



THE STATE
of **ALASKA**
GOVERNOR SEAN PARNELL

**Department of Environmental
Conservation**

DIVISION OF SPILL PREVENTION & RESPONSE
Contaminated Sites Program

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File No: 1508.38.017

March 18, 2014

Via Electronic and Regular Mail

Mr. Carlos Jimenez, Director
Haines Borough Public Works
Post Office Box 1209
Haines, Alaska 99827

RE: Closure with Institutional Controls Determination
Haines Borough Primary School Contaminated Site

Dear Carlos,

The Alaska Department of Environmental Conservation, Contaminated Sites Program (DEC) has reviewed the environmental records for the referenced site. This decision letter explains the site history, cleanup activity and specific conditions required to effectively manage any remaining contamination. No additional remedial action is required as long as compliance with these conditions is maintained.

Site Name and Location

Haines Borough School District USTs
Haines Borough Offices
Haines, Alaska 99827
Lots 6 and 7, Primary School Subdivision Plat 2008-21

Address of Contact Party

Carlos Jimenez
Haines Borough Public Works
P.O. Box 1209
Haines, AK 99827

DEC Site Identifiers

Hazard ID: 26214
File: 1508.38.017

Regulatory Authority for Determination

Title 18 Alaska Administrative Code 75

Site Description and Background

The former Primary School building UST property is located on Main Street between Fourth and Fifth Avenues in downtown Haines. The surrounding properties consist of municipal, commercial and residential land use. The nearest large surface water body is Portage Cove off Chilkoot Inlet, located about 0.3 miles to the west.

The referenced property is situated in an area of the Chilkat River floodplain that has a fine glacial till (clay) layer that constitutes a confining layer separating shallow groundwater from deep groundwater. The deep groundwater aquifer below the confining layer has a peizometric pressure gradient and may be of sufficient supply and quality to become a drinking water source. Shallow groundwater above the confining layer appears intermittently depending on rainfall and snowmelt from the mountains north of the Haines. Due to the influence of surface water the shallow aquifer is not of sufficient quality for use as a drinking water source. During summer, shallow groundwater is often not present for months at a time.

The Haines Borough provides drinking water to the area under a local public health ordinance that requires residents within 200 feet to make connection to the system. Site investigation has shown that subsurface water elevation on the properties varies seasonally between 8.5 and 13 feet below ground surface (BGS). Depth to bedrock in downtown Haines has been found to be less than twenty feet BGS. The predominant direction of groundwater flow on the property is southwest, toward the Chilkat River. Soil types on the property consist of alluvial and glacial sand and gravel overlain by imported construction fill.

In 2005, the Haines Borough (HB) was making plans to decommission the underground storage tanks (USTs) that supplied heating oil to boilers at four active school buildings. In advance of the project, the Borough made arrangements to investigate soil around each of the USTs for contamination. In October 2005, Carson Dorn Inc. (CDI) advanced test pits at the Primary School building and collected analytical samples from each test pit to characterize subsurface soil for diesel range (DRO) hydrocarbons. At the Primary School, DRO concentrations reached 8,290 milligrams per kilogram (mg/kg) and water in the excavation had petroleum sheen. Since HB intended to decommission the USTs over the next several years DEC deferred further characterization and cleanup activities until the tanks were no longer in use and listed the property on the Contaminated Sites Database.

Contaminants of Concern

The following petroleum contaminants of concern (COCs) are those above cleanup levels that were identified during the course of the site investigations, as summarized in the Characterization and Cleanup Activities section of this decision letter.

- Diesel Range Hydrocarbons (DRO)
- Benzene
- 2-Methylnaphthalene
- 1-Methylnaphthalene

Cleanup Levels

Site investigation sampling detected elevated concentrations of DRO, benzene, 1-methylnaphthalene and 2-methylnaphthalene in confirmation samples of subsurface soil at the former Primary School UST site. The migration to groundwater soil cleanup levels are applicable in this situation to limit DRO and benzene soil contamination from migrating into shallow groundwater. As previously stated, groundwater is intermittent at the site and was investigated for contamination. Surface water is not present at the site and was not investigated for contamination.

