buildings (Table 4).

30 Larry Roberts, *The Tyee Power Project Revisited*. (Petersburg, Alaska: U.S. Forest Service, 1981), 4.

31 Andrews, *Tyee Lake Hydroelectric Project*, 1980.

32 Larry Roberts, Letter to John C. Stafford, RE: Archeological Survey for the Proposed Tyee Lake Hydroelectric Project Southeastern Alaska, 1981.

33 Michael Yarborough, *Archaeological Survey Of A Proposed Sanitation Project In Kake, Alaska*, (Anchorage, Alaska: Public Health Services, 1992), 1.

34 David P. Staley, *Report Of Archeological Investigations In Kake, Alaska.* (Anchorage, Alaska: U.S. Public Health Services, 1992), v.

35 Bonnie Morris, Greg Bruehler, and Bruce Ream, *Alaska Army National Guard Final Arch Survey For Federal Scout Readiness Center At Kake, Alaska.* Anchorage, Alaska: Army National Guard, 2001), 1.

36 Carl John, Report to Judith Bittner Re: Kake Elementary School Addition, Kake. Juneau, Alaska: South East Regional Resource Center, 2002

37 Matt Christner, Letter to Judith Bittner Re Renovation Of Existing Medical Clinic In Kake, Alaska. Sitka, Alaska: South East Regional Health Consortium, 2006.

38 Robert Meinhardt, Kake Historic Structures Survey Report. (Wasilla, Alaska: Robert L. Meinhardt, 2009), 1.

39 Weber T. Greiser and Eric Carlson, *Cultural Resources Inventory of the Proposed Kake to Petersburg Transmission Line Intertie Project, Kupreanof and Mitkof Islands, Alaska*. (Missoula, Montana: Historical Research Associates, Inc., 2013), i.

40 Schneider and Simmons, *Cultural Resources Survey Report for the Water Distribution System and Sewer Upgrades Plan, Kake, Alaska.* Anchorage, Alaska: Arctic Slope Regional Corporation, 2014.

Figure 6. USGS Quadrangle map "Petersburg D-6" depicting the spatial distribution of previously recorded sites near the proposed APE, as shown in red (OHA 2014). Sensitive information not for public release.

No previously recorded cultural resource sites are present within the proposed APE. Within the half-mile search area, 28 previously documented resources are present. Three of the resources are archaeological sites (PET-00005, PET-00614, and PET-00745), one is a historic structure (PET-00007), while the other 24 are buildings (Table 4). [41] The buildings are primarily dwellings, completed in early to mid-twentieth century architectural styles. None of the 28 previously documented resources have received a determination of eligibility.

Resources Listed in the National Register of Historic Places (NRHP)

No resources previously recorded on the NRHP are located within the proposed APE. One cultural resource within the village of Kake is currently listed on the NRHP; the Kake Cannery (PET-00197), located 1.2 miles south of the proposed APE. It was designated as a National Historic Landmark in 1997.

41 Alaska Office of History and Archaeology (OHA). Integrated Business Suite. Accessed October 27, 2014 https://dnr.alaska.gov/ohasecurity/portal

Table 4. Previously Documented Cultural Resources Located within ½ Mile of the Proposed APE.

AHRS	Temporal	Type	Name	NRHP status
PET-00601	Historic	Building	Presbyterian Church	Unevaluated
PET-00613	Historic	Building	Louie Austin House	Unevaluated
PET-00612	Historic	Building	Thomas Jackson House #3	Unevaluated
PET-00598	Historic	Building	Dick Thomas House	Unevaluated
PET-00599	Historic	Building	Skeek House	Unevaluated
PET-00592	Historic	Building	Kadake House	Unevaluated
PET-00596	Historic	Building	Calvin Wilson Sr. House	Unevaluated
PET-00594	Historic	Building	Thomas Jackson House	Unevaluated
PET-00593	Historic	Building	Benjamin Kadake House	Unevaluated
PET-00595	Historic	Building	John Bean House	Unevaluated
PET-00597	Historic	Building	Weslie Brown Sr. House	Unevaluated
PET-00614	Historic	Site	Historic House Ruins	Unevaluated
PET-00007	Historic	Structure	Kake Totem	Unevaluated
PET-00005	Prehistoric			
Historic	Site	Kake, Keku	Unevaluated	
PET-00588	Historic	Building	BIA School - Kake	Unevaluated
PET-00600	Historic	Building	Johnie Wilson House	Unevaluated
PET-00603	Historic	Building	Thomas Jackson House #2	Unevaluated
PET-00602	Historic	Building	Dugaqua House	Unevaluated
PET-00604	Historic	Building	Forest Dewitt House	Unevaluated
PET-00607	Historic	Building	Charles Johnson Sr. House	Unevaluated
PET-00605	Historic	Building	David Friday Sr. House	Unevaluated
PET-00608	Historic	Building	Adams House	Unevaluated
PET-00609	Historic	Building	Charles Gunnock House	Unevaluated
PET-00606	Historic	Building	Preston Bean House	Unevaluated
PET-00610	Historic	Building	Archie Cavaghna House	Unevaluated
PET-00611	Historic	Building	Johny Jackson House	Unevaluated
PET-00745	Historic	Site	PET-00745	Unevaluated
PET-00591	Historic	Building	Benson Kadake House	Unevaluated

Historic Trails

A review of the RS-2477 Historic Trails Data Layer in the IBS database was conducted to ascertain the presence of any historic transportation routes within or adjacent to the proposed APE. Such review resulted in finding no RS-2477 historic routes within the proposed APE.[42]

Old Kake Elementary School, Kake Alaska (AHRS PET-00753)

Narrative Description

Kake Elementary School is a T-shaped, one-story wood-frame school building located at the junction of Church Street and Totem Way in the city of Kake, Alaska (Figures 7 and 8). The school was originally constructed in 1951 and opened for students in 1952. The school was later expanded in 1980 and 1986 as the student body outgrew the existing building. The original Contemporary-style design of the building was carried through the two additions and resulted in a cohesive design.

Figure 7. The Old Kake Elementary School, south and west facades (©TNSDS 2014).

Figure 8. The Old Kake Elementary School, east façade and chimney; note window fenestration (©TNSDS 2014).

The school is oriented on a north-south axis with the main entrance in the southern façade of the main block of the building. The main block of the building, which includes the original portion, measures 184'8" long and 60'0" wide (Figure 9). It is a wood frame building constructed over a concrete-block foundation with half-basement (crawlspace) and has a combination butterfly, shed, and flat form roof. The school is clad primarily in wood lap siding, with a mix of wood shiplap siding, diagonal and vertical wood shiplap V siding, and stone.

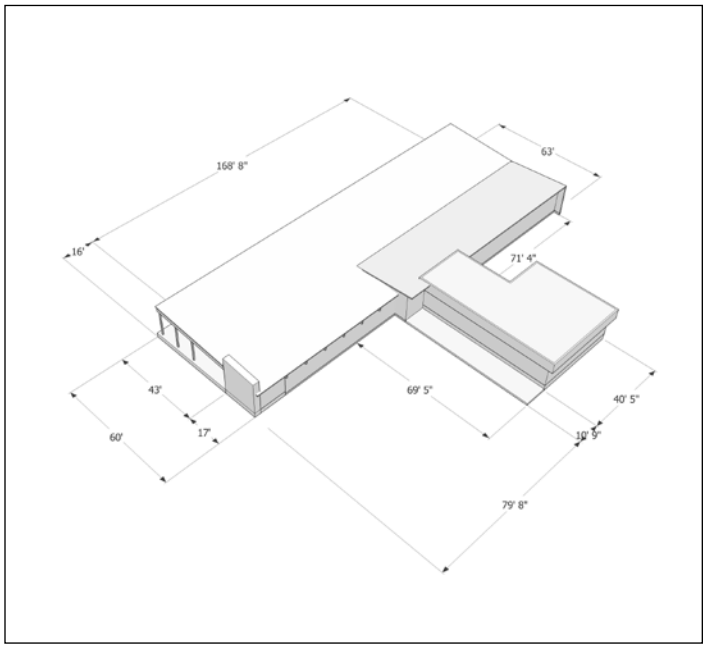


Figure 9. Plan-view of the Old Kake Elementary School with measurements. Shaded areas are additions (© Olberding White Architects 2014).

The original portion of the building, constructed in 1951, consists of the southern and western portions of the main body of the school. It was originally constructed with a shed roof sloping to the east and the broad covered porch leading to the entrance extending across the southern façade and anchored by a broad coursed rubble stone chimney. The southern façade, which contains the main entrance, measures 60'0" long. It is clad in white painted vertical shiplap V siding, with the western most exterior corner covered in white painted diagonally placed shiplap V siding. A 16'0" deep covered porch extends 43'0" east from the western corner of the building, ending in the western exterior wall of the boiler room, adjacent to the stone chimney. The main entrance is located at the corner of the southern wall of the school and the western wall of the boiler room and consists of double doors. The doors have since been covered with vertical siding to deter trespassing. There is also an angle window located in the upper reaches of the façade, just to the west of the main entrance, which is also boarded over and has a head that is parallel to the slope of the roof. The porch consists of a concrete slab with a coursed rubble face. The porch slopes downward from west to east; it measures 15'2" high at the western end and approximately 12'0" at the junction with the boiler room on the eastern end. It has a thick fascia and is supported by three square wood posts. A fourth was removed at an unknown date. Three concrete steps, extending the full depth of

42 Ibid. Accessed October 27, 2014.

the porch, are located on the western edge. The southern wall of the boiler room, which sits flush with the outer edge of the porch, consists of a 17'0" wide coursed rubble stone chimney standing 20'0" tall at the highest point; the top of the stone slopes to follow the slope of the roofline.

The west and east facades of the main building are similar in composition. They consist of red painted wood lap covered lower walls with windows placed in the upper wall. The roofline extends beyond the wall, displaying deep eaves supported by white painted trapezoidal wooden brackets (Figure 10). The soffits are covered in wood lap material. There are fifteen brackets evenly spaced along the western façade and six on the eastern façade, which only measures 79'8" in length. The windows are all covered with black painted plywood sheets, to deter trespassing, and their type and form could not be observed at the time of the survey. A secondary door is visible on the eastern façade, near the end of the boiler room along the south of the facade, and is likewise boarded over. This eastern façade also contains an electrical fuse box and three alarm bells in the wall near the boiler room chimney; it can be assumed that these are for various purposes such as school session bells and fire and emergency alarms.

Figure 10. Detail of the trapezoidal wooden brackets (©TNSDS 2014).

This original portion of the building initially contained four classrooms and an office/administration area ranged north to south, with the office/administration area directly off the entrance. Across from the office/administration area was the boiler room, janitorial area, and two restrooms, one for boys and another for girls.

The first addition to the building, constructed in 1980, is located on the eastern side of the building and makes up the northeastern section of the building (Figures 11 and 12). It only extends 9'0" further east than the original building, but it gave the building a more symmetrical appearance. This addition was built similar to the original, contrasting only when looking at the overall concept. Most noticeable is the roofline, which slopes to the west. This results in a butterfly roof covering the northern half of the building. The western addition roof has a large fascia consisting of vertical shiplap V siding over windows of seemingly identical fenestration as the original building. They too were boarded over at the time of survey, hence it was impossible to observe their form and materials. There are no brackets supporting the eaves on the western addition. The northern façade of the addition, which is flush and uniform with the northern façade of the original building, has a V-shape reflecting the butterfly roof and is clad in red painted, vertical wood shiplap V siding. When the first addition was completed, it added two classrooms and a special education room to the school. The project also updated wiring and plumbing for the entire school.

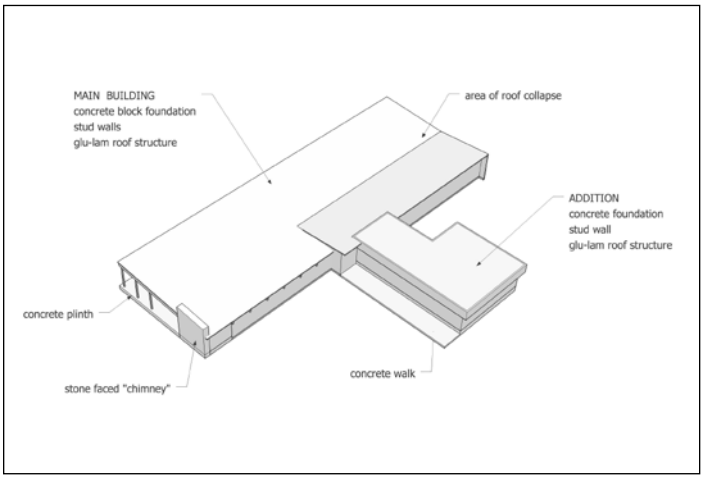


Figure 11. Plan-view of the Old Kake Elementary School depicting architectural features, additions, and roof collapse (© Olberding White Architects 2014).

Figure 12. Overview of the collapsed roof of the first addition, right of image, with second addition on left; view to the south (©TNSDS 2014).

The second addition, constructed in 1986, consisted of a slightly L-shaped projection in the eastern wall extending east 56'5". This addition was also 40'5" long (north to south). It deviated from the style of the original building to some extent, although not enough to break the cohesiveness of the design. The eastern addition has a flat roof with deep fascia similar to the fascia seen on the western addition. It is clad in red-painted wood lap siding with wood corner boards. It contains three wood-sash hopper windows with large fixed-plate transom windows evenly spaced along the northern façade, which have been boarded over from the interior. An entrance to the addition is present on the southern façade, boarded over and undeterminable as to form. The main body of this addition added a dedicated library to the school, with a library office and workroom. A hallway along the southern side of the addition provided access to the library, and depth to the hall was added by the addition of a very small health classroom sandwiched between the library and the main body of the school. This gave the addition an L-shaped floor plan (Figure 13), and creating a small, three-sided courtyard on the north side of the addition (Figure 14). This courtyard also contains an emergency exit from the western wall of the library.

Figure 13. North and east facades of the second addition depicting the L-shaped plan (©TNSDS 2014).

Figure 14. Overview of the second addition, which created a partially enclosed courtyard; view to the north (©TNSDS 2014).

The school is located in a residential area of town, situated on a corner lot. The lot slopes to the southwest, with a large hill rising to the northeast. The orientation of the school dictated that it be built into the side of the hill as it travels north, and the half-basement (crawlspace) is more exposed to the south. A small paved lot sits to the south of the school and contains a basketball hoop and a painted court. Playground equipment is still present along the cleared area just to the east of the school, although it is becoming overgrown with vegetation (Figure 15).

Figure 15. East façade of original building and junction with south façade of second addition, view to the northwest; note partial courtyard with playground (©TNSDS 2014).

The condition of the building is very poor. While the west, south, and east facades of the building are largely intact, the northern wall has collapsed outward. This is likely in response to the collapse of the butterfly roof along the center seam. The collapse of the roof also led to the breaking of the brackets along the northern edge of the western wall as the roof has fallen inward. The red paint is largely peeling to expose an older layer of white paint. Vegetation has begun to obscure the building as it grows against the walls. It is particularly bad in the area of the courtyard on the northern side of the second/eastern addition; the vegetation there is thick enough to obscure any photographs taken of the area.

NRHP Evaluation of Old Kake Elementary School

The Old Kake Elementary School is not considered to be historically significant at this time. The integrity of the school has been largely lost. Although the location and setting remain the same, the multiple additions from the 1980s obscure the building as originally constructed. The materials are compromised and largely disintegrating, obscuring the workmanship. Finally, the vacant nature of the building contributes to a loss of feeling and association.

Criteria A - The establishment of the Kake School District had a far-reaching impact on the education reforms that were to take place in Alaska during the late 1940s and early 1950s, however, the school itself was not part of the establishment and cannot be shown to be associated with those events.

Criteria B – The school is not associated with the lives of any person significant in the history of Kake, Alaska, or the United States.

Criteria C – Noted architect Linn A. Forrest is credited with the design of the first addition to the school; however, as the addition was not large, of a much later date (non-historic; under 50 years in age), and is partially obscured by the second addition, the school does not contain sufficient integrity to be considered exemplary of Forrest's work. Additionally, the school does not contain enough integrity to be considered significant by style.

Criteria D – The school does not hold potential to yield important information on prehistory or history.

SECTION 106 RECOMMENDATIONS

The Kake Elementary School is scheduled for demolition, using federal funding. The school was documented and assessed for its historic significance in an effort to meet federal obligations set forth in Section 106 of the NHPA. At this time, it is recommended that the Old Kake Elementary School is not eligible for inclusion in the NRHP. Through a loss of integrity, it is not eligible for listing under any of the criteria or criteria considerations. It should be noted by interested parties that the school does contain an addition attributed to the architect Linn A. Forrest, although this addition is obscured by a later addition and is not exemplary of his overall work. The school does, however, exhibit architectural features of the Contemporary style, as is shown in its southern and western facades, and the roofline. This style was common throughout the United States during the 1950s through the 1970s in working class areas. Contemporary style buildings are often eligible as part of a district; however, they are seldom considered to be individually eligible. As the only such building in Kake, the school cannot be considered to be contributing to a district. Likewise, a loss of integrity resulting from the deterioration of materials and two subsequent additions to the original render the building ineligible for individual listing.

As the building is not considered to be historically significant and lacks integrity to be listed under Criteria A and C, the proposed demolition will not result in an affect to historic properties pursuant to Section 106 of the National Historic Preservation Act of 1966 and its implementing regulations. This report satisfies regulatory requirements under 36 CRF §800 to issue a finding of No Historic Properties Affected for the proposed demolition and redevelopment of the Old Kake Elementary School (PET-00753).

BIBLIOGRAPHY

Alaska Department of Commerce, Community, and Economic Development (ADCCED) Community Profile, Kake. Accessed November 19, 2014 http://commerce.state.ak.us/cra/DCRAExternal/community/Details/9aa30fae-6452-4097-83b9-10a4cd761165.

Alaska Office of History and Archaeology (OHA). Integrated Business Suite. Accessed October 27, 2014 https://dnr.alaska.gov/ohasecurity/portal.

Alaska State Library. *United States Public School, Kake, Alaska*. Case and Draper, Photographs 1898 – 1920. Accessed November 4, 2014, http://vilda.alaska.edu/cdm/singleitem/collection/cdmg21/id/817/rec/1.

_____. *Kake, School*. Archives and Special Collections. Juneau, Alaska: Alaska State Library, 1952.

Andrews, Elizabeth F. *Archeological Survey for the Proposed Tyee Lake Hydroelectric Project Southeastern Alaska-Summer 1980*. Anchorage, Alaska: Robert W. Retherford Associates Division, International Engineering Company, Inc., 1980

Christner, Matt. Letter to Judith Bittner Re Renovation Of Existing Medical Clinic In Kake, Alaska. Sitka, Alaska: South East Regional Health Consortium, 2006.

City of Kake. DEC's Reuse and Redevelopment Program, Brownfield Assessment or Cleanup Request Form. Kake, Alaska: City of Kake, 2013.

Engineering, Health and Safety Consultants (EHS Alaska). *Hazardous Materials Survey Report, Former Kake Elementary School, Kake, Alaska*. Kake, Alaska: City of Kake, 2014

Forrest, Linn A. An Addition to the Kake Elementary School – Blueprints. Juneau, Alaska: Linn A. Forrest Architects, AIA, 1951.

Greiser, T. Weber, and Eric Carlson. *Cultural Resources Inventory of the Proposed Kake to Petersburg Transmission Line Intertie Project, Kupreanof and Mitkof Islands, Alaska*. Missoula, Montana: Historical Research Associates, Inc., 2013.

John, Carl. Letter Report to Judith Bittner Re: Kake Elementary School Addition, Kake. Juneau, Alaska: South East Regional Resource Center, 2002.

Meinhardt, Robert. Kake Historic Structures Survey Report. Wasilla, Alaska: Robert L. Meinhardt, 2009.

Morris, Bonnie, Greg Bruehler, and Bruce Ream. *Alaska Army National Guard Final Arch Survey For Federal Scout Readiness Center At Kake, Alaska*. Anchorage, Alaska: Army National Guard, 2001.

MVR Architects. *Company Profile, Linn Argyle Forrest*. Accessed November 14, 2014 http://www.mrvarchitects.com/linn.html.

Olberding, Liz. Kake School Measured Drawings. Anchorage, Alaska: Olberding White Architects, 2014.

Quadra Architecture. Kake School Addition. Vancouver, Canada: Quadra Architecture, 1985.

Roberts, Larry D. Historical, *Cultural, And Archaeological Overview And Study Plan For The Bohemia Timber Sale Area*. Petersburg, Alaska: U.S. Forest Service, 1980

_____. *The Tyee Power Project Revisited*. Petersburg, Alaska: U.S. Forest Service, 1981a.

_____. Letter to John C. Stafford, RE: Archeological Survey for the Proposed Tyee Lake Hydroelectric Project Southeastern Alaska, 1981b.

Schneider and Simmons. *Cultural Resources Survey Report for the Water Distribution System and Sewer Upgrades Plan, Kake, Alaska*. Anchorage, Alaska: Arctic Slope Regional Corporation, 2014.

Staley, David P. *Report Of Archeological Investigations In Kake, Alaska*. Anchorage, Alaska: U.S. Public Health Services, 1992.

U.S. Department of the Interior, National Park Service (USDOI, NPS). *National Register Bulletin 24, Guidelines for Local Surveys: A Basis for Preservation Planning*. Washington, D.C., Interagency Resource Division, 1985.

_____. *National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation*. Washington, D.C., Interagency Resource Division, 1997.

_____. *How to Complete the National Register Registration Form* Washington, D.C., Interagency Resource Division, 1997.

_____. *A History of the Architecture of the USDA Forest Service,* Chapter 3 People: Leaders and Implementers, Linn Argile Forrest, Regional Architect, Region 10 (1934 – 1952). Accessed November 14, 2014 http://www.foresthistory.org/ASPNET/Publications/architecture/chap3d.htm. Washington, D.C., 2008.

Yarborough, Michael. Archaeological Survey Of A Proposed Sanitation Project In Kake, Alaska. Anchorage, Alaska: Public Health Services, 1992.

APPENDIX A: ALASKA BUILDING INVENTORY FORM

Alaska Building Inventory Form AHRS #: PET-00753 Associated District:

Historic Name : Old Kake Elementary School		Other Name:	
Building Address: Corner of Totem Way and Church Street		City: Kake, Alaska	
Owner's Name and Address: City of Kake, Kake, Alaska			
USGS Quad Name and Map Sheet: Petersburg D-6	Section: 34 Copper River	Township: 56 South	Range: 72 East
GPS Coordinate (DD Latitude/Longitude, NAD83): 56.97612 / -133.949318		Associated District:	

Historic Associations

Historic Function and Sub-function: 1. Education 2. School	
Current Function and Sub-function: 1. Vacant 2.	Areas of Significance: 1. Education 2.
Significant Person(s): 1. 2.	Significant Dates/Period of Significance: 1. 1952-1996 2.
Architect, Builder, Contractor, Designer: Linn A Forrest and Quadra Architecture	Original Owner: Kake School District

Architectural Information:

Date of Construction: 1952	Date Moved:	Destruction Date:	Reconstruction Date:
Alteration Dates: 1. 1980 2. 1986		Stories: 1-story	Cultural Affiliation: Tlingit
Resource Type: X Building ☐ Site ☐ Structure ☐ Object		Associated Historic Context: 1. 2.	
Architectural Style: Contemporary Style		Building Type: Wood-frame educational	

Number of Ancillary Structures:	Types of Ancillary Structures: 1. 2.	Plan: T-Shaped	Roof Type: Butterfly/flat
Foundation Materials: 1. Concrete block 2.	Roof Materials: 1. Tar paper 2.	Exterior Wall Materials: 1. Wood lap 2.	Other Materials: 1. Stone 2.

Architectural Description (Include setting & outbuildings, photos):*(use continuation sheets)*

Kake Elementary School is a T-shaped, one-story wood-frame school building located at the junction of Church Street and Totem Way in the Organized Village of Kake, Alaska. The school was originally constructed in 1951 and opened for students in 1952. The school was later expanded in 1980 and 1986 as the student body outgrew the existing building. The original Contemporary-style design of the building was carried through the two additions and resulted in a cohesive design.

The school is oriented on a north-south axis with the main entrance in the southern façade of the main block of the building. The main block of the building, which includes the original portion, measures 184'8" long and 60'0" wide. It is a wood frame building constructed over a concrete-block foundation with half-basement (crawlspace) and has a combination butterfly, shed, and flat form roof. The school is clad primarily in wood lap siding, with a mix of wood shiplap siding, diagonal and vertical wood shiplap V siding, and stone.

Statement of Significance: *(use continuation sheets)*

The Old Kake Elementary School is not considered to be historically significant at this time. The establishment of the Kake School District had a far-reaching impact on the education reforms that were to take place in Alaska during the late 1940s and early 1950s, however, the school itself was not part of the establishment and cannot be shown to be associated with those events. Noted architect Linn A. Forrest is credited with the design of the first addition to the school; however, as the addition was not large, of a much later date (non-historic; under 50 years in age), and is partially obscured by the second addition, the school does not contain sufficient integrity to be considered exemplary of Forrest's work. Additionally, the school does not contain enough integrity to be considered significant by style.

Eligibility: ☐ Yes ☒ No If yes: ☐ A ☐ B ☐ C ☐ D	Criteria Considerations: ☐ A ☐ B ☐ C ☐ D ☐ E ☐ F ☐ G

Prepared By: Casey Woster, M.A. True North SDS	Reviewed by Professional that meets the following Professional Qualifications: ☐ Architect ☒ Architectural Historian ☐ Historian ☐ Historic Architect ☐ None	Date: 11/20/2014

SHPO Response:
☐ Eligible (Concur) ☐ Eligible (Do Not Concur) ☐ Not Eligible (Concur) ☐ Not Eligible (Do Not Concur)

Minor Recommendations and Comments Include:
☐ Need more information related to: ☐ Historic Context ☐ Integrity ☐ Architectural Description ☐ Period of Significance
Authorized Signature: Date:

Alaska Building Inventory Form – Continuation Sheet

Page 1 of 2

Historic Name	AHRS Number	Associated Historic District	City/Town/Village
Old Kake Elementary School	PET-00753		Kake

The original portion of the building, constructed in 1951, consists of the southern and western portions of the main body of the school. It was originally constructed with a shed roof sloping to the east and the broad covered porch leading to the entrance extending across the southern façade and anchored by a broad coursed rubble stone chimney. The southern façade, which contains the main entrance, measures 60'0" long. It is clad in white painted vertical shiplap V siding, with the western most exterior corner covered in white painted diagonally placed shiplap V siding. A 16'0" deep covered porch extends 43'0" east from the western corner of the building, ending in the western exterior wall of the boiler room, adjacent to the stone chimney. The main entrance is located at the corner of the southern wall of the school and the western wall of the boiler room and consists of double doors. The doors have since been covered with vertical siding to deter trespassing. There is also an angle window located in the upper reaches of the façade, just to the west of the main entrance, which is also boarded over and has a head that is parallel to the slope of the roof. The porch consists of a concrete slab with a coursed rubble face. The porch slopes downward from west to east; it measures 15'2" high at the western end and approximately 12'0" at the junction with the boiler room on the eastern end. It has a thick fascia and is supported by three square wood posts. A fourth was removed at an unknown date. Three concrete steps, extending the full depth of the porch, are located on the western edge. The southern wall of the boiler room, which sits flush with the outer edge of the porch, consists of a 17'0" wide coursed rubble stone chimney standing 20'0" tall at the highest point; the top of the stone slopes to follow the slope of the roofline.

The west and east facades of the main building are similar in composition. They consist of red painted wood lap covered lower walls with windows placed in the upper wall. The roofline extends beyond the wall, displaying deep eaves supported by white painted trapezoidal wooden brackets. The soffits are covered in wood lap material. There are fifteen brackets evenly spaced along the western façade and six on the eastern façade, which only measures 79'8" in length. The windows are all covered with black painted plywood sheets, to deter trespassing, and their type and form could not be observed at the time of the survey. A secondary door is visible on the eastern façade, near the end of the boiler room along the south of the facade, and is likewise boarded over. This eastern façade also contains an electrical fuse box and three alarm bells in the wall near the boiler room chimney; it can be assumed that these are for various purposes such as school session bells and fire and emergency alarms.

This original portion of the building initially contained four classrooms and an office/administration area ranged north to south, with the office/administration area directly off the entrance. Across from the office/administration area was the boiler room, janitorial area, and two restrooms, one for boys and another for girls.

The first addition to the building, constructed in 1980, is located on the eastern side of the building and makes up the northeastern section of the building. It only extends 9'0" further east than the original building, but it gave the building a more symmetrical appearance. This addition was built similar to the original, contrasting only when looking at the overall concept. Most noticeable is the roofline, which slopes to the west. This results in a butterfly roof covering the northern half of the building. The western addition roof has a large fascia consisting of vertical shiplap V siding over windows of seemingly identical fenestration as the original building. They too were boarded over at the time of survey, hence it was impossible to observe their form and materials. There are no brackets supporting the eaves on the western addition. The northern façade of the addition, which is flush and uniform with the northern façade of the original building, has a V-shape reflecting the butterfly roof and is clad in red painted, vertical wood shiplap V siding. When the first addition was completed, it added two classrooms and a special education room to the school. The project also updated wiring and plumbing for the entire school. The second addition, constructed in 1986, consisted of a slightly L-shaped projection in the eastern wall extending east 56'5". This addition was also 40'5" long (north to south). It deviated from the style of the original building to some extent, although not enough to break the cohesiveness of the design.

Alaska Building Inventory Form – Continuation Sheet

Page 2 of 2

Historic Name	AHRS Number	Associated Historic District	City/Town/Village
Old Kake Elementary School	PET-00753		Kake

The eastern addition has a flat roof with deep fascia similar to the fascia seen on the western addition. It is clad in red-painted wood lap siding with wood corner boards. It contains three wood-sash hopper windows with large fixed-plate transom windows evenly spaced along the northern façade, which have been boarded over from the interior. An entrance to the addition is present on the southern façade, boarded over and undeterminable as to form. The main body of this addition added a dedicated library to the school, with a library office and workroom. A hallway along the southern side of the addition provided access to the library, and depth to the hall was added by the addition of a very small health classroom sandwiched between the library and the main body of the school. This gave the addition an L-shaped floor plan, and creating a small, three-sided courtyard on the north side of the addition. This courtyard also contains an emergency exit from the western wall of the library.

The school is located in a residential area of town, situated on a corner lot. The lot slopes to the southwest, with a large hill rising to the northeast. The orientation of the school dictated that it be built into the side of the hill as it travels north, and the half-basement (crawlspace) is more exposed to the south. A small paved lot sits to the south of the school and contains a basketball hoop and a painted court. Playground equipment is still present along the cleared area just to the east of the school, although it is becoming overgrown with vegetation.

The condition of the building is very poor. While the west, south, and east facades of the building are largely intact, the northern wall has collapsed outward. This is likely in response to the collapse of the butterfly roof along the center seam. The collapse of the roof also lead to the breaking of the brackets along the northern edge of the western wall as the roof has fallen inward. The red paint is largely peeling to expose an older layer of white paint. Vegetation has begun to obscure the building as it grows against the walls. It is particularly bad in the area of the courtyard on the northern side of the second/eastern addition; the vegetation there is thick enough to obscure any photographs taken of the area.

Old Kake Elementary School, south and west facades ©TNSDS 2014.

APPENDIX B

EHS HAZARDOUS SURVEY MATERIALS REPORT

HAZARDOUS MATERIALS SURVEY REPORT

FORMER KAKE ELEMENTARY SCHOOL

KAKE, ALASKA

Surveyed
August 27-28, 2014

Report Date
September 17, 2014

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

HAZARDOUS MATERIALS SURVEY REPORT
FORMER KAKE ELEMENTARY SCHOOL

KAKE, ALASKA

TABLE OF CONTENTS

APPENDICES

HAZARDOUS MATERIALS SURVEY REPORT
FORMER KAKE ELEMENTARY SCHOOL

KAKE, ALASKA

OVERVIEW

The former Kake Elementary School, located in Kake, Alaska, was surveyed for the presence of asbestos-containing materials (ACM), and other potentially hazardous materials as a part of a pre-demolition and redevelopment assessment. The survey also provided a "good faith" inspection for hazardous materials that may be disturbed during the demolition. The potential for further structural collapse may prevent pre-demo abatement. The NW portion of the roof was found collapsed into classrooms 130 & 129 and the north end of hall 135. The west portion of the south half of the roof along with the east portion of the north half of the roof appeared unstable. The floor throughout the original portion of the building was found collapsed into the crawlspace and the walls were no longer supported by the substructure. The survey did not access classrooms 131, 132, 128, 126, 120 and 119 or the restrooms 121 & 122. Other areas were only partially accessed due to safety concerns. Mr. Martin K. Schwan, of EHS-Alaska, Inc. (EHS-Alaska) conducted the inspection in August 2014. It will be the City of Kake's responsibility to work with the EPA or other authorities having jurisdiction to develop a pre-demolition abatement plan based on the actual conditions found in the building; which may preclude actual asbestos abatement prior to building demolition, and result in the building being demolished with the ACM in place and the subsequent clean-up of the contaminated soils following building demolition and debris removal. In accordance with 40 Code of Federal Regulations, Part 61 subpart M National Emission Standard for Asbestos, section 61.145 Standard for demolition and renovation (a)(3) if the facility is being demolished under an order of a State or local government agency, issued because the facility is structurally unsound and in danger if imminent collapse, only the requirements of (b)(1), (b)(2), (b)(iii), (b)(4) (except (b)(4)(viii)), (b)(5), and (c)(4) through (c)(9) of section 61.145 will apply (see Appendix E).

A. GENERALIZED REQUIREMENTS FOR HAZARDOUS MATERIALS

Potentially hazardous materials have been identified in Former Kake Elementary School that will be affected by the proposed project. Those materials include asbestos, lead, polychlorinated bi-phenyls (PCBs), mercury, 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.

An area of what appeared to be debris from a building was located behind the library, generally to the north-east of the Elementary School. A 1983 community map of Kake, does show a "T" shaped school building located at that general area. The debris appeared to include materials, such as gypsum wall board that are be considered "suspected of containing asbestos", but were not part of the scope of work for this project.

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 "renovations" 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. The building is abandoned and no longer classified as a *child occupied facility*. 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. The quantities and types of materials are incorporated into the design documents for this renovation. It is the Contractor's 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 this 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.

The “normal” 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 do not 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.

Because of the structural failure in the building there were substantial areas where debris from asbestos-containing materials were present. Ground contamination from ACM TSI on piping in the crawlspace is also expected due to the floor collapse which has occurred in about 95% of the original portion of the building with a crawlspace. Because of the asbestos debris, and 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 the dusts and debris in excess of the OSHA Permissible Exposure Limits (PELs).

“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 now former Kake Elementary School was originally constructed in 1951 and was remodeled in 1979 and 1986. Apparently the 1979 renovation included an addition according to the original AHERA management plan but there was no indication as to what portion of the building was added. The 1986 addition to the east side included a library and support offices with their own separate entrance, and office 127 also with a separate entrance, but communicates directly with reception 124. The 1986 addition was constructed slab-on-grade whereas the remaining portion of the building was constructed over a crawlspace. The NW portion of the roof collapsed into classrooms 130 & 129, and the north end of hall 135. The floor area throughout the original portion of the building collapsed into the crawlspace.

The interior partitions were primarily of framed construction. The interior classroom walls were typically of gypsum wallboard. The gypsum wallboard was covered with a “Marlite Wainscot”, at the corridor walls to a height of 4 feet, and in other areas requiring a cleanable surface. Several 4’x8’ sheets of cement asbestos chalk boards were noted in classrooms 129 & 130 and it may be present in other areas that were not accessible due to collapsed floors.

The exterior walls were wood framed with horizontal lap siding on all eras of construction except for the southern wall which had vertically aligned siding. The façade around the roof perimeter was wood framed with vertically aligned siding. The south half of the roof is a shed roof sloping from the west to east. The

north half of the roof sloped towards to center from both the west and east sides. The roof above the library was a flat roof with an EPDM membrane and parapet. The built-up roof covering on the rest of the building had been patched with rolled roofing and up to six layers were found.

