



THE STATE
of **ALASKA**
GOVERNOR SEAN PARNELL

Department of
Environmental Conservation

DIVISION OF SPILL PREVENTION & RESPONSE
Contaminated Sites Program

555 Cordova Street
Anchorage, Alaska 99501
Phone: 907.269.7503
Fax: 907.269.7649
dec.alaska.gov

File No: 330.38.008

Article: 7012 1010 0003 0389 1198

May 12, 2014

Jan Shifflett
Response and Remediation SME
Alyeska Pipeline Service Company
PO Box 196660 Mail Stop 507
Anchorage, Alaska 99519

Re: Decision Document; Alyeska PS 01 Therminol Contamination
Cleanup Complete

Dear Mr. Shifflett;

The Alaska Department of Environmental Conservation (ADEC) has reviewed the environmental records for Alyeska PS 01 Therminol Contamination. This decision letter memorializes the site history, cleanup actions, and standard conditions for long-term site management. No further remedial action is required.

Site Name and Location:

Alyeska PS 01 Therminol Contamination
Spine Road, Pipeline mile 0
Deadhorse, Alaska 99734

Name and Mailing Address of Contact Party:

Jan Shifflett, Response and Remediation SME
Alyeska Pipeline Service Company
PO Box 196660 Mail Stop 507
Anchorage, Alaska 99519

ADEC Site Identifiers:

File: 330.38.008
Hazard ID: 1744

Regulatory Authority for Determination:

18 AAC 75

Background

In 1980, Therminol-44 leaked from Pump Station 01 (PS 01) and deteriorated the insulation on the existing pipe causing thawing of the soils underneath. In 1990, a pipe releveling and re-insulation project was conducted to fix the problem. Therminol-44 is a heat transfer fluid composed of hydrocarbons. The releveling and re-insulation project was located adjacent to the turbine fuel/diesel offloading area at PS 01. PS 01, the origin of the pipeline, is currently pumping oil through the Trans-Alaska Pipeline System.

Contaminants of Concern

During the investigations at the site, soil samples were analyzed for the following: total petroleum hydrocarbons (TPH) by EPA Method 418.1 which is roughly equivalent to gasoline range organics, diesel range organics, and residual range organics combined; and Halogenated Volatile Organics for soil and water. Based on these analyses and knowledge of the source area, the following contaminants of concern (COCs) were identified in soil:

- Tetrachloroethylene (PCE)
- Total petroleum hydrocarbons (TPH)

Cleanup Levels

This site is located north of latitude 68 degrees North, and is subject to Arctic Zone cleanup criteria. Factors below are considered by ADEC when evaluating site specific cleanup levels and the need for institutional controls in the Arctic Zone.

- Arctic Zone cleanup levels promulgated in 18 AAC 75
- ecological impacts
- surface water quality
- presence of free phase product
- whether a cleanup action would cause more severe or long-lasting damage than the discharge or release for undisturbed tundra and native vegetation;
- other factors that might cause a deleterious impact to the environment.

The migration to groundwater pathway is not considered applicable in the Arctic Zone due to the presence of continuous permafrost. However, the migration to surface water pathway is evaluated for risk to human health (drinking water source), and for compliance with Alaska Water Quality standards (18 AAC 70) due to the tundra wetland ecosystem that exists throughout the Arctic region.

Soil cleanup levels for this site are established in 18 AAC 75.341, Method Two, Table B1, *Arctic Zone* and the ADEC Interim Guidance (Guidance) dated September 26, 1990.

Table 1- Soil Cleanup Levels: Method Two, Table B1, Arctic Zone and Highest Remaining Contaminant Level

Contaminants of Concern	Soil- Method Two, Direct Contact /Ingestion*	Soil-, Inhalation*	Soil- Method Two Migration to Groundwater*	Soil-Highest remaining contaminant level on site*
PCE	21	15	N/A	0.025

Notes to Table. *All soil contaminant concentrations are presented as mg/kg. Due to continuous permafrost in the Arctic Zone, the "Migration to Groundwater" pathway is considered incomplete or non-applicable (N/A). 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.