The cleanup level requirements for heating oil contamination in soil and groundwater on the property are those established in 18 AAC 75.341(b)(2) Method Two for soil with chemicals listed on 18 AAC

75.341(c) Table B1 and petroleum hydrocarbon ranges listed on 18 AAC 75.341(d) Table B2 for the over 40 inch rainfall zone for soil, and those established in 18 AAC 75.345(b)(1) on Table C for groundwater. The following table displays the contaminant of concern cleanup levels for completed pathways at this site:

Table 1 – Approved Cleanup Levels

Chemical	Soil (mg/kg) Migration to Groundwater	Groundwater (mg/L)
Benzene	0.025	0.005
DRO	230	1.5
2-Methylnaphthalene	6.1	0.15
1-Methylnaphthalene	6.2	0.15

mg/kg = milligrams per kilogram

mg/L = milligrams per liter

Site Characterization and Cleanup Activity

Site Investigation and Cleanup activities conducted under the regulatory authority of the Contaminated Sites Program (DEC) began in 2006. By letter in March 2006, DEC approved a Site Investigation Report for the limited site activity in 2005 by CDI and agreed to allow the Haines Borough (HB) to delay cleanup activities until school buildings were no longer in-use by the School District. These activities are described below.

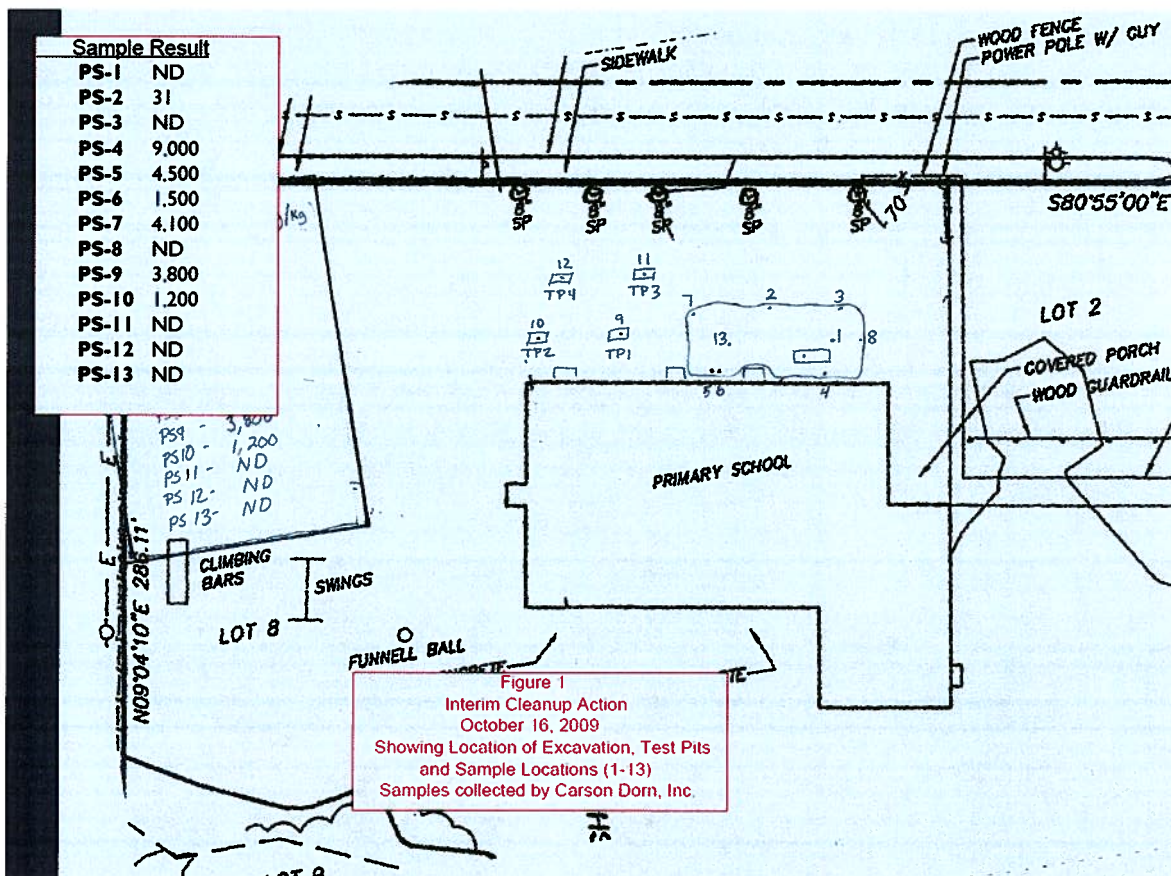
In 2007, DEC approved a work plan for HB to perform the Interim Removal (IR) excavation of the accessible contaminated soil while protecting the integrity of the Primary School building structure. The approved plan drafted by CDI anticipated that a limited volume of the most highly contaminated soil would be loaded into shipping containers for transport to an out-of-state remedial landfill and the lesser contaminated soil would be temporarily stored at the Haines Borough Wastewater Treatment Plant (WTP). At a later date CDI and HB would submit a formal contaminated soil remedial treatment plan to DEC for approval to construct biological treatment cells on-site.