Corridor and classroom ceilings in the original construction were typically of 1' x 1' acoustic ceiling tiles. The library area had 2'x4' suspended lay-in ceiling tiles as did the reception area and principal's office where the 1' x 1' acoustic ceiling tiles were also observed above the suspended ceiling tiles.

Floor finishes were mainly of 9'x9' vinyl asbestos tile (VAT) with non-asbestos-containing mastic (at least where tested). The VAT flooring was exposed but it appeared that another layer had been removed because the exposed surface appeared to have a "troweled-on" mastic pattern on it.

The building was heated by a hydronic heating system. The heating and domestic water piping was previously reported to have TSI on it, which was apparently removed in the boiler room in 1986. Some TSI piping in the crawlspace and concealed in interior walls and chases is assumed to be present. Fiberglass insulation was found throughout the boiler room and in the areas above the ceiling in the library wing.

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. Refer to the AHERA asbestos management plan available for review in the new Kake School office for information on previous sampling which is not included in this report, but was reviewed and referenced. Additional testing of materials pertinent to the project, including asbestos and lead samples was conducted and is included in this report.

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 EMSL Analytical, Inc., Westmont, New Jersey. IATL EMSL Analytical, Inc 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 C for sample locations. The following TABLE 1 lists the samples taken in August 2014, and the results of the laboratory analysis.

TABLE 1

SAMPLE NUMBER	***MATERIAL***	***LOCATION***	***ASBESTOS CONTENT***
KAK0814-A01	Gypsum wallboard	Boiler Room: ceiling above boiler. Photo 251	None detected
KAK0814-A02	Joint compound	Boiler Room: east exterior wall, behind boilers. Photo 252	None detected
KAK0814-A03	Brown gasket	Boiler Room: check valve right of circulating pump. Photo 279	None detected
KAK0814-A04	White insulation	Boiler Room: boiler plate gun-sight plate (2-layingon the floor). Photo 283	None detected

SAMPLE NUMBER	***MATERIAL***	***LOCATION***	***ASBESTOS CONTENT***
KAK0814-A05	Gypsum wallboard & **joint compound**	**Boiler Room: center of west interior wall. Photo 285**	GWB: None detected **JC: 1.5% Chrysotile**
KAK0814-A06	**Floor Tile (FT-1): 9x9 brown FT with white & black blotches or streaks,** black mastic	**Hall 135: south end inside entry 116 near threshold on wood. Photo 294**	**FT: 4.4% Chrysotile** Mastic: None detected
KAK0814-A07	**Floor Tile (FT-2): 9x9 beige FT with white & black blotches or streaks,** black mastic	**Hall 135: south end inside entry116 near threshold on wood. Photo 295**	**FT: 5.0% Chrysotile** Mastic: None detected
KAK0814-A08	**Floor Tile (FT-3): 9x9 brown FT with unknown pattern mostly found under carpet but exposed in this area,** the exposed side has "troweled" brown carpet mastic and the underside has black mastic	**Hall 135: south end on wood. Appears to have had carpet over it at one time. Photo 297**	**FT: 4.7% Chrysotile** Mastic: None detected
KAK0814-A09	Brown 4" cove base, brown mastic	Hall 135: SW corner in entry 116	Both layers: None detected
KAK0814-A10	Ceiling Tile (CT-1): 1'x1' shallow fissures and even distribution of 1/16" pin holes, straight side, brown "puck" mastic	Hall 135: south end on bare GWB. Photo 299	Both layers: None detected
KAK0814-A11	Brown 4" cove base, brown mastic	Hall 135 at room 133 on GWB. Photo 300, 301	Both layers: None detected
KAK0814-A12	**Floor Tile (FT-3): 9x9 brown FT with unknown pattern,** "troweled" brown carpet mastic and the underside has black mastic	Room 137, inside door along common hall wall, on wood floor sheathing, mostly found under carpet. Photo 318	**FT: 4.4% Chrysotile** Both layers of mastic: None detected
KAK0814-A13	Black 5" cove base, brown mastic, joint compound	Room 137 along wall common to 136, right of door on GWB. Photo 323	All three layers: None detected
KAK0814-A14	Ceiling Tile (CT-1): 1'x1' shallow fissures and even distribution of 1/16" pin holes, straight side, brown "puck" mastic	Room 137 ceiling just inside of doorway, glued onto GWB. Photo 324	Both layers: None detected
KAK0814-A15	Joint compound	Room 137: east wall common to hall, left of door at GWB seam on tape. Photo 326	None detected
KAK0814-A16	Tan Marlite mastic, **joint compound**	**Janitor's closet room 133 on west wall on GWB. Photo 350**	Mastic: None detected **JC: 1.4% Chrysotile**

SAMPLE NUMBER	***MATERIAL***	***LOCATION***	***ASBESTOS CONTENT***
KAK0814-A17	Sheet vinyl flooring with paper backing (SV-1) ~1/4" irregular pebble pattern SC, brown mastic	Janitor's closet room 133, over another flooring. Photo 353	None detected
KAK0814-A18	**Floor Tile (FT-4) unknown beige floor tile** under SV-1, brown mastic, tan mastic. Lab reported FT as "off-white" in color	**Janitor's closet room 133, under sheet vinyl flooring. Photo 352**	**FT: 1.8% Chrysotile** Both layers of mastic: None detected
KAK0814-A19	**Floor Tile (FT-3A): 9x9 reddish-brown FT** intermixed with FT-3, the exposed side has "troweled" remnant brown carpet mastic and the underside has black mastic	**Hall 135 at room 138, exposed in hall but appears to have had carpet over it at one time. Photo 396**	**FT: 1.9% Chrysotile** Both layers of mastic: None detected
KAK0814-A20	**Floor Tile (FT-3): 9x9 brown FT with unknown pattern**, the exposed side has "troweled" remnant brown carpet mastic and the underside has black mastic	**Hall 135 at room 138, exposed in hall but appears to have had carpet over it at one time. Photo 396**	**FT: 2.1% Chrysotile** Both layers of mastic: None detected
KAK0814-A21	Ceiling Tile (CT-1): 1'x1' shallow fissures and even distribution of 1/16" pin holes, straight side, brown "puck" mastic	Center of Hall 135, fell off of ceiling near room 138, Photo 389	Both layers: None detected
KAK0814-A22	Black tar	Roof: boiler exhaust stack penetration sealant. Photo 411	None detected
KAK0814-A23	Black tar and fibrous fabric	Roof: above boiler room at built up curb on roof opening. Photo 417	None detected
KAK0814-A24	Black tar patch	Roof: above boiler room at 3x3 patch. Photo 419	None detected
KAK0814-A25	White sealant	Roof: above boiler room around metal seam on supply air duct penetration. Photo 420	None detected
KAK0814-A26	Black tar	Roof: above boiler room between metal supply air duct penetration and roof covering. Photo 425	None detected
KAK0814-A27	Black tar	Roof: on flashing at rock wall. Photo 429	None detected
KAK0814-A28	Black tar	Roof: girls rest room exhaust hood at roof. Photo 432	None detected
KAK0814-A29	Black brittle VTR sealant	Roof: VTR north of girls rest room exhaust hood. Photo 437	None detected

SAMPLE NUMBER	***MATERIAL***	***LOCATION***	***ASBESTOS CONTENT***
KAK0814-A30	Black roof underlayment	Roof: above wall between east portion of hall 135 and boys restroom on vertical portion of roof. Photo 448	None detected
KAK0814-A31	Black roof tar and roof underlayment	Roof: above east portion of hall 135 on edge of higher roof- drip edge. Photo 449	None detected
KAK0814-A32	Black roof parapet cap sealant	Roof: center of west side of "library" roof at cap seam. Photo 455	None detected
KAK0814-A33	EPDM & brown mastic. Lab also reported black caulk	Roof: center of west side of "library" roof at EPDM seam on wood. Photo 456	All three layers: None detected
KAK0814-A34	**Black sealant**	**Roof: "library" roof at supply air hood on screws. Photo 469**	**10% Chrysotile**
KAK0814-A35	Overflow roof drain black sealant	Roof: "library" roof at west roof drains. Photo 475	None detected
KAK0814-A36	Black roof parapet cap sealant	Roof: center of east side of "library" roof at cap seam. Photo 483	None detected
KAK0814-A37	EPDM & brown mastic	Roof: center of north side of "library" roof at EPDM seam on wood. Photo 456	All three layers: None detected
KAK0814-A38	**Roofing – three layers**	**Roof: near east edge on sloped roof above room 132 on wood. Photo 490**	**Roofing: 0.5% Chrysotile**
KAK0814-A39	Roofing – top two layers	Roof: near east edge of sloped roof above boy's restroom 122. Photo 491 & 493	None detected
KAK0814-A40	Roofing – layers 3 & 4	Roof: near east edge of sloped roof above boy's restroom 122. Photo 493	None detected
KAK0814-A41	Roofing – layers 5 & 6 (bottom)	Roof: near east edge of sloped roof above boy's restroom 122 on wood. Photo 493	None detected
KAK0814-A42	Black felt paper	West exterior wall projection between covered walkway 117 & room 137, under vertical siding. Photo 503	None detected
KAK0814-A43	Gypsum wallboard	West exterior wall at second crawlspace vent from the south end, inside face of wall between metal vent and wall framing. Photo 505	None detected
KAK0814-A44	Roofing – 3-4 layers	Roof at collapsed portion at room 130. Photo 548	None detected

SAMPLE NUMBER	***MATERIAL***	***LOCATION***	***ASBESTOS CONTENT***
KAK0814-A45	**Floor Tile (FT-3): 9x9 brown FT with unknown pattern,** the exposed side has "troweled" remnant brown carpet mastic and the underside has black mastic	**Room 130, north end of east side. Photo 538**	**FT: 4.2% Chrysotile** Both layers of mastic: None detected
KAK0814-A46	Black cove base, brown cove base mastic, **joint compound**	**Room 130, north end of east wall on GWB. Photo 537**	**JC: 1.2% Chrysotile** CB & mastic: None detected
KAK0814-A47	**Cement asbestos board with green laye**r, black mastic. Lab reported as grey Transite, no mastic was found	**Room 130, north wall may have been part of chalk board? Photo 515**	**Transite: 20% Chrysotile**
KAK0814-A48	No Sample	No Sample	NA
KAK0814-A49	No Sample	No Sample	NA
KAK0814-A50	Joint compound	Library ceiling at the SE side, near east roof drain piping penetration. Photo 603	None detected
KAK0814-A51	Wall texture	Library south wall above ceiling grid on GWB. Photo 604	None detected
KAK0814-A52	Joint compound & texture	Library center of west wall 4' above floor on GWB. Photo 616	None detected
KAK0814-A53	Tan carpet mastic with white material	Library at the SE corner, on concrete floor. Photo 615	None detected
KAK0814-A54	Hard, brittle brown cove base and white CB mastic	Library at the SE corner, on GWB. Photo 614	Both layers: None detected
KAK0814-A55	Ceiling Tile (CT-2) 2x4 textured with high density of pin holes (Photo 586)	Library at the SE corner, fell from ceiling, laying on floor. Photo 586	None detected
KAK0814-A56	Green duct sealant	Library above ceiling at main rectangle to round duct joint, near center of south portion of room. Photo 619	None detected
KAK0814-A57	White glazing	Library at the south exit door on metal door frame. Photo 627	None detected
KAK0814-A58	Black foam with mastic of window seal	Library at the south exit door on metal frame around broken window. Photo 630	None detected
KAK0814-A59	Joint compound & gypsum wallboard	Room 102, east wall above the suspended acoustical tile. Photo 636	Both layers: None detected
KAK0814-A60	White texture	Room 102, east wall above the suspended acoustical tile. Photo 637	None detected

SAMPLE NUMBER	***MATERIAL***	***LOCATION***	***ASBESTOS CONTENT***
KAK0814-A61	White glazing	Library side of room 102, between metal frame of interior window and GWB. Photo 648	None detected
KAK0814-A62	Black rubber glazing seal	Library side of room 102, between glass and metal frame of interior window with safety glazing. Photo 643	None detected
KAK0814-A63	Tan carpet mastic with white material	Room 103 at the SW corner, on concrete floor. Photo 664	None detected
KAK0814-A64	Brown cove base and tan mastic	Room 103 at the SW corner, on GWB. Photo 663	Both layers: None detected
KAK0814-A65	Ceiling Tile (CT-2) 2x4 textured with high density of pin holes (Photo 586)	Room 103. Photo 671	None detected
KAK0814-A66	Ceiling Tile (CT-1): 1'x1' shallow fissures and even distribution of 1/16" pin holes, straight side, brown "puck" mastic	Reception 124 above CT-2 glued on GWB. Photo 739 & 740	Both layers: None detected
KAK0814-A67	White texture	Reception 124, south wall, left of fire door opening on GWB. Photo 741	None detected
KAK0814-A68	Joint compound	Reception 124, south wall, left of fire door opening on GWB behind texture. Photo 742	None detected
KAK0814-A69	Brown cove base and tan mastic	Reception 124, north wall, left of door into 125 on GWB. Photo 756	Both layers: None detected
KAK0814-A70	Brown carpet mastic	Reception 124, north wall, left of door into 125 on wood. Photo 755	None detected
KAK0814-A71	White texture and brown Marlite mastic	East portion of Hall 135, left of exit door on GWB. Photo 760	Both layers: None detected
KAK0814-A72	Tan mastic	East portion of Hall 135, left of exit door on GWB, appeared to be behind the texture behind the Marlite. Photo 763	None detected
KAK0814-A73	Sheet vinyl flooring with paper backing (SV-1) ~1/4" irregular pebble pattern SC, brown mastic	Bathroom 127A on concrete. Photo 768	Both layers: None detected
KAK0814-A74	White texture	Bathroom 127A on GWB of east wall. Photo 769	None detected
KAK0814-A75	Brown carpet mastic	Room 127 at NW corner on concrete. Photo 771	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 or previous surveys, or were assumed to contain asbestos.

1. Joint compound in gypsum wallboard systems on the ceilings and walls of portions not constructed in 1986.
2. Green faced cement asbestos board (CAB) “Transite” wainscot or possible used as chalk boards in rooms 129 & 130, and may be present in other inaccessible rooms.
3. Vinyl flooring and mastic located under sheet vinyl flooring in room 133 and may also be hidden in other closets.
4. Various colors of 9” x 9” Floor tile (confirmed asbestos).
5. Mastic of 9”x9” floor tile contaminated by ACM floor tile.
6. Hard and chalky insulation on original piping located in crawlspace and or inside walls that was not abated during the 1986 renovation.
7. Boiler gaskets and sealants (assumed ACM).
8. Gaskets at piping, and packing at valves.
9. Incinerator insulation and refractory materials.
10. Firebrick and refractory within concrete and rock chimney wall.
11. Incandescent light fixture heat shields (assumed ACM).
12. High temperature wiring insulation at lights (assumed ACM).
13. Tarry sound lining in clock/speaker boxes (assumed ACM).
14. Exterior tarry damp-proofing (assumed ACM).
15. Remnants of asbestos-containing Patching Tars.
16. Asbestos-containing sealants on roof top supply air ducting.

The effects of the following asbestos-containing materials on the proposed renovation are discussed below.

Floor Tile and Mastic
Vinyl floor tiles and flooring mastic throughout the original building area contain asbestos. The floor tiles and mastics were mostly loose and damaged. The tile and mastic was friable where heavily damaged, and will be removed by this project.

Sheet Vinyl Flooring
The janitor closet, room 133, has a sheet vinyl flooring covering an asbestos containing floor tile and therefore may be contaminated with asbestos. The sheet vinyl has the ¼” pebble pattern, a similar pattern sheet vinyl flooring was found in restroom 127A on concrete and both were identified in the AHERA report as asbestos. There may be similar closets or rooms with a sheet vinyl flooring covering and ACM flooring. They are not presently friable, and will be removed by this project.

Joint Compound
Joint compound on gypsum board walls, soffits and ceilings throughout the original 1951 (confirmed) portion and the renovated 1979 (assumed) portion was asbestos-containing. No asbestos has been detected in the gypsum board. Joint compound was in good condition and is not considered friable unless damaged. The joint compound will be removed by this project.

Pipe Insulation
All piping inspected in the project areas were insulated with fiberglass insulation. However, it is assumed that some of the original piping, that was insulated with asbestos-containing insulation and located in the crawlspace and inside wall cavities, was not abated during the 1986 renovation project and remains in those locations. Due to the partial building collapse, the potential for additional building collapse, and the wet conditions through the building, not all areas were accessed and some concealed asbestos-containing insulation may be uncovered during demolition. If any concealed piping is found to have hard and chalky or other insulation suspected of containing asbestos, those materials shall be sampled prior to disturbance or presumed to contain asbestos. Because of previously identified ACM piping insulation

present in the crawlspace, it is assumed that ground contamination in the crawlspace also exists because of the dilapidated building conditions.

Pipe Fitting Insulation
Piping concealed in the walls or above the ceilings and in the crawlspace was originally insulated at fittings with asbestos-containing insulation. The insulation on exposed elements was reportedly abated in 1986 and replaced with fiberglass insulation such as that currently found in the boiler room. It is assumed that areas inaccessible at the time of abatement still have ACM insulation. The piping and the asbestos-containing insulation will be removed by this project.

Roofing
Roofing over the "library" portion of the building is a rubberized EPDM type roof which did not contain asbestos where sampled. Roofing over the original portion of the building appeared to be a Built-Up Roofing (BUR) covered with a "torch-down" rolled roofing. Because the lab did not separate out the various layers of roofing in the sample that was identified as having 0.5% chrysotile, and because the original BUR was covered by newer materials, and because the original roof was likely to have been patched with asbestos-containing patching materials, the original BUR roofing over the original portion of the building is assumed to contain more than 1% asbestos. The roofing materials will be removed by this project.

Cement Asbestos Board
A material which the lab identified as "Grey Transite" was identified in classrooms 129 & 130. The material has a green face and appeared to be sheet of approximately 4'x8' in size. They appear to have been used as chalk boards or as a "Wainscot." Most of the sheets were damaged due to roof and floor collapse and became friable. The cement asbestos board materials will be removed by this project.

Speaker/Clock Housing Coatings
Coatings on the interior of speaker and clock housings in classrooms and in speaker housings in hallways are assumed to contain asbestos. This material was in good condition and was not friable and will be removed by this project.

Exterior Foundation Wall Damp-proofing Sealant
The foundation water-proofing is assumed to contain asbestos. The sealants are assumed to be not friable and in poor condition. The tarry sealants will be removed by this project.

Light Fixture Heat Shields
Several incandescent light fixtures were identified that may be shielded with an asbestos-containing heat shield but could not be accessed due to collapsed floor. Although not tested, it is assumed that wiring associated with these fixtures was insulated with asbestos-containing insulation. This shield material was in good condition and is considered friable. Wiring insulation is not friable and will be removed by this project.

High Temperature Wiring Insulation
High Temperature Wiring Insulation is assumed have asbestos-containing insulation. The wiring was noted at older incandescent light fixtures. Wiring insulation is typically not friable, and will be removed by this project.

Speaker/Clock Housing Coatings
Coatings on the interior of speaker and clock housings in classrooms and in speaker housings in hallways are assumed to contained Chrysotile asbestos. This material was in good condition and was not friable and will be removed by this project.

Boiler Gaskets and Sealants
Due to their age, gaskets and sealants on the boilers are assumed to be asbestos-containing. These materials are difficult to sample without disassembly of equipment and consequently limited sampling was

performed. These materials were in poor condition and may become friable during removal for replacement. The gaskets and sealants will be removed by this project.

Flange Gaskets and Valve Packing
Due to their age, gaskets and valve packing on mechanical equipment throughout the buildings, but mostly in mechanical and fan rooms are assumed to be asbestos-containing. These materials are difficult to sample without disassembly of equipment and consequently limited sampling was performed. These materials were in good condition but may become friable during removal for replacement. The gaskets and packings will be removed by this project.

Incinerator Insulation and Sealants
An old trash incinerator was assumed to be insulated with asbestos-containing insulation, refractory, and refractory packing materials, as well as sealants. The incinerator will be removed by this project.

Chimney Firebrick and Refractory Packing
The concrete and rock wall that contained two abandoned chimneys was assumed to be insulated with asbestos-containing refractory, and refractory packing materials, as well as sealants. The concrete wall 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 those typical settled and concealed dusts are not "asbestos debris" from an asbestos-containing building material (ACBM). However, because of the structural collapse, there is asbestos debris found throughout the building.

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 all paints tested indicated only trace amounts. Lead in other materials tested varied from a trace amount to 13.2 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 were found on structural members and miscellaneous steel, with lower levels on walls 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 not identified in the school. 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.

Metallic Lead in Batteries, Pipe Solder and Flashing
Metallic lead items identified in the building included lead soldering at the sheet metal roof flashings, lead solder at copper piping, and poured lead sealants at bell and spigot joints of waste and vent piping and lead acid batteries in emergency lights and other battery backup equipment. When removed during demolition they should be recycled or disposed of as hazardous waste.

Demolition Waste
EHS-Alaska, Inc. took representative samples of the various construction materials from the school 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 laboratory tested the TCLP sample for lead and found it to contain 45 ppm. The EPA does not require a TCLP for samples which contain less than 100 ppm. The total lead concentration in the KAKE school sample was less than 100 ppm and therefore a lead TCLP analysis is not required.

The following TABLE 4 lists the TCLP tests samples taken in August 2014 in the various buildings 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***	***TOTAL LEAD, ppm***	***TCLP LEAD, mg/l *****
KAK0814-TCLP01	Assorted construction materials	Various locations	45 ppm	Not Required

**EPA limits: TCLP Lead – 5.0 mg/L. Waste materials containing above this level must be treated as hazardous waste. If the wastes contain less than 100 ppm total lead, they are not required to be further tested by the TCLP method.

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 boiler room, the library, and rooms 127 and 124. Due to the partial collapse of the building not all areas were accessed. The fluorescent light fixtures will be removed by the demolition project.

Older HID lights may have PCB-containing ballasts. Due to height restrictions and sealed ballast enclosures, the HID fixtures were not able to be accessed. All HID lights shall be inspected during removal or relocation. If ballasts are not marked “No PCBs,” we suggest contacting the manufacturer of the lights to determine if the ballasts contain PCB’s, or assume that they contain PCB’s and be disposed of as a hazardous waste. HID light fixtures will be removed by the demolition project.

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. Most of the fluorescent lamps were vandalized and floors are contaminated with mercury. The fluorescent light fixtures will be removed by the demolition project.

Thermostats
Older thermostats or other electrical switches that may contain mercury were not noted in the building but may be present in inaccessible areas due to partial building collapse.

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. The HID light fixtures are will be removed by the demolition project.

6. Other Hazardous Materials

Self-Illuminating Exit Signs
Several smoke detectors were found in the accessible areas of the building but due to the partial collapse of the building and generally unsafe conditions, not all areas were accessible. All radioactive items are required to be removed prior to building demolition unless the total waste stream is disposed of as hazardous waste or recycled.

Household Chemicals
Some common household chemicals, including quantities of construction repair materials were present in the building. These loose containers were present in the boiler room and reception 124, but may also be present in inaccessible areas of the building. These chemicals are the responsibility of the contractor to properly disposed of, or they may also be utilized or recycled by the contractor, if they are suitable for their intended use.

Soil Contamination
Although the scope of work for EHS-Alaska, Inc. did not include investigation of soils for petroleum or other contaminations, there are conditions which suggest floor areas and the crawlspace may be contaminated with mercury due to fluorescent lamps being vandalized and asbestos potentially due to TSI which was not completely abated.

Refrigerants
Refrigerators, freezers, ice machines, and water coolers were not identified in the building. If they are found they may contain ozone depleting refrigerants. Ozone depleting substances (ODS) are regulated by the EPA and must be removed by certified technicians prior to equipment disposal.

Glycol
The existing heating system is assumed to contain heating system glycol. Any glycol removed from the heating system shall be recovered and properly disposed of or recycled. The heating system will be disturbed by the demolition project.

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.

Because of the structural failure of the building, some of the EPA requirements may be able to be waived. It will be the responsibility of the City of Kake to work with the EPA or other authorities having jurisdiction to develop a pre-demolition work plan.

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 southeast Alaska.

Because of the asbestos debris in the building, the airborne asbestos levels expected during the project will depend on the contractor’s means and methods of conducting the work.

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 in facilities built before 1978 that are typically classified as child occupied facilities may include but are not limited to: residential homes, 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.

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. Most requirements of 40 CFR 745 do not apply for this demolition project.

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.

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 test 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. Lead-acid batteries and other batteries are classified by the EPA as Universal Wastes. The EPA encourages that all Universal Wastes be recycled in accordance with 40 CFR 273, or in the case of lead-acid batteries, in accordance with 40 CFR 266, subpart G.

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

Refrigerants
No refrigerators, freezers, ice machines, and water coolers were present in the school. No air conditioning systems were present in the office area. Typically, refrigeration and air conditioning systems with ODS shall be maintained in order to prevent discharge of ODS. Systems that are to be removed, or dismantled shall have refrigerants containing ODS recovered and disposed of or recycled in accordance with 40 CFR 82.

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.

Radioactive Materials
Self-luminous products that contain Tritium, Krypton-85, or Promethium-147 are considered radioactive. There are special disposal requirements for products that contain Tritium, Krypton-85, or Promethium-147 that are generally licensed. Data from the Nuclear Regulatory Commission (NRC) indicates that most all Tritium powered exit signs are generally licensed and therefore must be disposed of at a licensed disposal facility or returned to the manufacturer/distributor for disposal. Licensed radioactive products are regulated by Nuclear Regulatory Commission standard 10 CFR 20 and 10 CFR 32. Smoke detectors were present in the project area that may contain a radioactive material. If the detectors are of the ionization type they typically contain a small amount of Americium. When removed prior to the demolition, the detectors should be returned to the owner for reuse or returned to the manufacturer for disposal or recycling. There are no licensed disposal facilities for radioactive wastes in Alaska.

F. RECOMMENDATIONS

1. Asbestos-Containing Materials

The asbestos-containing materials identified in the building are typically in poor condition and are classified as both friable and non-friable ACM. All asbestos-containing materials that will be disturbed by the planned demolition work are required to be removed by trained asbestos workers. Because of the structural instability of the building, the City of Kake may work with the EPA to determine if they may leave in place all ACM and treat all demolition debris as asbestos-containing demolition waste.

2. Dusts with Asbestos

Dusts with measurable concentrations of asbestos are assumed to be present, but are not classified as asbestos-containing materials, and are insignificant compared to the extensive debris from asbestos-containing materials.

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

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

Radioactive materials scheduled for removal or replacement will need to be removed, handled, packaged and disposed of in accordance with all regulations.

The common household chemicals that are the responsibility of the City of Kake or 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 due to the potential for further building collapse and may not be valid outside the survey area. The intent of this survey was to identify hazardous materials that may be disturbed prior to the building demolition. This survey is not intended to be utilized as the sole design document for abatement. This survey was conducted under adverse conditions such as roof collapse, floor collapse, and the potential for severe building failure. Although a concerted effort was made to identify all hazardous materials, some hazardous materials may not have been identified because some areas we not accessible. 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, and other building debris.

An area of what appeared to be debris from a building was located behind the library, generally to the north-east of the Elementary School. A 1983 community map of Kake, does show a “T” shaped school building located at that general area. The debris appeared to include materials, such as gypsum wall

board that are be considered “suspected of containing asbestos”, but were not part of the scope of work for this project.

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

EHS ALASKA INCORPORATED

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PROJECT NO:	PROJECT NAME:	FACILITY:	COLLECTION DATE:
7316-01	Former Kake ES Site Assessment	Former Kake Elementary School	08/27/2014

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	3 DAYS	NORMAL	73

Martin K. Schwan
COLLECTED BY (signature)

Martin K. Schwan
PRINTED NAME

20110842/ 10596-01-06
CERT# / AHERA#

Fed-Ex
SHIPPING METHOD

7710 1407 1870
COURIER (signature)

9-2-14 11:00am
DATE/TIME

RECEIVED
SEP - 2 2014
IATL - BY

SELECTED LABORATORY

SAMPLES ACCEPTED BY

DATE/TIME

ANALYST'S SIGNATURE

DATE

SPECIAL INSTRUCTIONS / COMMENTS:

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

See sample location drawing for more detailed explanation of exact locations.

RLQ 9/8/2014
DRB 9/4/14

E-MAILED
Rev 1-0
ASB 9/10/14

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
KAK0814-A01 5418226	Gypsum wallboard	Boiler Room: ceiling above boiler. Photo 251	ND
KAK0814-A02 5418227	Joint compound	Boiler Room: east exterior wall, behind boilers. Photo 252	ND
KAK0814-A03 5418228	Brown gasket	Boiler Room: check valve right of circulating pump. Photo 279	ND
KAK0814-A04 5418229	White insulation	Boiler Room: boiler plate gun-sight plate (2-layingon the floor). Photo 283	ND
KAK0814-A05 5418230	Gypsum wallboard & joint compound	Boiler Room: center of west interior wall. Photo 285	GWB - ND JC 1.5% Chrysotile
KAK0814-A06 5418231	Floor Tile (FT-1): 9x9 brown FT with white & black blotches or streaks, black mastic	Hall 135: south end inside entry 116 near threshold on wood. Photo 294	FT 4.4% Chrysotile Mastic - ND
KAK0814-A07 5418232	Floor Tile (FT-2): 9x9 beige FT with white & black blotches or streaks, black mastic	Hall 135: south end inside entry116 near threshold on wood. Photo 295	FT 5.0% Chrysotile Mastic - ND
KAK0814-A08 5418233	Floor Tile (FT-3): 9x9 brown FT with unknown pattern mostly found under carpet but exposed in this area, the exposed side has "troweled" brown carpet mastic and the underside has black mastic	Hall 135: south end on wood. Appears to have had carpet over it at one time. Photo 297	FT 4.7% Chrysotile Mastic - ND

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PROJECT NO:	PROJECT NAME:	FACILITY:	COLLECTION DATE:
7316-01	Former Kake ES Site Assessment	Former Kake Elementary School	08/27/2014

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
KAK0814-A09 5418234	Brown 4" cove base, brown mastic	Hall 135: SW corner in entry 116	ND - both
KAK0814-A10 5418235	Ceiling Tile (CT-1): 1'x1' shallow fissures and even distribution of 1/16" pin holes, straight side, brown "puck" mastic	Hall 135: south end on bare GWB. Photo 299	ND - both
KAK0814-A11 5418236	Brown 4" cove base, brown mastic	Hall 135 at room 133 on GWB. Photo 300, 301	ND - both
KAK0814-A12 5418237	Floor Tile (FT-3): 9x9 brown FT with unknown pattern mostly found under carpet, the exposed side has "troweled" brown carpet mastic and the underside has black mastic	Room 137, inside door along common hall wall, on wood floor sheathing. Photo 318	FT 4.4% chrysotile mastic - ND
KAK0814-A13 5418238	Black 5" cove base, brown mastic, joint compound	Room 137 along wall common to 136, right of door on GWB. Photo 323	ND - all three layers
KAK0814-A14 5418239	Ceiling Tile (CT-1): 1'x1' shallow fissures and even distribution of 1/16" pin holes, straight side, brown "puck" mastic	Room 137 ceiling just inside of doorway, glued onto GWB. Photo 324	ND - both
KAK0814-A15 5418240	Joint compound	Room 137: east wall common to hall, left of door at GWB seam on tape. Photo 326	ND
KAK0814-A16 5418241	Tan Marlite mastic, joint compound	Janitor's closet room 133 on west wall on GWB. Photo 350	mastic - ND JC 1.4% chrysotile
KAK0814-A17 5418242	Sheet vinyl flooring with paper backing (SV-1) ~1/4" irregular pebble pattern SC, brown mastic	Janitor's closet room 133, over another flooring. Photo 353	ND
KAK0814-A18 5418243	Floor Tile (FT-4) unknown beige floor tile under SV-1, o	Janitor's closet room 133, under sheet vinyl flooring. Photo 352	FT 1.8% chrysotile mastic ND
KAK0814-A19 5418244	Floor Tile (FT-3A): 9x9 reddish-brown FT intermixed with FT-3, the exposed side has "troweled" remnant brown carpet mastic and the underside has black mastic	Hall 135 at room 138, exposed in hall but appears to have had carpet over it at one time. Photo 396	FT 1.9% chrysotile mastic - ND
KAK0814-A20 5418245	Floor Tile (FT-3): 9x9 brown FT with unknown pattern, the exposed side has "troweled" remnant brown carpet mastic and the underside has black mastic	Hall 135 at room 138, exposed in hall but appears to have had carpet over it at one time. Photo 396	FT 2.1% chrysotile mastic - ND
KAK0814-A21 5418246	Ceiling Tile (CT-1): 1'x1' shallow fissures and even distribution of 1/16" pin holes, straight side, brown "puck" mastic	Center of Hall 135, fell off of ceiling near room 138, Photo 389	ND - both

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PROJECT NO:	PROJECT NAME:	FACILITY:	COLLECTION DATE:
7316-01	Former Kake ES Site Assessment	Former Kake Elementary School	08/27/2014

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
KAK0814-A22 5418247	Black tar	Roof: boiler exhaust stack penetration sealant. Photo 411	ND
KAK0814-A23 5418248	Black tar and fibrous fabric	Roof: above boiler room at built up curb on roof opening. Photo 417	ND
KAK0814-A24 5418249	Black tar patch	Roof: above boiler room at 3x3 patch. Photo 419	ND
KAK0814-A25 5418250	White sealant	Roof: above boiler room around metal seam on supply air duct penetration. Photo 420	ND
KAK0814-A26 5418251	Black tar	Roof: above boiler room between metal supply air duct penetration and roof covering. Photo 425	ND
KAK0814-A27 5418252	Black tar	Roof: on flashing at rock wall. Photo 429	ND
KAK0814-A28 5418253	Black tar	Roof: girls rest room exhaust hood at roof. Photo 432	ND
KAK0814-A29 5418254	Black brittle VTR sealant	Roof: VTR north of girls rest room exhaust hood. Photo 437	ND
KAK0814-A30 5418255	Black roof underlayment	Roof: above wall between east portion of hall 135 and boys restroom on vertical portion of roof. Photo 448	ND
KAK0814-A31 5418256	Black roof tar and roof underlayment	Roof: above east portion of hall 135 on edge of higher roof- drip edge. Photo 449	ND
KAK0814-A32 5418257	Black roof parapet cap sealant	Roof: center of west side of "library" roof at cap seam. Photo 455	ND
KAK0814-A33 5418258	EPDM & brown mastic	Roof: center of west side of "library" roof at EPDM seam on wood. Photo 456	ND
KAK0814-A34 5418259	Black sealant	Roof: "library" roof at supply air hood on screws. Photo 469	10% Chrysotile
KAK0814-A35 5418260	Overflow roof drain black sealant	Roof: "library" roof at west roof drains. Photo 475	ND

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KAK0814-A36 5418261	Black roof parapet cap sealant	Roof: center of east side of "library" roof at cap seam. Photo 483	ND
KAK0814-A37 5418262	EPDM & brown mastic	Roof: center of north side of "library" roof at EPDM seam on wood. Photo 456	ND
KAK0814-A38 5418263	Roofing – three layers	Roof: near east edge on sloped roof above room 132 on wood. Photo 490	0.5% Chrysotile
KAK0814-A39 5418264	Roofing – top two layers	Roof: near east edge of sloped roof above boy's restroom 122. Photo 491 & 493	ND
KAK0814-A40 5418265	Roofing – layers 3 & 4	Roof: near east edge of sloped roof above boy's restroom 122. Photo 493	ND
KAK0814-A41 5418266	Roofing – layers 5 & 6 (bottom)	Roof: near east edge of sloped roof above boy's restroom 122 on wood. Photo 493	ND
KAK0814-A42 5418267	Black felt paper	West exterior wall projection between covered walkway 117 & room 137, under vertical siding. Photo 503	ND
KAK0814-A43 5418268	Gypsum wallboard	West exterior wall at second crawlspace vent from the south end, inside face of wall between metal vent and wall framing. Photo 505	ND
KAK0814-A44 5418269	Roofing – 3-4 layers	Roof at collapsed portion at room 130. Photo 548	ND
KAK0814-A45 5418270	Floor Tile (FT-3): 9x9 brown FT with unknown pattern, the exposed side has "troweled" remnant brown carpet mastic and the underside has black mastic	Room 130, north end of east side. Photo 538	FT 4.2% Chrysotile Mastics - ND
KAK0814-A46 5418271	Black cove base, brown cove base mastic, joint compound	Room 130, north end of east wall on GWB. Photo 537	JC 1.2% Chrysotile CB+Mastic - ND
KAK0814-A47 5418272	Cement asbestos board with green layer, black mastic	Room 130, north wall may have been part of chalk board? Photo 515	Transite 20% Chrysotile
KAK0814-A48 5418273	No Sample iATL 5418273	No Sample	NA
KAK0814-A49 5418274	No Sample iATL 5418274	No Sample	NA

