THE STATE of ALASKA
GOVERNOR MIKE DUNLEAVY

Department of Environmental Conservation
DIVISION OF SPILL PREVENTION AND RESPONSE
Contaminated Sites Program
P.O. Box 111800
Juneau, AK 99811
Main: 907-465-5250
Fax: 907-465-5245
www.dec.alaska.gov

File No.: 1515.38.004

ELECTRONIC MAIL ONLY

August 3, 2020

Mr. Eric Rhodes
Brownfields Coordinator
Organized Village of Kasaan
P.O. Box 26-KXA
Ketchikan, AK 99950-0340

Re: Analysis of Brownfield Cleanup Alternatives for Kasaan Discovery Campus

Dear Mr. Rhodes:

In February 2020, the Organized Village of Kasaan (OVK) applied to the Alaska Department of Environmental Conservation (ADEC) for brownfield assessment and cleanup services at the Kasaan Discovery Campus site. Previous assessment work on-site identified petroleum-contaminated soil at two discrete locations, groundwater contaminated with naphthalene in one area. Consequently, ADEC is planning to excavate, transport, and dispose of the petroleum-contaminated soil, as well as install a well for the long-term monitoring of groundwater for naphthalene until compliance with ADEC cleanup levels is achieved.

In preparing for these cleanup activities, ADEC developed an Analysis of Brownfield Cleanup Alternatives (ABCA), which summarized the cleanup options considered, as well the relative costs of each option. The alternatives were evaluated based on overall protectiveness to public health and welfare of the environment, and feasibility in achieving site reuse. After careful consideration, the ABCA recommended the excavation and disposal of the petroleum-contaminated soil and long-term monitoring of groundwater for naphthalene.

The ABCA was open for public comment from June 16-July 16, 2020. An electronic copy was placed on ADEC's Contaminated Sites Database and the Organized Village of Kasaan (OVK) website, while a hard copy of the ABCA was available at the Kasaan Post Office. Extra copies were also distributed by the town clerk. The public was notified of the opportunity to review and comment on the ABCA through ADEC's public notice website, by locally posting flyers, through a notice in the Island Post, and through encouragement of city officials. On June 18th, I attended a meeting of the OVK tribal council. At that meeting, you and I jointly provided an overview of the project, the alternatives identified in the ABCA, and the recommended approach for cleanup.

We did not receive any additional comments or feedback on the cleanup alternatives presented in the ABCA. However, OVK has clearly stated its support for the recommended approach: the excavation and disposal of the petroleum-contaminated soil and long-term monitoring of groundwater for naphthalene (see the attached letter of support). Therefore, the ABCA can be finalized and we will proceed with the recommended cleanup alternative.

I am currently arranging for contractor support to provide the technical services necessary to complete this project. In the interim, please let me know if you have any questions. I look forward to continuing to work with you to cleanup the Kasaan Discovery Campu and return it to a safe and productive reuse for the Kasaan community.

Sincerely,

Marc Thomas
Environmental Program Specialist

Electronic cc: Lisa Griswold, ADEC
Anne Marie Palmieri, ADEC
Mary Goolie, US EPA

ORGANIZED VILLAGE OF KASAAN

P.O. BOX 26 - KXA ❖ KASAAN, ALASKA 99950-0340
(907) 542-2230 ❖ (FAX) 888-388-4480

Lisa Griswold
ADEC Contaminated Sites Program
555 Cordova Street, 2nd floor
Anchorage, AK 99501

January 21, 2020

RE: Letter of Intent

Dear Lisa Griswold,

The following represents a summary of the Organized Village of Kasaan's (OVK) proposal to ADEC Contaminated Sites Program regarding the Discovery Campus Site. OVK herby sets forth its intent to pursue the cleanup of the Discovery Campus project. This letter contains nonbinding provisions of understanding between the parties. Unless otherwise explicitly stated, it does not impose any legal obligations on either party.

The Organized Village of Kasaan will provide the October 2019 tribal council minutes, stating the council's intent to move forward with the cleanup of the Discovery Campus. OVK has chosen alternative #3 in Table 6-1: Alternatives Cost Summary table, in the Site Characterization Report completed by AHTNA Engineering Services LLC. Whereas the DEC already has all the needed information about the Discovery Campus, please accept this letter of intent as an official application for a DBAC cleanup.