Dense gray sandy/silt/clay layer between eight and ten feet BGS in the main UST excavation.

In October 2009, HB implemented the approved IR Plan during the closure-by-removal of the buried heating oil tank. Using field screening sample methods, CDI directed the loading of an estimated volume of 35 cubic yards of highly contaminated soil into the shipping containers. CDI observed that the fuel released from the UST had filtered down through layers of gray sandy gravel and pooled over the top of silty clay soil layer that ranged in depth between seven and ten feet below ground surface (BGS). Over the next few days HB excavated an estimated volume of 90 cubic yards of lightly contaminated soil from the three accessible sidewalls moving progressively further away from the building foundation. According to the approved IR Plan, the lightly contaminated soil was transported to the WTP site where it was placed into storage between liners in a bermed enclosure. The shipping containers of highly contaminated soil (35 cubic yards) were shipped by barge to Roosevelt Regional Landfill in WA.

CDI collected nine confirmation soil samples (PS-1 through PS-8 and PS-13) from the sidewalls of the main excavation, then advanced additional investigation test pits 1 through 4 in locations west of the main excavation to collect four soil samples (PS-9 through PS-12) from the sidewalls at similar depths BGS. Groundwater did not appear in any of the excavations and was not investigated for contamination.

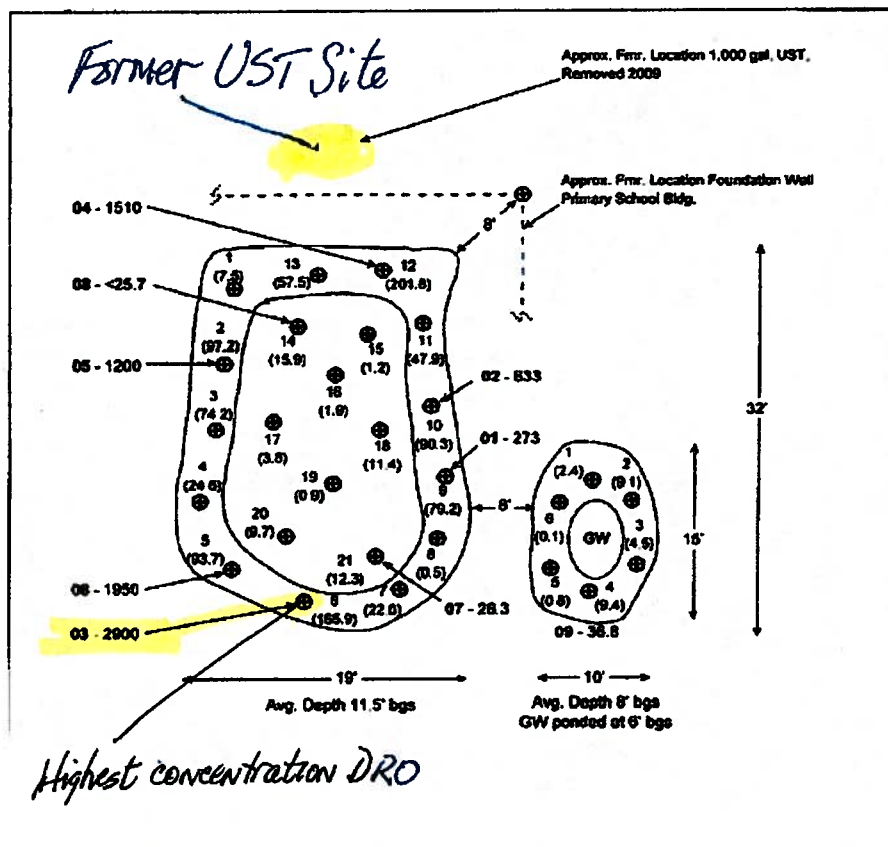


Drawing 1: October 2009 Test Pits and former UST locations at the Primary School

The analytical results for gasoline range (GRO), residual range (RRO) hydrocarbons and benzene, toluene, ethylbenzene, total xylene (BTEX) and polyaromatic hydrocarbon (PAH) hydrocarbon compounds in confirmation soil samples PS-1 through PS-13 were below laboratory reporting limits and soil cleanup levels. Analytical results for six of the thirteen confirmation samples collected in gray sand at depths of five feet BGS next to the school building foundation exceeded the DRO cleanup levels. Soil