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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
KAK0814-A50 5418275	Joint compound	Library ceiling at the SE side, near east roof drain piping penetration. Photo 603	ND
KAK0814-A51 5418276	Wall texture	Library south wall above ceiling grid on GWB. Photo 604	ND
KAK0814-A52 5418277	Joint compound & texture	Library center of west wall 4' above floor on GWB. Photo 616	ND
KAK0814-A53 5418278	Tan carpet mastic with white material	Library at the SE corner, on concrete floor. Photo 615	ND
KAK0814-A54 5418279	Hard, brittle brown cove base and white CB mastic	Library at the SE corner, on GWB. Photo 614	ND - both
KAK0814-A55 5418280	Ceiling Tile (CT-2) 2x4 textured with high density of pin holes (Photo 586)	Library at the SE corner, fell from ceiling, laying on floor. Photo 586	ND
KAK0814-A56 5418281	Green duct sealant	Library above ceiling at main rectangle to round duct joint, near center of south portion of room. Photo 619	ND
KAK0814-A57 5418282	White glazing	Library at the south exit door on metal door frame. Photo 627	ND
KAK0814-A58 5418283	Black foam with mastic of window seal	Library at the south exit door on metal frame around broken window. Photo 630	ND
KAK0814-A59 5418284	Joint compound & gypsum wallboard	Room 102, east wall above the suspended acoustical tile. Photo 636	ND - both
KAK0814-A60 5418285	White texture	Room 102, east wall above the suspended acoustical tile. Photo 637	ND
KAK0814-A61 5418286	White glazing	Library side of room 102, between metal frame of interior window and GWB. Photo 648	ND
KAK0814-A62 5418287	Black rubber glazing seal	Library side of room 102, between glass and metal frame of interior window with safety glazing. Photo 643	ND
KAK0814-A63 5418288	Tan carpet mastic with white material	Room 103 at the SW corner, on concrete floor. Photo 664	ND

EHS ALASKA INCORPORATED

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(907) 694-1383 • (907) 694-1382 fax
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PROJECT NO:	PROJECT NAME:	FACILITY:	COLLECTION DATE:
7316-01	Former Kake ES Site Assessment	Former Kake Elementary School	08/27/2014

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
KAK0814-A64 5418289	Brown cove base and tan mastic	Room 103 at the SW corner, on GWB. Photo 663	ND - both
KAK0814-A65 5418290	Ceiling Tile (CT-2) 2x4 textured with high density of pin holes (Photo 586)	Room 103. Photo 671	ND
KAK0814-A66 5418291	Ceiling Tile (CT-1): 1'x1' shallow fissures and even distribution of 1/16" pin holes, straight side, brown "puck" mastic	Reception 124 above CT-2 glued on GWB. Photo 739 & 740	ND - both
KAK0814-A67 5418292	White texture	Reception 124, south wall, left of fire door opening on GWB. Photo 741	ND
KAK0814-A68 5418293	Joint compound	Reception 124, south wall, left of fire door opening on GWB behind texture. Photo 742	ND
KAK0814-A69 5418294	Brown cove base and tan mastic	Reception 124, north wall, left of door into 125 on GWB. Photo 756	ND - both
KAK0814-A70 5418295	Brown carpet mastic	Reception 124, north wall, left of door into 125 on wood. Photo 755	ND
KAK0814-A71 5418296	White texture and brown Marlite mastic	East portion of Hall 135, left of exit door on GWB. Photo 760	ND - both
KAK0814-A72 5418297	Tan mastic	East portion of Hall 135, left of exit door on GWB, appeared to be behind the texture behind the Marlite. Photo 763	ND
KAK0814-A73 5418298	Sheet vinyl flooring with paper backing (SV-1) ~1/4" irregular pebble pattern SC, brown mastic	Bathroom 127A on concrete. Photo 768	ND - both
KAK0814-A74 5418299	White texture	Bathroom 127A on GWB of east wall. Photo 769	ND
KAK0814-A75 5418300	Brown carpet mastic	Room 127 at NW corner on concrete. Photo 771	ND
END	END	END	

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Fax: 856-231-9818

CERTIFICATE OF ANALYSIS

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

Report Date: 9/8/2014
Report No: 344591
Project: Former Kake ES Site Assessment
Project No.: 7316-01

BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5418226 **Description / Location:** Off-White Sheetrock
Client No.: KAK0814-A01 Boiler Room:Ceiling Above Boiler

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

Lab No.: 5418227 **Description / Location:** Off-White Joint Compound
Client No.: KAK0814-A02 East Boiler:Exterior Wall Behind

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

Lab No.: 5418228 **Description / Location:** Tan Gasket
Client No.: KAK0814-A03 Boiler Room

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

Lab No.: 5418229 **Description / Location:** Off-White Insulation
Client No.: KAK0814-A04 Boiler Room:Boiler Plate Gun-Sight Plate

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

Accreditation **NIST-NVLAP No. 101165-0** **NY-DOH No. 11021** **AIHA-LAP, LLC No. 100188**

Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy, (ELAP 198.1 where applicable)

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: R. Kennedy

Approved By: Frank E. Ehrenfeld, III
Laboratory Director

Date: 9/8/2014

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Report Date: 9/8/2014
Report No: 344591
Project: Former Kake ES Site Assessment
Project No.: 7316-01

BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5418230 **Description / Location:** Off-White Sheetrock
Client No.: KAK0814-A05 Boiler Room:Center Of West Interior Wall

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
None Detected	None Detected	Trace	Cellulose	100
		Trace	Fibrous Glass	

Lab No.: 5418230 **Description / Location:** Off-White Joint Compound **Layer No.:** 2
Client No.: KAK0814-A05 Boiler Room:Center Of West Interior Wall

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
PC 1.5	Chrysotile	None Detected	None Detected	PC 98.5

Lab No.: 5418231 **Description / Location:** Tan Floor Tile 9x9
Client No.: KAK0814-A06 Hall 135:South End Inside Entry 116

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
PC 4.4	Chrysotile	None Detected	None Detected	PC 95.6

Lab No.: 5418231 **Description / Location:** Black Mastic **Layer No.:** 2
Client No.: KAK0814-A06 Hall 135:South End Inside Entry 116

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

Accreditation **NIST-NVLAP No. 101165-0** **NY-DOH No. 11021** **AIHA-LAP, LLC No. 100188**

Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy, (ELAP 198.1 where applicable)

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.

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Report Date: 9/8/2014
Report No: 344591
Project: Former Kake ES Site Assessment
Project No.: 7316-01

BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5418232 **Description / Location:** Tan Floor Tile 9x9
Client No.: KAK0814-A07 Hall 135:South End Inside Entry 116

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
PC 5.0	Chrysotile	None Detected	None Detected	95

Lab No.: 5418232 **Description / Location:** Black Mastic **Layer No.:** 2
Client No.: KAK0814-A07 Hall 135:South End Inside Entry 116

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

Lab No.: 5418233 **Description / Location:** Tan Floor Tile 9x9
Client No.: KAK0814-A08 Hall 135:South End On Wood

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
PC 4.7	Chrysotile	None Detected	None Detected	PC 95.3

Lab No.: 5418233 **Description / Location:** Black Mastic **Layer No.:** 2
Client No.: KAK0814-A08 Hall 135:South End On Wood

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

Accreditation **NIST-NVLAP No. 101165-0** **NY-DOH No. 11021** **AIHA-LAP, LLC No. 100188**

Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy, (ELAP 198.1 where applicable)

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.

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Report Date: 9/8/2014
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Project No.: 7316-01

BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5418234 **Description / Location:** Brown Cove Base
Client No.: KAK0814-A09 Hall 135:SW Corner In Entry 116

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

Lab No.: 5418234 **Description / Location:** Brown Mastic **Layer No.:** 2
Client No.: KAK0814-A09 Hall 135:SW Corner In Entry 116

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

Lab No.: 5418235 **Description / Location:** Tan Ceiling Tile 1x1
Client No.: KAK0814-A10 Hall 135:South End On Bare GWB

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

Lab No.: 5418235 **Description / Location:** Brown Mastic **Layer No.:** 2
Client No.: KAK0814-A10 Hall 135:South End On Bare GWB

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

Accreditation **NIST-NVLAP No. 101165-0** **NY-DOH No. 11021** **AIHA-LAP, LLC No. 100188**

Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy, (ELAP 198.1 where applicable)

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: R. Kennedy

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Project No.: 7316-01

BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5418236 **Description / Location:** Black Cove Base
Client No.: KAK0814-A11 Hall 135:At Room 133 On GWB

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

Lab No.: 5418236 **Description / Location:** Tan/Brown Mastic **Layer No.:** 2
Client No.: KAK0814-A11 Hall 135:At Room 133 On GWB

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

Accreditation **NIST-NVLAP No. 101165-0** **NY-DOH No. 11021** **AIHA-LAP, LLC No. 100188**

Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy, (ELAP 198.1 where applicable)

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: R. Kennedy

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Report Date: 9/8/2014
Report No: 344591
Project: Former Kake ES Site Assessment
Project No.: 7316-01

BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5418237 **Description / Location:** Tan Floor Tile 9x9
Client No.: KAK0814-A12 Hall137:InsideDoorAlongCommonHallWall

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
PC 4.4	Chrysotile	None Detected	None Detected	PC 95.6

Lab No.: 5418237 **Description / Location:** Black Mastic **Layer No.:** 2
Client No.: KAK0814-A12 Hall137:InsideDoorAlongCommonHallWall

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

Lab No.: 5418237 **Description / Location:** Tan Mastic **Layer No.:** 3
Client No.: KAK0814-A12 Hall137:InsideDoorAlongCommonHallWall

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

Accreditation **NIST-NVLAP No. 101165-0** **NY-DOH No. 11021** **AIHA-LAP, LLC No. 100188**

Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy, (ELAP 198.1 where applicable)

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.

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Report Date: 9/8/2014
Report No: 344591
Project: Former Kake ES Site Assessment
Project No.: 7316-01

BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5418238 **Description / Location:** Black Cove Base
Client No.: KAK0814-A13 Room137AlongWallCommonTo136RightOfDoor

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

Lab No.: 5418238 **Description / Location:** Tan Mastic **Layer No.:** 2
Client No.: KAK0814-A13 Room137AlongWallCommonTo136RightOfDoor

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

Lab No.: 5418238 **Description / Location:** Off-White Joint Compound **Layer No.:** 3
Client No.: KAK0814-A13 Room137AlongWallCommonTo136RightOfDoor

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

Accreditation **NIST-NVLAP No. 101165-0** **NY-DOH No. 11021** **AIHA-LAP, LLC No. 100188**

Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy, (ELAP 198.1 where applicable)

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: R. Kennedy

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Project No.: 7316-01

BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5418239 **Description / Location:** Tan Ceiling Tile 1x1
Client No.: KAK0814-A14 Room 137 Inside Of Doorway

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

Lab No.: 5418239 **Description / Location:** Brown Mastic **Layer No.:** 2
Client No.: KAK0814-A14 Room 137 Inside Of Doorway

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

Lab No.: 5418240 **Description / Location:** Off-White Joint Compound
Client No.: KAK0814-A15 Room137:EastWallCommonToHallLeftOfDoor

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

Accreditation **NIST-NVLAP No. 101165-0** **NY-DOH No. 11021** **AIHA-LAP, LLC No. 100188**

Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy, (ELAP 198.1 where applicable)

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.

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BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5418241 **Description / Location:** Off-White Joint Compound
Client No.: KAK0814-A16 Janitor's Closet Room 133 On West Wall

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
PC 1.4	Chrysotile	None Detected	None Detected	PC 98.6

Lab No.: 5418241 **Description / Location:** Tan Mastic **Layer No.:** 2
Client No.: KAK0814-A16 Janitor's Closet Room 133 On West Wall

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

Lab No.: 5418242 **Description / Location:** Tan Vinyl Sheet Flooring
Client No.: KAK0814-A17 Janitor'sClosetRoom133OverFlooring

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
None Detected	None Detected	5	Synthetic	90
		5	Fibrous Glass	

Accreditation **NIST-NVLAP No. 101165-0** **NY-DOH No. 11021** **AIHA-LAP, LLC No. 100188**

Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy, (ELAP 198.1 where applicable)

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.

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Report Date: 9/8/2014
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Project: Former Kake ES Site Assessment
Project No.: 7316-01

BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5418243 **Description / Location:** Off-White Floor Tile
Client No.: KAK0814-A18 Janitor's Closet Room 133

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
PC 1.8	Chrysotile	None Detected	None Detected	PC 98.2

Lab No.: 5418243 **Description / Location:** Brown Mastic **Layer No.:** 2
Client No.: KAK0814-A18 Janitor's Closet Room 133

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

Lab No.: 5418243 **Description / Location:** Tan Mastic **Layer No.:** 3
Client No.: KAK0814-A18 Janitor's Closet Room 133

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

Accreditation **NIST-NVLAP No. 101165-0** **NY-DOH No. 11021** **AIHA-LAP, LLC No. 100188**

Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy, (ELAP 198.1 where applicable)

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.

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Date: 9/8/2014

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CERTIFICATE OF ANALYSIS

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

Report Date: 9/8/2014
Report No: 344591
Project: Former Kake ES Site Assessment
Project No.: 7316-01

BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5418244 **Description / Location:** Tan Floor Tile 9x9
Client No.: KAK0814-A19 Hall 135 At Room 138 Exposed In Hall

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
PC 1.9	Chrysotile	None Detected	None Detected	PC 98.1

Lab No.: 5418244 **Description / Location:** Black Mastic **Layer No.:** 2
Client No.: KAK0814-A19 Hall 135 At Room 138 Exposed In Hall

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

Lab No.: 5418244 **Description / Location:** Tan Mastic **Layer No.:** 3
Client No.: KAK0814-A19 Hall 135 At Room 138 Exposed In Hall

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

Accreditation **NIST-NVLAP No. 101165-0** **NY-DOH No. 11021** **AIHA-LAP, LLC No. 100188**

Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy, (ELAP 198.1 where applicable)

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Project: Former Kake ES Site Assessment
Project No.: 7316-01

BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5418245 **Description / Location:** Tan Floor Tile 9x9
Client No.: KAK0814-A20 Hall 135 At Room 138 Exposed In Hall

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
PC 2.1	Chrysotile	None Detected	None Detected	PC 97.9

Lab No.: 5418245 **Description / Location:** Black Mastic **Layer No.:** 2
Client No.: KAK0814-A20 Hall 135 At Room 138 Exposed In Hall

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

Lab No.: 5418245 **Description / Location:** Tan Mastic **Layer No.:** 3
Client No.: KAK0814-A20 Hall 135 At Room 138 Exposed In Hall

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

Accreditation **NIST-NVLAP No. 101165-0** **NY-DOH No. 11021** **AIHA-LAP, LLC No. 100188**

Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy, (ELAP 198.1 where applicable)

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Project No.: 7316-01

BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5418246 **Description / Location:** Tan Ceiling Tile 1x1
Client No.: KAK0814-A21 Center Of Hall 135

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

Lab No.: 5418246 **Description / Location:** Brown Mastic **Layer No.:** 2
Client No.: KAK0814-A21 Center Of Hall 135

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

Lab No.: 5418247 **Description / Location:** Silver/Black Tar
Client No.: KAK0814-A22 Roof:Boiler Exhaust Stack Penetration

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
None Detected	None Detected	Trace	Wollastonite	100
		Trace	Fibrous Glass	

Lab No.: 5418248 **Description / Location:** Black Tar
Client No.: KAK0814-A23 Roof:Above Boiler Room

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

Accreditation **NIST-NVLAP No. 101165-0** **NY-DOH No. 11021** **AIHA-LAP, LLC No. 100188**

Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy, (ELAP 198.1 where applicable)

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.

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BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5418249 **Description / Location:** Silver/Black Tar
Client No.: KAK0814-A24 Roof:Above Boiler Room At 3x3

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
None Detected	None Detected	Trace	Fibrous Glass	100
		Trace	Wollastonite	

Lab No.: 5418250 **Description / Location:** Off-White Caulk
Client No.: KAK0814-A25 Roof:Above Boiler Room Around Seam

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

Lab No.: 5418251 **Description / Location:** Black Tar
Client No.: KAK0814-A26 Roof:Above Boiler Room

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

Lab No.: 5418252 **Description / Location:** Black Tar
Client No.: KAK0814-A27 Roof:On Flashing At Rock Wall

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

Accreditation **NIST-NVLAP No. 101165-0** **NY-DOH No. 11021** **AIHA-LAP, LLC No. 100188**

Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy, (ELAP 198.1 where applicable)

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.

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BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5418253 **Description / Location:** Silver Tar
Client No.: KAK0814-A28 Roof:Girls Restroom Exhaust Hood

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
None Detected	None Detected	Trace	Synthetic	100
		Trace	Wollastonite	

Lab No.: 5418254 **Description / Location:** Black Tar
Client No.: KAK0814-A29 Roof:VTR North Of Girls Restroom Exhaust

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

Lab No.: 5418255 **Description / Location:** Black Roof Material
Client No.: KAK0814-A30 Roof:AboveWallBtwE.PortionOfHall135

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

Lab No.: 5418256 **Description / Location:** Silver/Black Roof Material
Client No.: KAK0814-A31 Roof:Above E. Portion Of Hall 135

% Asbestos	Type	% Non-Fibrous Material	Type	% Non-Fibrous Material
None Detected	None Detected	Trace	Fibrous Glass	100
		Trace	Wollastonite	

Accreditation **NIST-NVLAP No. 101165-0** **NY-DOH No. 11021** **AIHA-LAP, LLC No. 100188**

Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy, (ELAP 198.1 where applicable)

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BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5418257 **Description / Location:** Black Caulk
Client No.: KAK0814-A32 Roof:Center Of W Side Of Library

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

Lab No.: 5418258 **Description / Location:** Black Caulk
Client No.: KAK0814-A33 Roof:Center Of W Side Of Library

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

Lab No.: 5418258 **Description / Location:** Black Rubber **Layer No.:** 2
Client No.: KAK0814-A33 Roof:Center Of W Side Of Library

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

Lab No.: 5418258 **Description / Location:** Tan Mastic **Layer No.:** 3
Client No.: KAK0814-A33 Roof:Center Of W Side Of Library

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

Accreditation **NIST-NVLAP No. 101165-0** **NY-DOH No. 11021** **AIHA-LAP, LLC No. 100188**

Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy, (ELAP 198.1 where applicable)

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BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5418259 **Description / Location:** Black Tar
Client No.: KAK0814-A34 Roof:Library @ Supply Air Hood On Screws

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

Lab No.: 5418260 **Description / Location:** Black Caulk
Client No.: KAK0814-A35 Roof:Library Roof At West Roof Drains

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

Lab No.: 5418261 **Description / Location:** Black Caulk
Client No.: KAK0814-A36 Roof:Center Of East Side Of Library

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

Accreditation **NIST-NVLAP No. 101165-0** **NY-DOH No. 11021** **AIHA-LAP, LLC No. 100188**

Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy, (ELAP 198.1 where applicable)

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.

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BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5418262 **Description / Location:** Black Caulk
Client No.: KAK0814-A37 Roof:Center Of North Side Of Library

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

Lab No.: 5418262 **Description / Location:** Black Rubber **Layer No.:** 2
Client No.: KAK0814-A37 Roof:Center Of North Side Of Library

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

Lab No.: 5418262 **Description / Location:** Tan Mastic **Layer No.:** 3
Client No.: KAK0814-A37 Roof:Center Of North Side Of Library

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

Lab No.: 5418263 **Description / Location:** Silver/Black Roof Material
Client No.: KAK0814-A38 Roof:NearEEdge;SlopedRoofRm132OnWood

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
PC 0.5	Chrysotile	Trace	Synthetic	PC 99.5
		Trace	Fibrous Glass	
		Trace	Wollastonite	

Accreditation **NIST-NVLAP No. 101165-0** **NY-DOH No. 11021** **AIHA-LAP, LLC No. 100188**

Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy, (ELAP 198.1 where applicable)

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BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5418264 **Description / Location:** Silver/Black Roof Material
Client No.: KAK0814-A39 Roof:NearE.EdgeOfSlopedRoofAboveBoy'sRR

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
None Detected	None Detected	Trace	Synthetic	100
		Trace	Wollastonite	

Lab No.: 5418265 **Description / Location:** Black Roof Material
Client No.: KAK0814-A40 Roof:NearE.EdgeOfSlopedRoofAboveBoy'sRR

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

Lab No.: 5418266 **Description / Location:** Black Roof Material
Client No.: KAK0814-A41 Roof:NearE.EdgeOfSlopedRoofAboveBoy'sRR

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

Lab No.: 5418267 **Description / Location:** Black Tar Paper
Client No.: KAK0814-A42 W.ExteriorWall;Walkway117&Room137

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

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BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5418268 **Description / Location:** Off-White Sheetrock
Client No.: KAK0814-A43 W.ExtWall@Sec.CrawlspaceVentFromS.End

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
None Detected	None Detected	Trace	Cellulose	100
		Trace	Fibrous Glass	

Lab No.: 5418269 **Description / Location:** Black Roof Material
Client No.: KAK0814-A44 Roof @ Collapsed Portion At Room 130

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
None Detected	None Detected	Trace	Cellulose	100
		Trace	Fibrous Glass	

Accreditation **NIST-NVLAP No. 101165-0** **NY-DOH No. 11021** **AIHA-LAP, LLC No. 100188**

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BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5418270 **Description / Location:** Tan Floor Tile 9x9
Client No.: KAK0814-A45 Room 130 North End Of East Side

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
PC 4.2	Chrysotile	None Detected	None Detected	PC 95.8

Lab No.: 5418270 **Description / Location:** Black Mastic **Layer No.:** 2
Client No.: KAK0814-A45 Room 130 North End Of East Side

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

Lab No.: 5418270 **Description / Location:** Tan Mastic **Layer No.:** 3
Client No.: KAK0814-A45 Room 130 North End Of East Side

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

Accreditation **NIST-NVLAP No. 101165-0** **NY-DOH No. 11021** **AIHA-LAP, LLC No. 100188**

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CERTIFICATE OF ANALYSIS

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

Report Date: 9/8/2014
Report No: 344591
Project: Former Kake ES Site Assessment
Project No.: 7316-01

BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5418271 **Description / Location:** Black Cove Base
Client No.: KAK0814-A46 Room 130 North End Of East Wall

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

Lab No.: 5418271 **Description / Location:** Brown Mastic **Layer No.:** 2
Client No.: KAK0814-A46 Room 130 North End Of East Wall

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

Lab No.: 5418271 **Description / Location:** Off-White Joint Compound **Layer No.:** 3
Client No.: KAK0814-A46 Room 130 North End Of East Wall

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
PC 1.2	Chrysotile	None Detected	None Detected	PC 98.8

Lab No.: 5418272 **Description / Location:** Grey Transite
Client No.: KAK0814-A47 Room 130 North Wall

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

Accreditation **NIST-NVLAP No. 101165-0** **NY-DOH No. 11021** **AIHA-LAP, LLC No. 100188**

Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy, (ELAP 198.1 where applicable)

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: R. Kennedy

Date: 9/8/2014

iATL INTERNATIONAL
Asbestos Testing Laboratories

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CERTIFICATE OF ANALYSIS

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

Report Date: 9/8/2014
Report No: 344591
Project: Former Kake ES Site Assessment
Project No.: 7316-01

BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5418273 **Description / Location:** Sample Not Analyzed
Client No.: KAK0814-A48

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
Sample Not Analyzed		Sample Not Analyzed		

Lab No.: 5418274 **Description / Location:** Sample Not Analyzed
Client No.: KAK0814-A49

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
Sample Not Analyzed		Sample Not Analyzed		

Lab No.: 5418275 **Description / Location:** Off-White Joint Compound
Client No.: KAK0814-A50 LibraryCeiling@TheSESideNearERoof

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

Lab No.: 5418276 **Description / Location:** Off-White Texture
Client No.: KAK0814-A51 Library South Wall Above Ceiling

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

Accreditation **NIST-NVLAP No. 101165-0** **NY-DOH No. 11021** **AIHA-LAP, LLC No. 100188**

Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy, (ELAP 198.1 where applicable)

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: R. Kennedy

Date: 9/8/2014

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CERTIFICATE OF ANALYSIS

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Eagle River AK 99577-7701

Report Date: 9/8/2014
Report No: 344591
Project: Former Kake ES Site Assessment
Project No.: 7316-01

BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5418277 **Description / Location:** Off-White Joint Compound
Client No.: KAK0814-A52 Library Center Of West Wall 4' Above FL

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

Lab No.: 5418278 **Description / Location:** Tan Mastic
Client No.: KAK0814-A53 Library At The SE Corner, On Concrete FL

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

Lab No.: 5418279 **Description / Location:** Brown Cove Base
Client No.: KAK0814-A54 Library At The SE Corner, On GWB

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

Lab No.: 5418279 **Description / Location:** Off-White Joint Compound **Layer No.:** 2
Client No.: KAK0814-A54 Library At The SE Corner, On GWB

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

Accreditation **NIST-NVLAP No. 101165-0** **NY-DOH No. 11021** **AIHA-LAP, LLC No. 100188**

Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy, (ELAP 198.1 where applicable)

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: R. Kennedy

Date: 9/8/2014

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Report Date: 9/8/2014
Report No: 344591
Project: Former Kake ES Site Assessment
Project No.: 7316-01

BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5418280 **Description / Location:** Tan Ceiling Tile 2x4
Client No.: KAK0814-A55 Library At The SE Corner

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
None Detected	None Detected	20	Cellulose	60
		20	Fibrous Glass	

Lab No.: 5418281 **Description / Location:** Green Mastic
Client No.: KAK0814-A56 Library Above Ceiling At Main Rectangle

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

Lab No.: 5418282 **Description / Location:** Off-White Caulk
Client No.: KAK0814-A57 Library At The South Exit Door

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

Lab No.: 5418283 **Description / Location:** Black Foam
Client No.: KAK0814-A58 Library At The South Exit Door

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

Accreditation **NIST-NVLAP No. 101165-0** **NY-DOH No. 11021** **AIHA-LAP, LLC No. 100188**

Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy, (ELAP 198.1 where applicable)

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: R. Kennedy

Date: 9/8/2014

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CERTIFICATE OF ANALYSIS

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

Report Date: 9/8/2014
Report No: 344591
Project: Former Kake ES Site Assessment
Project No.: 7316-01

BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5418284 **Description / Location:** Off-White Sheetrock
Client No.: KAK0814-A59 Room 102 E Wall

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

Lab No.: 5418284 **Description / Location:** Off-White Joint Compound **Layer No.:** 2
Client No.: KAK0814-A59 Room 102 E Wall

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

Lab No.: 5418285 **Description / Location:** Off-White Texture
Client No.: KAK0814-A60 Room 102 E Wall

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

Lab No.: 5418286 **Description / Location:** Off-White Glazing
Client No.: KAK0814-A61 LibrarySideOfRm102BtwMetalFrameIntWindow

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

Accreditation **NIST-NVLAP No. 101165-0** **NY-DOH No. 11021** **AIHA-LAP, LLC No. 100188**

Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy, (ELAP 198.1 where applicable)

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: R. Kennedy

Date: 9/8/2014

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Report Date: 9/8/2014
Report No: 344591
Project: Former Kake ES Site Assessment
Project No.: 7316-01

BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5418287 **Description / Location:** Black Foam
Client No.: KAK0814-A62 LibrarySideOfRm102BtwGlass&MetalFrame

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

Lab No.: 5418288 **Description / Location:** Tan Mastic
Client No.: KAK0814-A63 Room 103 At The SW Corner On Comcrete FL

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

Lab No.: 5418289 **Description / Location:** Brown Cove Base
Client No.: KAK0814-A64 Room 103 At The SW Corner On GWB

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

Lab No.: 5418289 **Description / Location:** Tan Mastic **Layer No.:** 2
Client No.: KAK0814-A64 Room 103 At The SW Corner On GWB

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

Accreditation **NIST-NVLAP No. 101165-0** **NY-DOH No. 11021** **AIHA-LAP, LLC No. 100188**

Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy, (ELAP 198.1 where applicable)

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: R. Kennedy

Date: 9/8/2014

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CERTIFICATE OF ANALYSIS

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11901 Business Blvd., Ste 208
Eagle River AK 99577-7701

Report Date: 9/8/2014
Report No: 344591
Project: Former Kake ES Site Assessment
Project No.: 7316-01

BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5418290 **Description / Location:** Tan Ceiling Tile 2x4
Client No.: KAK0814-A65 Room 103

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
None Detected	None Detected	20	Cellulose	60
		20	Fibrous Glass	

Lab No.: 5418291 **Description / Location:** Tan Ceiling Tile 1x1
Client No.: KAK0814-A66 Reception 124 Above CT-2 Glued On GWB

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
None Detected	None Detected	20	Cellulose	60
		20	Fibrous Glass	

Lab No.: 5418291 **Description / Location:** Brown Mastic **Layer No.:** 2
Client No.: KAK0814-A66 Reception 124 Above CT-2 Glued On GWB

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

Lab No.: 5418292 **Description / Location:** Off-White Texture
Client No.: KAK0814-A67 Reception 124 S Wall Left Of Fire Door

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

Accreditation **NIST-NVLAP No. 101165-0** **NY-DOH No. 11021** **AIHA-LAP, LLC No. 100188**

Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy, (ELAP 198.1 where applicable)

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.

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Report Date: 9/8/2014
Report No: 344591
Project: Former Kake ES Site Assessment
Project No.: 7316-01

BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5418293 **Description / Location:** Off-White Joint Compound
Client No.: KAK0814-A68 Reception 124 S Wall Left Of Fire Door

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

Lab No.: 5418294 **Description / Location:** Brown Cove Base
Client No.: KAK0814-A69 Reception124NWallLeftOfDoorInto125

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

Lab No.: 5418294 **Description / Location:** Tan Mastic **Layer No.:** 2
Client No.: KAK0814-A69 Reception124NWallLeftOfDoorInto125

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

Lab No.: 5418295 **Description / Location:** Brown Mastic
Client No.: KAK0814-A70 Reception124NWallLeftOfDoorInto125

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

Accreditation **NIST-NVLAP No. 101165-0** **NY-DOH No. 11021** **AIHA-LAP, LLC No. 100188**

Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy, (ELAP 198.1 where applicable)

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.

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Project: Former Kake ES Site Assessment
Project No.: 7316-01

BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5418296 **Description / Location:** Off-White Texture
Client No.: KAK0814-A71 EPortionOfHall135LeftOfExitDoorOnGWB

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

Lab No.: 5418296 **Description / Location:** Brown Mastic **Layer No.:** 2
Client No.: KAK0814-A71 EPortionOfHall135LeftOfExitDoorOnGWB

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

Lab No.: 5418297 **Description / Location:** Tan Mastic
Client No.: KAK0814-A72 EPortionOfHall135LeftOfExitDoorOnGWB

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

Accreditation **NIST-NVLAP No. 101165-0** **NY-DOH No. 11021** **AIHA-LAP, LLC No. 100188**

Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy, (ELAP 198.1 where applicable)

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.

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Date: 9/8/2014

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Report Date: 9/8/2014
Report No: 344591
Project: Former Kake ES Site Assessment
Project No.: 7316-01

BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5418298 **Description / Location:** Tan Vinyl Sheet Flooring
Client No.: KAK0814-A73 Bathroom 127A On Concrete

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
None Detected	None Detected	5	Synthetic	90
		5	Fibrous Glass	

Lab No.: 5418298 **Description / Location:** Tan Mastic **Layer No.:** 2
Client No.: KAK0814-A73 Bathroom 127A On Concrete

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

Lab No.: 5418299 **Description / Location:** Off-White Texture
Client No.: KAK0814-A74 Bathroom 127A On GWB Of East Wall

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

Lab No.: 5418300 **Description / Location:** Brown Mastic
Client No.: KAK0814-A75 Bathroom 127 At NW Corner On Concrete

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

Accreditation **NIST-NVLAP No. 101165-0** **NY-DOH No. 11021** **AIHA-LAP, LLC No. 100188**

Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy, (ELAP 198.1 where applicable)

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: R. Kennedy

Date: 9/8/2014

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:
7316-01	Former Kake ES Site Assessment	Former Kake Elementary School	08/28/2014

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	3 DAYS	NORMAL	1

Martin Schwan
COLLECTED BY (signature)

Martin K. Schwan
PRINTED NAME

20110842/ 10596-01-06
CERT# / AHERA#

FED-EX
SHIPPING METHOD

7710 1407 1870
COURIER (signature)

9-2-14 11:00am
DATE/TIME

RECEIVED
SEP 2 2014
IATL - By

SELECTED LABORATORY

SAMPLES ACCEPTED BY

DATE/TIME

ANALYST'S SIGNATURE

DATE

SPECIAL INSTRUCTIONS / COMMENTS:

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

EMAILED TO 9.5.14

m 9/3/14 AdR 9/9/14

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
KAK0814-TCLP01 5417435	Composite of various building materials	Various locations throughout the building	Not Required *
	END	END	

* The total lead content of the TCLP Sample was 45 PPM. If the waste content is less than 100 PPM total lead, the EPA does not require further testing by TCLP Method.

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CERTIFICATE OF ANALYSIS

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

Report Date: 9/8/2014
Report Number: 344556
Project: Former Kake ES Site Assmnt
Project No.: 7316-01

LEAD TCLP SAMPLE ANALYSIS SUMMARY

Lab No.	Client No.	Location / Description	Total Lead (mg / kg)	TCLP Lead (mg / L)
5417435	KAK0814-TCLP01	Composite Of Various Bldg Materials Various Locations Throughout The Bldg	45	NA

NATIONAL LEAD LABORATORY ACCREDITATION PROGRAM (NLLAP)

NYSDOH-ELAP 11021

Analysis Method: EPA SW846-(1311) TCLP "Toxicity Characteristic Leaching Procedure"
EPA SW846-(7420) "Standard Method To Test For Low Concentrations Of Lead In Soils, Sludges And Sediments By AAS"

Comments: IATL assumes that all of the sampling methods and data upon which these results are based, have been accurately supplied by the client. Method Detection Limit (MDL) per EPA Method 40 CFR Part 136 Appendix B. Reporting Limit (RL) based upon Lowest Standard Determined (LSD) in accordance with AIHA-ELLAP policies. LSD=0.2 ppm MDL=3.2 mg/kg RL=10 mg/kg (based upon 1000 mg sampled). Mg/kg=ppm Sample results are not corrected for contamination by field or analytical blanks.

* Samples containing 100 ppm total lead or more require TCLP analysis (Ref. 1311 Sec 1.2). TCLP threshold value is 5.0 mg / L.