Best Regards,

Ronald Leighton
Tribal President
Organized Village of Kasaan

Agreed to on _____
Lisa Griswold, ADEC Contaminated Sites Program

a result, there is no exposure risk related to future consumption of wild foods at the site. However, the presence of the contaminated soil near the surface increases the risk for direct contact and incidental exposure to the petroleum contaminants, which could occur during or after the cultivation of the property.

Based on the site conditions, the potential management alternatives to address the exposure concerns consist of a topsoil cap (i.e. no action alternative) or localized excavations for either treatment via landfarming or offsite disposal. Another alternative consisting of an in-situ chemical oxidation using the oxidizing agent Regenox was also considered. However, due to the costs associated with the application and follow-on monitoring this alternative was deemed not practical for the site. The possible alternatives are summarized below. A detail of the approximate cost for each alternative is provided in Table 6-1. A breakdown of the potential costs for alternatives 2 and 3 is provided in Appendix F.

Table 6-1: Alternatives Cost Summary Table

Remedial Alternatives at Kasaan Discovery Campus		Cost	Potential Range (-50%)	Potential Range (+100%)
Alternative 1	No Action (*Topsoil Cap*)	$ 0.00	$ 0.00	$ 0.00
Alternative 2	Excavation and Landfarming	$ 103,969.80	$ 51,984.90	$ 207,939.60
Alternative 3	Excavation and Disposal	$ 95,132.40	$ 47,566.20	$ 190,264.80

6.3.1 Topsoil Cap – No Action Alternative

The OVK plans consist of the removal of the 6 to 12 inch layer of crushed rock from the site for an application of topsoil to support the seeding of the berry producing vegetation. A topsoil cap of at least 6 inches thick would likely limit the direct contact exposure to the underlying contaminated soil. This alternative however, would not remediate the source areas and could require ongoing management by the OVK to prevent digging in the areas of contaminated soil.

6.3.2 Source Area Excavations

The contaminated soil at both of the source areas is likely contained to a relatively small area. The soil in vicinity of the former AST is confined to an approximately 200 square foot area with contamination extending approximately 5 to 6 feet bgs. Although, the extent of contamination at TP10 was not defined, it is estimated based on field observations to be no greater than approximately 5 to 10 cubic yards of contaminated soil. A localized excavation of the vadose zone soils from both locations (up to approximately 50 to 60 cubic yards) would eliminate the direct contact and incidental exposure pathway concerns for the site. Under these alternatives, remnant contaminated groundwater and soil in the saturated zone could remain at the site in the vicinity of the former AST. However, the replacement of the gross majority of the affected soil with clean fill material would eliminate further potential impact to the groundwater. Additionally, the lack of an existing down-gradient groundwater contamination concern indicates that the remnant contamination in the saturated zone would be likely considered de minimis.

6.3.2.1 Landfarming Treatment

The contaminated soil would need to be remediated in a landfarm treatment cell. The landfarm approach would require a designated area that meets the ADEC requirements for landfarming, including at least 100 feet from surface water. The northern portion of the KDC property meets that distance requirement and would be a suitable location for a landfarm. This remedial approach would require adequate exclusion controls and fencing to restrict exposure to site visitors and trespassers. In addition, due to the amount of precipitation that occurs in the region in the winter, Ahtna would recommend an active summer tilling frequency of approximately 3 times per week to promote volatilization and completion of the treatment objectives by the end of the summer season.

6.3.2.2 Offsite Disposal

The other remedial option for the excavated soil would consist of transporting the contaminated material to an approved landfill facility for thermal treatment. Under this alternative, the excavated soil would be loaded into Department of Transportation approved 1 cubic yard lined supersacks for offsite transport. The contaminant concentrations in the soil and the approximate volume of the affected material are both below the maximum limits for disposal at a Class III municipal landfill in Alaska. However, there are no landfills on Prince of Wales Island or in nearby Ketchikan that will accept petroleum contaminated soil. As a result, the soil would need to be transported to the barge landing in Thorne Bay for manifesting to Seattle Washington. Sampson Tug and Barges would transport the soil to Seattle. Upon arrival in Seattle, Republic Services would transport the soil to their facility for thermal treatment.