confirmation samples from gray silty clay at eight feet BGS in the bottom of the excavation and from the east and north walls of the excavation were all below DRO cleanup levels. In December 2009, DEC approved the data in the CDI Sampling Report for the UST closure site investigation.

In October 2010, DEC approved a sampling plan for HB to perform additional interim removal of subsurface contaminated soil in conjunction with demolition of the Primary School building. After the school building was demolished, Montauk Environmental (Montauk) used field screen sampling methods to direct HB in excavating an estimated volume of 200 cubic yards of contaminated soil from under the building foundation. HB transported the contaminated soil to the WTP site where it was placed into storage between liners in a bermed enclosure. The DRO soil contamination was found in a gray sandy gravel layer at depths averaging between six and seven feet BGS extending under the former building foundation in a southwest direction from the former UST.



Legend

- ⊣ Test Pit and ID No.
- ⊕ Contractor's Datum Point (DP), Approx. NE Corner Fmr. Bldg.
- ⊙ Field Headspace Sample No. and (Result in ppm)
- ⊗ Co-located Field and Lab Sample Location
- 03 - 2900 Lab Sample No. and Diesel Range Organics Concentration in mg/kg
- Ponded Groundwater From Sidewall Seeps

Haines Primary School LUST Contam. Soil Removal Action

Figure 3: Field and Lab Sample Locations and Results

or 9. This drawing is prepared solely for informational purposes in support of this report, and is to be used for no other purpose.

Montauk/E/E Drawn by CJE

Drawing 2: 2010 site investigation/interim removal under the building foundation

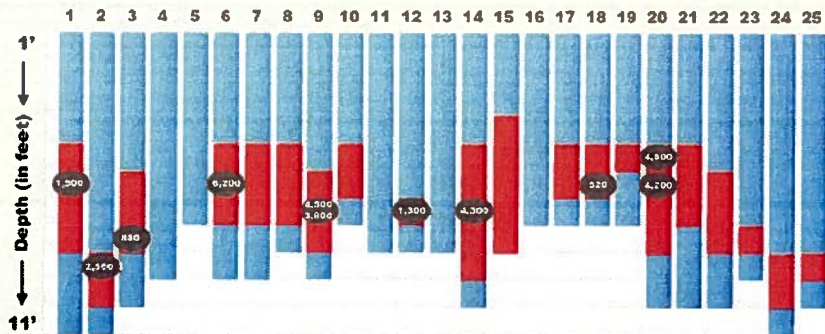
The highest level of DRO detected in soil at the extent of the 2010 excavation was 2,900 mg/kg in sample 03 collected from the south wall at a depth of four and one half feet BGS. Sample 07, collected at the deepest point on the bottom at the south end of the pit at 11.5 feet BGS, had a DRO concentration of 26.3 mg/kg. Since groundwater was not encountered, the 2010 site investigation concluded that after the interim removal, a thin layer of contaminated soil remained above a confining layer of clay where water collects after permeating through the upper porous layers of soil. When water infiltrating from the surface reaches the silty clay layer it follows the natural horizontal gradient in a southwest direction.

In July 2010, DEC approved a work plan to aggressively treat the estimated 290 cubic yards of lightly contaminated soil stored at the WTP site in a biocell. By November 2012, samples indicated the soil met DRO cleanup levels and DEC approved land spreading the biocell remediated soil behind the WTP building capping it with clean material.