Date Received: 9/3/2014
Date Analyzed: 9/8/2014
Analyst: C. Shaffer

Approved By:

Frank E. Ehrenfeld, III
Laboratory Director

iATL INTERNATIONAL
Asbestos Testing Laboratories

9000 Commerce Parkway, Ste B
Mount Laurel, NJ 08054
Toll Free 877-428-4285
Local: 856-231-9449
Fax: 856-231-9818

CERTIFICATE OF ANALYSIS

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

Report Date: 9/5/2014
Report No: 345047
Project: Former Kake ES Site Assmnt
Project No.: 7316-01

BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 145417435 **Description / Location:** Off-White Sheetrock
Client No.: KAK0814-TCLP01 Composite Of Various Bldg Materials

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
None Detected	None Detected	15	Cellulose	80
		5	Fibrous Glass	

Lab No.: 145417435 **Description / Location:** Off-White Joint Compound **Layer No.:** 2
Client No.: KAK0814-TCLP01 Composite Of Various Bldg Materials

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
PC 1.2	Chrysotile	None Detected	None Detected	PC 98.8

Lab No.: 145417435 **Description / Location:** Tan Floor Tile **Layer No.:** 3
Client No.: KAK0814-TCLP01 Composite Of Various Bldg Materials

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
PC 5.0	Chrysotile	None Detected	None Detected	95

Lab No.: 145417435 **Description / Location:** Black Mastic **Layer No.:** 4
Client No.: KAK0814-TCLP01 Composite Of Various Bldg Materials

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
None Detected	None Detected	1	Cellulose	96
		3	Fibrous Glass	

Accreditation **NIST-NVLAP No. 101165-0** **NY-DOH No. 11021** **AIHA-LAP, LLC No. 100188**

Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy, (ELAP 198.1 where applicable)

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: 9/5/2014

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CERTIFICATE OF ANALYSIS

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

Report Date: 9/5/2014
Report No: 345047
Project: Former Kake ES Site Assmnt
Project No.: 7316-01

BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 145417435E **Description / Location:** Off-White Ceiling Tile
Client No.: KAK0814-TCLP01 Composite Of Various Bldg Materials

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

Lab No.: 145417435E **Description / Location:** Brown Mastic **Layer No.:** 2
Client No.: KAK0814-TCLP01 Composite Of Various Bldg Materials

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

Lab No.: 145417435E **Description / Location:** Black Tar Paper **Layer No.:** 3
Client No.: KAK0814-TCLP01 Composite Of Various Bldg Materials

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
None Detected	None Detected	70	Cellulose	30

Lab No.: 145417435E **Description / Location:** Off-White Texture **Layer No.:** 4
Client No.: KAK0814-TCLP01 Composite Of Various Bldg Materials

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

Accreditation **NIST-NVLAP No. 101165-0** **NY-DOH No. 11021** **AIHA-LAP, LLC No. 100188**

Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy, (ELAP 198.1 where applicable)

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: 9/5/2014

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CERTIFICATE OF ANALYSIS

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

Report Date: 9/5/2014
Report No: 345047
Project: Former Kake ES Site Assmnt
Project No.: 7316-01

BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 145417435I **Description / Location:** White Ceiling Tile
Client No.: KAK0814-TCLP01 Composite Of Various Bldg Materials

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
None Detected	None Detected	40	Cellulose	10
		50	Fibrous Glass	

Lab No.: 145417435I **Description / Location:** Yellow Insulation **Layer No.:** 2
Client No.: KAK0814-TCLP01 Composite Of Various Bldg Materials

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

Lab No.: 145417435I **Description / Location:** Tan Laminate **Layer No.:** 3
Client No.: KAK0814-TCLP01 Composite Of Various Bldg Materials

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

Lab No.: 145417435I **Description / Location:** Brown Mastic **Layer No.:** 4
Client No.: KAK0814-TCLP01 Composite Of Various Bldg Materials

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

Accreditation **NIST-NVLAP No. 101165-0** **NY-DOH No. 11021** **AIHA-LAP, LLC No. 100188**

Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy, (ELAP 198.1 where applicable)

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: 9/5/2014

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CERTIFICATE OF ANALYSIS

Client: EHS Alaska Incorporated
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Eagle River AK 99577-7701

Report Date: 9/5/2014
Report No: 345047
Project: Former Kake ES Site Assmnt
Project No.: 7316-01

BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 145417435M **Description / Location:** White Ceiling Tile
Client No.: KAK0814-TCLP01 Composite Of Various Bldg Materials

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
None Detected	None Detected	30	Cellulose	10
		60	Fibrous Glass	

Lab No.: 145417435M **Description / Location:** Lt Yellow Insulation **Layer No.:** 2
Client No.: KAK0814-TCLP01 Composite Of Various Bldg Materials

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

Lab No.: 145417435M **Description / Location:** Brown Cove Base **Layer No.:** 3
Client No.: KAK0814-TCLP01 Composite Of Various Bldg Materials

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

Lab No.: 145417435M **Description / Location:** Tan Mastic **Layer No.:** 4
Client No.: KAK0814-TCLP01 Composite Of Various Bldg Materials

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

Accreditation **NIST-NVLAP No. 101165-0** **NY-DOH No. 11021** **AIHA-LAP, LLC No. 100188**

Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy, (ELAP 198.1 where applicable)

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: 9/5/2014

APPENDIX C

Lead Analyzer Test Results

LEAD BASED PAINT SCREENING SUMMARY

NITON XLp-300A, Serial No. 81530

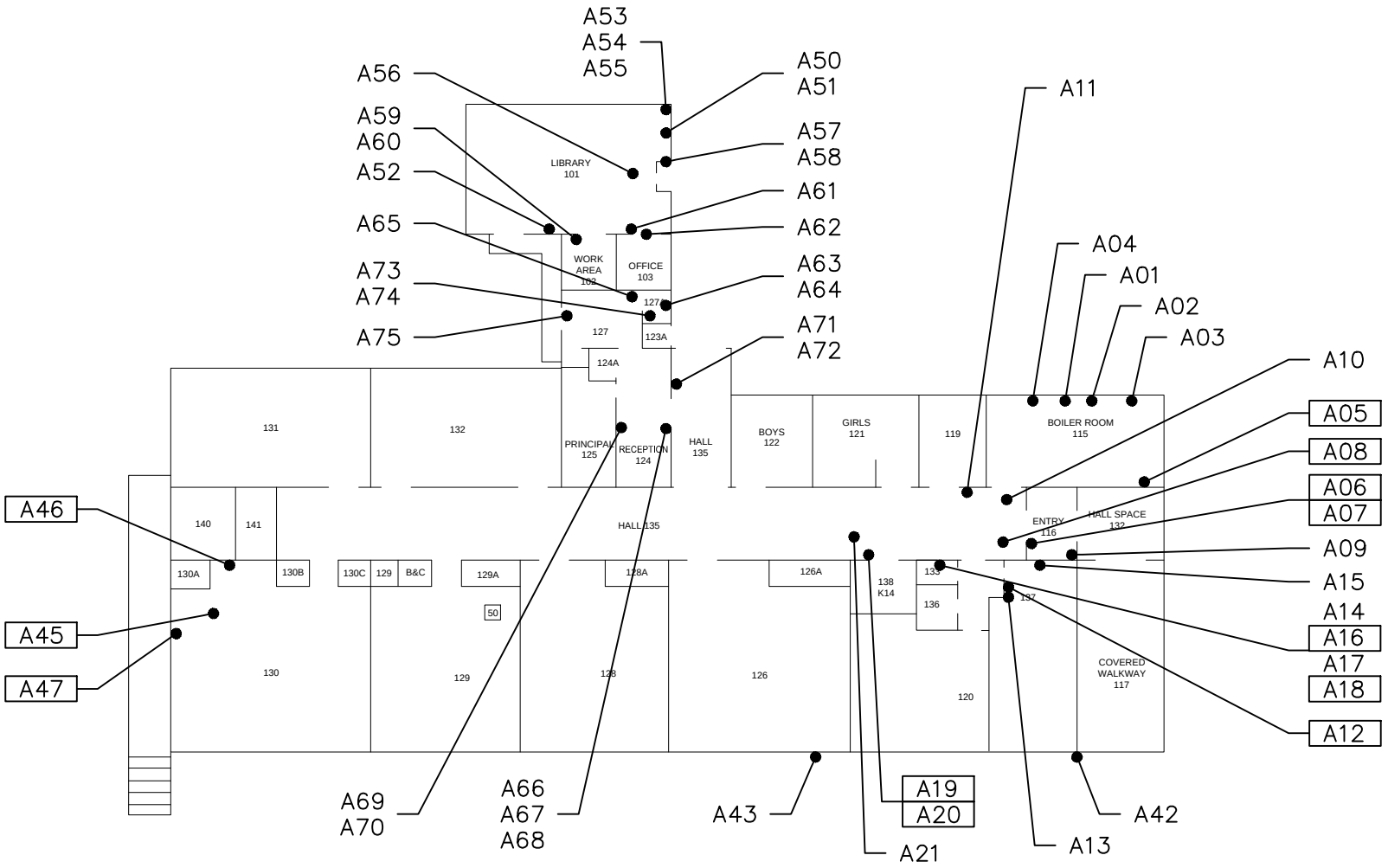
NO.	SITE	INSPECTOR	ROOM	COMPONENT	SUBSTRATE	CONDITION	COLOR	DURATION	TIME	DEPTH INDEX	RESULTS		
											LBP	mg/cm^2	+/- ERROR
1	KAKE ES	SCHWAN	-	-	-	-	-	159.2	8/28/2014 12:00	-	-	1.75	0
2	**KAKE ES**	**SCHWAN**	**-**	**CALIBRATION CK**	**-**	**-**	**RED**	**22.48**	**8/28/2014 12:02**	**1.12**	**Positive**	**1.1**	**0.1**
3	**KAKE ES**	**SCHWAN**	**-**	**CALIBRATION CK**	**-**	**-**	**RED**	**24.74**	**8/28/2014 12:04**	**2.52**	**Positive**	**1**	**0.1**
4	**KAKE ES**	**SCHWAN**	**-**	**CALIBRATION CK**	**-**	**-**	**RED**	**11.52**	**8/28/2014 12:04**	**1.1**	**Positive**	**1.1**	**0.1**
5	KAKE ES	SCHWAN	EXT ELECT RM	DOOR	METAL	POOR	BROWN	1.37	8/28/2014 12:09	1	Negative	0	0.02
6	KAKE ES	SCHWAN	EXT ELECT RM	PIPE	METAL	POOR	BLUE	1.56	8/28/2014 12:10	1	Negative	0	0.02
7	KAKE ES	SCHWAN	EXT ELECT RM	WALL	WOOD	POOR	RED	1.56	8/28/2014 12:11	1.14	Negative	0.01	0.02
8	KAKE ES	SCHWAN	EXT ELECT RM	WALL	WOOD	POOR	RED	1.55	8/28/2014 12:12	1.24	Negative	0.01	0.03
9	KAKE ES	SCHWAN	EXT ELECT RM	WINDOW CASING	METAL	POOR	WHITE	1.75	8/28/2014 12:13	1	Negative	0	0.02
10	KAKE ES	SCHWAN	EXTERIOR	PIPE	METAL	POOR	BLUE	2.94	8/28/2014 12:14	3.22	Negative	0.14	0.16
11	KAKE ES	SCHWAN	EXTERIOR	DOOR	METAL	POOR	BLUE	1.55	8/28/2014 12:15	2.36	Negative	0.03	0.08
12	KAKE ES	SCHWAN	LIBRARY	WALL	DRYWALL	POOR	BEIGE	2.15	8/28/2014 12:17	1	Negative	0	0.02
13	KAKE ES	SCHWAN	LIBRARY	WALL	DRYWALL	POOR	BEIGE	1.57	8/28/2014 12:17	1	Negative	0	0.02
14	KAKE ES	SCHWAN	LIBRARY	WALL	DRYWALL	POOR	BEIGE	1.37	8/28/2014 12:17	1	Negative	0	0.02
15	KAKE ES	SCHWAN	LIBRARY	WALL	DRYWALL	POOR	BEIGE	1.76	8/28/2014 12:18	1	Negative	0	0.02
16	KAKE ES	SCHWAN	LIBRARY	DOOR	METAL	POOR	GREEN	1.56	8/28/2014 12:19	1	Negative	0	0.02
17	KAKE ES	SCHWAN	LIBRARY	DOOR	METAL	POOR	BLUE	1.56	8/28/2014 12:19	1.4	Negative	0.02	0.05
18	KAKE ES	SCHWAN	LIBRARY	WINDOW CASING	METAL	POOR	BROWN	1.57	8/28/2014 12:20	1	Negative	0	0.02
19	KAKE ES	SCHWAN	LIBRARY	BASEBOARD	METAL	POOR	BROWN	3.31	8/28/2014 12:21	4.59	Negative	0.01	0.03
20	KAKE ES	SCHWAN		DOOR	METAL	POOR	GREEN	1.57	8/28/2014 12:22	1	Negative	0	0.02
21	KAKE ES	SCHWAN	127	VOID	DRYWALL	POOR	BEIGE	1.57	8/28/2014 12:23	1	Null	0	0.02
22	KAKE ES	SCHWAN	127	WALL	DRYWALL	POOR	BEIGE	1.95	8/28/2014 12:23	5.39	Negative	0.01	0.07
23	KAKE ES	SCHWAN	124	VOID	DRYWALL	POOR	BEIGE	1.57	8/28/2014 12:24	1	Null	0	0.02
24	KAKE ES	SCHWAN	124	WALL	DRYWALL	POOR	BEIGE	1.76	8/28/2014 12:25	1	Negative	0	0.02
25	KAKE ES	SCHWAN	124	DOOR FRAME	METAL	POOR	BROWN	1.56	8/28/2014 12:26	1	Negative	0	0.02
26	KAKE ES	SCHWAN	124	DOOR FRAME	METAL	POOR	BROWN	1.56	8/28/2014 12:27	1	Negative	0	0.02
27	KAKE ES	SCHWAN	124	DOOR FRAME	METAL	POOR	BROWN	1.56	8/28/2014 12:27	1	Negative	0	0.02
28	KAKE ES	SCHWAN	124	ROLL UP FIRE DOOR	METAL	POOR	BROWN	1.57	8/28/2014 12:28	1.9	Negative	0.01	0.05
29	KAKE ES	SCHWAN	124A	SINK	METAL	POOR	BEIGE	1.56	8/28/2014 12:30	1	Negative	0.01	0.02
30	KAKE ES	SCHWAN	124A	TOILET	CERAMIC	POOR	BEIGE	1.57	8/28/2014 12:31	1.71	Negative	0.02	0.06
31	KAKE ES	SCHWAN	HALL 135	TOILET	DRYWALL	POOR	LT BLUE	1.58	8/28/2014 12:32	1	Negative	0	0.02
32	KAKE ES	SCHWAN	HALL 135	FIRE DOOR	WOOD	POOR	GREEN	1.56	8/28/2014 12:34	1	Negative	0	0.02
33	KAKE ES	SCHWAN	EXT	WALL	WOOD	POOR	RED	1.57	8/28/2014 12:37	1	Negative	0	0.02
34	KAKE ES	SCHWAN	BOILER	WALL	DRYWALL	POOR	GREEN	1.55	8/28/2014 12:40	5.68	Negative	0.11	0.25
35	KAKE ES	SCHWAN	BOILER	WALL	DRYWALL	POOR	GREEN	1.37	8/28/2014 12:41	2.13	Negative	0.04	0.09
36	KAKE ES	SCHWAN	BOILER	HWH	METAL	POOR	GRAY	1.55	8/28/2014 12:42	1.21	Negative	0.06	0.07
37	KAKE ES	SCHWAN	BOILER	BOILER	METAL	POOR	GRAY	1.36	8/28/2014 12:43	1	Negative	0	0.02
38	KAKE ES	SCHWAN	BOILER	TANK	METAL	POOR	GREEN	4.3	8/28/2014 12:45	1	Negative	0	0.02
39	KAKE ES	SCHWAN	BOILER	TANK	METAL	POOR	BROWN	1.56	8/28/2014 12:46	2.04	Negative	0.05	0.09
40	KAKE ES	SCHWAN	BOILER	BOILER CONTROL HOUSING	METAL	POOR	BLUE	1.56	8/28/2014 12:47	1	Negative	0	0.02
41	KAKE ES	SCHWAN	BOILER	CABINET	METAL	POOR	GRAY	1.56	8/28/2014 12:50	1	Negative	0.02	0.04
42	KAKE ES	SCHWAN	BOILER	CAST IRON HATCH	METAL	POOR	GRAY	1.57	8/28/2014 12:51	1.19	Negative	0.03	0.05
43	KAKE ES	SCHWAN	HALL 135	DOOR FRAME	WOOD	POOR	GREEN	1.55	8/28/2014 12:56	3.43	Negative	0.16	0.23
44	KAKE ES	SCHWAN	HALL 135	DOOR FRAME	WOOD	POOR	GREEN	1.36	8/28/2014 12:57	1.4	Negative	0.07	0.1
45	KAKE ES	SCHWAN	HALL 135	BASEBOARD	METAL	POOR	GRAY	1.36	8/28/2014 12:58	1	Negative	0.03	0.05

LEAD BASED PAINT SCREENING SUMMARY

NO.	SITE	INSPECTOR	ROOM	COMPONENT	SUBSTRATE	CONDITION	COLOR	DURATION	TIME	DEPTH INDEX	RESULTS		
											LBP	mg/cm^2	+/- ERROR
46	KAKE ES	SCHWAN	HALL 135	WALL	DRYWALL	POOR	BEIGE	1.56	8/28/2014 12:58	1.44	Negative	0.03	0.06
47	KAKE ES	SCHWAN	EXT	POST	WOOD	POOR	WHITE	1.56	8/28/2014 13:05	1	Negative	0	0.02
48	KAKE ES	SCHWAN	EXT	SIDING	WOOD	POOR	WHITE	1.37	8/28/2014 13:06	2.36	Negative	0.09	0.14
49	KAKE ES	SCHWAN	EXT	SIDING	WOOD	POOR	RED	1.36	8/28/2014 13:08	1.14	Negative	0.06	0.07
50	KAKE ES	SCHWAN	EXT	VENT	METAL	POOR	BROWN	1.57	8/28/2014 13:10	1	Negative	0	0.02
51	**KAKE ES**	**SCHWAN**	**EXT**	**CAB**	**CONCRETE**	**POOR**	**GREEN**	**1.37**	**8/28/2014 13:15**	**1.48**	**Positive**	**2**	**0.6**
52	KAKE ES	SCHWAN	EXT	ROOF FLASHING	METAL	POOR	RED	1.57	8/28/2014 13:43	1.13	Negative	0.06	0.07
53	KAKE ES	SCHWAN	EXT	VTR	METAL	POOR	BLACK	5.46	8/28/2014 13:44	1	Negative	0	0.02
54	KAKE ES	SCHWAN	EXT	PARAPET CAP	METAL	POOR	RED	1.56	8/28/2014 13:45	1	Negative	0	0.02
55	KAKE ES	SCHWAN	EXT	ROOF COVERING	PLASTIC	POOR	SILVER	2.73	8/28/2014 13:47	1	Negative	0	0.02
56	**KAKE ES**	**SCHWAN**	**EXT**	**SA ROOF VENT**	**METAL**	**POOR**	**SILVER**	**0.98**	**8/28/2014 13:49**	**1.71**	**Positive**	**13.2**	**8.8**
57	KAKE ES	SCHWAN	EXT	PARAPET CAP	METAL	POOR	RED	1.76	8/28/2014 13:50	1	Negative	0	0.02
58	**KAKE ES**	**SCHWAN**	**EXT**	**ROCK_ROOF FLASHING**	**METAL**	**POOR**	**BLACK**	**4.51**	**8/28/2014 13:52**	**9.91**	**Positive**	**4.7**	**1.4**
59	**KAKE ES**	**SCHWAN**	**-**	**CALIBRATION CK**	**-**	**-**	**RED**	**20.32**	**8/28/2014 13:55**	**1.04**	**Positive**	**1**	**0.1**
60	**KAKE ES**	**SCHWAN**	**-**	**CALIBRATION CK**	**-**	**-**	**RED**	**20.24**	**8/28/2014 13:56**	**2.45**	**Positive**	**1**	**0.1**
61	**KAKE ES**	**SCHWAN**	**-**	**CALIBRATION CK**	**-**	**-**	**RED**	**20.36**	**8/28/2014 13:58**	**1.08**	**Positive**	**1.1**	**0.1**

APPENDIX D

Drawings of Sample Locations



1
C-1
FIRST FLOOR
NTS

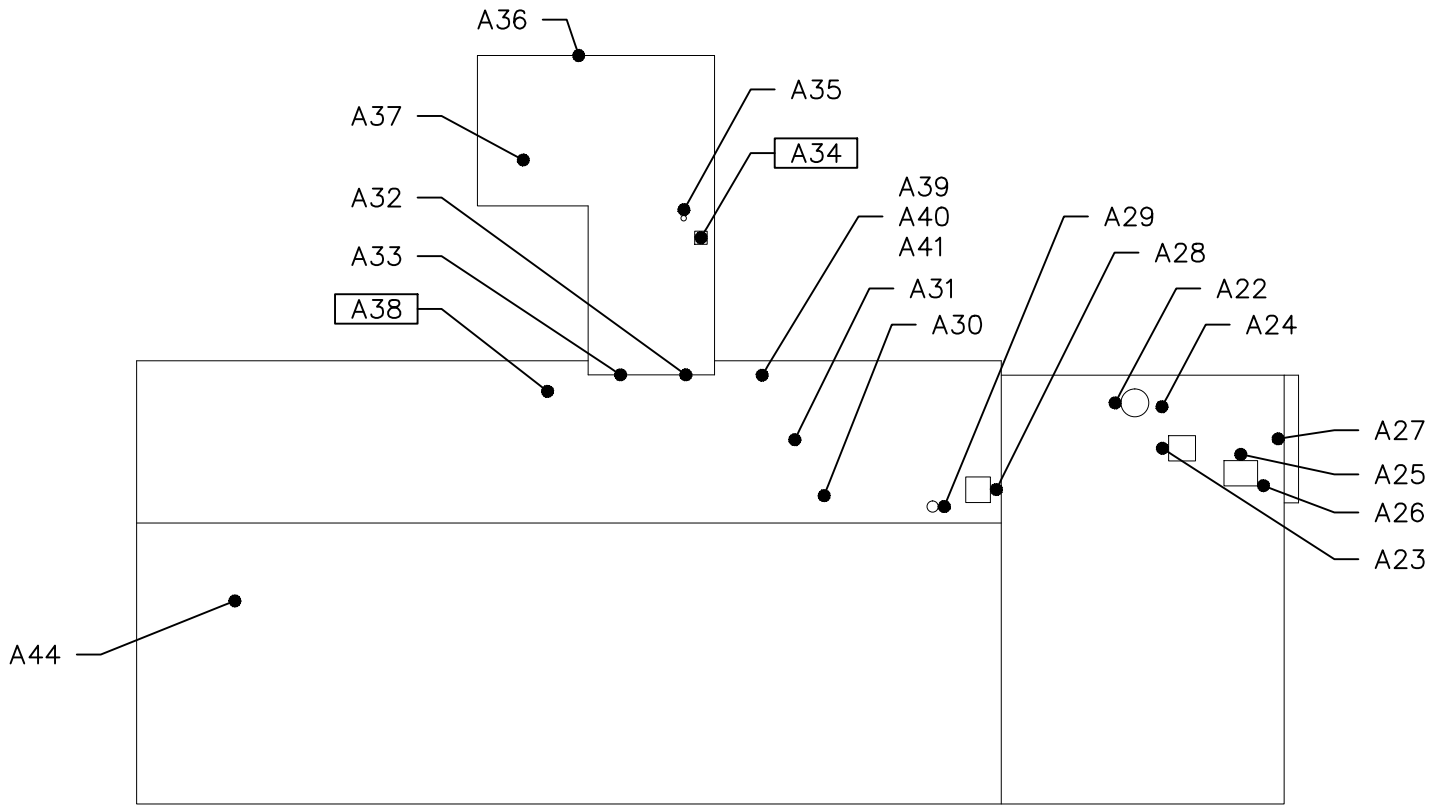
N

LEGEND

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

REFER TO TESTING SUMMARY IN REPORT FOR FULL DETAILS. ALL SAMPLES HAVE KAK0814– PREFIX.

SHANNON AND WILSON	KAKE ELEMENTARY SCHOOL KAKE, ALASKA ASBESTOS SAMPLE LOCATIONS	EHS ALASKA INCORPORATED ENGINEERING, HEALTH & SAFETY CONSULTANTS	DRAWN: CTO CHECK: RAF	DATE: 08/27/2014
			FILE #: 7316-SL	DWG.NO: C-1



1
C-2
ROOF
NTS

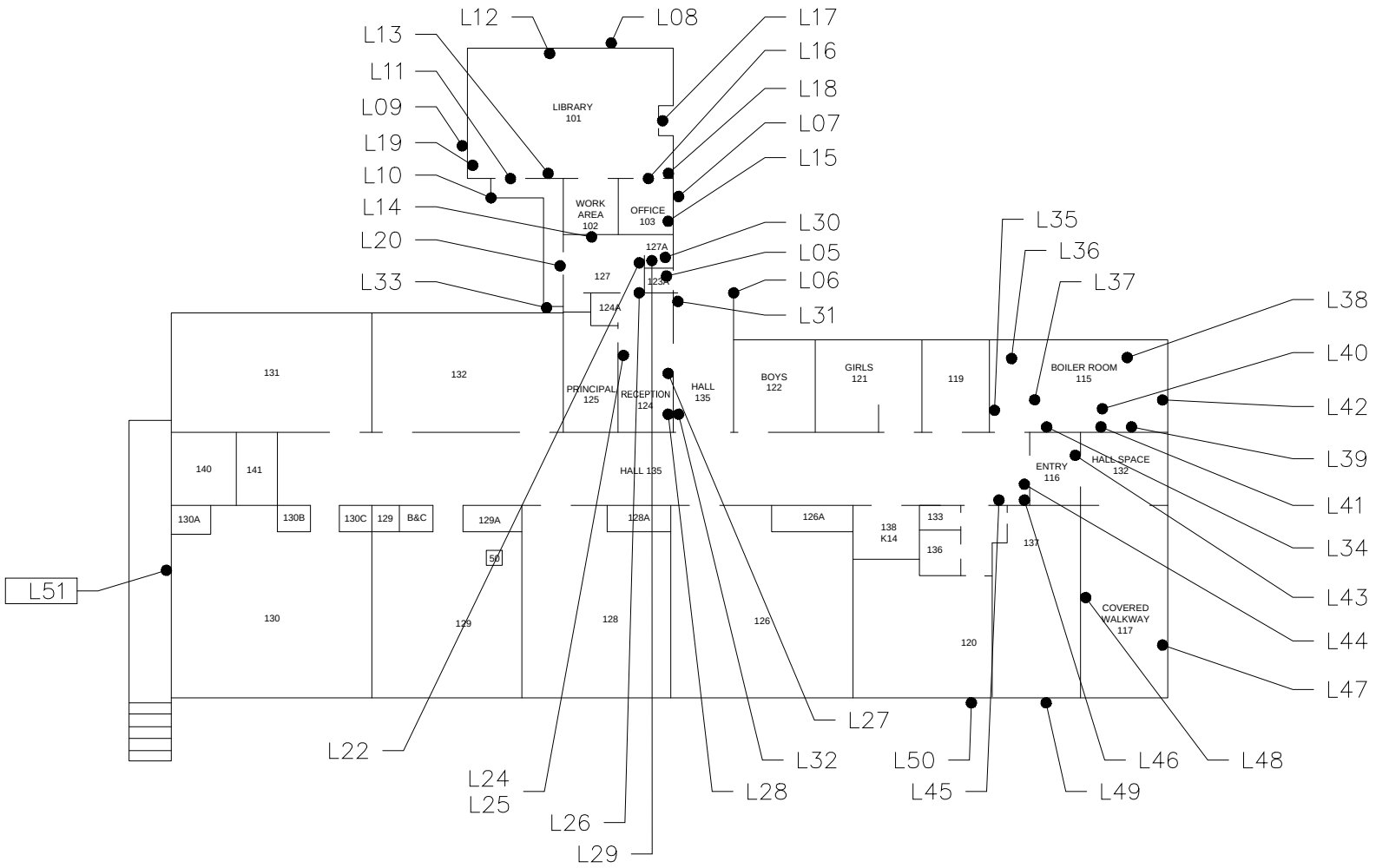
N

LEGEND

- AXX — ASBESTOS TEST LOCATION
- [AXX] — LAB TEST RESULTS POSITIVE FOR ASBESTOS

REFER TO TESTING SUMMARY IN REPORT FOR FULL DETAILS. ALL SAMPLES HAVE KAK0814– PREFIX.

SHANNON AND WILSON	KAKE ELEMENTARY SCHOOL KAKE, ALASKA ASBESTOS SAMPLE LOCATIONS	EHS ALASKA INCORPORATED ENGINEERING, HEALTH & SAFETY CONSULTANTS	DRAWN: CTO CHECK: RAF	DATE: 08/27/2014
			FILE #: 7316-SL	DWG.NO: C-2



LEGEND

LXX LEAD TEST LOCATION

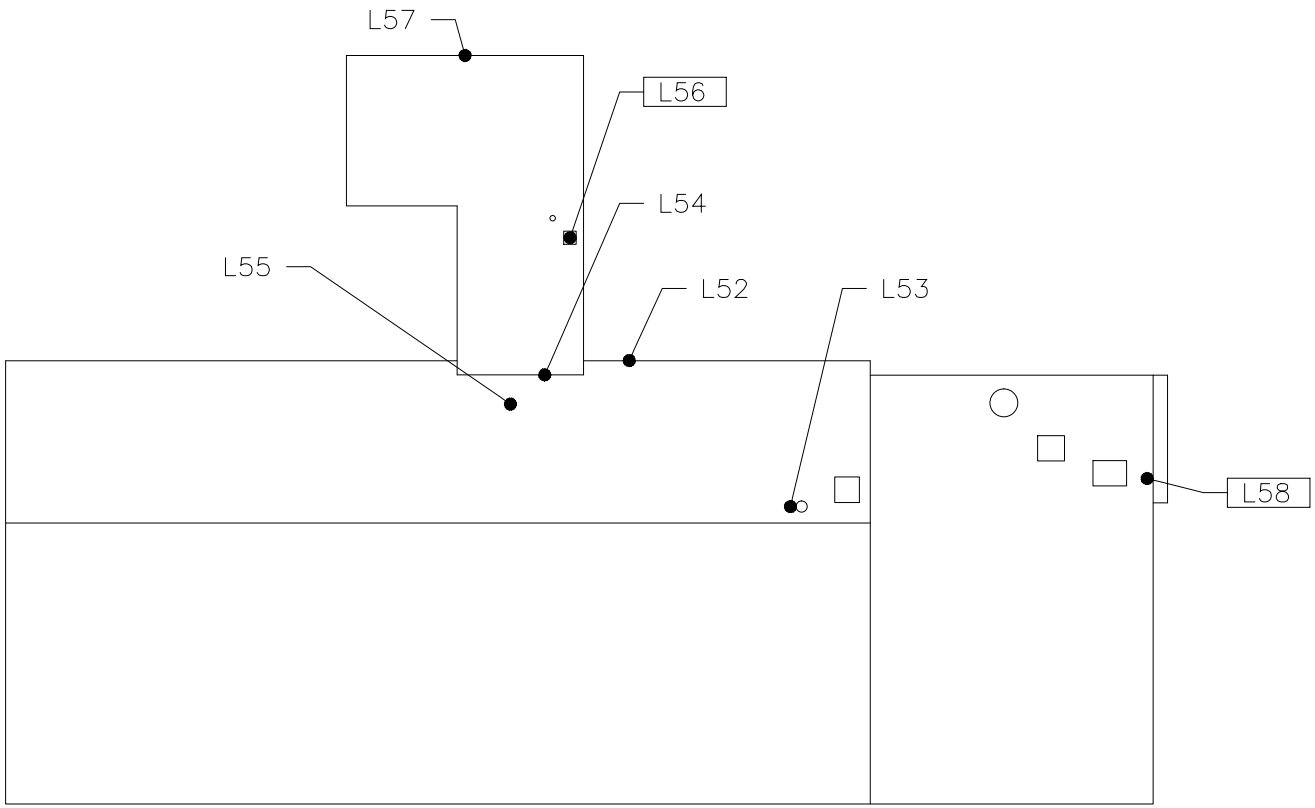
LXX LEAD TEST CLASSIFIED AS LEAD BASED PAINT

REFER TO TESTING SUMMARY IN REPORT FOR FULL DETAILS.

1 / C-3 FIRST FLOOR NTS

N

SHANNON AND WILSON	KAKE ELEMENTARY SCHOOL KAKE, ALASKA LEAD SAMPLE LOCATIONS	EHS ALASKA INCORPORATED ENGINEERING, HEALTH & SAFETY CONSULTANTS	DRAWN: CTO CHECK: RAF DATE: 08/27/2014 FILE #: 7316-SL DWG.NO: C-3



LEGEND

LXX LEAD TEST LOCATION

LXX LEAD TEST CLASSIFIED AS LEAD BASED PAINT

REFER TO TESTING SUMMARY IN REPORT FOR FULL DETAILS.

1/C-4 ROOF NTS

N

SHANNON AND WILSON	KAKE ELEMENTARY SCHOOL KAKE, ALASKA LEAD SAMPLE LOCATIONS	EHS ALASKA INCORPORATED ENGINEERING, HEALTH & SAFETY CONSULTANTS	DRAWN: CTO CHECK: RAF	DATE: 08/27/2014
			FILE #: 7316-SL	DWG.NO: C-4

APPENDIX E

40 Code of Federal Regulations Subpart M - National Emission Standard for Asbestos Section 61.145 Standard for Demolition and Renovation

40 CFR Subpart M, Section 61.145 Standard for Demolition and Renovation

§ 61.145 Standard for demolition and renovation.

(a) ***Applicability.*** To determine which requirements of paragraphs (a), (b), and (c) of this section apply to the owner or operator of a demolition or renovation activity and prior to the commencement of the demolition or renovation, thoroughly inspect the affected facility or part of the facility where the demolition or renovation operation will occur for the presence of asbestos, including Category I and Category II nonfriable ACM. The requirements of paragraphs (b) and (c) of this section apply to each owner or operator of a demolition or renovation activity, including the removal of RACM as follows:

(1) In a facility being demolished, all the requirements of paragraphs (b) and (c) of this section apply, except as provided in paragraph (a)(3) of this section, if the combined amount of RACM is

(i) At least 80 linear meters (260 linear feet) on pipes or at least 15 square meters (160 square feet) on other facility components, or

(ii) At least 1 cubic meter (35 cubic feet) off facility components where the length or area could not be measured previously.

(2) In a facility being demolished, only the notification requirements of paragraphs (b)(1), (2), (3)(i) and (iv), and (4)(i) through (vii) and (4)(ix) and (xvi) of this section apply, if the combined amount of RACM is

(i) Less than 80 linear meters (260 linear feet) on pipes and less than 15 square meters (160 square feet) on other facility components, and

(ii) Less than one cubic meter (35 cubic feet) off facility components where the length or area could not be measured previously or there is no asbestos.

(3) If the facility is being demolished under an order of a State or local government agency, issued because the facility is structurally unsound and in danger of imminent collapse, only the requirements of paragraphs (b)(1), (b)(2), (b)(3)(iii), (b)(4) (except (b)(4)(viii)), (b)(5), and (c)(4) through (c)(9) of this section apply.

(4) In a facility being renovated, including any individual nonscheduled renovation operation, all the requirements of paragraphs (b) and (c) of this section apply if the combined amount of RACM to be stripped, removed, dislodged, cut, drilled, or similarly disturbed is

(i) At least 80 linear meters (260 linear feet) on pipes or at least 15 square meters (160 square feet) on other facility components, or

(ii) At least 1 cubic meter (35 cubic feet) off facility components where the length or area could not be measured previously.

(iii) To determine whether paragraph (a)(4) of this section applies to planned renovation operations involving individual nonscheduled operations, predict the combined additive amount of RACM to be removed or stripped during a calendar year of January 1 through December 31.

(iv) To determine whether paragraph (a)(4) of this section applies to emergency renovation operations, estimate the combined amount of RACM to be removed or stripped as a result of the sudden, unexpected event that necessitated the renovation.

(5) Owners or operators of demolition and renovation operations are exempt from the requirements of §§ 61.05(a), 61.07, and 61.09.

(b) ***Notification requirements.*** Each owner or operator of a demolition or renovation activity to which this section applies shall:

(1) Provide the Administrator with written notice of intention to demolish or renovate. Delivery of the notice by U.S. Postal Service, commercial delivery service, or hand delivery is acceptable.

(2) Update notice, as necessary, including when the amount of asbestos affected changes by at least 20 percent.

(3) Postmark or deliver the notice as follows:

(i) At least 10 working days before asbestos stripping or removal work or any other activity begins (such as site preparation that would break up, dislodge or similarly disturb asbestos material), if the operation is described in paragraphs (a) (1) and (4) (except (a)(4)(iii) and (a)(4)(iv)) of this section. If the operation is as described in paragraph (a)(2) of this section, notification is required 10 working days before demolition begins.