FINAL: ANALYSIS OF BROWNFIELD CLEANUP ALTERNATIVES
Kasaan Discovery Campus
Kasaan, Alaska
Drafted June 5, 2020

1.0 Introduction

This analysis of Brownfield Cleanup Alternatives (ABCA) is intended as a screening tool to ensure and document that the appropriate type of cleanup is selected to address environmental contamination at the Kasaan Discovery Campus property in Kasaan, Alaska. The preferred remedial action considers site characteristics, the surrounding environment, potential future uses, and cleanup goals. This ABCA was open for public comment from June 16, 2020 - July 16, 2020.

2.0 Site Description

The Kasaan Discovery Campus (KDC) property is located in the town of Kasaan, Alaska. Kasaan is located in the Prince of Wales-Hyder Census Area in southeast Alaska on the Kasaan Peninsula of Prince of Wales Island. Specifically, Kasaan is located along Kasaan Bay on the southern coast of the peninsula. The community of Thorne Bay approximately 10 miles to the northwest. The South Thorne Bay Road, connecting Kasaan to the rest of the island communities, terminates in the village.

The KDC property is located at the western edge of the community on Block 4 lots 6, 7, 8, and 9. The property was a former residential property that was purchased by the Organized Village of Kasaan (OVK) in 2011. Prior to the purchase, the property contained a residential structure and a heating oil aboveground storage tank (AST) with an assumed capacity of 150 gallons. The residential structure and AST were removed from the property in 2011. During the removal activities an estimated 25 foot by 25 foot area of stained surface soil was discovered beneath the former AST. The site was subsequently overlain with a six-inch layer of gravel; the extent of the impacted area was not defined. In April and May 2019, assessment activities were conducted to quantify the degree and extent of contamination (subsurface soil and groundwater) and to assess potential exposure concerns based on current or future site use.

OVK is interested in using the property to cultivate berry plants for subsistence harvesting by the community and site visitors. In its DEC Brownfield Assessment and Cleanup (DBAC) application, OVK described its plans for using the site as a park area, complete with a community fire pit, boardwalk, totems, berry bushes and grassy areas.

3.0 Previous Investigations

September 2019. Ahtna Engineering Services, Inc. *Kasaan Discovery Campus—Site Characterization Report, Hazardous Substance Assessment, Cleanup, and Monitoring Term Contract #18-3007-18. Kasaan,*

Alaska. This report detailed site characterization services that were conducted at KDC, including subsurface soil and groundwater investigation to characterize and define an area of suspected petroleum contamination on the property. Assessment activities included, but were not limited to:

- Excavating eleven test pits on the property to investigate and delineate the extent of petroleum contaminated soil;
- Field screening the soil in the test pits for evidence of volatile petroleum vertically and laterally;
- Collecting soil samples from the test pits to characterize and define the environmental concern; and
- Installing, developing, and sampling three monitoring wells on the property to characterize the groundwater condition.

The characterization effort encountered petroleum-contaminated soil in three of the eleven test pits at the property. Two of the test pits were situated in close proximity to the former AST. The contamination at those two locations was observed to extend from the near surface down to the bedrock at a depth ranging from 3.5 to 7.0 feet. However, contaminant impacts were not encountered at any of the nearest surrounding test pits, 15 to 20 feet away, indicating that the extent of contaminated soil encountered was limited to the north edge of the site in the vicinity of the former heating oil tank, confined to an approximately 200 square foot area with contamination extending approximately 5-6 feet below ground surface (bgs). The third test pit with contaminated soil was located approximately 100 feet down-gradient of the former AST. The analytical results of the soil samples taken from that location indicated that the contaminant impact is limited to the top four feet of soil. According to the report, there is some evidence that the area in the vicinity of the third test pit had been used as a dump site, indicating that the contaminated soil at that location is unrelated to the releases from the former heating oil tank and is likely from various wastes dumped in the area. Further, the limited depth of the contaminated soil, confined to the top three to four feet, suggests that the impact is not likely widespread. The lateral extent of contamination near this third test pit was not defined; however, field screenings and observations did not indicate any petroleum impact at that location. In addition, analytical results of soil samples from the nearest test pit (approximately 20 feet away) did not contain any contaminant concentrations.