At the time of this cleanup, the ADEC Interim Guidance (Guidance) dated September 26, 1990 established the soil cleanup levels for petroleum or refined petroleum products. The petroleum product of concern for this site is Refined Non-Gasoline Product since the most likely source of contamination is the turbine fuel/diesel offloading area located immediately adjacent to the excavations. The Guidance establishes a cleanup level of 100 ppm for TPH which is roughly equivalent to gasoline range organics, diesel range organics, and residual range organics combined.

It should be noted that analytical methods in use during this release and cleanup categorized petroleum constituents into different hydrocarbon fractions than contemporary methods in effect today. Regulatory changes in September 2000 updated the analytical methods and reporting criteria to analyze and report analogous compounds as Gasoline Range Organics (GRO), Diesel Range Organics (DRO), and Residual Range Organics (RRO).

Site Characterization and Cleanup Actions

During the pipe releveing and reinsulation project, 10,000 cubic yards of Therminol-44 contaminated soil were excavated and stockpiled in containment dikes. Seven soil samples collected from six borings at 5 and 9 feet below ground surface advanced in the area of the excavation contained PCE up to 0.025 mg/kg.

From the containment dikes, 3,200 cubic yards of stockpiled soils containing TPH concentration greater than 100 mg/kg were thermally remediated. The remaining 6,800 cubic yards of soil were reused as fill at PS 01, some of which was used for construction of the extension of the pad in 1992.

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 do not pose a cumulative human health risk.

Exposure Pathway Evaluation

Following investigation and cleanup at this site, exposure to remaining contaminants was evaluated using ADEC's Exposure Tracking Model (ETM). Exposure pathways are 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 1.

Table 1 – Exposure Pathway Evaluation

Pathway	Result	Explanation
Surface Soil Contact	De Minimis Exposure	It is reported that contaminated surface soil was removed and remediated off site. This site is located in an industrial zone. Exposure via this pathway is assumed insignificant.

Sub-Surface Soil Contact	De Minimis Exposure	Remaining contaminated subsurface soil is below direct contact cleanup levels. This site is located in an industrial zone. Exposure via this pathway is assumed insignificant.
Inhalation – Outdoor Air	De Minimis Exposure	Remaining contaminated soil is below inhalation cleanup levels. This site is located in an industrial zone. Exposure via this pathway is assumed insignificant.
Inhalation – Indoor Air (vapor intrusion)	De Minimis Exposure	Low concentrations of VOCs were detected in some onsite soil samples. VOCs are not an expected COC from Therminol, therefore a VOC exposure from Therminol is unlikely. Because of the low levels of VOCs and site location along an active fuel pipeline facility, exposure through this pathway is considered insignificant.
Groundwater Ingestion	Pathway Incomplete	Groundwater is not utilized as a drinking water source in this area.
Surface Water Ingestion	Pathway Incomplete	Surface water is not utilized as a drinking water source in this area.
Wild Foods Ingestion	Pathway Incomplete	Contaminants of concern do not have the potential to bioaccumulate in plants or animals. This area is not used for harvesting wild foods.
Exposure to Ecological Receptors	Pathway Incomplete	There are no complete exposure pathways to ecological receptors at the site.

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

ADEC Decision

Based on the information available to date, ADEC has determined no further assessment and/or cleanup action is required. There is no unacceptable risk to human health or the environment, and this site will be designated as closed on the Department's database.

Standard Conditions

1. Any proposal to transport soil or groundwater off-site requires ADEC approval in accordance with 18 AAC 78.600(h). 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.

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, 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 contact Grant Lidren at (907) 269-8685.

Sincerely,



Grant Lidren
Environmental Program Specialist

CC: Scott Rose, SLR
DEC- Response Fund Admin (RFA) via email dec.spar.cr@alaska.gov.