(ii) At least 10 working days before the end of the calendar year preceding the year for which notice is being given for renovations described in paragraph (a)(4)(iii) of this section.

(iii) As early as possible before, but not later than, the following working day if the operation is a demolition ordered according to paragraph (a)(3) of this section or, if the operation is a renovation described in paragraph (a)(4)(iv) of this section.

(iv) For asbestos stripping or removal work in a demolition or renovation operation, described in paragraphs (a) (1) and (4) (except (a)(4)(iii) and (a)(4)(iv)) of this section, and for a demolition described in paragraph (a)(2) of this section, that will begin on a date other than the one contained in the original notice, notice of the new start date must be provided to the Administrator as follows:

(A) When the asbestos stripping or removal operation or demolition operation covered by this paragraph will begin after the date contained in the notice,

(*1*) Notify the Administrator of the new start date by telephone as soon as possible before the original start date, and

(*2*) Provide the Administrator with a written notice of the new start date as soon as possible before, and no later than, the original start date. Delivery of the updated notice by the U.S. Postal Service, commercial delivery service, or hand delivery is acceptable.

(B) When the asbestos stripping or removal operation or demolition operation covered by this paragraph will begin on a date earlier than the original start date,

(*1*) Provide the Administrator with a written notice of the new start date at least 10 working days before asbestos stripping or removal work begins.

(*2*) For demolitions covered by paragraph (a)(2) of this section, provide the Administrator written notice of a new start date at least 10 working days before commencement of demolition. Delivery of updated notice by U.S. Postal Service, commercial delivery service, or hand delivery is acceptable.

(C) In no event shall an operation covered by this paragraph begin on a date other than the date contained in the written notice of the new start date.

(4) Include the following in the notice:

(i) An indication of whether the notice is the original or a revised notification.

(ii) Name, address, and telephone number of both the facility owner and operator and the asbestos removal contractor owner or operator.

(iii) Type of operation: demolition or renovation.

(iv) Description of the facility or affected part of the facility including the size (square meters [square feet] and number of floors), age, and present and prior use of the facility.

(v) Procedure, including analytical methods, employed to detect the presence of RACM and Category I and Category II nonfriable ACM.

(vi) Estimate of the approximate amount of RACM to be removed from the facility in terms of length of pipe in linear meters (linear feet), surface area in square meters (square feet) on other facility components, or volume in cubic meters (cubic feet) if off the facility components. Also, estimate the approximate amount of Category I and Category II nonfriable ACM in the affected part of the facility that will not be removed before demolition.

(vii) Location and street address (including building number or name and floor or room number, if appropriate), city, county, and state, of the facility being demolished or renovated.

(viii) Scheduled starting and completion dates of asbestos removal work (or any other activity, such as site preparation that would break up, dislodge, or similarly disturb asbestos material) in a demolition or renovation; planned renovation operations involving individual nonscheduled operations shall only include the beginning and ending dates of the report period as described in paragraph (a)(4)(iii) of this section.

(ix) Scheduled starting and completion dates of demolition or renovation.

(x) Description of planned demolition or renovation work to be performed and method(s) to be employed, including demolition or renovation techniques to be used and description of affected facility components.

(xi) Description of work practices and engineering controls to be used to comply with the requirements of this subpart, including asbestos removal and waste-handling emission control procedures.

(xii) Name and location of the waste disposal site where the asbestos-containing waste material will be deposited.

(xiii) A certification that at least one person trained as required by paragraph (c)(8) of this section will supervise the stripping and removal described by this notification. This requirement shall become effective 1 year after promulgation of this regulation.

(xiv) For facilities described in paragraph (a)(3) of this section, the name, title, and authority of the State or local government representative who has ordered the demolition, the date that the order was issued, and the date on which the demolition was ordered to begin. A copy of the order shall be attached to the notification.

(xv) For emergency renovations described in paragraph (a)(4)(iv) of this section, the date and hour that the emergency occurred, a description of the sudden, unexpected event, and an explanation of

how the event caused an unsafe condition, or would cause equipment damage or an unreasonable financial burden.

(xvi) Description of procedures to be followed in the event that unexpected RACM is found or Category II nonfriable ACM becomes crumbled, pulverized, or reduced to powder.

(xvii) Name, address, and telephone number of the waste transporter.

(5) The information required in paragraph (b)(4) of this section must be reported using a form similar to that shown in Figure 3.

(c) ***Procedures for asbestos emission control.*** Each owner or operator of a demolition or renovation activity to whom this paragraph applies, according to paragraph (a) of this section, shall comply with the following procedures:

(1) Remove all RACM from a facility being demolished or renovated before any activity begins that would break up, dislodge, or similarly disturb the material or preclude access to the material for subsequent removal. RACM need not be removed before demolition if:

(i) It is Category I nonfriable ACM that is not in poor condition and is not friable.

(ii) It is on a facility component that is encased in concrete or other similarly hard material and is adequately wet whenever exposed during demolition; or

(iii) It was not accessible for testing and was, therefore, not discovered until after demolition began and, as a result of the demolition, the material cannot be safely removed. If not removed for safety reasons, the exposed RACM and any asbestos-contaminated debris must be treated as asbestos-containing waste material and adequately wet at all times until disposed of.

(iv) They are Category II nonfriable ACM and the probability is low that the materials will become crumbled, pulverized, or reduced to powder during demolition.

(2) When a facility component that contains, is covered with, or is coated with RACM is being taken out of the facility as a unit or in sections:

(i) Adequately wet all RACM exposed during cutting or disjoining operations; and

(ii) Carefully lower each unit or section to the floor and to ground level, not dropping, throwing, sliding, or otherwise damaging or disturbing the RACM.

(3) When RACM is stripped from a facility component while it remains in place in the facility, adequately wet the RACM during the stripping operation.

(i) In renovation operations, wetting is not required if:

(A) The owner or operator has obtained prior written approval from the Administrator based on a written application that wetting to comply with this paragraph would unavoidably damage equipment or present a safety hazard; and

(B) The owner or operator uses of the following emission control methods:

(*1*) A local exhaust ventilation and collection system designed and operated to capture the particulate asbestos material produced by the stripping and removal of the asbestos materials. The system must exhibit no visible emissions to the outside air or be designed and operated in accordance with the requirements in § 61.152.

(*2*) A glove-bag system designed and operated to contain the particulate asbestos material produced by the stripping of the asbestos materials.

(*3*) Leak-tight wrapping to contain all RACM prior to dismantlement.

(ii) In renovation operations where wetting would result in equipment damage or a safety hazard, and the methods allowed in paragraph (c)(3)(i) of this section cannot be used, another method may be used after obtaining written approval from the Administrator based upon a determination that it is equivalent to wetting in controlling emissions or to the methods allowed in paragraph (c)(3)(i) of this section.

(iii) A copy of the Administrator's written approval shall be kept at the worksite and made available for inspection.

(4) After a facility component covered with, coated with, or containing RACM has been taken out of the facility as a unit or in sections pursuant to paragraph (c)(2) of this section, it shall be stripped or contained in leak-tight wrapping, except as described in paragraph (c)(5) of this section. If stripped, either:

(i) Adequately wet the RACM during stripping; or

(ii) Use a local exhaust ventilation and collection system designed and operated to capture the particulate asbestos material produced by the stripping. The system must exhibit no visible emissions to the outside air or be designed and operated in accordance with the requirements in § 61.152.

(5) For large facility components such as reactor vessels, large tanks, and steam generators, but not beams (which must be handled in accordance with paragraphs (c)(2), (3), and (4) of this section), the RACM is not required to be stripped if the following requirements are met:

(i) The component is removed, transported, stored, disposed of, or reused without disturbing or damaging the RACM.

(ii) The component is encased in a leak-tight wrapping.

(iii) The leak-tight wrapping is labeled according to § 61.149(d)(1)(i), (ii), and (iii)during all loading and unloading operations and during storage.

(6) For all RACM, including material that has been removed or stripped:

(i) Adequately wet the material and ensure that it remains wet until collected and contained or treated in preparation for disposal in accordance with § 61.150; and

(ii) Carefully lower the material to the ground and floor, not dropping, throwing, sliding, or otherwise damaging or disturbing the material.

(iii) Transport the material to the ground via leak-tight chutes or containers if it has been removed or stripped more than 50 feet above ground level and was not removed as units or in sections.

(iv) RACM contained in leak-tight wrapping that has been removed in accordance with paragraphs (c)(4) and (c)(3)(i)(B)(*3*) of this section need not be wetted.

(7) When the temperature at the point of wetting is below 0 °C (32 °F):

(i) The owner or operator need not comply with paragraph (c)(2)(i) and the wetting provisions of paragraph (c)(3) of this section.

(ii) The owner or operator shall remove facility components containing, coated with, or covered with RACM as units or in sections to the maximum extent possible.

(iii) During periods when wetting operations are suspended due to freezing temperatures, the owner or operator must record the temperature in the area containing the facility components at the beginning, middle, and end of each workday and keep daily temperature records available for inspection by the Administrator during normal business hours at the demolition or renovation site. The owner or operator shall retain the temperature records for at least 2 years.

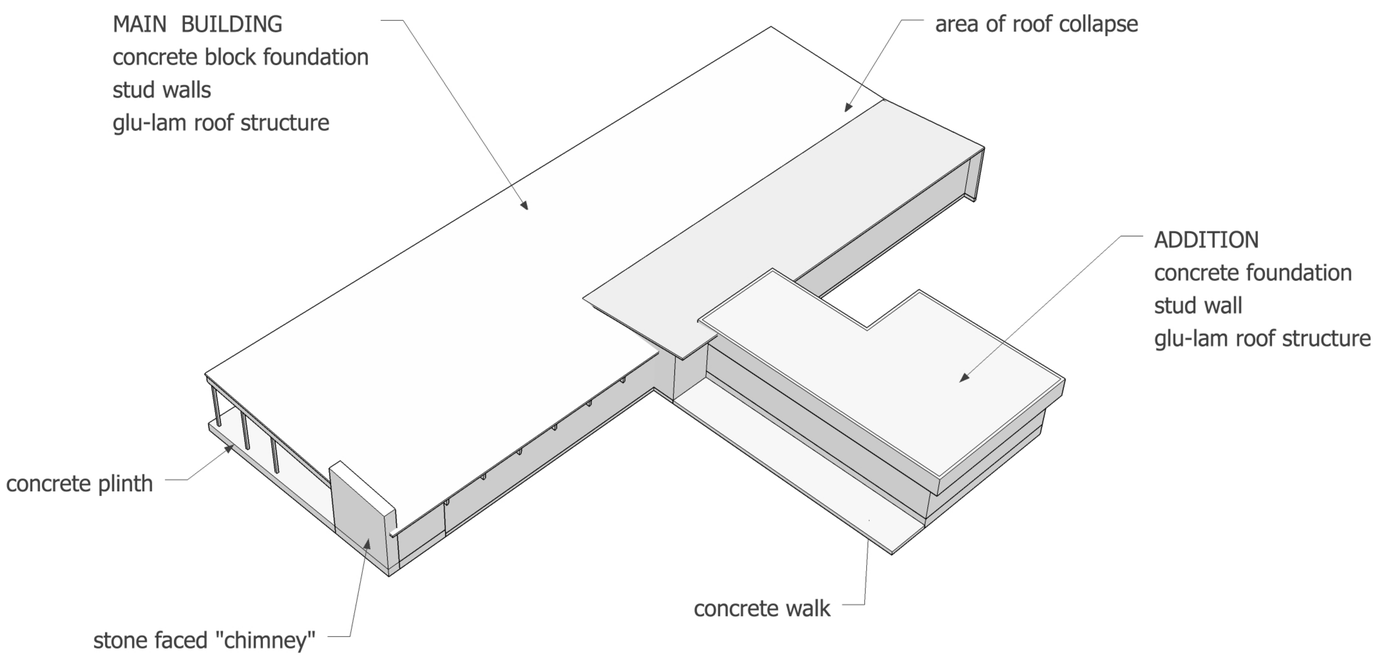
(8) Effective 1 year after promulgation of this regulation, no RACM shall be stripped, removed, or otherwise handled or disturbed at a facility regulated by this section unless at least one on-site representative, such as a foreman or management-level person or other authorized representative, trained in the provisions of this regulation and the means of complying with them, is present. Every 2 years, the trained on-site individual shall receive refresher training in the provisions of this regulation. The required training shall include as a minimum: applicability; notifications; material identification; control procedures for removals including, at least, wetting, local exhaust ventilation, negative pressure enclosures, glove-bag procedures, and High Efficiency Particulate Air (HEPA) filters; waste disposal work practices; reporting and recordkeeping; and asbestos hazards and worker protection. Evidence that the required training has been completed shall be posted and made available for inspection by the Administrator at the demolition or renovation site.

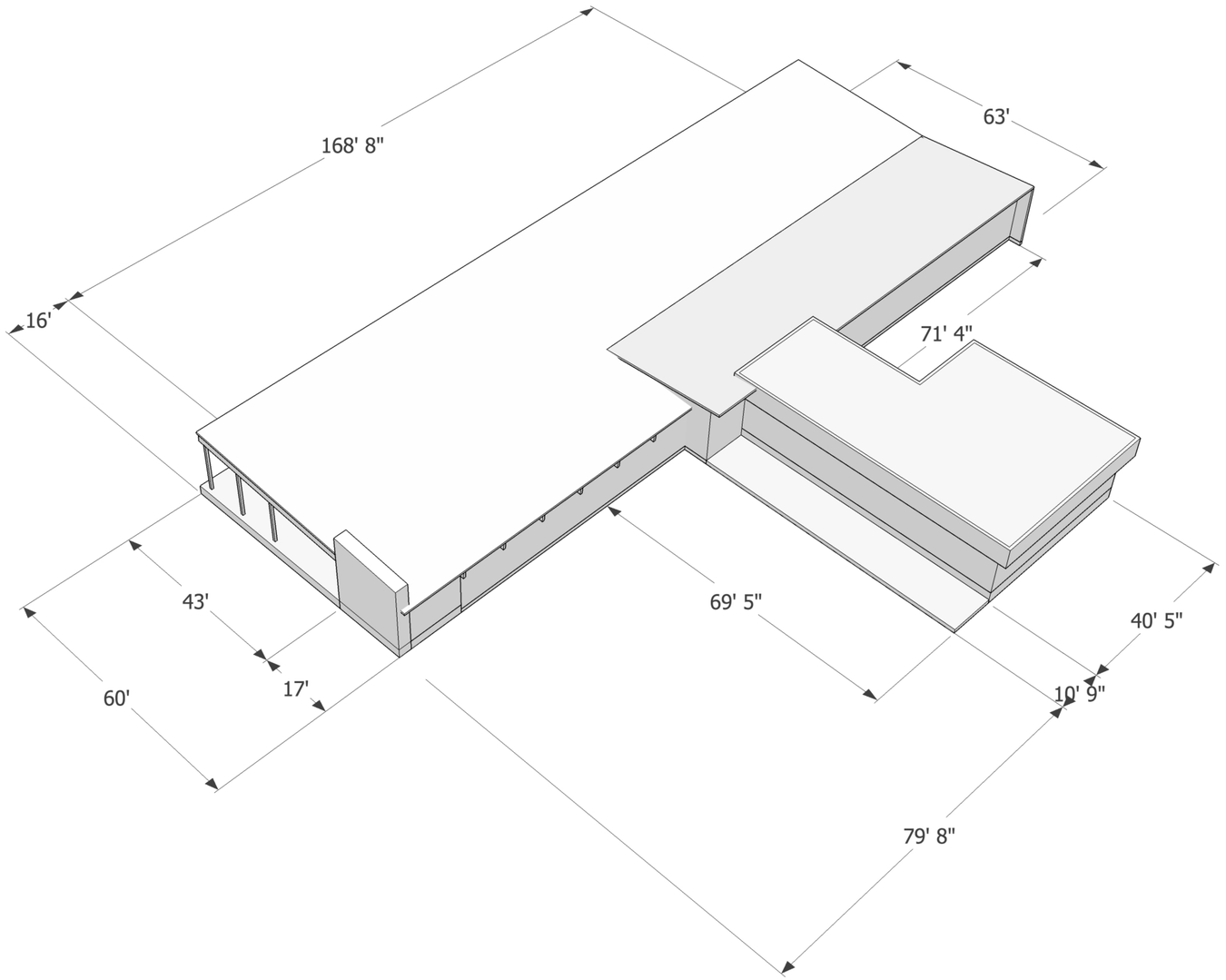
(9) For facilities described in paragraph (a)(3) of this section, adequately wet the portion of the facility that contains RACM during the wrecking operation.

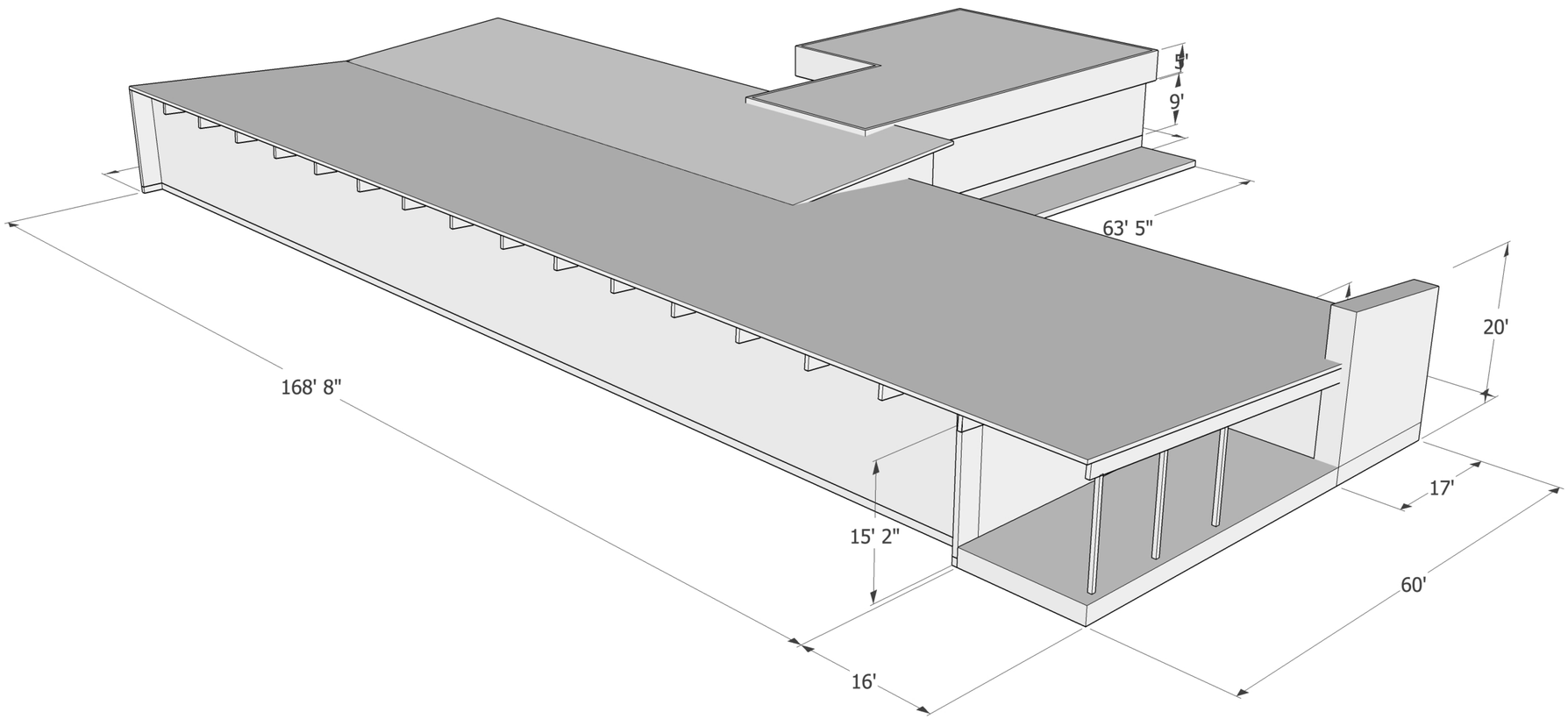
(10) If a facility is demolished by intentional burning, all RACM including Category I and Category II nonfriable ACM must be removed in accordance with the NESHAP before burning.

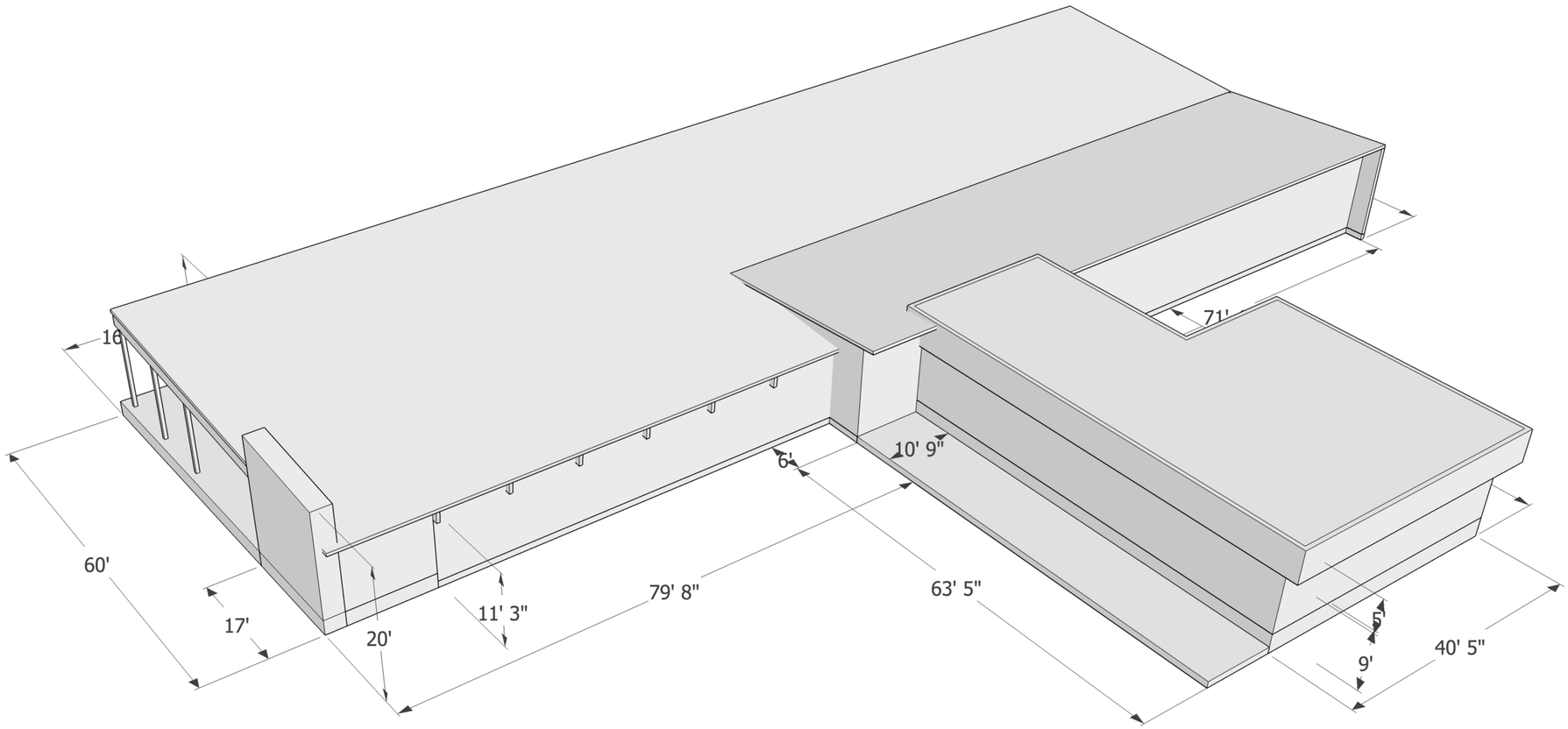
APPENDIX C

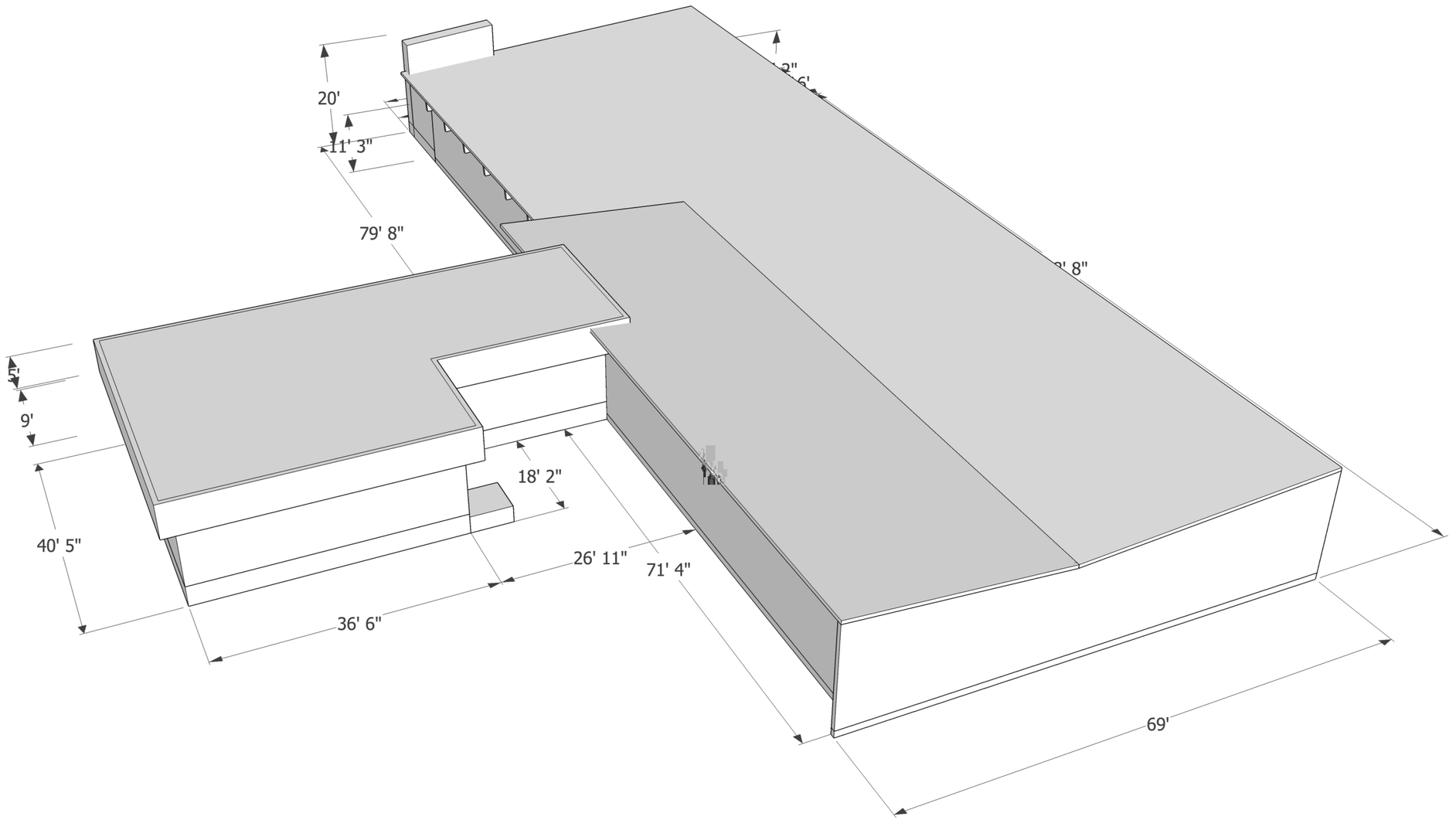
BUILDING DRAWINGS DEVELOPED BY OLBERDING WHITE ARCHITECTS

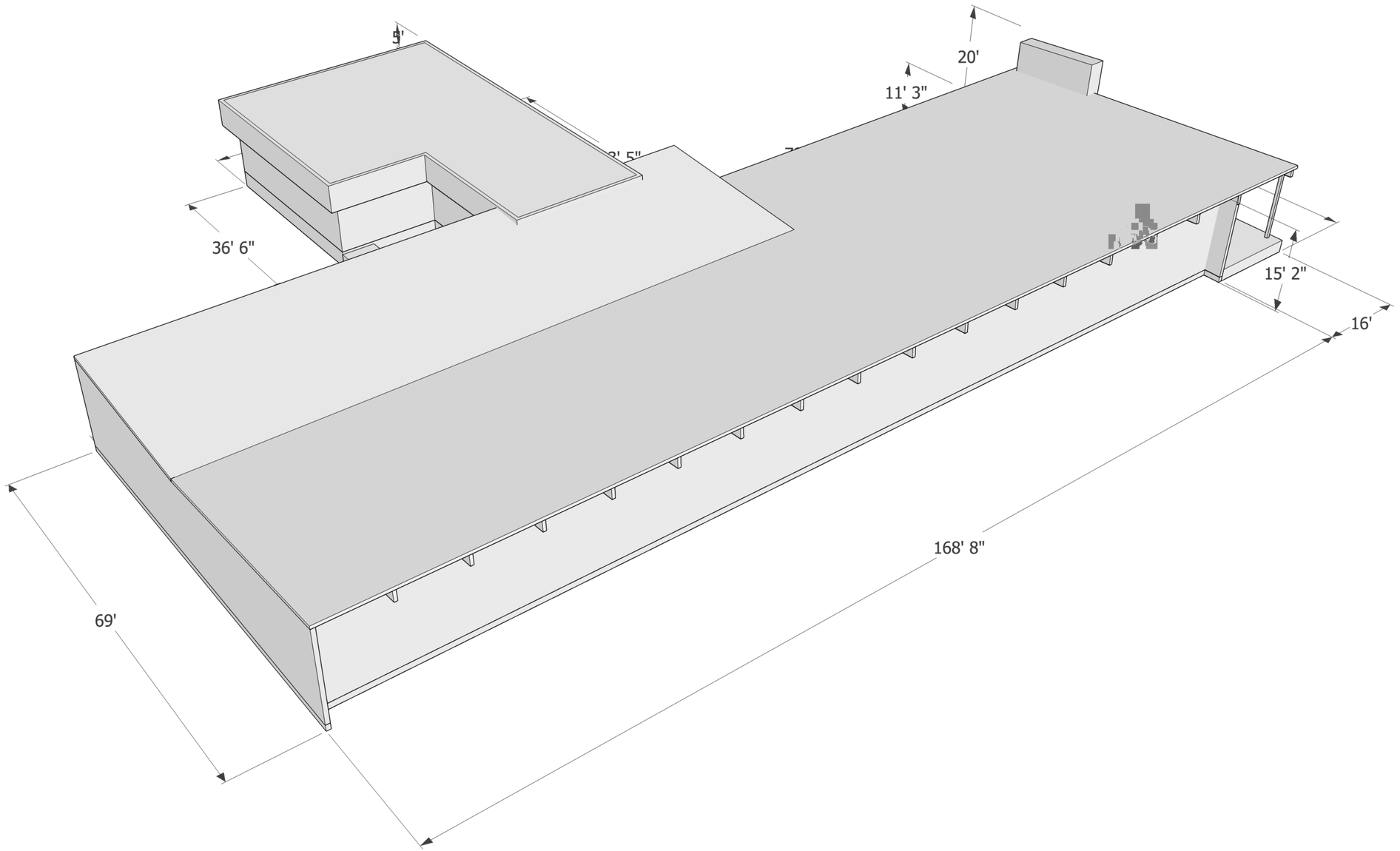

MAIN BUILDING
concrete block foundation
stud walls
glu-lam roof structure
area of roof collapse
ADDITION
concrete foundation
stud wall
glu-lam roof structure
concrete plinth
stone faced "chimney"
concrete walk


168' 8"
63'
16'
71' 4"
43'
69' 5"
40' 5"
60'
17'
10' 9"
79' 8"


5'
9'
63' 5"
168' 8"
20'
17'
15' 2"
60'
16'


16
60'
17'
20'
11' 3"
79' 8"
6'
10' 9"
63' 5"
71'
9'
40' 5"


20'
11' 3"
79' 8"
5'
9'
40' 5"
36' 6"
26' 11"
18' 2"
71' 4"
69'


5'
20'
11' 3"
36' 6"
15' 2"
16'
69'
168' 8"

APPENDIX D

BUILDING DEMOLITION ROM COSTS

ALASKA DEMOLITION
Specializing in Demolition & Construction Services
Phone: 907-274-DEMO - Fax: 907-248-6065
2817 Rampart Dr, Ste 101
Anchorage, AK 99501

December 4, 2014

Shayla Marshall
Shannon & Wilson
5430 Fairbanks Street, Suite 3
Anchorage, Alaska 99518

Subject: **Kake Elementary School in Kake, Alaska**
Re: **Demolition/Remediation Estimate**

Dear Ms. Marshall:

Alaska Demolition, LLC. (AKD) appreciates the opportunity to provide a cost estimate for the demolition/remediation of the subject structure. We do apologize for the extended period to took to assemble the estimate, however, getting solid pricing and logistical information was more difficult than we had originally anticipated.

AKD based the Kake estimate on the following information:

- No equipment is available in Kake for the performance of the operations.
- No local hire in Kake as all the work is considered potentially hazardous.
- Limited dock space for staging filled containers.
- Limited timeframe for loading containers onto barge.
- Only 20 containers per week will be shipped due to space and time constraints.
- Based on contact with the Dock Manager, July through September could present shipping problems due to the export of fish products.
- No contaminated soils will be encountered when removing the foundation.
- No tank removal identified in the scope.
- Some Friable Asbestos removal will be required prior to disposal of the construction and demolition debris.
- An unknown quantity of Hazardous materials i.e. PCB Ballast, Mercury Thermostats, Mercury containing Light Tubes may require segregation and disposal.
- Housing at the B & B (Lodge) or Bunkhouse will be available on island during the operation.
- Fuel will be available on island through the existing infrastructure.
- All materials will be manifested properly per both U.S. and Canadian Regulations.
- No backfill materials will need to be imported. The site will just be safe-sloped after completion of the demolition.

- No topsoil or seeding will be required after safe-sloping of the site.
- Work week consists of 10 hours per day and 6 days per week.
- No SWPPP necessary based on square footage of disturbance

Should you have any questions, please contact our office.

Thanks,

Mike Waddell
Alaska Demolition, LLC.

