



THE STATE
of **ALASKA**
GOVERNOR BILL WALKER

**Department of
Environmental Conservation**

DIVISION OF SPILL PREVENTION AND RESPONSE
Contaminated Sites Program

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File: 330.38.114

December 6, 2017

Janine Boyette
Response and Remediation SME
Alyeska Pipeline Service Company
PO Box 196660, Mail Stop 507
Anchorage, AK 99519

Re: Decision Document: Alyeska PS 01 Former Baseline Shop
Cleanup Complete Determination

Dear Ms. Boyette:

The Alaska Department of Environmental Conservation, Contaminated Sites Program (ADEC) has completed a review of the environmental records associated with Alyeska Pump Station (PS) 01 Former Baseline Shop located at Pump Station 01 in Deadhorse, Alaska. Based on the information provided to date, it has been determined that the contaminant concentrations remaining on site do not pose an unacceptable risk to human health or the environment and no further remedial action will be required unless new information becomes available that indicates residual contaminants may pose an unacceptable risk.

This Cleanup Complete determination is based on the administrative record for the Alyeska PS 01 Former Baseline Shop, which is located in the ADEC office in Anchorage, Alaska. This decision letter summarizes the site history, cleanup actions and levels, and standard site closure conditions that apply.

Site Name and Location:

Alyeska PS 01 Former Baseline Shop
Spine Road, Pump Station 01
4.5 Miles South of Prudhoe Bay
Deadhorse, AK 99734

Name and Mailing Address of Contact Party:

Janine Boyette
Response and Remediation SME
Alyeska Pipeline Service Company
PO Box 196660, Mail Stop 507
Anchorage, AK 99519

DEC Site Identifiers:

File No.: 330.38.114
Hazard ID.: 4447

Regulatory Authority for Determination:

18 AAC 75

Site Description and Background

During construction activities in 2004, three areas of historical petroleum contamination were discovered in the vicinity of the Former Pump Station 01 Baseline Shop. These contaminated areas include: the northern

trench on the northeast corner of a former concrete foundation, the southern trench located along the eastern edge of the former concrete foundation, and the scraper building located 30 feet northeast of the scraper building on the western edge of the drive lane (see attached figure).

Contaminants of Concern

During the site investigation and cleanup activities at this site, samples were collected from soil and pad pore water and were analyzed for gasoline range organics (GRO), diesel range organics (DRO), residual range organics (RRO), volatile organic compounds (VOCs) and polycyclic aromatic hydrocarbons (PAHs). Based on these analyses, the following contaminants of concern were identified at the site:

- GRO
- DRO
- RRO

Cleanup Levels

The cleanup levels for petroleum hydrocarbon-contaminated soil on manmade gravel pads and roads in the Arctic Zone are established in 18 AAC 75.341 Method One, Table A2, and 18 AAC 75.341 Method Two Tables B1 and B2.

A number of factors are considered by ADEC when evaluating site specific cleanup levels in the Arctic Zone including:

- human health (ingestion/inhalation);
- ecological impacts (contamination impacting ecological species other than humans);
- groundwater and surface water quality;
- presence of free phase product; and
- any other factors that might cause a deleterious impact to the environment.

In the Arctic Zone, the migration to surface water pathway is evaluated as the primary migration pathway because the migration to groundwater pathway is not considered applicable due to the presence of continuous permafrost. Impacted surface water can adversely affect both human and ecological receptors depending on the location of the contaminant source, its proximity to surface waters, and water usage in the impacted area. Therefore the migration to surface water pathway is evaluated as a possible risk to human health (drinking water source) and for compliance with Alaska Water Quality standards (18 AAC 70).

In addition, the migration to surface water is evaluated as a possible exposure pathway for ecological receptors because of the tundra wetland ecosystem that exists throughout the Arctic region. Potential future use of the property must also be taken into account when determining closure status. Differentiating between a “Cleanup Complete” and a “Cleanup Complete with Institutional Controls” determination will be based on site specific conditions and exposure pathways as determined by ADEC. For the purposes of this Cleanup Complete Determination, the following cleanup levels from 18 AAC 75 were used:

Table 1 - Arctic Zone Soil Cleanup Levels

Contaminants of Concern	Method One, BTEX < 15 mg/kg	Method Two, Direct Contact/Ingestion	Method Two, Inhalation	Migration to Groundwater
GRO	100	1,400	1,400	N/A
DRO	500	12,500	12,500	N/A
RRO	2,000	13,700	22,000	N/A

Notes to Table 1:

1. All soil contaminant concentrations are presented as mg/kg.
2. Due to continuous permafrost in the Arctic Zone, the "Migration to Groundwater" pathway is considered incomplete or non-applicable (N/A).
3. The department will determine the cleanup levels for undisturbed tundra and native vegetation on a site-specific basis, depending on whether a cleanup action would cause more severe or long-lasting damage than would the discharge or release alone.

Characterization and Cleanup Activities

A total of 17 cubic yards of contaminated soil were removed from the northern trench, southern trench, and the scraper building areas in 2004. Confirmation soil samples collected from the three areas were below method two arctic zone soil cleanup levels, however method one arctic zone cleanup levels were exceeded with DRO up to 1,900 mg/kg and GRO up to 332 mg/kg.