Former Primary School
 Haines, AK

- - Clean
- - Contaminated
- # - DRO Results

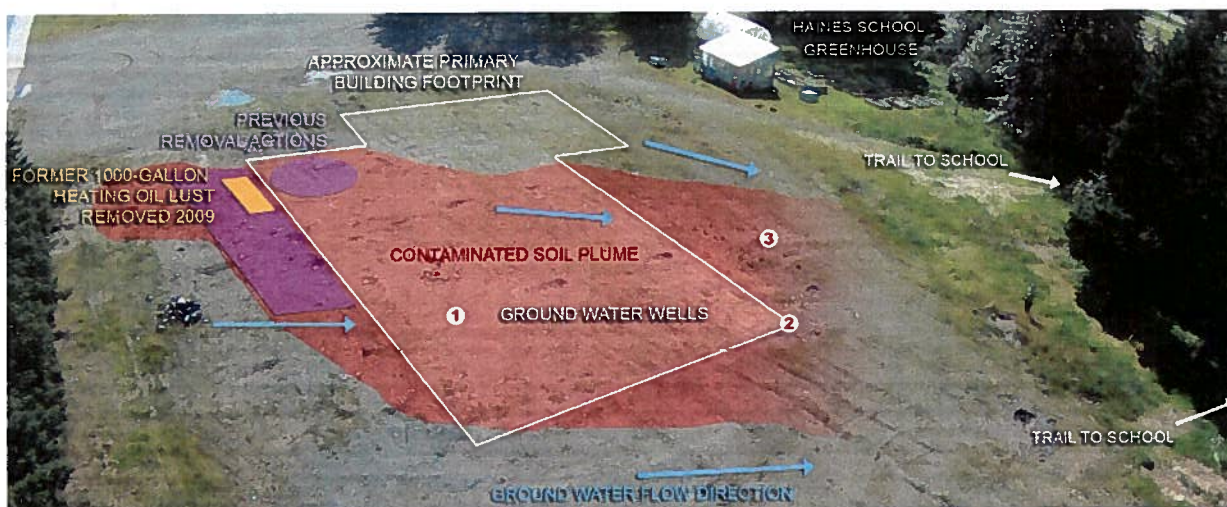


Drawing 3 2012 Site Investigation boring locations, depths BGS and DRO concentrations in samples

In August 2012, Chilkat Environmental (CEI) collected eleven site characterization analytical soil samples from 24 test pits advanced at the Primary School UST site (Drawing 3 above). CEI screened test pit samples for volatile hydrocarbons with a photoionization detector. The samples with the highest readings were prepared and sent for laboratory analysis. Each of the soil COCs for the site DRO, benzene, 2-methylnaphthalene and 1-methylnaphthalene were detected above approved cleanup levels. The analytical results detected moderate concentrations of DRO in all eleven samples with a maximum DRO concentration of 6,200 mg/kg in sample P6-5 collected six feet BGS in a boring located at the former UST site. The analytical results detected benzene in five of eleven samples and the maximum benzene concentration was 0.11 mg/kg in sample P1-11 collected east of the former UST site. Analytical results for PAH compounds 2-methylnaphthalene and 1-methylnaphthalene had concentrations of 19 mg/kg and 12 mg/kg respectively in sample P20-5 collected five feet BGS west of the former UST site.

The data supported the conclusion of previous investigations that a DRO contaminated soil layer extended horizontally in a southwest direction from the UST release source. The thickness of the contaminated soil layer became increasingly thinner as the boring locations got further from the UST source. Groundwater seeped into boring samples at a depth just above the silty clay confining layer previously encountered. As distance from the UST site increases southwest on the level grade of the building site, the vertical distance in depth to the clay layer where groundwater was found, also increases.

Based on the 2012 analytical sampling data, CEI concluded that contaminated soil remains beyond the perimeter of previous removal excavations in a layer averaging less than one foot thick over the intact clay-like confining layer. Groundwater migrating through this remaining soil contamination layer could potentially seep from the surface and affect wetlands located off-site southwest of the building site. As a result, DEC requested HB submit a plan to investigate groundwater for contamination.



Drawing 4 Former Primary School contaminated soil plume, groundwater flow & monitor well locations

In October 2013, Chilkat excavated pits in three locations (number white circles in Drawing 4) and installed pre-packed monitor wells to depths averaging 13 feet BGS. Groundwater began to seep from pit sidewalls, on average, at a depth of nine feet BGS. One day after installation, the wells were developed, purged, and samples were collected and submitted for analysis of GRO, DRO, RRO, BTEX and polyaromatic hydrocarbons (PAHs). Groundwater analytical results for each analyte was either below laboratory reporting limits or Table C cleanup levels. The following table displays data for the COCs.