Laboratory analysis of the groundwater samples detected naphthalene contamination in the groundwater monitoring well in the vicinity of the AST. Several other petroleum compounds were also detected in the groundwater at that location, but at concentrations below their respective ADEC cleanup levels. The groundwater samples from the two down-gradient well point locations did not contain any elevated contaminant concentrations, with only low-level detections reported which were below the State cleanup limits. The analytical results indicate that the groundwater contamination is limited to the immediate area in vicinity of the former AST and migration down-gradient of the source area is either not occurring or negligible.

4.0 Remedial Alternatives Considered

This section identifies the remediation alternatives that may be used to address the environmental contamination at the site. The "No Action Alternative" is used as the baseline against which the

other alternatives are analyzed. All of the alternatives will be evaluated with respect to Chapter 75 of Title 18 of the Alaska Administrative Code (18 AAC 75).

The following broad categories of evaluation criteria were considered in assembling remediation at the site:

- Overall protectiveness to public health and welfare of the environment
- Feasibility in achieving site redevelopment

Remedy alternatives considered are presented below in two sections: 4.1 Soil Contamination Remedy Alternatives and 4.2 Groundwater Contamination Remedy Alternatives.

4.1 Soil Contamination Remedy Alternatives

Summaries of general cost estimates for each soil contamination remedy alternative (with the exception of no action) are presented below. Each alternative includes the same basic assumptions for level of effort in preparing a work plan, characterizing the contaminated soil, and reporting. However, the alternatives include different approaches to contaminated soil treatment, as described below.

Cost Summary Table—Soil Contamination Remedy Alternatives

Remedial Alternatives at Kasaan Discovery Campus		Cost	Potential Range	
			(-50%)	(+100%)
Alternative #1	No Action (Topsoil Cap)	$0.00	$0.00	$0.00
Alternative #2	Excavation and Landfarming	$103,969.80	$51,984.90	$207,939.60
Alternative #3	Excavation and Disposal	$95,132.40	$47,566.20	$190,264.80

4.1.1 No Action (Topsoil Cap) – Alternative #1

The "No Action Alternative" is included for comparison purposes as stipulated in the ABCA process. OVK plans consist of the removal of the six- to twelve-inch layer of crushed rock from the site for an application of topsoil to support the seeding of the berry producing vegetation. A topsoil cap of at least six inches thick would likely limit the direct contact exposure to the underlying contaminated soil. This alternative however, would not remediate the source areas and could require ongoing management by OVK to prevent digging in the areas of contaminated soil. For comparison, the no action alternative has no associated cost.

4.1.2 Excavation and Landfarming - Alternative #2

The "Excavation and Landfarming—Alternative #2" includes localized excavation of the petroleum-contaminated soil and treatment via landfarming. The contaminated soil at both of the source areas is likely contained to two discrete relatively small areas. The soil in the vicinity of the former AST is confined to an approximately 200 square foot area with contamination extending approximately 5 to 6 feet below ground surface (bgs). Although, the extent of contamination of the second source area (former dump site) was not defined, it is estimated based on field observations to be no greater than approximately five to ten cubic yards of contaminated soil. A localized excavation of the unsaturated zone soils from both locations (up to approximately 50 to 60 cubic yards) would eliminate the direct contact and incidental exposure pathway concerns for the site. Under this alternative, remnant contaminated groundwater and soil in the saturated zone could remain at the site in the vicinity of the former AST. However, the replacement of the gross majority of the affected soil with clean fill material would eliminate further potential impact to the groundwater. Additionally, the lack of an existing down-gradient groundwater contamination concern indicates that the remnant contamination in the saturated zone would be likely considered de minimis.