To evaluate the impacts to pad pore water, eight borings were advanced with two completed as monitoring wells in 2007 (see attached figure). Soil samples collected from the borings were below method two arctic zone soil cleanup levels, however method one arctic zone cleanup levels were exceeded with DRO up to 1,210 mg/kg and GRO up to 433 mg/kg. Out of the two monitoring wells installed, only one located downgradient contained sufficient water for sample collection. This monitoring well contained GRO, DRO, and RRO results above ADEC table C groundwater cleanup levels.

The ground water was further evaluated and sampled annually until 2016. During this time, four additional monitoring wells were installed on the PS 01 gravel pad downgradient of the source areas for a total of six monitoring wells. Data from these 10 groundwater sampling events indicate a decreasing trend in groundwater with only DRO and RRO remaining above ADEC table C groundwater cleanup levels. Additionally, the last two sampling events from the furthest downgradient monitoring well did not contain contaminant concentrations above table C groundwater cleanup levels, suggesting there is no communication between pad pore water and the surrounding tundra wetland.

A final mobilization occurred in 2017 to decommission monitoring wells.

Cumulative Risk Evaluation

Pursuant to 18 AAC 75.325(g) when detectable contamination remains on-site following a cleanup, a cumulative risk determination must be made that the risk from hazardous substances does not exceed a cumulative carcinogenic risk standard of 1 in 100,000 across all exposure pathways and does not exceed a cumulative noncarcinogenic risk standard at a hazard index of one across all exposure pathways. Based on a review of the environmental record, ADEC has determined that residual contaminant concentrations meet the human health cumulative risk criteria for residential land use.

Exposure Pathway Evaluation

Following investigation and cleanup at the site, exposure to the remaining contaminants was evaluated using ADEC'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 2.

Table 2 – Exposure Pathway Evaluation

Pathway	Result	Explanation
Surface Soil Contact	De-Minimis Exposure	Remaining surface soil contamination is below human health cleanup levels
Sub-Surface Soil Contact	De-Minimis Exposure	Remaining soil contamination is below human health cleanup levels
Inhalation – Outdoor Air	De-Minimis Exposure	Remaining soil contamination is below human health and inhalation cleanup levels
Inhalation – Indoor Air (vapor intrusion)	Pathway Incomplete	PS 01 buildings are constructed on pilings making this pathway incomplete.
Groundwater Ingestion	Pathway Incomplete	Supra-permafrost groundwater is not a potential drinking water source.
Surface Water Ingestion	Pathway Incomplete	Surface water is not used as a drinking water source in the vicinity of the site.
Wild and Farmed Foods Ingestion	Pathway Incomplete	Contaminants of concern do not have the potential to bioaccumulate in plants or animals.
Exposure to Ecological Receptors	Pathway Incomplete	DRO and RRO contaminated groundwater is confined to the PS 01 gravel pad.

Notes to Table 2: “De-Minimis Exposure” means that in ADEC’s judgment receptors are unlikely to be adversely affected by the minimal volume or concentration of remaining contamination. “Pathway Incomplete” means that in ADEC’s judgment contamination has no potential to contact receptors. “Exposure Controlled” means there is an institutional control in place limiting land or groundwater use and there may be a physical barrier in place that prevents contact with residual contamination.

ADEC Decision

Remaining concentrations of contaminants in pore water have decreased from 2007 to 2016. Additionally, the contaminated groundwater is confined to the PS01 gravel pad eliminating exposure pathways. This site will receive a “Cleanup Complete” designation on the Contaminated Sites Database, subject to the following standard conditions.

Standard Conditions

1. Any proposal to transport soil or groundwater off-site requires ADEC approval in accordance with 18 AAC 75.325(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. (See attached site figure).
2. Movement or use of contaminated material in a manner that results in a violation of 18 AAC 70 water quality standards is prohibited.
3. Groundwater throughout Alaska is protected for use as a water supply for drinking, culinary and food processing, agriculture including irrigation and stock watering, aquaculture, and industrial use. Contaminated site cleanup complete determinations are based on groundwater being considered a potential drinking water source. In the event that groundwater from this site is to be used for other purposes in the future, such as aquaculture, additional testing and treatment may be required to ensure the water is suitable for its intended use.

This determination is in accordance with 18 AAC 75.380 and does not preclude ADEC from requiring additional assessment and/or cleanup action if future information indicates that contaminants at this site may pose an unacceptable risk to human health, safety, or welfare or to 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, 555 Cordova Street, Anchorage, Alaska 99501-2617, 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, P.O. Box 111800, Juneau, Alaska 99811-1800, 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.

If you have questions about this closure decision, please feel free to contact me at (907) 269-8685 or email at grant.lidren@alaska.gov.

Sincerely,

A handwritten signature in blue ink, appearing to read "Grant Lidren", with a stylized flourish at the end.

Grant Lidren
Project Manager

cc: Spill Prevention and Response, Cost Recovery Unit

Site Figure