Table 2 COC Analytical results of the 2013 groundwater sampling event

Analyte	Units	MW-1	MW-1 duplicate	MW-2	MW-3	Table C level
DRO	mg/L	1.3	1.4	0.32	0.41	1.5
Benzene	mg/L	<0.00035	0.00088	<0.00035	0.00036	0.005
2-methylnaphthalene	mg/L	<.001	<.0073	0.023	<0.001	0.15
1-methlnaphthalene	mg/L	<.001	<.001	<.001	<.001	0.15

mg/L= milligrams per liter

Based on analytical results below the cleanup levels in samples from each monitor well for COCs DRO, benzene, 2-methylnaphthalene and 1-methylnaphthalene, CEI recommended closing the site with institutional controls restricting movement of soil from below an estimated average depth limit of five feet BGS where remaining contaminated soil may be present, as displayed in Drawing 3.

Cumulative Health Risk Calculation

Pursuant to 18 AAC 75.325 (g), when detectable contamination remains on-site following a cleanup, a cumulative risk determination must be calculated. Cumulative risk from petroleum contamination of environmental media at the site is addressed using the BTEX analyte concentration data. Based on a review of the environmental record, DEC has determined that residual contaminant concentrations do not pose a cumulative human health risk.

Exposure Pathway Evaluation

Following investigation and cleanup at the site, exposure to the remaining contaminants was evaluated using DEC's Exposure Tracking Model (ETM). Exposure pathways are the conduits by which contamination may reach human or ecological receptors. ETM results show all pathways to be one of the following: De Minimis Exposure, Exposure Controlled, or Pathway Incomplete. A summary of this pathway evaluation is included in Table 3.

DEC Decision

In accordance with 18 AAC 75.335, site characterization and cleanup DEC concurs with the recommendation by Chilkat Environmental and has determined that soil contamination remaining in a subsurface soil layer on the referenced property is limited, stable and does not present an unacceptable risk to human health or the environment. Groundwater monitoring demonstrates that the thin zone of contamination is not impacting groundwater. The department approves closure for this site in accordance with 18 AAC 75.380, subject to institutional controls under 18 AAC 75.375, as outlined below. These controls are necessary to ensure that soil contamination encountered during construction or other disturbances in the future is properly managed, and that current and future landowners or operators on the impacted properties are notified and aware.

Institutional Controls

Since petroleum contamination remains in subsurface soil on the referenced property above approved cleanup levels, institutional controls are necessary to ensure there is no unacceptable risk to human health or the environment, now and in the future. A Notice of Environmental Contamination (deed notice) shall be recorded in the State Recorder's Office as an institutional control (IC) that identifies the nature and extent of contamination at the property as described in this decision document and the

conditions that current and future owners and operators are subject to in accordance with this decision document. These conditions are as follows:

1. Any future change in land use may impact the exposure assumptions cited in this document. If land use zoning and/or ownership changes, these management conditions may not be protective and DEC may require additional remediation and revised conditions. Therefore the Haines Borough and any future property owner of this site shall submit a report to DEC every three years to document land use, or report as soon as the Haines Borough and any future property owner becomes aware of any change in land ownership and/or zoning use, if earlier, with a written description and photographs of the condition of the ground surfaces overlying the contamination with notation of any changes since the last report. The report can be sent to the local DEC office or electronically to DEC.ICUnit@alaska.gov
2. Sub-surface soil contamination is located on the referenced property as indicated on Drawing 3 in the body of this letter and on the deed notice. If remaining contaminated soil is disturbed by excavation, the soil must be evaluated and contamination addressed in accordance with a DEC approved work plan. When remaining soil contamination at the former Primary School property becomes accessible during future property development, the soil must be evaluated and contamination addressed to the extent necessary to complete new development in accordance with a DEC approved work plan.
3. Installation of water wells will require approval from DEC.
4. Existing groundwater monitoring wells must be decommissioned by the last day of August 2014 in accordance with DEC guidance. Submit documentation to DEC within 30 days of decommissioning the wells.
5. Any proposal to transport soil or groundwater off-site requires DEC approval in accordance with 18 AAC 7.325(i). A "site" [as defined by 18 AAC 75.990 (115)] means an area that is contaminated, including areas contaminated by the migration of hazardous substances from a source area, regardless of property ownership.
6. Movement or use of contaminated material in a manner that results in a violation of 18 AAC 70 water quality standards is prohibited.

The DEC Contaminated Sites Database will be updated to reflect the change in site status as detailed above, and will include a description of the contamination remaining at the site. Institutional controls will be removed in the future if documentation can be provided that shows cleanup levels have been met. Management conditions 5 and 6 remain in effect after ICs 1-4 are removed.