Under Alternative #2, the contaminated soil would need to be remediated in a landfarm treatment cell. The landfarm approach would require a designated area that meets the ADEC requirements for landfarming, including at least 100 feet from surface water. The northern portion of the KDC property meets that distance requirement and would be a suitable location for a landfarm. Under this approach, the excavated soil would be placed in a lined cell in an 18-inch lift surrounded by berms to prevent water migration. This cell would also need to be covered during the winter. Soil samples would need to be collected at the start of the season and then at the end to calculate contaminant reduction. This remedial approach would require adequate exclusion controls and fencing to restrict exposure to site visitors and trespassers. In addition, due to the amount of precipitation that occurs in the region in the winter, the treatment cell should be tilled frequently in the summer (app. 3 times per week) to promote volatilization and completion of the treatment objectives by the end of the summer season.

Alternative #2 would meet the evaluation criteria of overall protection of human health and the environment and feasibility.

Alternative #2—Excavation and Landfarm			
Activity	Estimated Cost	Total Cost (-50%)	Total Cost (+100%)
Source Area Excavation, Transportation, and Landfarming			
Planning Document Preparation	$6500		
Flights (Anchorage to Klawock)	$2700		
Soil Sampling Equipment	$750		
Lodging	$900		
Freight	$750		
Per Diem	$468		
Backfill Material	$2400		
Excavation Oversight	$3750		
Laboratory Analysis – Excavation	$15000		
Laboratory Analysis – Landfarm	$8000		

Landfarm Management and Maintenance Costs	$5000		
Misc. Excavation Materials	$3000		
Vehicle Rental	$900		
Fuel	$2400		
Total Costs for Materials and Consumables	**$52,518**		
Contractor Costs (Excavation Contractor)			
Excavation/Landfarm Construction and Removal (5 days)	$8500		
Landfarm Tilling (30 days)	$30000		
Day rate for crew (5 days)	$3500		
Total Cost for Excavation Contractor	**$42,000**		
Construction Cost Subtotal	**$94,518**	**$47,259**	**$189,036**
Project Management (10%)	$9451.80		
Total Present Worth Cost	**$103,969.80**	**$51,984.90**	**$207,939.60**

4.1.3 Excavation and Disposal - Alternative #3

The "Excavation and Disposal - Alternative #3" includes excavation of petroleum-contaminated soils from the two source areas as described above in Alternative #2. Rather than treating the contaminated soils through landfarming, however, Alternative #3 would consist of transporting the contaminated material to an approved landfill facility for either disposal or thermal treatment. Under this alternative, the excavated soil would be loaded into Department of Transportation approved one cubic yard lined supersacks for offsite transport. As there are no landfills on Prince of Wales Island or in Ketchikan that will accept petroleum-contaminated soil, the soil would need to be sent for treatment or disposal in the Pacific Northwest. For cost estimating purposes, DEC assumed that the soil would be transported to the barge landing in Thorne Bay for manifesting to Seattle, Washington where it would be thermally treated at the Republic Services facility. Costs could be lower, however, if the excavated soil could be disposed of in a regulated landfill closer to Prince of Wales Island.

Alternative #3 would meet the evaluation criteria of overall protection of human health and the environment and feasibility.

Alternative #3—Excavation and Disposal			
Activity	Estimated Cost	Total Cost (-50%)	Total Cost (+100%)
Source Area Excavation, Transportation, and Landfarming			
Planning Document Preparation	$6500		
Flights (Anchorage to Klawock)	$900		
Soil Sampling Equipment	$450		
Lodging	$450		
Freight	$750		
Per Diem	$234		
Backfill Material	$2400		
Excavation Oversight	$3750		

Laboratory Analysis – Excavation	$15000		
Barging from Thorne Bay to Seattle	$18000		
Transport from Port of Seattle to Republic Services	$3300		
Treatment and Disposal at Republic Services	$8250		
Supersack Materials	$1620		
Misc. Excavation Materials	$8000		
Vehicle Rental	$500		
Fuel	$3200		
Total Costs for Materials and Consumables	**$73,304**		
Contractor Costs (Excavation Contractor)			
Equipment costs – Excavator and Dump Truck (5 days)	$8500		
Front End Loader in Thorne Bay	$2100		
Day rate for crew (5 days)	$1500		
Driver Rates – Hauling	$1080		
Total Cost for Excavation Contractor	**$13,180**		
Construction Cost Subtotal	**$86,484**	**$43,242**	**$172,968**
Project Management (10%)	$8648.40		
Total Present Worth Cost	**$95,132.40**	**$47,566.20**	**$190,264.80**