Kake Elementary School Demolition/Remediation- Alaska

Task Description	Quantity	Unit	Man Hours	Equipment Hours	Rate	Fuel	Matrl.	Subcontract	Analytical	Disposal	Total Costs Line Item Subtotal
Mobilize											
Air Fare	14	each						$600.00			$8,400.00
Personel Travel Time	14	each	75		60.93						$ 4,569.75
Hotel in Sitka	14	each						$ 175.00			$ 2,450.00
25' Conex	2	each	10		60.93		$ 2,500.00	$ 1,000.00			$ 8,218.60
Bobcat S-300	1	each	4		60.93			$ 500.00			$ 743.72
EX 450 Excavator	1	each	10		60.93			$ 1,000.00			$ 1,609.30
70 ton Wheeled Crane	1	each	10		60.93			$ 1,000.00			$ 1,609.30
Cat 966G Loader - Site	1	each	10		60.93			$ 1,000.00			$ 1,609.30
Cat D4 Dozer- Site	1	each	10		60.93			$ 500.00			$ 1,109.30
Water Truck - Site	1	each	6		60.93	225.00					$ 590.58
6" Water Pump System	1	each	4		60.93						$ 243.72
Genset	1	each	4		60.93						$ 243.72
Service Truck	1	each	6		60.93	175.00					$ 540.58
Pick-up Truck	1	each	6		60.93	175.00					$ 540.58
Tractor/Trailer	1	each	6		60.93	175.00					$ 540.58
Barge service Anchorage-Kake	1	each									$ 100,000.00
											$133,019.03
Demobilize											
Air Fare	14	each						$ 600.00			$ 8,400.00
Bobcat S-300	1	each	4		60.93			$ 500.00			$ 743.72
EX 450 Excavator	1	each	4		60.93			$ 1,000.00			$ 1,243.72
70 ton Wheeled Carne	1	each	10		60.93			$ 1,000.00			$ 1,609.30

Cat 966G Loader - Site	1	each	10		60.93			$ 1,000.00			$ 1,609.30
Cat D4 Dozer- Site	1	each	10		60.93			$ 500.00			$ 1,109.30
Water Truck - Site	1	each	10		60.93						$ 609.30
6" Water Pump System	1	each	6		60.93	225.00					$ 590.58
Genset	1	each	4		60.93						$ 243.72
Service Truck	1	each	4		60.93						$ 243.72
Pick-up Truck	1	each	6		60.93	175.00					$ 540.58
Tractor/Trailer	1	each	6		60.93	175.00					$ 540.58
Barge service Kake-Anchorage	1	each						$ 100,000.00			$ 100,000.00
25' Container	1	each	6		60.93			$ 1,000.00			$ 1,365.58
Personel Travel Time			75		60.93						$ 4,569.75
Hotel in Sitka	14							$ 175.00			$ 2,450.00
											$ 125,869.15
Project Equipment											
70 ton Wheeled Crane	4.0	month			16,000.00	10,000.00					$ 74,000.00
Bobcat S-300	4.0	month			3,600.00	1,500.00					$ 15,900.00
EX 450 Excavator	4.0	month			20,000.00	18,500.00					$ 98,500.00
Tracto/Trailer	4.0	month			10,000.00	5,000.00					$ 45,000.00
Cat 966G Loader - Site	4.0	month			12,000.00	7,500.00					$ 55,500.00
Cat D4 Dozer- Site	4.0	month			4,000.00	1,500.00					$ 17,500.00
Water Truck - Site	4.0	month			6,000.00	10,000.00					$ 34,000.00
6" Water Pump System	4.0	month			3,500.00	3,000.00					$ 17,000.00
200 amp Genset	4.0	month			4,000.00	10,000.00					$ 26,000.00
Service Truck	4.0	month			4,500.00	2,000.00					$ 20,000.00
Pick-up Truck	4.0	month			2,500.00	2,000.00					$ 2,000.00
			75								
											$ 405,400.00
Site Work											

Task Description	Quantity	Unit	Man Hours	Equipment Hours	Rate	Fuel		Subcontract	Analytical	Disposal	Total Costs Line Item Subtotal
Demo Structure and load Containers											
Hazardous Materials Removal/Disposal	1	Lot						$10,000.00			$10,000.00
Truck Driver	1	each	780		78.50						$61,230.00
Foreman	1	each	780		83.00						$64,740.00
Operator	1	each	780		80.00						$62,400.00
Environmental Laborers (2 each)	2	each	1560		73.00						$113,880.00
Asbestos Abatement Laborers	4	each	240		73.00						$17,520.00
Asbestos/Technician on-site	54	day						$750.00			$40,500.00
Misc. Supplies	1	lot						$7,000.00			$7,000.00
Transport of C & D Containers	175	Containers						$3,341.00			$584,675.00
Disposal of C & D Containers/WM	175	Containers						$1,250.00			$218,750.00
Transport of Friable Asbestos	1	Container						$3,341.00			$3,341.00
Disposal of Friable Asbestos/WM	1	Container						$2,700.00			$2,700.00
Housing/Meal Allowance	563	man/day			175.00						$98,525.00
											$1,285,261.00
								subtotal			$ 1,949,549.18
								Project Risk	10%		$ 194,954.92
								Adjusted sub			$ 2,144,504.10
								P/O	30%		$ 643,351.23
								TOTAL			**$ 2,592,900.41**

	Description	Unit	Required	Cost
Containment Set-Up	4 mil 12'x100' Clear Poly Sheeting (1200 sq/ft)	$41.00	0	$0.00
	4 mil 20'x100' Clear Poly Sheeting (1200 sq/ft)	$63.00		$0.00
	6 mil 12'x100' Clear Poly Sheeting (1200 sq/ft)	$85.00	16	$1,360.00
	6 mil 20'x100' Clear Poly Sheeting (2000 sq/ft)	$120.00	24	$2,880.00
	Nashua 300 - 2" Silver Duct Tape 24rl/cs	$105.00	7	$735.00
	Spray Adhesive 12/cs	$42.00	7	$294.00
	Arrow 1/2" Staples-5000/pk	$10.52	3	$31.56
	Arrow 3/8" Staple-5000/pk	$12.73		$0.00
	12" x 25 Flex Duct (25 ft Sections)	$17.00	5	$85.00
	Smoke Tubes-10/bx	$36.67	0	$0.00
	Arrow T-50 Staple Gun	$34.90	2	$69.80
	Danger Asbestos (plastic) English	$1.90	16	$30.40
	Danger Lead (plasitc) English	$2.50		$0.00
	Asbestos Danger Ribbon (X ft. roll)	$11.00	1	$11.00
	Danger Lead Hazard Barricade Tape 3"x 1000'	$11.00	0	$0.00
			Total	**$5,496.76**

	Description	Unit	Required	Cost
Personal Protective Equipment	North half-face HEPA cartridges per 2 pack	$4.50	40	$180.00
	North 7581P100 - Gas and Vapor Cartridges	$12.00		$0.00
	Comfort Wear Hood & Booty 3X-25/cs Summer	$40.00	50	$2,000.00
	Tyvek Coveralls Coverall with Hood, Elastic Wrists and Ankles (25 ct)	$100.00	0	$0.00
	Nitrile Blue 6002-LG 100/bx (Disposable	$12.00	2	$24.00
	Green Nitrile 15 mil Glove 1/dz	$30.00		$0.00
	Respirator Bag, (Plastic-Draw String)	$1.00	12	$12.00
	Cotton Canvas Glove 1/dz (8 oz.)	$6.98		$0.00
	Double Leather Palm Glove 1/dz (4160)	$45.00	3	$135.00
	3M 1120 Earplug-Uncorded 200/bx	$20.30	1	$20.30
	Respirator Wipes-100/bx	$12.00	10	$120.00
	MSA V-gard Hard Hat w/Fas-Trac Ratchet Suspension (White)	$14.00	0	$0.00
	Venture II SB1810S Black Frame/Clear Lens (Indoor Application)	$3.25	64	$208.00
			Total	**$2,699.30**

	Description	Unit	Required	Cost
Asbestos Remvoal	44"x60" Glove Bag-25/rl	$210.00	0	$0.00
	Black Heavy Duty 6x9 Scrub Pad	$2.13	0	$0.00
	Prefilter 16 x 16 x 1-40/cs	$40.00	4	$160.00
	5 Gal Bucket	$4.00	6	$24.00
	1.5 Gallon Pump Sprayer	$22.50	2	$45.00
	2.5 Gallon Plastic Pump Sprayer	$30.00	0	$0.00
	5 / 1 Painter Tool	$8.00	0	$0.00
	Long Handle Wire Brush w/Scraper	$3.23		$0.00
	Shoe Handle Wire Brush	$2.55		$0.00
	Toothbrush	$1.90		$0.00
	4" Hand Scraper	$7.13		$0.00
	Squeege, 24" w/Handle	$17.32		$0.00
	1.25" Stiff Hand Scraper	$3.46		$0.00
	4" Razor Blade	$0.43		$0.00
	15" Flat Pry Bar	$9.50		$0.00
	4" Hand Scraper	$15.00		$0.00
	WEIS Tin Snips	$25.88		$0.00
	Straight Hoe (Sidewalk Chisel)	$19.90		$0.00
	Aviator Tin Snip	$7.50		$0.00
	ACC-555 Low Odor Mastic Remover-5/gal	$50.00		$0.00

	Fosters 3260 Asbestos Removal Encapsulant and Post-Removal Residual Encapsulant-Blue 5/gal	$54.72	13	$711.36
	Reddy Insulation Foam Sealant (12 oz.)	$7.50		$0.00
			Total	**$940.36**

	Description	Unit	Required	Cost
Decon/Health & Safety	Scrim Bath Towel 14#-300/cs	$30.00	4	$120.00
	2 x 10 25 Micron String Water Filter	$1.92	0	$0.00
	2 x 10 String Water Filter 5 micron	$1.87	0	$0.00
	EyeSaline Eyewash Solution 16 fl. oz.	$15.00	1	$15.00
	10 Man First Aid Kit	$25.00	1	
			Total	**$135.00**

	Description	Unit	Required	Cost
Disposal	# 9 Label-1000/rl	$21.00	1	$21.00
	6 mil 33"x50" Clear Asbestos Printed Bag-75/rl	$55.60	1	$55.60
	Danger Asbestos Sticker 3"x 5"	$8.97		$0.00
	6 mil 30"x40" Clear Asbestos Printed Bag-100/rl	$51.67	4	$206.68
	6 mil 33"x50" Clear Asbestos Printed Bag-75/rl	$70.00		$0.00
	6 mil 36"x60" Clear Asbestos Printed Bag-50/rl	$55.25		$0.00
	6 mil 38"x60" Clear Asbestos Printed Bag-50/rl	$53.75	0	$0.00
	10 Man First Aid Kit	$25.00	1	$25.00
			Total	**$308.28**

$9,579.70

		Purchase Price	Quantity	Quantity Purchase Price	Project Duration Months	Cost Per Day (ea. Item)	Equip. Life in Days	Day Rental (adj. for quatities)	Week Rental (adj. for quatities)	Month Rental (adj. for quatities)	**Total Renta**
Equipment	Excavator Hitachi 450	$732.92	0	$0.00	1.5	$ -	180	$0.00	$0.00	$0.00	$0.00
	Excavator Cat 325	$707.40	0	$0.00	1.5	$ -	180	$0.00	$0.00	$0.00	$0.00
	Excavator Hitachi 400	$27.42	0	$0.00	1.5	$ -	90	$0.00	$0.00	$0.00	$0.00
	Excavator Hitachi 200	$15.84	0	$0.00	1.5	$ -	90	$0.00	$0.00	$0.00	$0.00
	Excavator Hitachi 600	$20.90	6	$125.40	1.5	$ 83.60	90	$1.39	$8.36	$36.23	$326.04
	Loader Cat 966	$49.40	4	$197.60	1.5	$ 131.73	90	$2.20	$13.17	$57.08	$342.51
	Dozer Cat D5	$42.50	2	$85.00	1.5	$ 56.67	90	$0.94	$5.67	$24.56	$73.67
	Water Truck w/ Canon	$39.58	3	$118.74	1.5	$ 79.16	90	$1.32	$7.92	$34.30	$154.36
	400 Hammer	$17.78	0	$0.00	1.5	$ -	90	$0.00	$0.00	$0.00	$0.00
	200 Hammer	$7.13	0	$0.00	1.5	$ -	90	$0.00	$0.00	$0.00	$0.00
	400 Shears	$38.33	6	$229.98	1.5	$ 153.32	90	$2.56	$15.33	$66.44	$597.95
	400 Pulverizer	$93.00		$0.00	1.5	$ -	180	$0.00	$0.00	$0.00	$0.00
	Tractor w/80 cy Clement	$126.00	0	$0.00	1.5	$ -	180	$0.00	$0.00	$0.00	$0.00
	Tractor w/ 30 cy Rockmaster	$270.00	0	$0.00	1.5	$ -	180	$0.00		$1,500.00	$0.00
	Stellar w/40 cy Roll-off	$2,600.00	0	$0.00	1.5	$ -	180	$0.00		$2,500.00	$0.00
	Service Truck	$879.00	2	$1,758.00	1.5	$ 1,172.00	90	$19.53	$117.20	$507.87	$1,523.60
	Supply Conex	$175.00	0	$0.00	1.5	$ -	180	$0.00	$0.00	$0.00	$0.00
	Pick-up Truck	$1,500.00	0	$0.00	1.5	$ -	365	$0.00	$0.00	$0.00	$0.00
	Magnum Light Plant	$62.71	2	$125.42	1.5	$ 83.61	365	$0.34	$2.06	$8.93	$26.80
											$0.00
HEPA	Pullmah Holt 102 ASB Wet/Dry Vac	$946.15	1	$946.15	1.5	$ 630.77	180	$5.26	$31.54	$136.67	$205.00
	Pullman Holt 86 ASB Dry/Vac	$600.00		$0.00	1.5	$ -	180	$0.00	$0.00	$0.00	$0.00
	Aeroclean 9100 "Turbo Air" 2000 cfm Negative Air	$1,000.00	0	$0.00	1.5	$ -	365	$0.00	$0.00	$0.00	$0.00
	Aeroclean 9143 "Econo" 2000 cfm Negative Air Machine	$945.83	4	$3,783.32	1.5	$ 2,522.21	365	$10.37	$62.19	$269.50	$1,616.98
	Aeroclean 9145 600 cfm Negative Air Machine (12"	$730.83	0	$0.00	1.5	$ -	365	$0.00	$0.00	$0.00	$0.00
	Prefilter 16 x 16 x 1-40/cs	$20.00	4	$80.00	1.5	$ 53.33	40	$2.00	$12.00	$52.00	$312.00
	Ringpanel 16 x 16 x 1-24/cs	$65.60	0	$0.00	1.5	$ -	24	$0.00	$0.00	$0.00	$0.00
	12" x 25 Flex Duct (25 ft Sections)	$17.00		$0.00	1.5	$ -	5	$0.00	$0.00	$0.00	$0.00
											$0.00
											$0.00
TOOLS	10 lb Sledge Hammer w/Wood Handle	$21.30		$0.00	1.5	$ -	90	$0.00	$0.00	$0.00	$0.00
	20 lb Sledge Hammer w/Fiberglass Handle	$27.50		$0.00	1.5	$ -	90	$0.00	$0.00	$0.00	$0.00
	25 ft Tape Measure	$6.53	2	$13.06	1.5	$ 8.71	90	$0.15	$0.87	$3.77	$11.32
	3 lb Sledge Hammer w/Wood Handle	$8.98		$0.00	1.5	$ -	90	$0.00	$0.00	$0.00	$0.00
	4 lb Sledge Hammer w/Fiberglass Handle	$15.48	0	$0.00	1.5	$ -	90	$0.00	$0.00	$0.00	$0.00
	5 / 1 Painter Tool	$2.70		$0.00	1.5	$ -	90	$0.00	$0.00	$0.00	$0.00
	8 lb Sledge Hammer w/Fiberglass Handle	$19.33	2	$38.66	1.5	$ 25.77	90	$0.43	$2.58	$11.17	$33.51
	Chalk Reel	$9.98		$0.00	1.5	$ -	90	$0.00	$0.00	$0.00	$0.00
	16 oz Deluxe Ripping Hammer w/Fiberglass Handle	$10.00		$0.00	1.5	$ -	90	$0.00	$0.00	$0.00	$0.00
	36" Crow Bar	$6.25		$0.00	1.5	$ -	90	$0.00	$0.00	$0.00	$0.00
	Sawz-All Corded	$150.00	2	$300.00	1.5					$50.00	$150.00
	Porta-Band	$300.00	2	$600.00	1.5					$75.00	$225.00
	10KW GenSet	$6,000.00	1		1.5						$6,000.00
					1.5						$0.00

PPE	North half-face APR	$20.00	12	$240.00	1.5						$0.00
	North Full-face APR										$0.00
	North Powered Air Purifiying Respirator										$0.00
	North PAPR Batteries										$0.00
	North PAPR Battery Chargers										$0.00
	Miller, 8601 Harness	$95.00	2		2		90				$0.00
	Equipment Rentals - Tanana Specific									Days	
	EXCAVATOR							$525.00		1	
	DUMP TRUCKS							$250.00		1	
	BULLDOZER							$550.00		1	
	WATER TRUCK							$25.00		1	
	PICKUP TRUCK							$75.00		1	
	ATV & TRAILER							$75.00		1	
				$8,401.33		$ 4,917.27		$46.48	$278.89	$5,208.51	**$11,598.73**
				Total Equip. Purchase Price in Quanities		Project Duration Equip. Charges		Equip. Life Day Rental	Equip. Life Week Rental	Equip. Life Month Rental	
								82			
								16			
								1312			

Employee Travel Costs

Office Location	Project Location	Means of Travel	Travel Cost per Worker	No. Workers	Project Manager Visits	Total Travel
Anchorage	Seward	Road	$ 160.00	5		$ 800.00
						$ -
	Fuel		3.25	400		$ 1,300.00
					Subtotal	**$ 2,100.00**

Employee Lodging Costs

Project Location	Lodging Type	Lodging Cost per 2-Bed Room	Desc.	No. persons per Room	Total Workers	No. Rooms Required	Project or Site Visit Duration	Total Lodging Costs - Workers
Seward	Local	$ 125.00	Worker	2	5	2.5	4	$ 1,250.00
								$ -
	Per Diem	$ 40.00			5		4	$ 800.00
						equip transport		
							Subtotal	**$ 2,050.00**
							Total	**$ 4,150.00**

Task Description	Material Description	Units of Measure	Unit of Measure Total	Conversion to Sq. Inches	Thickness	Volume (yards)	Disposal Bags	Double Bagged
Flooring	Flooring	SF	78403	11290032	1	362.98	1099.93	2199.86
GWB	GWB	SF		0	1	0.00	0.00	0.00
CAB	Planking	SF		0	0.75	0.00	0.00	0.00
Misc.						362.98		
				1.5				

DISPOSAL REQUIREMENTS BREAKDOWN	QTY.
Total CY Generated	362.98
Landfill Asbestos Disposal price per CY	$ 135.00
Total Disposal Cost	**$ 49,001.88**

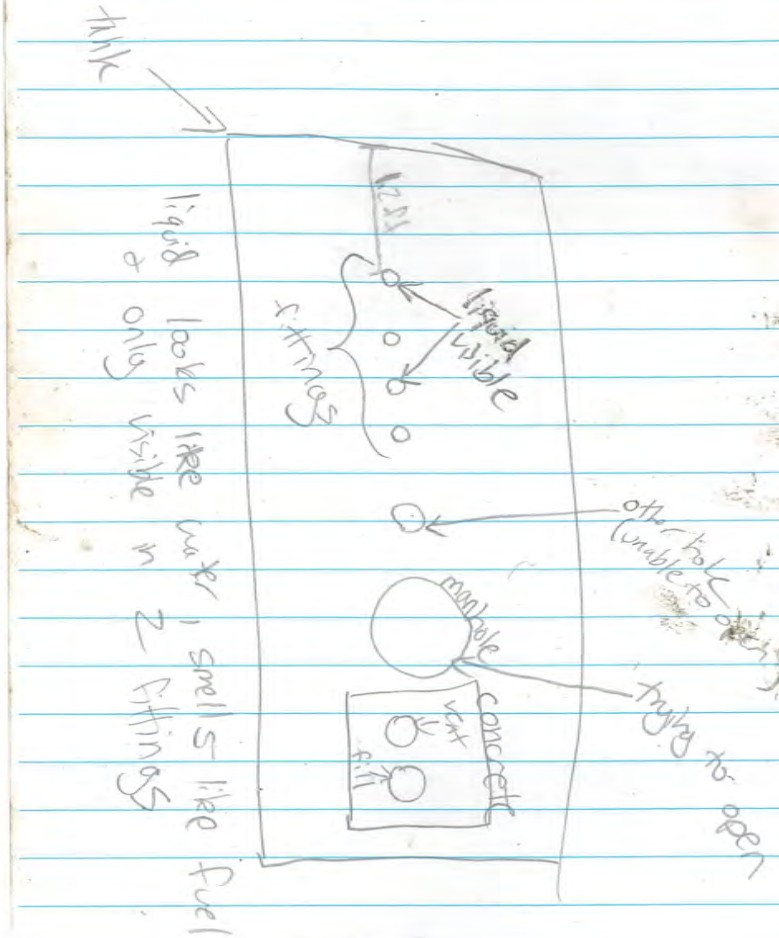
DISPOSAL BAGS REQUIRED	QTY.
Total CY Generated	
No. of Asbestos Danger Bags Required - .25 yd/per	
Double Bagged - Total Required	
75 bags per roll - total rolls required	
Cost per roll of 75	
Total Cost	$49,001.88

APPENDIX E

FIELD NOTES

Kake
900 check in @ Harris air, fly to Kake, Georgie picks me up, check in
11am on-site, get swing ties
adjust RF on PID to 1.00
no cal. gas, PID reading 0.0 ppm on-site before excavation
1210 John on site w/ excavator (↗ clean stoke ok we had to move excavator)
uncovered tank, water visible in ~~fitting~~, smells like fuel, try to pull & won't budge
call Shayla, she says ∅ try to find out what's in it @ 1343
1400 John & kip leave to get tools
1400 ~~tank~~ call Shayla, wants pictures
1415 John on-site, working on removing manhole cover

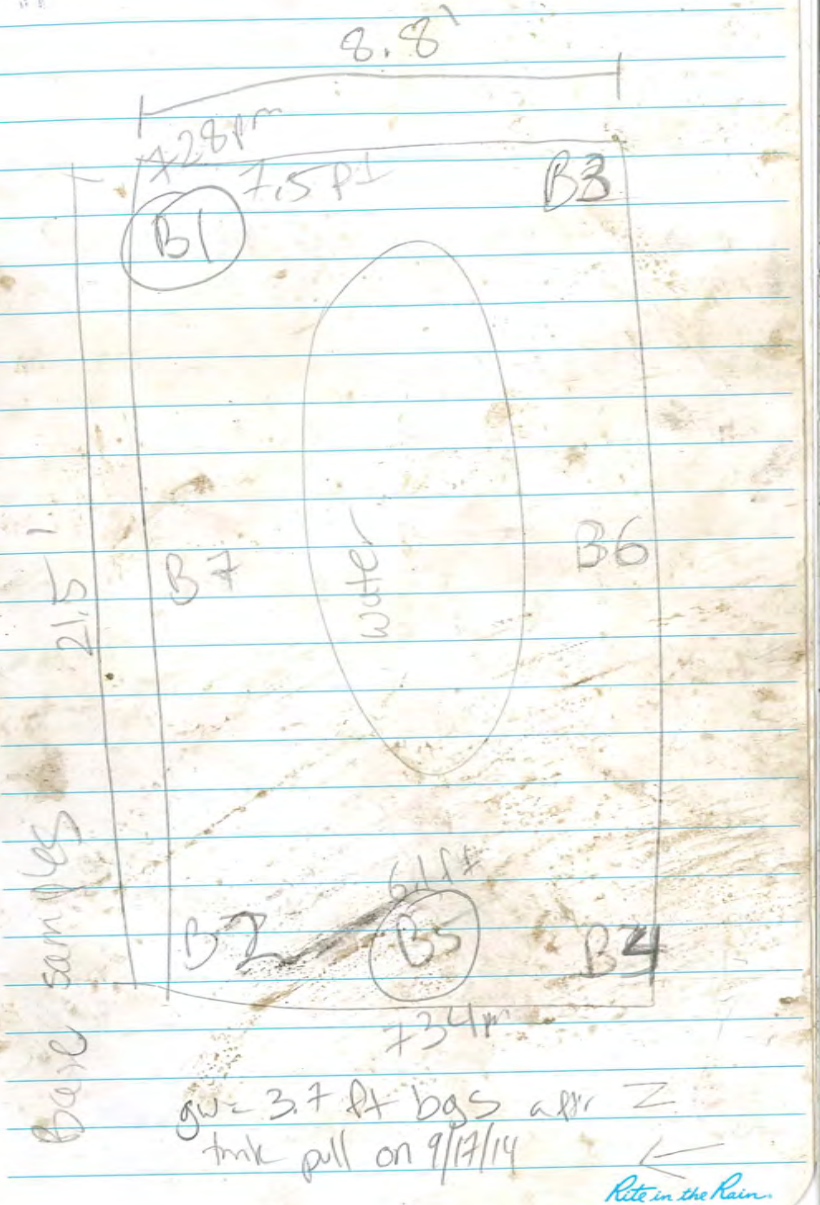
N



removed cover, ~8 inches of fuel scented water @ bottom of tank
1450 call Shayla, she says to pump out liquid into drums then continue to remove tank
(also cut straps across tank)
1457 John called about borrowing pump left to get something to cut ~~sted~~ lines
Bear on-site, ran away after yelling
1510 call Shayla & Randy
Randy: exposimeter - vent or ~~spot~~ dry ice in it
ballast straps bolted to concrete
expose sides, twist straps w/ excavator bucket
→ use PID to see any readings
not ~~make~~ our responsibility
→ expose sides, release straps, tank may float up violently
1530 John & Kip & Wayne ~~another guy~~ are back on-site, worried John about explosivity but he ignored me & cut the straps anyway

Rite in the Rain

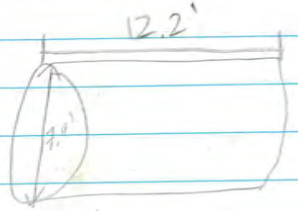
* while pumping the contents of the tank
* into drums, John removes more
* soil and the tank pops up
- John also adds the small "potentially
* clean" stockpile to the other "potentially
* clean" stockpile
1700 ~half done w/ pumping, John
goes to get more ~~buckets~~ drums
1735 John back on-site
1820 done pumping, close up
manhole, 3⅓ 55-gal drums filled
with fuel/water
1845 start pulling tank
get parking ok, do heavy
excavator, use other pit
Bottom of tank looks sound, very little
rust, no holes



Rite in the Rain

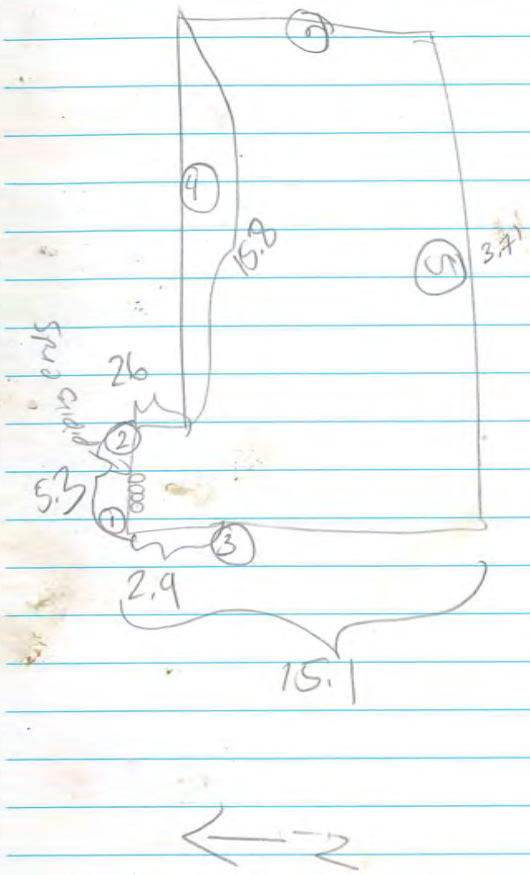
738pm (1938) collected samples B1 & B5
collapsed N sidewall to avoid hazard
Wayne & John put up caution tape
748 off-site - Wayne & John
1950 LEC - off-site, plug in PID
2000 done for day

9/17/14
830 pick up, change flights
941 on-site (LEC)
853 John on-site, went to get backhoe



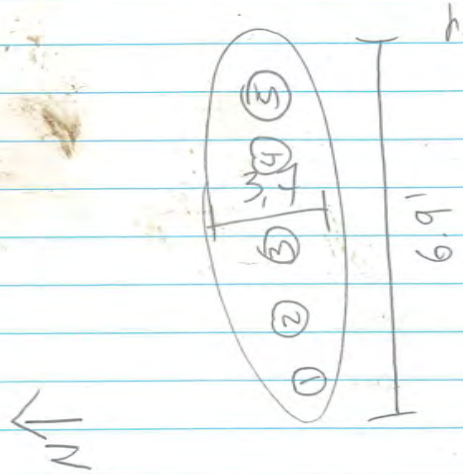
925 John & Wayne on-site

→creosote pilings down about 2.5 feet. (visible in "before" pics)
→located on N side of excavation and S of potentially clan stockpile 4



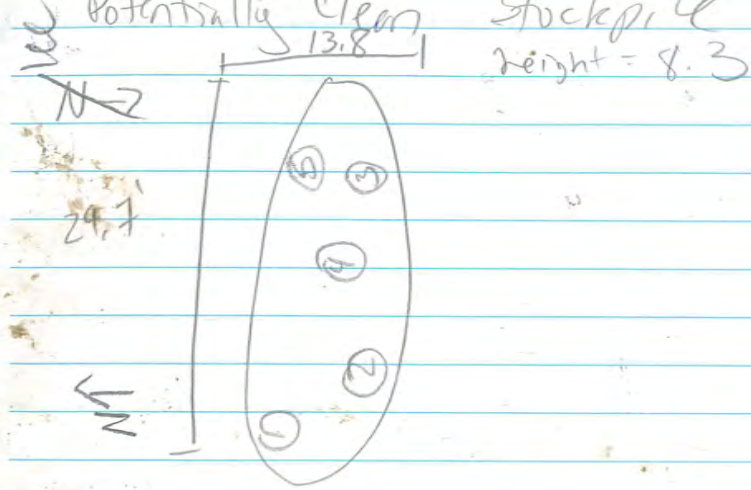
swing ties
34.7' = "dirty" stockpile to S
24.1 = "clean" stockpile to S
43.5 = N corner of excavation to S
75.0 = N corner of excavation to N
29.1 = W corner of "clean" stockpile to swing set

"Dirty" Stock pile



1152 John & Wayne off-site

Potentially Clean Stockpile



1230 Rudy & Danielle on-site
1240 Rudy off-site
drop Danielle off @ City Hall
drive @ 1330

Job Number: 17674

SOIL SAMPLE COLLECTION LOG

SHANNON & WILSON, INC.

Sample Number	Date	Time	Sample Location (See Figure 1 and Table 2)	Depth (Ft.)	Sample Classification	PID Type - ppm
B1	9/16/14	1428	Northeast corner	7.5	brown, silty gravelly SAND, moist, organics	2.4
B2		1412	NW corner	6.1	brown, silty gravelly SAND, moist	0.3
B3		1424	SE corner	6.5	brown, silty gravelly SAND, moist	0.1
B4		1415	SW corner	5.9-6.5	brown, silty, gravelly SAND, moist	0.4
B5		1454	middle west side	6.1-6.7	brown, silty gravelly SAND, moist	2.2
B6		1417	middle south	5.9-6.4	brown, silty, gravelly SAND, moist	0.4
B7		1420	middle north	6.4	brown, silty gravelly SAND, moist, organics	1.0
* S1	9/17/14	1119	NW under pipes	3.5	brown, silty 10% gravelly 10% SAND 80% moist	4.2
* S2		1127	center NW	3.8	brown, silty 10% gravelly 10% SAND 80% moist	0.7 lec 1.0
S3		1050	west wall	3.9	brown, silty gravelly SAND; moist, organics	0.4
S4		1053	center N	4.2	brown, silty gravelly SAND; moist	0.0
S5		1058	S middle	3.7	brown gravelly silty SAND; moist	0.9
* S6		1109	E middle	3.7-4.2	brown, silty 15% gravelly 15% SAND 70% moist	1.3
* S9	9/17/14	1125	duplicate of S1	3.5	brown, silty gravelly SAND; moist	
D1	9/17/14	1143	W edge of SP	1.5	brown, silty gravelly SAND; moist	0.1
D2		1145	mid-west	1.5	brown, silty gravelly SAND; moist	15.9
D3		1147	middle	1.5	brown, silty gravelly SAND; moist	3.6
* D4		1200	mid-east	1.5	brown, silty, gravelly SAND, moist, organics, hc odor	857
D5		1150	east	1.5	brown, silty, gravelly SAND; moist	727
PC1	9/17/14	1215	NW	1.8	brown, silty, gravelly SAND; moist, organics	0.0
PC2		1217	SW		brown, silty, gravelly SAND; moist	0.1
PC3		1220	SE		brown, silty gravelly SAND; moist	0.0
* PC4		1245	center		brown, silty, gravelly SAND; moist	2.4
* PC5		1255	NE	WC	brown, silty, gravelly SAND; moist, organics	0.4

* Sample Analyzed By Laboratory

- D1 - D5 were collected at 1.5' due to shallow stockpile

APPENDIX F

SITE PHOTOGRAPHS

Photo 1: Removing the residual heating oil from the UST; looking west. (September 16, 2014)

Photo 2: Water encountered during UST excavation; looking east. (September 16, 2014)

Former Kake Elementary School
Kake, Alaska

PHOTOS 1 AND 2

December 2014 32-1-17674

SHANNON & WILSON, INC.
Geotechnical & Environmental Consultants

Photo 3: Removed UST. (September 16, 2014)

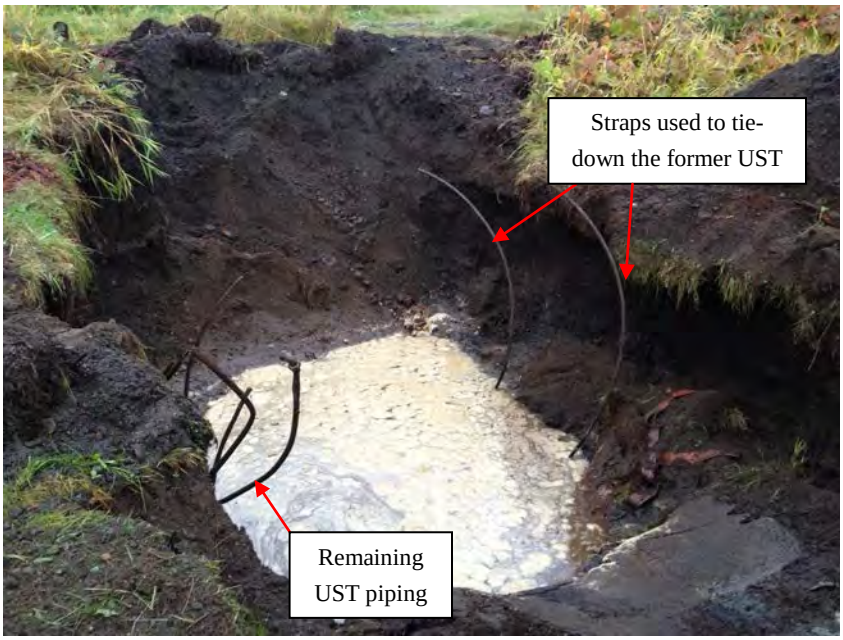


Photo 4: Excavation extent after UST removal; looking east. The excavation filled with water to 3.7 feet below ground surface. (September 16, 2014)

Photo 5: Playground equipment adjacent to UST excavation (left) and limiting removal of supply piping; looking east. (September 17, 2014)

Photo 6: Impacted soil stockpile and drums of residual heating oil removed from the tank prior to excavation; looking north. (September 17, 2014)

APPENDIX G

RESULTS OF ANALYTICAL TESTING BY
SGS NORTH AMERICA INC.
AND
ADEC LABORATORY DATA REVIEW CHECKLIST

Laboratory Report of Analysis

To: Shannon & Wilson, Inc.
5430 Fairbanks St., Ste 3
Anchorage, AK 99518
(907)561-2120

Report Number: **1144598**

Client Project: **17674 Kake Elementary**

Dear Shayla Marshall,

Enclosed are the results of the analytical services performed under the referenced project for the received samples and associated QC as applicable. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period of five years in the event they are required for future reference. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. Any samples submitted to our laboratory will be retained for a maximum of fourteen (14) days from the date of this report unless other archiving requirements were included in the quote.

If there are any questions about the report or services performed during this project, please call Victoria at (907) 562-2343. We will be happy to answer any questions or concerns which you may have.

Thank you for using SGS North America Inc. for your analytical services. We look forward to working with you again on any additional analytical needs.

Sincerely,
SGS North America Inc.

SGS North America Inc.
Environmental Services – Alaska Division
Project Manager

Victoria Pennick
2014.09.25
16:30:17 -08'00'

Victoria Pennick Date
Project Manager
Victoria.Pennick@sgs.com

Print Date: 09/25/2014 2:49:54PM

Case Narrative

SGS Client: **Shannon & Wilson, Inc.**
SGS Project: **1144598**
Project Name/Site: **17674 Kake Elementary**
Project Contact: **Shayla Marshall**

Refer to sample receipt form for information on sample condition.

17674-D4 (1144598007) PS

AK101 - BFB (surrogate) recovery does not meet QC criteria (biased high) due to matrix interference.
AK102 - The pattern is consistent with a weathered middle distillate.
8270D SIM - LOQs are elevated due to sample dilution. Sample analyzed at a dilution due to matrix interference with internal standards.

1144574001MS (1234938) MS

8270D SIM - Surrogate (2-fluorobiphenyl) recovery is outside of QC criteria due to sample dilution.
8270D SIM - MS/MSD recovery for multiple analytes is outside of QC criteria. Refer to LCS for accuracy.
8270D SIM - LOQs are elevated due to sample dilution. Sample analyzed at a dilution due to matrix interference with internal standards.