This determination is in accordance with 18 AAC 75.380 and does not preclude DEC from requiring additional assessment and/or cleanup action if future information indicates that this site may pose an unacceptable risk to human health or the environment.

Appeal

Any person who disagrees with this decision may request an adjudicatory hearing in accordance with 18 AAC 15.195 -18 AAC 15.340 or an informal review by the Division Director in accordance with 18 AAC 15.185. Informal review requests must be delivered to the Division Director, 410 Willoughby Avenue, Suite 303, Juneau, Alaska 99801, within 15 days after receiving the department's decision reviewable under this section. Adjudicatory hearing requests must be delivered to the Commissioner of the Department of Environmental Conservation, 410 Willoughby Avenue, Suite 303, Juneau, Alaska 99801,

Mr. Carlos Jimenez
Haines Borough Primary School UST

March 18, 2014

within 30 days after the date of issuance of this letter, or within 30 days after the department issues a final decision under 18 AAC 15.185. If a hearing is not requested within 30 days, the right to appeal is waived.

Please sign and return *Attachment A* to DEC within 30 days of receipt of this letter. If you have questions about this closure decision, please contact the DEC project manager, Bruce Wanstall at (907) 465-5210.

Sincerely,



Bruce Wanstall
Remedial Project Manager
State & Private Contaminated Sites Program

Attachment A: Cleanup Complete-IC Agreement and Signature Page*
Attachment B: Exposure Pathway Evaluation

cc: Julie Cozzi, Interim Borough Manager, Haines, via email, jcozzi@haines.ak.us
Sally Schlichting, DEC Project Manager, via email

Attachment A: Cleanup Complete-IC Agreement and Signature Page*

The Haines Borough agrees to the terms and conditions of this Cleanup Complete Determination with Institutional Controls, as stated in the decision letter for the Haines Borough School District properties, dated March 18, 2014. Failure to comply with the terms and conditions of the determination may result in DEC reopening this site and requiring further remedial action in accordance with 18 AAC 75.380.

Signature of Authorized Representative, Title

Date

Printed Name of Authorized Representative, Title

Note to Responsible Person (RP):

After making a copy for your records, please return a signed copy of this form to the ADEC project manager at the address on this correspondence within 30 days of receipt of this letter.

Attachment B: Exposure Pathway Evaluation

Table 3 – Exposure Pathway Evaluation

Pathway	Result	Explanation
Surface Soil Contact	De minimis exposure	There is no soil contamination remaining at the surface on the site above the direct contact cleanup levels.
Sub-Surface Soil Contact	De minimis exposure	Soil contamination remains in the subsurface at levels between Method Two Table B2 Migration to Groundwater and human health direct contact/ingestion levels. Future excavation requires DEC plan approval prior to beginning any work (IC).
Inhalation – Outdoor Air	De minimis exposure	Contamination remains in the subsurface, and volatile compounds are present but groundwater data indicate benzene is not migrating at levels to indicate outdoor inhalation screening levels are exceeded.
Inhalation – Indoor Air (vapor intrusion)	De minimis exposure	Buildings are not currently present and although benzene is present above MTG cleanup levels in soil, concentrations in groundwater are below Table C.
Groundwater Ingestion	De minimis exposure	Petroleum levels in intermittent groundwater at the site are below Table C cleanup levels. Groundwater does not influence a current or future drinking water source. Haines Public Works provides potable water to the area and a local ordinance requires any new construction to connect to the system.
Surface Water Ingestion	Pathway Incomplete	Surface water hydraulically connected to the site is not of sufficient quality or quantity for a potable water source.
Wild Foods Ingestion	Pathway Incomplete	The site and the urban area are not a wild foods harvest area and none of the contaminants have potential to bioaccumulate in flora or fauna.
Exposure to Ecological Receptors	Pathway Incomplete	Ecological receptors may be present in off-site wetlands but persistent water bodies are not present and COC concentrations in groundwater are below Table C cleanup levels.

Notes to Table 1: “De-minimis exposure” means that in DEC’s judgment receptors are unlikely to be affected by the minimal volume of remaining contamination. “Pathway incomplete” means that in DEC’s judgment contamination has no potential to contact receptors. “Exposure controlled” means there is an administrative mechanism in place limiting land or groundwater use, or a physical barrier in place that deters contact with residual contamination.