4.2 Groundwater Contamination Remedy Alternatives

Naphthalene was detected in groundwater taken from the well point located at the AST source area at a concentration of 2.8 ug/L, which is over the ADEC groundwater cleanup level of 1.7 ug/L. Therefore, the elevated levels of naphthalene would need to be addressed before a cleanup complete determination could be made by DEC.

4.2.1 No Action (Groundwater) – Alternative #4

The "No Action Alternative" is included for comparison purposes as stipulated in the ABCA process. For comparison, the no action alternative for groundwater has no associated cost regardless of which remedy is selected to address the contaminated soil (Alternatives #1-3). If Alternative #1 – No Action (Topsoil Cap) is selected, groundwater contaminated with naphthalene would not be addressed and potential exposure pathways could still be open to site visitors. Thus, the property could not be safely reused as envisioned by the community under this scenario.

If either Alternative #2 or #3 is selected and the contaminated soil in the source area is excavated, the gross majority of the affected soil would be replaced with clean fill material, eliminating further potential impact to the groundwater. Remnant contaminated groundwater and soil in the saturated zone, however, could remain at the site in the vicinity of the former AST. Although further contamination to groundwater would be eliminated under this scenario and potential exposure pathways would be significantly reduced, the site would still need to verify that naphthalene concentrations were below acceptable ADEC groundwater cleanup levels before a cleanup complete determination could be made by DEC.

4.2.2 Long-Term Monitoring – Alternative #5

Alternative #5 presumes that excavation of contaminated soil in the source area has occurred. As such, the contaminated soil would be replaced with clean fill material, eliminating further potential impact to the groundwater. Under this approach, a well point would be placed in the excavated area and groundwater samples taken to document compliance. Samples would be taken in accordance with the ADEC Field Sampling Guidance (October 2019) until naphthalene levels were found to be below approved ADEC cleanup levels as defined in regulations. Based on similar projects that employed long-term monitoring wells, this alternative is estimated to cost between $7,000-$10,000, depending upon well depth (3.5-7 feet) and the length of time the well would be in service. The well point would be removed after sample results demonstrate that the groundwater is not contaminated.

5.0 Preferred Remedial Alternative

The remedial alternatives were evaluated based on overall protectiveness to public health and welfare of the environment, and feasibility in achieving site reuse.

Addressing Soil Contamination

The "No Action – Alternative #1" would leave the contaminated soil in place possibly endangering the community by exposure to contamination via multiple complete pathways and hampering re-use of the site.

Both Excavation Alternatives #2 and #3 are considered technically feasible and capable of protecting human health and the environment. Alternative #2—Excavation and Landfarm would be protective to the community as it would remove the contaminated soil from the subject property and treat it in a controlled cell away from the KDC site. Alternative #3—Excavation and Disposal would similarly be protective to the community in that it would remove the contaminated soil from the subject property and then transport and dispose of it in a regulated landfill outside of the community. Alternative #3 is more protective than Alternative #2 as the contaminated soil taken out of the community and there would not be a landfarm area which would potentially be an attractive nuisance. .

Although both Alternatives #2 and #3 are economically feasible, Alternative #3—Excavation and Disposal is estimated to cost approximately 9% less than Alternative #2—Excavation and Landfarm. In addition, Alternative #2 would require additional management and effort, including active summer tilling at three times per week in order to promote treatment objectives. Further, completion of treatment objectives would be subject to variables such as weather in order to be achieved by the end of the summer season. Thus, DEC has determined that the "Excavation and Disposal - Alternative #3" is the preferred strategy for the site due its economic feasibility and certainty to achieve cleanup objectives. The removal of contaminated soil will provide an important step in reuse of this property by providing a safe location for a gathering space and area to cultivate berry plants for subsistence harvesting by the community and site visitors.