1144574001MSD (1234939) MSD

8270D SIM - Surrogate (2-fluorobiphenyl) recovery is outside of QC criteria due to sample dilution.
8270D SIM - MS/MSD recovery for multiple analytes is outside of QC criteria. Refer to LCS for accuracy.
8270D SIM - LOQs are elevated due to sample dilution. Sample analyzed at a dilution due to matrix interference with internal standards.

*QC comments may be associated with the field samples found in this report. When applicable, comments will be applied to associated field samples.

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Report of Manual Integrations

Laboratory ID	Client Sample ID	Analytical Batch	Analyte	Reason
8270D SIMS (PAH)				
1234939	1144574001MSD	XMS8297	Benzo(a)Anthracene	RP

Manual Integration Reason Code Descriptions

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

All DRO/RRO analysis are integrated per SOP.

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Laboratory Qualifiers

Enclosed are the analytical results associated with the above work order. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. If you have any questions regarding this report, or if we can be of any other assistance, please contact your SGS Project Manager at 907-562-2343. All work is provided under SGS general terms and conditions (<http://www.sgs.com/terms_and_conditions.htm>), unless other written agreements have been accepted by both parties.

SGS maintains a formal Quality Assurance/Quality Control (QA/QC) program. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request. The laboratory certification numbers are AK00971 (DW Chemistry & Microbiology) & UST-005 (CS) for ADEC and 2944.01 for DOD ELAP/ISO17025 (RCRA methods: 1020A, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035B, 6020, 7470A, 7471B, 8021B, 8082A, 8260B, 8270D, 8270D-SIM, 9040B, 9045C, 9056A, 9060A, AK101 and AK102/103). Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP and, when applicable, other regulatory authorities.

The following descriptors or qualifiers may be found in your report:

*	The analyte has exceeded allowable regulatory or control limits.
!	Surrogate out of control limits.
B	Indicates the analyte is found in a blank associated with the sample.
CCV	Continuing Calibration Verification
CL	Control Limit
D	The analyte concentration is the result of a dilution.
DF	Dilution Factor
DL	Detection Limit (i.e., maximum method detection limit)
E	The analyte result is above the calibrated range.
F	Indicates value that is greater than or equal to the DL
GT	Greater Than
IB	Instrument Blank
ICV	Initial Calibration Verification
J	The quantitation is an estimation.
JL	The analyte was positively identified, but the quantitation is a low estimation.
LCS(D)	Laboratory Control Spike (Duplicate)
LOD	Limit of Detection (i.e., 1/2 of the LOQ)
LOQ	Limit of Quantitation (i.e., reporting or practical quantitation limit)
LT	Less Than
M	A matrix effect was present.
MB	Method Blank
MS(D)	Matrix Spike (Duplicate)
ND	Indicates the analyte is not detected.
Q	QC parameter out of acceptance range.
R	Rejected
RPD	Relative Percent Difference
U	Indicates the analyte was analyzed for but not detected.

Note: Sample summaries which include a result for "Total Solids" have already been adjusted for moisture content.
All DRO/RRO analyses are integrated per SOP.

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Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
17674-B1	1144598001	09/16/2014	09/18/2014	Soil/Solid (dry weight)
17674-B5	1144598002	09/16/2014	09/18/2014	Soil/Solid (dry weight)
17674-S1	1144598003	09/17/2014	09/18/2014	Soil/Solid (dry weight)
17674-S2	1144598004	09/17/2014	09/18/2014	Soil/Solid (dry weight)
17674-S6	1144598005	09/17/2014	09/18/2014	Soil/Solid (dry weight)
17674-S9	1144598006	09/17/2014	09/18/2014	Soil/Solid (dry weight)
17674-D4	1144598007	09/17/2014	09/18/2014	Soil/Solid (dry weight)
17674-PC4	1144598008	09/17/2014	09/18/2014	Soil/Solid (dry weight)
17674-PC5	1144598009	09/17/2014	09/18/2014	Soil/Solid (dry weight)
17674-STB	1144598010	09/16/2014	09/18/2014	Soil/Solid (dry weight)

Method	Method Description
8270D SIMS (PAH)	8270 PAH SIM Semi-Volatiles GC/MS
AK101	AK101/8021 Combo. (S)
SW8021B	AK101/8021 Combo. (S)
AK102	Diesel Range Organics (S)
SM21 2540G	Percent Solids SM2540G

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Detectable Results Summary

Client Sample ID: **17674-B1**			
Lab Sample ID: 1144598001	Parameter	Result	Units
Volatile Fuels	Ethylbenzene	6.04J	ug/Kg
Client Sample ID: **17674-B5**			
Lab Sample ID: 1144598002	Parameter	Result	Units
Volatile Fuels	Ethylbenzene	6.08J	ug/Kg
	o-Xylene	4.75J	ug/Kg
Client Sample ID: **17674-S1**			
Lab Sample ID: 1144598003	Parameter	Result	Units
Polynuclear Aromatics GC/MS	2-Methylnaphthalene	2.34J	ug/Kg
Volatile Fuels	Ethylbenzene	5.23J	ug/Kg
Client Sample ID: **17674-S2**			
Lab Sample ID: 1144598004	Parameter	Result	Units
Volatile Fuels	Ethylbenzene	5.05J	ug/Kg
Client Sample ID: **17674-S6**			
Lab Sample ID: 1144598005	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	7.73J	mg/Kg
Volatile Fuels	Ethylbenzene	5.96J	ug/Kg
Client Sample ID: **17674-S9**			
Lab Sample ID: 1144598006	Parameter	Result	Units
Volatile Fuels	Ethylbenzene	5.62J	ug/Kg
Client Sample ID: **17674-D4**			
Lab Sample ID: 1144598007	Parameter	Result	Units
Polynuclear Aromatics GC/MS	1-Methylnaphthalene	7030	ug/Kg
	2-Methylnaphthalene	9680	ug/Kg
	Acenaphthene	69.0	ug/Kg
	Anthracene	12.0	ug/Kg
	Fluorene	90.4	ug/Kg
	Naphthalene	4780	ug/Kg
	Phenanthrene	78.0	ug/Kg
Semivolatile Organic Fuels	Diesel Range Organics	2170	mg/Kg
Volatile Fuels	Benzene	411	ug/Kg
	Ethylbenzene	4760	ug/Kg
	Gasoline Range Organics	186	mg/Kg
	o-Xylene	9230	ug/Kg
	P & M -Xylene	16100	ug/Kg
	Toluene	5050	ug/Kg
Client Sample ID: **17674-PC4**			
Lab Sample ID: 1144598008	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	17.3J	mg/Kg
Volatile Fuels	Ethylbenzene	5.22J	ug/Kg

Detectable Results Summary

Client Sample ID: **17674-PC5**
Lab Sample ID: 1144598009
Volatile Fuels

Parameter	Result	Units
Ethylbenzene	4.24J	ug/Kg

Client Sample ID: **17674-STB**
Lab Sample ID: 1144598010
Volatile Fuels

Parameter	Result	Units
Ethylbenzene	8.57J	ug/Kg

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Results of **17674-B1**

Client Sample ID: **17674-B1**
Client Project ID: **17674 Kake Elementary**
Lab Sample ID: 1144598001
Lab Project ID: 1144598

Collection Date: 09/16/14 19:28
Received Date: 09/18/14 15:27
Matrix: Soil/Solid (dry weight)
Solids (%): 91.8
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	10.8	U	21.6	6.71	mg/Kg	1		09/22/14 15:47
Surrogates								
5a Androstane	91		50-150		%	1		09/22/14 15:47

Batch Information

Analytical Batch: XFC11580
Analytical Method: AK102
Analyst: AYC
Analytical Date/Time: 09/22/14 15:47
Container ID: 1144598001-A

Prep Batch: XXX32022
Prep Method: SW3550C
Prep Date/Time: 09/19/14 16:29
Prep Initial Wt./Vol.: 30.197 g
Prep Extract Vol: 1 mL

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Results of **17674-B1**

Client Sample ID: **17674-B1**
Client Project ID: **17674 Kake Elementary**
Lab Sample ID: 1144598001
Lab Project ID: 1144598

Collection Date: 09/16/14 19:28
Received Date: 09/18/14 15:27
Matrix: Soil/Solid (dry weight)
Solids (%): 91.8
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.795	U	1.59	0.477	mg/Kg	1		09/20/14 14:23
Surrogates								
4-Bromofluorobenzene	98.1		50-150		%	1		09/20/14 14:23

Batch Information

Analytical Batch: VFC12125
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/20/14 14:23
Container ID: 1144598001-B

Prep Batch: VXX26477
Prep Method: SW5035A
Prep Date/Time: 09/16/14 19:28
Prep Initial Wt./Vol.: 118.794 g
Prep Extract Vol: 34.6905 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	3.98	U	7.95	2.54	ug/Kg	1		09/20/14 14:23
Ethylbenzene	6.04	J	15.9	4.96	ug/Kg	1		09/20/14 14:23
o-Xylene	7.95	U	15.9	4.96	ug/Kg	1		09/20/14 14:23
P & M -Xylene	15.9	U	31.8	9.54	ug/Kg	1		09/20/14 14:23
Toluene	7.95	U	15.9	4.96	ug/Kg	1		09/20/14 14:23
Surrogates								
1,4-Difluorobenzene	95.8		72-119		%	1		09/20/14 14:23

Batch Information

Analytical Batch: VFC12125
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 09/20/14 14:23
Container ID: 1144598001-B

Prep Batch: VXX26477
Prep Method: SW5035A
Prep Date/Time: 09/16/14 19:28
Prep Initial Wt./Vol.: 118.794 g
Prep Extract Vol: 34.6905 mL

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Results of **17674-B5**

Client Sample ID: **17674-B5**
Client Project ID: **17674 Kake Elementary**
Lab Sample ID: 1144598002
Lab Project ID: 1144598

Collection Date: 09/16/14 19:34
Received Date: 09/18/14 15:27
Matrix: Soil/Solid (dry weight)
Solids (%): 88.1
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	11.4	U	22.7	7.03	mg/Kg	1		09/22/14 15:57
Surrogates								
5a Androstane	94.7		50-150		%	1		09/22/14 15:57

Batch Information

Analytical Batch: XFC11580
Analytical Method: AK102
Analyst: AYC
Analytical Date/Time: 09/22/14 15:57
Container ID: 1144598002-A

Prep Batch: XXX32022
Prep Method: SW3550C
Prep Date/Time: 09/19/14 16:29
Prep Initial Wt./Vol.: 30.054 g
Prep Extract Vol: 1 mL

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Results of **17674-B5**

Client Sample ID: **17674-B5**
Client Project ID: **17674 Kake Elementary**
Lab Sample ID: 1144598002
Lab Project ID: 1144598

Collection Date: 09/16/14 19:34
Received Date: 09/18/14 15:27
Matrix: Soil/Solid (dry weight)
Solids (%): 88.1
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.740	U	1.48	0.445	mg/Kg	1		09/20/14 16:56
Surrogates								
4-Bromofluorobenzene	104		50-150		%	1		09/20/14 16:56

Batch Information

Analytical Batch: VFC12125
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/20/14 16:56
Container ID: 1144598002-B

Prep Batch: VXX26477
Prep Method: SW5035A
Prep Date/Time: 09/16/14 19:34
Prep Initial Wt./Vol.: 175.726 g
Prep Extract Vol: 45.9289 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	3.71	U	7.42	2.37	ug/Kg	1		09/20/14 16:56
Ethylbenzene	6.08	J	14.8	4.63	ug/Kg	1		09/20/14 16:56
o-Xylene	4.75	J	14.8	4.63	ug/Kg	1		09/20/14 16:56
P & M -Xylene	14.9	U	29.7	8.90	ug/Kg	1		09/20/14 16:56
Toluene	7.40	U	14.8	4.63	ug/Kg	1		09/20/14 16:56
Surrogates								
1,4-Difluorobenzene	99.6		72-119		%	1		09/20/14 16:56

Batch Information

Analytical Batch: VFC12125
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 09/20/14 16:56
Container ID: 1144598002-B

Prep Batch: VXX26477
Prep Method: SW5035A
Prep Date/Time: 09/16/14 19:34
Prep Initial Wt./Vol.: 175.726 g
Prep Extract Vol: 45.9289 mL

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Results of **17674-S1**

Client Sample ID: **17674-S1**
Client Project ID: **17674 Kake Elementary**
Lab Sample ID: 1144598003
Lab Project ID: 1144598

Collection Date: 09/17/14 11:19
Received Date: 09/18/14 15:27
Matrix: Soil/Solid (dry weight)
Solids (%): 88.3
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	2.82	U	5.64	1.69	ug/Kg	1		09/23/14 05:09
2-Methylnaphthalene	2.34	J	5.64	1.69	ug/Kg	1		09/23/14 05:09
Acenaphthene	2.82	U	5.64	1.69	ug/Kg	1		09/23/14 05:09
Acenaphthylene	2.82	U	5.64	1.69	ug/Kg	1		09/23/14 05:09
Anthracene	2.82	U	5.64	1.69	ug/Kg	1		09/23/14 05:09
Benzo(a)Anthracene	2.82	U	5.64	1.69	ug/Kg	1		09/23/14 05:09
Benzo[a]pyrene	2.82	U	5.64	1.69	ug/Kg	1		09/23/14 05:09
Benzo[b]Fluoranthene	2.82	U	5.64	1.69	ug/Kg	1		09/23/14 05:09
Benzo[g,h,i]perylene	2.82	U	5.64	1.69	ug/Kg	1		09/23/14 05:09
Benzo[k]fluoranthene	2.82	U	5.64	1.69	ug/Kg	1		09/23/14 05:09
Chrysene	2.82	U	5.64	1.69	ug/Kg	1		09/23/14 05:09
Dibenzo[a,h]anthracene	2.82	U	5.64	1.69	ug/Kg	1		09/23/14 05:09
Fluoranthene	2.82	U	5.64	1.69	ug/Kg	1		09/23/14 05:09
Fluorene	2.82	U	5.64	1.69	ug/Kg	1		09/23/14 05:09
Indeno[1,2,3-c,d] pyrene	2.82	U	5.64	1.69	ug/Kg	1		09/23/14 05:09
Naphthalene	2.82	U	5.64	1.69	ug/Kg	1		09/23/14 05:09
Phenanthrene	2.82	U	5.64	1.69	ug/Kg	1		09/23/14 05:09
Pyrene	2.82	U	5.64	1.69	ug/Kg	1		09/23/14 05:09
Surrogates								
2-Fluorobiphenyl	78.8		45-105		%	1		09/23/14 05:09
Terphenyl-d14	97.6		30-125		%	1		09/23/14 05:09

Batch Information

Analytical Batch: XMS8299
Analytical Method: 8270D SIMS (PAH)
Analyst: RTS
Analytical Date/Time: 09/23/14 05:09
Container ID: 1144598003-A

Prep Batch: XXX32021
Prep Method: SW3550C
Prep Date/Time: 09/19/14 14:23
Prep Initial Wt./Vol.: 22.597 g
Prep Extract Vol: 1 mL

Print Date: 09/25/2014 2:50:00PM

Results of **17674-S1**

Client Sample ID: **17674-S1**
Client Project ID: **17674 Kake Elementary**
Lab Sample ID: 1144598003
Lab Project ID: 1144598

Collection Date: 09/17/14 11:19
Received Date: 09/18/14 15:27
Matrix: Soil/Solid (dry weight)
Solids (%): 88.3
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	11.3	U	22.6	7.02	mg/Kg	1		09/22/14 16:07
Surrogates								
5a Androstane	81.7		50-150		%	1		09/22/14 16:07

Batch Information

Analytical Batch: XFC11580
Analytical Method: AK102
Analyst: AYC
Analytical Date/Time: 09/22/14 16:07
Container ID: 1144598003-A

Prep Batch: XXX32022
Prep Method: SW3550C
Prep Date/Time: 09/19/14 16:29
Prep Initial Wt./Vol.: 30.013 g
Prep Extract Vol: 1 mL

Print Date: 09/25/2014 2:50:00PM

Results of **17674-S1**

Client Sample ID: **17674-S1**
Client Project ID: **17674 Kake Elementary**
Lab Sample ID: 1144598003
Lab Project ID: 1144598

Collection Date: 09/17/14 11:19
Received Date: 09/18/14 15:27
Matrix: Soil/Solid (dry weight)
Solids (%): 88.3
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.795	U	1.59	0.476	mg/Kg	1		09/20/14 17:15
Surrogates								
4-Bromofluorobenzene	88.1		50-150		%	1		09/20/14 17:15

Batch Information

Analytical Batch: VFC12125
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/20/14 17:15
Container ID: 1144598003-B

Prep Batch: VXX26477
Prep Method: SW5035A
Prep Date/Time: 09/17/14 11:19
Prep Initial Wt./Vol.: 152.873 g
Prep Extract Vol: 42.821 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	3.96	U	7.93	2.54	ug/Kg	1		09/20/14 17:15
Ethylbenzene	5.23	J	15.9	4.95	ug/Kg	1		09/20/14 17:15
o-Xylene	7.95	U	15.9	4.95	ug/Kg	1		09/20/14 17:15
P & M -Xylene	15.9	U	31.7	9.51	ug/Kg	1		09/20/14 17:15
Toluene	7.95	U	15.9	4.95	ug/Kg	1		09/20/14 17:15
Surrogates								
1,4-Difluorobenzene	99.2		72-119		%	1		09/20/14 17:15

Batch Information

Analytical Batch: VFC12125
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 09/20/14 17:15
Container ID: 1144598003-B

Prep Batch: VXX26477
Prep Method: SW5035A
Prep Date/Time: 09/17/14 11:19
Prep Initial Wt./Vol.: 152.873 g
Prep Extract Vol: 42.821 mL

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Results of **17674-S2**

Client Sample ID: **17674-S2**
Client Project ID: **17674 Kake Elementary**
Lab Sample ID: 1144598004
Lab Project ID: 1144598

Collection Date: 09/17/14 11:27
Received Date: 09/18/14 15:27
Matrix: Soil/Solid (dry weight)
Solids (%): 88.2
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	11.3	U	22.6	7.02	mg/Kg	1		09/22/14 16:16
Surrogates								
5a Androstane	80.5		50-150		%	1		09/22/14 16:16

Batch Information

Analytical Batch: XFC11580
Analytical Method: AK102
Analyst: AYC
Analytical Date/Time: 09/22/14 16:16
Container ID: 1144598004-A

Prep Batch: XXX32022
Prep Method: SW3550C
Prep Date/Time: 09/19/14 16:29
Prep Initial Wt./Vol.: 30.028 g
Prep Extract Vol: 1 mL

Print Date: 09/25/2014 2:50:00PM

Results of **17674-S2**

Client Sample ID: **17674-S2**
Client Project ID: **17674 Kake Elementary**
Lab Sample ID: 1144598004
Lab Project ID: 1144598

Collection Date: 09/17/14 11:27
Received Date: 09/18/14 15:27
Matrix: Soil/Solid (dry weight)
Solids (%): 88.2
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.720	U	1.44	0.433	mg/Kg	1		09/20/14 17:34
Surrogates								
4-Bromofluorobenzene	105		50-150		%	1		09/20/14 17:34

Batch Information

Analytical Batch: VFC12125
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/20/14 17:34
Container ID: 1144598004-B

Prep Batch: VXX26477
Prep Method: SW5035A
Prep Date/Time: 09/17/14 11:27
Prep Initial Wt./Vol.: 182.577 g
Prep Extract Vol: 46.459 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	3.61	U	7.21	2.31	ug/Kg	1		09/20/14 17:34
Ethylbenzene	5.05	J	14.4	4.50	ug/Kg	1		09/20/14 17:34
o-Xylene	7.20	U	14.4	4.50	ug/Kg	1		09/20/14 17:34
P & M -Xylene	14.4	U	28.8	8.65	ug/Kg	1		09/20/14 17:34
Toluene	7.20	U	14.4	4.50	ug/Kg	1		09/20/14 17:34
Surrogates								
1,4-Difluorobenzene	101		72-119		%	1		09/20/14 17:34

Batch Information

Analytical Batch: VFC12125
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 09/20/14 17:34
Container ID: 1144598004-B

Prep Batch: VXX26477
Prep Method: SW5035A
Prep Date/Time: 09/17/14 11:27
Prep Initial Wt./Vol.: 182.577 g
Prep Extract Vol: 46.459 mL

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Results of **17674-S6**

Client Sample ID: **17674-S6**
Client Project ID: **17674 Kake Elementary**
Lab Sample ID: 1144598005
Lab Project ID: 1144598

Collection Date: 09/17/14 11:09
Received Date: 09/18/14 15:27
Matrix: Soil/Solid (dry weight)
Solids (%): 87.4
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	7.73	J	22.9	7.09	mg/Kg	1		09/22/14 16:26
Surrogates								
5a Androstane	91.1		50-150		%	1		09/22/14 16:26

Batch Information

Analytical Batch: XFC11580
Analytical Method: AK102
Analyst: AYC
Analytical Date/Time: 09/22/14 16:26
Container ID: 1144598005-A

Prep Batch: XXX32022
Prep Method: SW3550C
Prep Date/Time: 09/19/14 16:29
Prep Initial Wt./Vol.: 30.045 g
Prep Extract Vol: 1 mL

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Results of **17674-S6**

Client Sample ID: **17674-S6**
Client Project ID: **17674 Kake Elementary**
Lab Sample ID: 1144598005
Lab Project ID: 1144598

Collection Date: 09/17/14 11:09
Received Date: 09/18/14 15:27
Matrix: Soil/Solid (dry weight)
Solids (%): 87.4
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.765	U	1.53	0.458	mg/Kg	1		09/20/14 18:50
Surrogates								
4-Bromofluorobenzene	104		50-150		%	1		09/20/14 18:50

Batch Information

Analytical Batch: VFC12125
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/20/14 18:50
Container ID: 1144598005-B

Prep Batch: VXX26477
Prep Method: SW5035A
Prep Date/Time: 09/17/14 11:09
Prep Initial Wt./Vol.: 178.017 g
Prep Extract Vol: 47.5184 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	3.82	U	7.64	2.44	ug/Kg	1		09/20/14 18:50
Ethylbenzene	5.96	J	15.3	4.77	ug/Kg	1		09/20/14 18:50
o-Xylene	7.65	U	15.3	4.77	ug/Kg	1		09/20/14 18:50
P & M -Xylene	15.3	U	30.6	9.17	ug/Kg	1		09/20/14 18:50
Toluene	7.65	U	15.3	4.77	ug/Kg	1		09/20/14 18:50
Surrogates								
1,4-Difluorobenzene	101		72-119		%	1		09/20/14 18:50

Batch Information

Analytical Batch: VFC12125
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 09/20/14 18:50
Container ID: 1144598005-B

Prep Batch: VXX26477
Prep Method: SW5035A
Prep Date/Time: 09/17/14 11:09
Prep Initial Wt./Vol.: 178.017 g
Prep Extract Vol: 47.5184 mL

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Results of **17674-S9**

Client Sample ID: **17674-S9**
Client Project ID: **17674 Kake Elementary**
Lab Sample ID: 1144598006
Lab Project ID: 1144598

Collection Date: 09/17/14 11:25
Received Date: 09/18/14 15:27
Matrix: Soil/Solid (dry weight)
Solids (%): 89.3
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	11.2	U	22.4	6.94	mg/Kg	1		09/22/14 16:36
Surrogates								
5a Androstane	78.2		50-150		%	1		09/22/14 16:36

Batch Information

Analytical Batch: XFC11580
Analytical Method: AK102
Analyst: AYC
Analytical Date/Time: 09/22/14 16:36
Container ID: 1144598006-A

Prep Batch: XXX32022
Prep Method: SW3550C
Prep Date/Time: 09/19/14 16:29
Prep Initial Wt./Vol.: 30.035 g
Prep Extract Vol: 1 mL

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Results of **17674-S9**

Client Sample ID: **17674-S9**
Client Project ID: **17674 Kake Elementary**
Lab Sample ID: 1144598006
Lab Project ID: 1144598

Collection Date: 09/17/14 11:25
Received Date: 09/18/14 15:27
Matrix: Soil/Solid (dry weight)
Solids (%): 89.3
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.760	U	1.52	0.455	mg/Kg	1		09/20/14 19:09
Surrogates								
4-Bromofluorobenzene	94.3		50-150		%	1		09/20/14 19:09

Batch Information

Analytical Batch: VFC12125
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/20/14 19:09
Container ID: 1144598006-B

Prep Batch: VXX26477
Prep Method: SW5035A
Prep Date/Time: 09/17/14 11:25
Prep Initial Wt./Vol.: 152.879 g
Prep Extract Vol: 41.4201 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	3.79	U	7.59	2.43	ug/Kg	1		09/20/14 19:09
Ethylbenzene	5.62	J	15.2	4.74	ug/Kg	1		09/20/14 19:09
o-Xylene	7.60	U	15.2	4.74	ug/Kg	1		09/20/14 19:09
P & M -Xylene	15.2	U	30.4	9.11	ug/Kg	1		09/20/14 19:09
Toluene	7.60	U	15.2	4.74	ug/Kg	1		09/20/14 19:09
Surrogates								
1,4-Difluorobenzene	101		72-119		%	1		09/20/14 19:09

Batch Information

Analytical Batch: VFC12125
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 09/20/14 19:09
Container ID: 1144598006-B

Prep Batch: VXX26477
Prep Method: SW5035A
Prep Date/Time: 09/17/14 11:25
Prep Initial Wt./Vol.: 152.879 g
Prep Extract Vol: 41.4201 mL

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Results of **17674-D4**

Client Sample ID: **17674-D4**
Client Project ID: **17674 Kake Elementary**
Lab Sample ID: 1144598007
Lab Project ID: 1144598

Collection Date: 09/17/14 12:00
Received Date: 09/18/14 15:27
Matrix: Soil/Solid (dry weight)
Solids (%): 88.7
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	7030		563	169	ug/Kg	100		09/24/14 14:12
2-Methylnaphthalene	9680		563	169	ug/Kg	100		09/24/14 14:12
Acenaphthene	69.0		5.63	1.69	ug/Kg	1		09/23/14 05:25
Acenaphthylene	2.81	U	5.63	1.69	ug/Kg	1		09/23/14 05:25
Anthracene	12.0		5.63	1.69	ug/Kg	1		09/23/14 05:25
Benzo(a)Anthracene	282	U	563	169	ug/Kg	100		09/24/14 14:12
Benzo[a]pyrene	282	U	563	169	ug/Kg	100		09/24/14 14:12
Benzo[b]Fluoranthene	282	U	563	169	ug/Kg	100		09/24/14 14:12
Benzo[g,h,i]perylene	282	U	563	169	ug/Kg	100		09/24/14 14:12
Benzo[k]fluoranthene	282	U	563	169	ug/Kg	100		09/24/14 14:12
Chrysene	282	U	563	169	ug/Kg	100		09/24/14 14:12
Dibenzo[a,h]anthracene	282	U	563	169	ug/Kg	100		09/24/14 14:12
Fluoranthene	282	U	563	169	ug/Kg	100		09/24/14 14:12
Fluorene	90.4		5.63	1.69	ug/Kg	1		09/23/14 05:25
Indeno[1,2,3-c,d] pyrene	282	U	563	169	ug/Kg	100		09/24/14 14:12
Naphthalene	4780		563	169	ug/Kg	100		09/24/14 14:12
Phenanthrene	78.0		5.63	1.69	ug/Kg	1		09/23/14 05:25
Pyrene	282	U	563	169	ug/Kg	100		09/24/14 14:12
Surrogates								
2-Fluorobiphenyl	93		45-105		%	1		09/23/14 05:25
Terphenyl-d14	106		30-125		%	100		09/24/14 14:12

Batch Information

Analytical Batch: XMS8299
Analytical Method: 8270D SIMS (PAH)
Analyst: RTS
Analytical Date/Time: 09/23/14 05:25
Container ID: 1144598007-A

Prep Batch: XXX32021
Prep Method: SW3550C
Prep Date/Time: 09/19/14 14:23
Prep Initial Wt./Vol.: 22.54 g
Prep Extract Vol: 1 mL

Analytical Batch: XMS8305
Analytical Method: 8270D SIMS (PAH)
Analyst: RTS
Analytical Date/Time: 09/24/14 14:12
Container ID: 1144598007-A

Prep Batch: XXX32021
Prep Method: SW3550C
Prep Date/Time: 09/19/14 14:23
Prep Initial Wt./Vol.: 22.54 g
Prep Extract Vol: 1 mL

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Results of **17674-D4**

Client Sample ID: **17674-D4**
Client Project ID: **17674 Kake Elementary**
Lab Sample ID: 1144598007
Lab Project ID: 1144598

Collection Date: 09/17/14 12:00
Received Date: 09/18/14 15:27
Matrix: Soil/Solid (dry weight)
Solids (%): 88.7
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	2170		90.2	27.9	mg/Kg	4		09/22/14 17:05
Surrogates								
5a Androstane	101		50-150		%	4		09/22/14 17:05

Batch Information

Analytical Batch: XFC11580
Analytical Method: AK102
Analyst: AYC
Analytical Date/Time: 09/22/14 17:05
Container ID: 1144598007-A

Prep Batch: XXX32022
Prep Method: SW3550C
Prep Date/Time: 09/19/14 16:29
Prep Initial Wt./Vol.: 30.025 g
Prep Extract Vol: 1 mL

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Results of **17674-D4**

Client Sample ID: **17674-D4**
Client Project ID: **17674 Kake Elementary**
Lab Sample ID: 1144598007
Lab Project ID: 1144598

Collection Date: 09/17/14 12:00
Received Date: 09/18/14 15:27
Matrix: Soil/Solid (dry weight)
Solids (%): 88.7
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	186		14.7	4.42	mg/Kg	10		09/20/14 22:01
Surrogates								
4-Bromofluorobenzene	2170	*	50-150		%	10		09/20/14 22:01

Batch Information

Analytical Batch: VFC12125
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/20/14 22:01
Container ID: 1144598007-B

Prep Batch: VXX26477
Prep Method: SW5035A
Prep Date/Time: 09/17/14 12:00
Prep Initial Wt./Vol.: 168.962 g
Prep Extract Vol: 44.1593 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	411		73.7	23.6	ug/Kg	10		09/20/14 22:01
Ethylbenzene	4760		147	46.0	ug/Kg	10		09/20/14 22:01
o-Xylene	9230		147	46.0	ug/Kg	10		09/20/14 22:01
P & M -Xylene	16100		295	88.4	ug/Kg	10		09/20/14 22:01
Toluene	5050		147	46.0	ug/Kg	10		09/20/14 22:01
Surrogates								
1,4-Difluorobenzene	103		72-119		%	10		09/20/14 22:01

Batch Information

Analytical Batch: VFC12125
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 09/20/14 22:01
Container ID: 1144598007-B

Prep Batch: VXX26477
Prep Method: SW5035A
Prep Date/Time: 09/17/14 12:00
Prep Initial Wt./Vol.: 168.962 g
Prep Extract Vol: 44.1593 mL

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Results of **17674-PC4**

Client Sample ID: **17674-PC4**
Client Project ID: **17674 Kake Elementary**
Lab Sample ID: 1144598008
Lab Project ID: 1144598

Collection Date: 09/17/14 12:45
Received Date: 09/18/14 15:27
Matrix: Soil/Solid (dry weight)
Solids (%): 89.3
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	17.3	J	22.3	6.91	mg/Kg	1		09/22/14 16:46
Surrogates								
5a Androstane	90.2		50-150		%	1		09/22/14 16:46

Batch Information

Analytical Batch: XFC11580
Analytical Method: AK102
Analyst: AYC
Analytical Date/Time: 09/22/14 16:46
Container ID: 1144598008-A

Prep Batch: XXX32022
Prep Method: SW3550C
Prep Date/Time: 09/19/14 16:29
Prep Initial Wt./Vol.: 30.165 g
Prep Extract Vol: 1 mL

Print Date: 09/25/2014 2:50:00PM

Results of **17674-PC4**

Client Sample ID: **17674-PC4**
Client Project ID: **17674 Kake Elementary**
Lab Sample ID: 1144598008
Lab Project ID: 1144598

Collection Date: 09/17/14 12:45
Received Date: 09/18/14 15:27
Matrix: Soil/Solid (dry weight)
Solids (%): 89.3
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.725	U	1.45	0.435	mg/Kg	1		09/20/14 19:28
Surrogates								
4-Bromofluorobenzene	106		50-150		%	1		09/20/14 19:28

Batch Information

Analytical Batch: VFC12125
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/20/14 19:28
Container ID: 1144598008-B

Prep Batch: VXX26477
Prep Method: SW5035A
Prep Date/Time: 09/17/14 12:45
Prep Initial Wt./Vol.: 164.583 g
Prep Extract Vol: 42.6385 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	3.63	U	7.25	2.32	ug/Kg	1		09/20/14 19:28
Ethylbenzene	5.22	J	14.5	4.53	ug/Kg	1		09/20/14 19:28
o-Xylene	7.25	U	14.5	4.53	ug/Kg	1		09/20/14 19:28
P & M -Xylene	14.5	U	29.0	8.71	ug/Kg	1		09/20/14 19:28
Toluene	7.25	U	14.5	4.53	ug/Kg	1		09/20/14 19:28
Surrogates								
1,4-Difluorobenzene	100		72-119		%	1		09/20/14 19:28

Batch Information

Analytical Batch: VFC12125
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 09/20/14 19:28
Container ID: 1144598008-B

Prep Batch: VXX26477
Prep Method: SW5035A
Prep Date/Time: 09/17/14 12:45
Prep Initial Wt./Vol.: 164.583 g
Prep Extract Vol: 42.6385 mL

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Results of **17674-PC5**

Client Sample ID: **17674-PC5**
Client Project ID: **17674 Kake Elementary**
Lab Sample ID: 1144598009
Lab Project ID: 1144598

Collection Date: 09/17/14 12:55
Received Date: 09/18/14 15:27
Matrix: Soil/Solid (dry weight)
Solids (%): 89.8
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	11.2	U	22.3	6.90	mg/Kg	1		09/22/14 16:56
Surrogates								
5a Androstane	83.3		50-150		%	1		09/22/14 16:56

Batch Information

Analytical Batch: XFC11580
Analytical Method: AK102
Analyst: AYC
Analytical Date/Time: 09/22/14 16:56
Container ID: 1144598009-A

Prep Batch: XXX32022
Prep Method: SW3550C
Prep Date/Time: 09/19/14 16:29
Prep Initial Wt./Vol.: 30.019 g
Prep Extract Vol: 1 mL

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Results of **17674-PC5**

Client Sample ID: **17674-PC5**
Client Project ID: **17674 Kake Elementary**
Lab Sample ID: 1144598009
Lab Project ID: 1144598

Collection Date: 09/17/14 12:55
Received Date: 09/18/14 15:27
Matrix: Soil/Solid (dry weight)
Solids (%): 89.8
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.660	U	1.32	0.397	mg/Kg	1		09/20/14 19:48
Surrogates								
4-Bromofluorobenzene	102		50-150		%	1		09/20/14 19:48

Batch Information

Analytical Batch: VFC12125
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/20/14 19:48
Container ID: 1144598009-B

Prep Batch: VXX26477
Prep Method: SW5035A
Prep Date/Time: 09/17/14 12:55
Prep Initial Wt./Vol.: 184.566 g
Prep Extract Vol: 43.8824 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	3.31	U	6.62	2.12	ug/Kg	1		09/20/14 19:48
Ethylbenzene	4.24	J	13.2	4.13	ug/Kg	1		09/20/14 19:48
o-Xylene	6.60	U	13.2	4.13	ug/Kg	1		09/20/14 19:48
P & M -Xylene	13.3	U	26.5	7.95	ug/Kg	1		09/20/14 19:48
Toluene	6.60	U	13.2	4.13	ug/Kg	1		09/20/14 19:48
Surrogates								
1,4-Difluorobenzene	99		72-119		%	1		09/20/14 19:48

Batch Information

Analytical Batch: VFC12125
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 09/20/14 19:48
Container ID: 1144598009-B

Prep Batch: VXX26477
Prep Method: SW5035A
Prep Date/Time: 09/17/14 12:55
Prep Initial Wt./Vol.: 184.566 g
Prep Extract Vol: 43.8824 mL

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Results of **17674-STB**

Client Sample ID: **17674-STB**
Client Project ID: **17674 Kake Elementary**
Lab Sample ID: 1144598010
Lab Project ID: 1144598

Collection Date: 09/16/14 19:00
Received Date: 09/18/14 15:27
Matrix: Soil/Solid (dry weight)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.26	U	2.52	0.756	mg/Kg	1		09/20/14 13:44
Surrogates								
4-Bromofluorobenzene	90.6		50-150		%	1		09/20/14 13:44

Batch Information

Analytical Batch: VFC12125
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/20/14 13:44
Container ID: 1144598010-A

Prep Batch: VXX26477
Prep Method: SW5035A
Prep Date/Time: 09/16/14 19:00
Prep Initial Wt./Vol.: 49.615 g
Prep Extract Vol: 25 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	6.30	U	12.6	4.03	ug/Kg	1		09/20/14 13:44
Ethylbenzene	8.57	J	25.2	7.86	ug/Kg	1		09/20/14 13:44
o-Xylene	12.6	U	25.2	7.86	ug/Kg	1		09/20/14 13:44
P & M -Xylene	25.2	U	50.4	15.1	ug/Kg	1		09/20/14 13:44
Toluene	12.6	U	25.2	7.86	ug/Kg	1		09/20/14 13:44
Surrogates								
1,4-Difluorobenzene	97.1		72-119		%	1		09/20/14 13:44

Batch Information

Analytical Batch: VFC12125
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 09/20/14 13:44
Container ID: 1144598010-A

Prep Batch: VXX26477
Prep Method: SW5035A
Prep Date/Time: 09/16/14 19:00
Prep Initial Wt./Vol.: 49.615 g
Prep Extract Vol: 25 mL

Method Blank

Blank ID: MB for HBN 1644463 [SPT/9453]
Blank Lab ID: 1235035

Matrix: Soil/Solid (dry weight)

QC for Samples:
1144598001, 1144598002, 1144598003, 1144598004, 1144598005, 1144598006, 1144598007, 1144598008, 1144598009

Results by **SM21 2540G**

Parameter	Results	LOQ/CL	DL	Units
Total Solids	100			%

Batch Information

Analytical Batch: SPT9453
Analytical Method: SM21 2540G
Instrument:
Analyst: MJN
Analytical Date/Time: 9/19/2014 5:45:00PM

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Duplicate Sample Summary

Original Sample ID: 1144597006
Duplicate Sample ID: 1235036

Analysis Date: 09/19/2014 17:45
Matrix: Soil/Solid (dry weight)

QC for Samples:

1144598001, 1144598002, 1144598003, 1144598004, 1144598005, 1144598006, 1144598007, 1144598008, 1144598009

Results by **SM21 2540G**

NAME	Original ()	Duplicate ()	RPD (%)	RPD CL
Total Solids	86.8	86.9	0.15	15.00

Batch Information

Analytical Batch: SPT9453
Analytical Method: SM21 2540G
Instrument:
Analyst: MJN

Print Date: 09/25/2014 2:50:04PM

Method Blank

Blank ID: MB for HBN 1646961 [VXX/26477]
Blank Lab ID: 1235408

Matrix: Soil/Solid (dry weight)

QC for Samples:
1144598001, 1144598002, 1144598003, 1144598004, 1144598005, 1144598006, 1144598007, 1144598008, 1144598009, 1144598010

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	1.46J	2.50	0.750	mg/Kg
Surrogates				
4-Bromofluorobenzene	95.9	50-150		%

Batch Information

Analytical Batch: VFC12125
Analytical Method: AK101
Instrument: Agilent 7890A PID/FID
Analyst: ST
Analytical Date/Time: 9/20/2014 12:09:00PM

Prep Batch: VXX26477
Prep Method: SW5035A
Prep Date/Time: 9/20/2014 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1144598 [VXX26477]
Blank Spike Lab ID: 1235411
Date Analyzed: 09/20/2014 13:06

Spike Duplicate ID: LCSD for HBN 1144598 [VXX26477]
Spike Duplicate Lab ID: 1235412
Matrix: Soil/Solid (dry weight)

QC for Samples: 1144598001, 1144598002, 1144598003, 1144598004, 1144598005, 1144598006, 1144598007, 1144598008, 1144598009, 1144598010

Results by **AK101**

	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Gasoline Range Organics	10.0	9.40	94	10.0	10.0	100	(60-120)	6.60	(< 20)
Surrogates									
4-Bromofluorobenzene	1.25		97	1.25		94	(50-150)	2.70	

Batch Information

Analytical Batch: **VFC12125**
Analytical Method: **AK101**
Instrument: **Agilent 7890A PID/FID**
Analyst: **ST**

Prep Batch: **VXX26477**
Prep Method: **SW5035A**
Prep Date/Time: **09/20/2014 08:00**
Spike Init Wt./Vol.: 10.0 mg/Kg Extract Vol: 25 mL
Dup Init Wt./Vol.: 10.0 mg/Kg Extract Vol: 25 mL

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Method Blank

Blank ID: MB for HBN 1646961 [VXX/26477]
Blank Lab ID: 1235408

Matrix: Soil/Solid (dry weight)

QC for Samples:
1144598001, 1144598002, 1144598003, 1144598004, 1144598005, 1144598006, 1144598007, 1144598008, 1144598009, 1144598010

Results by **SW8021B**

Parameter	Results	LOQ/CL	DL	Units
Benzene	6.25U	12.5	4.00	ug/Kg
Ethylbenzene	9.75J	25.0	7.80	ug/Kg
o-Xylene	12.5U	25.0	7.80	ug/Kg
P & M -Xylene	25.0U	50.0	15.0	ug/Kg
Toluene	12.5U	25.0	7.80	ug/Kg
Surrogates				
1,4-Difluorobenzene	95.5	72-119		%

Batch Information

Analytical Batch: VFC12125
Analytical Method: SW8021B
Instrument: Agilent 7890A PID/FID
Analyst: ST
Analytical Date/Time: 9/20/2014 12:09:00PM

Prep Batch: VXX26477
Prep Method: SW5035A
Prep Date/Time: 9/20/2014 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1144598 [VXX26477]
Blank Spike Lab ID: 1235409
Date Analyzed: 09/20/2014 12:28

Spike Duplicate ID: LCSD for HBN 1144598 [VXX26477]
Spike Duplicate Lab ID: 1235410
Matrix: Soil/Solid (dry weight)

QC for Samples: 1144598001, 1144598002, 1144598003, 1144598004, 1144598005, 1144598006, 1144598007, 1144598008, 1144598009, 1144598010

Results by **SW8021B**

	Blank Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Benzene	1250	1300	104	1250	1250	100	(75-125)	3.90	(< 20)
Ethylbenzene	1250	1290	103	1250	1240	99	(75-125)	4.00	(< 20)
o-Xylene	1250	1310	105	1250	1260	101	(75-125)	3.70	(< 20)
P & M -Xylene	2500	2530	101	2500	2440	98	(80-125)	3.80	(< 20)
Toluene	1250	1290	103	1250	1240	99	(70-125)	3.80	(< 20)
Surrogates									
1,4-Difluorobenzene	1250		101	1250		101	(72-119)	0.34	

Batch Information

Analytical Batch: **VFC12125**
Analytical Method: **SW8021B**
Instrument: **Agilent 7890A PID/FID**
Analyst: **ST**

Prep Batch: **VXX26477**
Prep Method: **SW5035A**
Prep Date/Time: **09/20/2014 08:00**
Spike Init Wt./Vol.: 1250 ug/Kg Extract Vol: 25 mL
Dup Init Wt./Vol.: 1250 ug/Kg Extract Vol: 25 mL

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Matrix Spike Summary

Original Sample ID: 1144598001
MS Sample ID: 1235413 MS
MSD Sample ID: 1235414 MSD

Analysis Date: 09/20/2014 14:23
Analysis Date: 09/20/2014 14:42
Analysis Date: 09/20/2014 15:01
Matrix: Soil/Solid (dry weight)

QC for Samples: 1144598001, 1144598002, 1144598003, 1144598004, 1144598005, 1144598006, 1144598007, 1144598008, 1144598009, 1144598010

Results by **SW8021B**

		Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Benzene	3.98U	573	571	100	573	585	102	75-125	2.30	(< 20)
Ethylbenzene	6.04J	573	596	103	573	609	105	75-125	2.20	(< 20)
o-Xylene	7.95U	573	601	105	573	614	107	75-125	2.20	(< 20)
P & M -Xylene	15.9U	1144	1176	102	1144	1198	105	80-125	2.30	(< 20)
Toluene	7.95U	573	585	102	573	598	104	70-125	2.20	(< 20)
Surrogates										
1,4-Difluorobenzene		573	578	101	573	594	104	72-119	2.40	

Batch Information

Analytical Batch: VFC12125
Analytical Method: SW8021B
Instrument: Agilent 7890A PID/FID
Analyst: ST
Analytical Date/Time: 9/20/2014 2:42:00PM

Prep Batch: VXX26477
Prep Method: AK101 Extraction (S)
Prep Date/Time: 9/20/2014 8:00:00AM
Prep Initial Wt./Vol.: 118.79g
Prep Extract Vol: 25.00mL

Print Date: 09/25/2014 2:50:14PM

Method Blank

Blank ID: MB for HBN 1644161 [XXX/32021]
Blank Lab ID: 1234936

Matrix: Soil/Solid (dry weight)

QC for Samples:
1144598003, 1144598007

Results by **8270D SIMS (PAH)**

Parameter	Results	LOQ/CL	DL	Units
1-Methylnaphthalene	2.50U	5.00	1.50	ug/Kg
2-Methylnaphthalene	2.50U	5.00	1.50	ug/Kg
Acenaphthene	2.50U	5.00	1.50	ug/Kg
Acenaphthylene	2.50U	5.00	1.50	ug/Kg
Anthracene	2.50U	5.00	1.50	ug/Kg
Benzo(a)Anthracene	2.50U	5.00	1.50	ug/Kg
Benzo[a]pyrene	2.50U	5.00	1.50	ug/Kg
Benzo[b]Fluoranthene	2.50U	5.00	1.50	ug/Kg
Benzo[g,h,i]perylene	2.50U	5.00	1.50	ug/Kg
Benzo[k]fluoranthene	2.50U	5.00	1.50	ug/Kg
Chrysene	2.50U	5.00	1.50	ug/Kg
Dibenzo[a,h]anthracene	2.50U	5.00	1.50	ug/Kg
Fluoranthene	2.50U	5.00	1.50	ug/Kg
Fluorene	2.50U	5.00	1.50	ug/Kg
Indeno[1,2,3-c,d] pyrene	2.50U	5.00	1.50	ug/Kg
Naphthalene	2.50U	5.00	1.50	ug/Kg
Phenanthrene	2.50U	5.00	1.50	ug/Kg
Pyrene	2.50U	5.00	1.50	ug/Kg
Surrogates				
2-Fluorobiphenyl	74.5	45-105		%
Terphenyl-d14	93.7	30-125		%

Batch Information

Analytical Batch: XMS8297
Analytical Method: 8270D SIMS (PAH)
Instrument: HP 6890/5973 MS SVQA
Analyst: RTS
Analytical Date/Time: 9/22/2014 10:16:00AM

Prep Batch: XXX32021
Prep Method: SW3550C
Prep Date/Time: 9/19/2014 2:23:44PM
Prep Initial Wt./Vol.: 22.5 g
Prep Extract Vol: 1 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1144598 [XXX32021]
Blank Spike Lab ID: 1234937
Date Analyzed: 09/22/2014 10:32

Matrix: Soil/Solid (dry weight)

QC for Samples: 1144598003, 1144598007

Results by **8270D SIMS (PAH)**

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
1-Methylnaphthalene	22.2	17.2	78	(44-107)
2-Methylnaphthalene	22.2	15.4	69	(45-105)
Acenaphthene	22.2	17.5	79	(45-110)
Acenaphthylene	22.2	18.4	83	(45-105)
Anthracene	22.2	18.6	84	(55-105)
Benzo(a)Anthracene	22.2	20.6	93	(50-110)
Benzo[a]pyrene	22.2	17.4	78	(50-110)
Benzo[b]Fluoranthene	22.2	20.6	93	(45-115)
Benzo[g,h,i]perylene	22.2	16.6	75	(40-125)
Benzo[k]fluoranthene	22.2	18.2	82	(45-125)
Chrysene	22.2	21.2	95	(55-110)
Dibenzo[a,h]anthracene	22.2	17.3	78	(40-125)
Fluoranthene	22.2	21.0	95	(55-115)
Fluorene	22.2	18.7	84	(50-110)
Indeno[1,2,3-c,d] pyrene	22.2	17.3	78	(40-120)
Naphthalene	22.2	14.6	66	(40-105)
Phenanthrene	22.2	18.4	83	(50-110)
Pyrene	22.2	20.2	91	(45-125)
Surrogates				
2-Fluorobiphenyl	22.2		86	(45-105)
Terphenyl-d14	22.2		94	(30-125)

Batch Information

Analytical Batch: **XMS8297**
Analytical Method: **8270D SIMS (PAH)**
Instrument: **HP 6890/5973 MS SVQA**
Analyst: **RTS**

Prep Batch: **XXX32021**
Prep Method: **SW3550C**
Prep Date/Time: **09/19/2014 14:23**
Spike Init Wt./Vol.: 22.2 ug/Kg Extract Vol: 1 mL
Dup Init Wt./Vol.: Extract Vol:

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Matrix Spike Summary

Original Sample ID: 1144574001
MS Sample ID: 1234938 MS
MSD Sample ID: 1234939 MSD

Analysis Date: 09/22/2014 11:53
Analysis Date: 09/22/2014 12:09
Analysis Date: 09/22/2014 12:26
Matrix: Soil/Solid (dry weight)

QC for Samples: 1144598003, 1144598007

Results by **8270D SIMS (PAH)**

		Matrix Spike (ug/Kg)				Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)		Spike	Result	Rec (%)		CL	RPD (%)	RPD CL
1-Methylnaphthalene	14.2U	25.5	26.2J	103		25.4	29.7	117	*	44-107	12.30	(< 30)
2-Methylnaphthalene	14.2U	25.5	20.0J	78		25.4	24.1J	95		45-105	18.70	(< 30)
Acenaphthene	14.2U	25.5	14.2U	0	*	25.4	14.2U	0	*	45-110	0.00	(< 30)
Acenaphthylene	14.2U	25.5	14.2U	0	*	25.4	14.2U	0	*	45-105	0.00	(< 30)
Anthracene	14.2U	25.5	30.7	120	*	25.4	33.8	133	*	55-105	9.80	(< 30)
Benzo(a)Anthracene	14.2U	25.5	26.9J	105		25.4	29.1	115	*	50-110	8.20	(< 30)
Benzo[a]pyrene	14.2U	25.5	22.2J	87		25.4	22.1J	87		50-110	0.70	(< 30)
Benzo[b]Fluoranthene	14.2U	25.5	31.5	124	*	25.4	14.2U	0	*	45-115	0.00	(< 30)
Benzo[g,h,i]perylene	14.2U	25.5	21.4J	84		25.4	20.4J	81		40-125	5.10	(< 30)
Benzo[k]fluoranthene	14.2U	25.5	22.0J	86		25.4	20.4J	81		45-125	7.60	(< 30)
Chrysene	15.7J	25.5	44.5	174	*	25.4	41.9	166	*	55-110	5.80	(< 30)
Dibenzo[a,h]anthracene	14.2U	25.5	18.4J	72		25.4	19.4J	76		40-125	5.00	(< 30)
Fluoranthene	9.47J	25.5	35.0	137	*	25.4	33.8	133	*	55-115	3.30	(< 30)
Fluorene	14.2U	25.5	14.2U	0	*	25.4	14.2U	0	*	50-110	0.00	(< 30)
Indeno[1,2,3-c,d] pyrene	14.2U	25.5	18.8J	74		25.4	19.2J	76		40-120	2.20	(< 30)
Naphthalene	14.2U	25.5	14.2U	0	*	25.4	14.2U	0	*	40-105	0.00	(< 30)
Phenanthrene	14.2U	25.5	29.0	113	*	25.4	31.4	124	*	50-110	8.00	(< 30)
Pyrene	15.6J	25.5	43.1	169	*	25.4	41.9	166	*	45-125	2.80	(< 30)
Surrogates												
2-Fluorobiphenyl		25.5	32.9	129	*	25.4	36.8	145	*	45-105	11.30	
Terphenyl-d14		25.5	26.4	104		25.4	24.4	96		30-125	7.90	

Batch Information

Analytical Batch: XMS8297
Analytical Method: 8270D SIMS (PAH)
Instrument: HP 6890/5973 MS SVQA
Analyst: RTS
Analytical Date/Time: 9/22/2014 12:09:00PM

Prep Batch: XXX32021
Prep Method: Sonication Extraction Soil 8270 PAH SIM
Prep Date/Time: 9/19/2014 2:23:44PM
Prep Initial Wt./Vol.: 22.71g
Prep Extract Vol: 1.00mL

Print Date: 09/25/2014 2:50:17PM

Method Blank

Blank ID: MB for HBN 1644362 [XXX/32022]
Blank Lab ID: 1234982

Matrix: Soil/Solid (dry weight)

QC for Samples:
1144598001, 1144598002, 1144598003, 1144598004, 1144598005, 1144598006, 1144598007, 1144598008, 1144598009

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	10.0U	20.0	6.20	mg/Kg
Surrogates				
5a Androstane	84.4	60-120		%

Batch Information

Analytical Batch: XFC11580
Analytical Method: AK102
Instrument: HP 6890 Series II FID SV D R
Analyst: AYC
Analytical Date/Time: 9/22/2014 1:10:00PM

Prep Batch: XXX32022
Prep Method: SW3550C
Prep Date/Time: 9/19/2014 4:29:44PM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 1 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1144598 [XXX32022]
Blank Spike Lab ID: 1234983
Date Analyzed: 09/22/2014 13:19

Spike Duplicate ID: LCSD for HBN 1144598 [XXX32022]
Spike Duplicate Lab ID: 1234984
Matrix: Soil/Solid (dry weight)

QC for Samples: 1144598001, 1144598002, 1144598003, 1144598004, 1144598005, 1144598006, 1144598007, 1144598008, 1144598009

Results by **AK102**

	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Diesel Range Organics	167	152	91	167	148	89	(75-125)	2.30	(< 20)
Surrogates									
5a Androstane	3.33		96	3.33		95	(60-120)	0.87	

Batch Information

Analytical Batch: **XFC11580**
Analytical Method: **AK102**
Instrument: **HP 6890 Series II FID SV D R**
Analyst: **AYC**

Prep Batch: **XXX32022**
Prep Method: **SW3550C**
Prep Date/Time: **09/19/2014 16:29**
Spike Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL
Dup Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL

1144598

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

CHAIN-OF-CUSTODY RECORD

Page 1 of ____

Laboratory SGS

Attn: Tori

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2255 S.W. Canyon Road
Portland, OR 97201-2498
(503) 223-6147

1200 17th Street, Suite 1024
Denver, Co 80202
(303) 825-3800

Analysis Parameters/Sample Container Description
(include preservative if used)

Sample Identity	Lab No.	Time	Date Sampled	Comp.	Grab	GRO (BTEX) (AK101/8021B) NeOH pres	DRO (AK102)	PAH (8270SIM)				Total Number of Containers	Remarks/Matrix
17674-B1	1 A-B	1928	9/16/14		X	X	X					2	soil
17674-B5	2 A-B	1934	↓		X	X	X					2	
17674-S1	3 A-B	1119	9/17/14		X	X	X	X				2	
17674-S2	4 A-B	1127			X	X	X					2	
17674-S6	5 A-B	1109			X	X	X					2	
17674-S9	6 A-B	1125			X	X	X					2	
17674-D4	7 A-B	1200			X	X	X	X				2	
17674-PC4	8 A-B	1245			X	X	X					2	
17674-PC5	9 A-B	1255	↓		X	X	X					2	↓
17674-STB	10 A	1900	9/16/14		X	X						1	trip blank

Project Information	Sample Receipt	
Project Number: 17674	Total Number of Containers	
Project Name: Kake Elevators	COC Seals/Intact? Y/N/NA	
Contact: Shayla Marshall	Received Good Cond./Cold	
Ongoing Project? Yes ☐ No ☐	Delivery Method:	
Sampler: Laura Carlson	(attach shipping bill, if any)	

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Signature: Time: 1527	Signature: Time:	Signature: Time:
Printed Name: Laura Carlson Date: 9/18/14	Printed Name: Date:	Printed Name: Date:
Company: Shannon Wilson	Company:	Company:

Received By: 1.	Received By: 2.	Received By: 3.
Signature: Time:	Signature: Time:	Signature: Time: 15:27
Printed Name: Date:	Printed Name: Date:	Printed Name: Cory Dunning Date: 9/18/14
Company:	Company:	Company: SGS

Instructions

Requested Turnaround Time: standard 2-week

Special Instructions:

Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - Job File

F-19-91/UR

4.3 #205

No. 30229

SGS

1144598

SAMPLE RECEIPT FORM

Review Criteria:	Condition:	Comments/Action Taken:
Were **custody seals** intact? Note # & location, if applicable. COC accompanied samples?	Yes No (N/A) (Yes) No	☐ *Exemption permitted if sampler hand carries/delivers.*
Temperature blank compliant* (i.e., 0-6°C after CF)? *If >6°C, were samples collected <8 hours ago?* *If <0°C, were all sample containers ice free?* Cooler ID: Kake @ 4.3 w/ Therm.ID: 205 Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ If samples are received without a temperature blank, the "cooler temperature" will be documented in lieu of the temperature blank & "**COOLER TEMP**" will be noted to the right. In cases where neither a temp blank nor cooler temp can be obtained, note "ambient" or "chilled."	(Yes) No Yes No (N/A) Yes No (N/A)	☐ *Exemption permitted if chilled & collected <8 hrs ago.* *Note: Identify containers received at non-compliant temperature. Use form FS-0029 if more space is needed.*
Delivery method (specify all that apply): (Client (hand carried)) USPS Lynden AK Air Alert Courier UPS FedEx RAVN C&D Delivery Carlile Pen Air Warp Speed Other: _____ → *For WO# with airbills, was the WO# & airbill info recorded in the Front Counter eLog?*	Tracking/AB # or see attached or N/A Yes No (N/A)	
→ For samples received with payment, note amount ($) and whether cash / check / CC (**circle one**) was received.		
→ For samples **received in FBKS**, ANCH staff will verify all criteria are reviewed. SRF initiated in FBKS by:		
Were samples received within hold time? Do samples **match COC*** (i.e., sample IDs, dates/times collected)? Were analyses requested unambiguous?	(Yes) No N/A (Yes) No N/A (Yes) No N/A	*Note: Refer to form F-083 "Sample Guide" for hold times.* *Note: If times differ <1hr, record details and login per COC.*
Were samples in **good condition** (no leaks/cracks/breakage)? Packing material used (specify all that apply): (Bubble Wrap) Separate plastic bags Vermiculite Other:	(Yes) No	
Were **proper containers** (type/mass/volume/preservative*) used? Were **Trip Blanks** (i.e., VOAs, LL-Hg) in cooler with samples? Were all VOA vials **free of headspace** (i.e., bubbles ≤6 mm)? Were all soil VOAs **field extracted** with MeOH+BFB?	(Yes) No N/A (Yes) No N/A Yes No (N/A) (Yes) No N/A	☐ *Exemption permitted for metals (e.g., 200.8/6020A).*
For preserved waters (other than VOA vials, LL-Mercury or microbiological analyses), was **pH verified and compliant**? If pH was adjusted, were bottles flagged (i.e., stickers)?	Yes No (N/A) Yes No (N/A)	
For **special handling** (e.g., "MI" soils, foreign soils, lab filter for dissolved..., lab extract for volatiles, Ref Lab, limited volume), were bottles/paperwork flagged (e.g., sticker)?	Yes No (N/A)	
For **RUSH/SHORT Hold Time**, were COC/Bottles flagged accordingly? Was Rush/Short HT email sent, if applicable?	Yes No (N/A)	
For **SITE-SPECIFIC QC, e.g. BMS/BMSD/BDUP**, were containers / paperwork flagged accordingly?	Yes No (N/A)	
For any question answered "No," has the PM been notified and the problem resolved (or paperwork put in their bin)?	Yes No (N/A)	SRF Completed by: MJN PM notified: N/A
Was **PEER REVIEW** of ***sample numbering/labeling completed?***	Yes No (N/A)	Peer Reviewed by: N/A
Additional notes (if applicable):		

Note to Client: *Any "no" circled above indicates non-compliance with standard procedures and may impact data quality.*

Sample Containers and Preservatives

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition
1144598001-A	No Preservative Required	OK			
1144598001-B	Methanol field pres. 4 C	OK			
1144598002-A	No Preservative Required	OK			
1144598002-B	Methanol field pres. 4 C	OK			
1144598003-A	No Preservative Required	OK			
1144598003-B	Methanol field pres. 4 C	OK			
1144598004-A	No Preservative Required	OK			
1144598004-B	Methanol field pres. 4 C	OK			
1144598005-A	No Preservative Required	OK			
1144598005-B	Methanol field pres. 4 C	OK			
1144598006-A	No Preservative Required	OK			
1144598006-B	Methanol field pres. 4 C	OK			
1144598007-A	No Preservative Required	OK			
1144598007-B	Methanol field pres. 4 C	OK			
1144598008-A	No Preservative Required	OK			
1144598008-B	Methanol field pres. 4 C	OK			
1144598009-A	No Preservative Required	OK			
1144598009-B	Methanol field pres. 4 C	OK			
1144598010-A	Methanol field pres. 4 C	OK			

Container Condition Glossary

OK - The container was received at an acceptable pH for the analysis requested.

PA - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt and the container is now at the correct pH. See the Sample Receipt Form for details on the amount and lot # of the preservative added.

PH - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt, but was insufficient to bring the container to the correct pH for the analysis requested. See the Sample Receipt Form for details on the amount and lot # of the preservative added.

BU - The container was received with headspace greater than 6mm.

LABORATORY DATA REVIEW CHECKLIST

CS Report Name: **Date:** October 2014

Laboratory Report Date: September 25, 2014

Consultant Firm: Shannon & Wilson, Inc.

Completed by: Trevelyn Lough
Title: Geologist
Laboratory Name: SGS North America, Inc.
Work Order Number: 1144598
ADEC File Number:

(**NOTE**: ***NA*** = not applicable; Text in *italics* added by Shannon & Wilson, Inc.)

1. Laboratory

a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses? **Yes / No / NA**
Comments: *Yes, SGS North America, Inc. (SGS) received the samples and performed all submitted sample analyses.*

b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS-approved?
Yes / No / NA
Comments: *The samples were not transferred to another "network" laboratory or sub-contracted to an alternate laboratory.*

2. Chain of Custody (COC)

a. COC information completed, signed, and dated (including released/received by)?
Yes / No / NA
Comments**:**

b. Correct analyses requested? **Yes / No / *NA***
Comments:

3. Laboratory Sample Receipt Documentation

a. Sample/cooler temperature documented and within range at receipt (4° ± 2° C)?
Yes / No / NA
Comments: *The temperature blank measured 4.3° Celsius upon laboratory receipt.*

b. Sample preservation acceptable - acidified waters, Methanol-preserved VOC soil (GRO, BTEX, VOCs, etc.)? **Yes / No / NA**

c. Sample condition documented - broken, leaking (soil MeOH), zero headspace (VOC vials)? **Yes / No / NA**
Comments: *SGS specifies that samples were received in good condition on the Sample Receipt Form (SRF)*

d. If there were any discrepancies, were they documented (e.g., incorrect sample containers/preservation, sample temperatures outside range, insufficient sample size, missing samples)? **Yes / No / NA**
Comments: *No discrepancies documented.*

e. Data quality or usability affected? **Yes / No / NA**
Comments*: See above.*

4. Case Narrative

a. Present and understandable? **Yes / No / NA**
Comments:

b. Discrepancies, errors or QC failures noted by the lab? **Yes / No / NA**
Comments: *The following QC failures were noted by the lab:*
- *GRO surrogate BFB recovery for Project Sample 17674-D4 is biased high due to matrix interference;*
- *AK102 chromatogram pattern for Project Sample 1767-D4 is consistent with a weathered middle distillate;*
- *LOQs for analytes by 8270D SIM are elevated due to sample dilutions; sample dilution due to matrix interference with internal standards;*
- *1144574001MS/MSD sample pair have the following QC failures: 8270D SIM surrogate 2-fluorobiphenyl recovery is outside QC criteria due to sample dilution, MS/MSD recovery for multiple 8270D SIM analytes is outside of QC criteria, 8270D SIM LOQs are elevated due to sample dilution (samples diluted due to matrix interference with internal standards)*

c. Were corrective actions documented? **Yes / No / NA**
Comments: *Benzo(a)Anthracene peak for the Matrix Spike Duplicate (MSD) Sample 1144574001MSD was manually reassigned.*

d. What is the effect on data quality/usability, according to the case narrative?
Comments: *The case narrative does not comment on the data quality/usability.*

5. Sample Results

a. Correct analyses performed/reported as requested on COC? **Yes / No / NA**
Comments:

b. All applicable holding times met? **Yes / No / NA**
Comments:

c. All soils reported on a dry-weight basis? **Yes / No / NA**
Comments:

d. Are the reported LOQs less than the Cleanup Level or the minimum required detection level for the project? **Yes / No / NA**
Comments*: LOQs and reporting limits are less than cleanup levels where applicable (for non-detect results)*

e. Data quality or usability affected? **NA**
Comments:

6. QC Samples

a. Method Blank

i. One method blank reported per matrix, analysis, and 20 samples?
Yes / No / NA
Comments:

ii. All method blank results less than LOQ? **Yes / No / NA**
Comments: *However, ethylbenzene was detected at an estimated concentration of 0.00970 mg/kg and GRO was detected at an estimated concentration of 1.46 mg/kg in the method blank.*

iii. If above LOQ, what samples are affected?
Comments: *All project samples and the trip blank are associated with these method blank detections.*

iv. Do the affected sample(s) have data flags? **Yes / No / NA**
Comments: *The estimated ethylbenzene results in Project Samples 17674-B1, 17674-B5, 17674-S1/S9 duplicate pair, 17674-S2, 17674-S6, 17674-PC4, 17674-PC5, and the trip blank are within 5 times the amount found in the method blank and are considered non detect at the LOQ, flagged 'B' in Table 2 of the report. The ethylbenzene result in Project Sample 1767-D4 is greater than 10 times the amount found in the method blank and therefore does not require a data flag. Project Sample results for GRO are either non detect or greater than 10 times the amount found in the method blank and are therefore do not require data flags.*

If so, are the data flags clearly defined? **Yes / No / NA**
Comments: *See above.*

v. Data quality or usability affected? **Yes / No / NA**
Comments: *See above.*

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

i. Organics - One LCS/LCSD reported per matrix, analysis, and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846) **Yes / No / *NA***
Comments: *One LCS/LCSD pair reported per analysis and 20 samples for GRO, DRO, and BTEX analyses. One LCS and MS/MSD pair (no LCSD) reported for PAH analyses.*

ii. Metals/Inorganics - One LCS and one sample duplicate reported per matrix, analysis and 20 samples? **Yes / No / NA**
Comments: *Inorganic analyses not performed.*

iii. Accuracy – All percent recoveries (%R) reported *and w*ithin method or laboratory limits? And project specified DQOs, if applicable. (AK petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages) **Yes / No / NA**
Comments: *Several PAH %Rs do not meet QC criteria in the MS/MSD sample set. The MS/MSD parent samples are not part of the project sample set; therefore, sample results are unaffected. LCS and LCSD recoveries meet QC criteria.*

Precision – All relative percent differences (RPDs) reported and less than method or laboratory limits? And project specified DQOs, if applicable. RPD reported from LCS/LCSD, MS/MSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages) **Yes / No / NA**
Comments: *Several MS/MSD RPDs for PAH analytes do not meet QC criteria. The MS/MSD parent samples are not part of the project sample set; therefore, sample results are unaffected. LCS/LCSD RPDs meet QC criteria.*

iv. If %R or RPD is outside of acceptable limits, what samples are affected? ***NA***
Comments: *See above.*

v. Do the affected samples(s) have data flags? **Yes / No / NA**
Comments: *See above.*

If so, are the data flags clearly defined? **Yes / No / NA**
Comments: *See above.*

vi. Data quality or usability affected? Explain. ***NA***
Comments: *See above.*

c. Surrogates - Organics Only

i. Are surrogate recoveries reported for organic analyses, field, QC, and laboratory samples? **Yes / No / NA**
Comments:

ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs if applicable. (AK Petroleum methods 50-150 %R; all other analyses see the laboratory report pages) **Yes / No / NA**
Comments: *Recovery of GRO surrogate BFB is Project Sample 17674-D4 is above QC criteria due to matrix interference. Recovery of PAH surrogate 2-fluorobiphenyl is outside QC criteria for the 1144574001MS/MSD sample set.*

iii. Do the sample results with failed surrogate recoveries have data flags? **Yes / No / NA**
Comments: *see above.*

If so, are the data flags clearly defined? **Yes / No / NA**
Comments: *See above.*

iv. Data quality or usability affected? Explain. **Yes / No / NA**
Comments: *The associated GRO results is considered a biased high estimate and flagged "J+" in Table 2 of the Report. Because the reported result is less than the ADEC cleanup level, potentially high bias should not affect the data usability for this project. The parent sample for the PAH surrogate 2-fluorobiphenyl MS/MSD sample set is not a project sample; therefore, project sample results are unaffected.*

d. Trip Blank - Volatile analyses only (GRO, BTEX, VOCs, etc.) Water

i. One trip blank reported per matrix, analysis and cooler? **Yes / No / NA**
Comments:

ii. Is the cooler used to transport the trip blank and volatile samples clearly indicated on the COC? **Yes / No / NA**
Comments: *Only one cooler was submitted to the laboratory.*

iii. All results less than LOQ? **Yes / No / NA**
Comments: *However, ethylbenzene was detected in the trip blank at 0.00857J mg/kg. This concentration is within 5 times the amount found in an associated method blank and is considered non detect at the LOQ. See Section 6.a on Method Blanks for additional details. Other trip blank results are non detect.*

iv. If above LOQ, what samples are affected? **NA**
Comments**:** *The ethylbenzene detection is considered attributable to laboratory contamination rather than external or sample cross- contamination; therefore project sample results are unaffected.*

v. Data quality or usability affected? Explain. **NA**
Comments: *See above.*

e. Field Duplicate

i. One field duplicate submitted per matrix, analysis and 10 project samples?
Yes / No / NA
Comments: *A field duplicate was submitted per 10 project samples for GRO, DRO, and BTEX analysis. A field duplicate sample for PAH was not included in the ADEC-approved project scope.*

ii. Were the field duplicates submitted blind to the lab? **Yes / No / NA**
Comments*: Sample 17674-S9 is a field duplicate of 17674-S1.*

iii. Precision – All relative percent differences (RPDs) less than specified DQOs?
(Recommended: 30% for water, 50% for soil) **Yes / No / NA**
Comments: *RPDs, where calculable (results detected above the LOQ), were less than the recommended DQO of 50% for soil.*

iv. Data quality or usability affected? Explain. ***NA***
Comments: *RPDs meet DQOs*

f. Decontamination or Equipment Blank (if not applicable, a comment stating why must be entered below)

Yes / No / NA *Collecting and submitting a decontamination or equipment blank was not included in the ADEC-approved project scope.*

i. All results less than LOQ? **Yes / No / NA**
Comments: *See above.*

ii. If results are above LOQ, what samples are affected? ***NA***
Comments: *See above.*

iii. Data quality or usability affected? Explain. ***NA***
Comments: *See above.*

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab-specific, etc.)

a. Are they defined and appropriate? **Yes / No / NA**
Comments: *Laboratory-applied data flags are defined on page 3 of the SGS report.*

APPENDIX H

IMPORTANT INFORMATION ABOUT YOUR GEOTECHNICAL/ENVIRONMENTAL REPORT

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

Appendix to and part of Report 32-1-17674

Date: December 2014
To: ADEC
Re: Former Kake Elementary School Site Assessment, Kake, 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