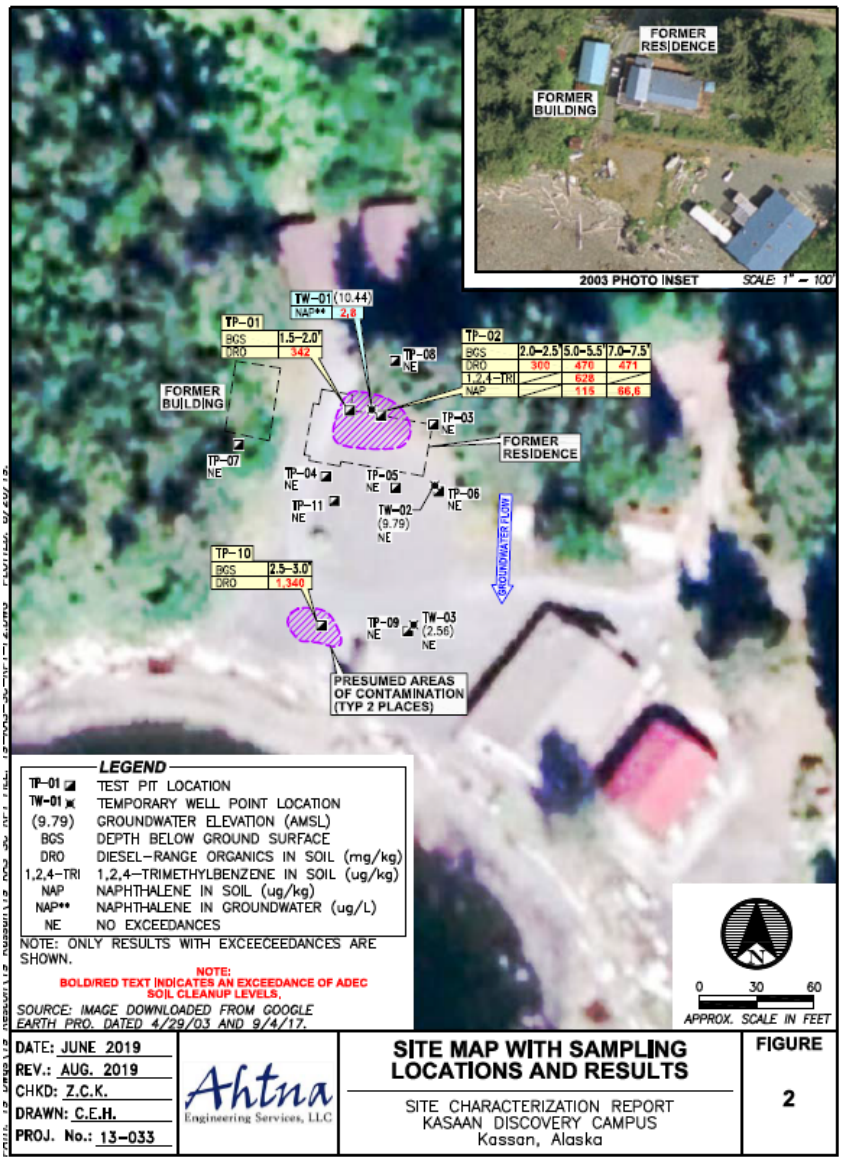
Addressing Groundwater Contamination

"No Action (Groundwater) – Alternative #4 " would not verify that the site was in compliance with ADEC cleanup levels. Thus, site visitors may still be exposed to contamination due to elevated levels of naphthalene.

"Long-Term Monitoring – Alternative #5" is considered technically feasible and capable of ensuring human health and the environment is protected. Alternative #5 assures that groundwater in the source area is monitored for elevated naphthalene levels until such levels are found to be in compliance with ADEC cleanup levels as defined in regulations. Thus, Alternative #5 is the preferred approach to ensure the safe reuse of the site in the manner envisioned by the community.

6.0 Figures

Figure 1: Sampling Locations and Results



7.0 References

Ahtna Engineering Services, LLC. September 2019. *Site Characterization Report for Kasaan Discovery Campus, Kasaan, Alaska.* ADEC File No. 1515.38.004.