



THE STATE  
of **ALASKA**  
GOVERNOR SEAN PARNELL

Department of  
**Environmental Conservation**

DIVISION OF SPILL PREVENTION & RESPONSE  
Contaminated Sites Program

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February 20, 2013

Mr. Jan Shifflett  
Alyeska Pipeline Service Company  
900 E. Benson Blvd  
P.O. Box 196660  
Anchorage, AK 99519-6660

Re: Decision Document; Alyeska VMT U-Site; Cleanup Complete Determination

Dear Mr. Shifflett;

The Alaska Department of Environmental Conservation, Contaminated Sites Program (ADEC) has completed a review of the environmental records and project files associated with *Alyeska VMT U-Site*, which is located on Dayville Road in the Valdez Marine Terminal in Valdez, Alaska. Based on the information provided to date, ADEC has determined that the remaining contaminant concentrations do not pose an unacceptable risk to human health or the environment, and this site will be closed.

This decision is based on the project file for the subject site, which is located in the ADEC offices in Anchorage, Alaska. This letter summarizes the decision process used to determine the environmental status of this site, and provides a summary of the regulatory issues considered in this Cleanup Complete Determination.

**Site Name and Location:**

Alyeska VMT U-Site  
Dayville Road  
Valdez Marine Terminal  
Valdez, Alaska 99686

**Name and Mailing Address of Contact Party:**

Mr. Jan Shifflett  
Alyeska Pipeline Services Company  
900 E. Benson Blvd  
P.O. box 196660  
Anchorage, AK 99519-6660

**DEC Site Identifiers:**

ADEC Reckey: 1987710114001  
File: 1200.38.014  
Hazard ID: 397

**Regulatory Authority for Determination:**

18 AAC 75

## Background

*Alyeska VMT U-Site* is located on Dayville Road at the Valdez Marine Terminal, which is approximately 2.6 miles south of Valdez, Alaska on the south side of Port Valdez. Valdez Marine Terminal is a limited-access, industrial facility operated by Alyeska Pipeline Services Company.

On May 20, 1987, a faulty joint in a pipeline carrying crude-contaminated ballast water allowed approximately 70 barrels (2,940 gallons) of diluted crude to escape and contaminate soil beneath the joint. An immediate response was launched, and the joint was subsequently repaired and reinforced. Initial containment and remediation activity consisted of vacuum truck product recovery, soil excavation, thermal desorption, and in situ soil flushing. Vacuum trucks recovered approximately 54 barrels (approximately 2,268 gallons) of oil during the initial response effort, but an estimated 16 barrels (approximately 672 gallons) penetrated soil within an excavated catch basin referred to as the "U-Site." Long-term product recovery continued via intercept trenches, sumps, and dams (see below). An excavation to inspect a buried water pipe at the U-site in 1992 revealed a 12 inch thick lens of contaminated soil believed to have originated during the 1987 release event, so additional soil excavation and thermal desorption ensued.

## Contaminants of Concern

Analytical methods in use during this release event occasionally categorized petroleum constituents according into different hydrocarbon groupings than contemporary (2013) methods. For example, soil samples were analyzed for Total Petroleum Hydrocarbons – Gasoline (TPH-G; identical carbon fraction to Gasoline Range Organics (GRO)), Total Petroleum Hydrocarbons – Diesel (TPH-D; similar, but more inclusive, carbon fraction than Diesel Range Organics (DRO)), Total Residual Petroleum Hydrocarbons (TRPH; C<sub>6</sub>-C<sub>70</sub> minus TPH-G and TPH-D with a broader range than current Residual Range Organics (RRO) methods), and benzene, toluene, ethylbenzene, and xylenes (BTEX). Groundwater was sampled from the U-site catch basin on three occasions in 1993. Based on these combined analyses, the following contaminants of concern (COCs) were identified:

- TPH-G / GRO
- TPH-D / DRO
- TRPH / RRO
- Benzene
- Toluene
- Ethylbenzene
- Xylenes

## Cleanup Levels

Given the date of this release event (1987), comparison of contaminant concentrations to cleanup levels that existed at the time are relevant as well as comparison with contemporary cleanup levels. Historic regulatory criteria applied to impacted soil in unlined areas of the Valdez Marine Terminal were specified in the July 17, 1991 ADEC "Interim Guidance for Non-UST Contaminated Soil Cleanup Levels," Level B. Corresponding Level B soil cleanup target levels are presented in Table 1. Contemporary default soil cleanup levels for this site are established in 18 AAC 75.341, Method Two, Tables B1 and B2, Migration to Groundwater (MTG), *Over 40 Inch Zone* and are also presented in Table 1.

Historic regulatory criteria applied to impacted groundwater in the Valdez Marine Terminal were specified in 18 AAC 80 “Drinking Water Regulations” and are presented in Table 2. Contemporary default groundwater cleanup levels for this site are established in 18 AAC 75.345(b) Table C and are also presented in Table 2.

### Characterization and Cleanup Activities

Nine soil confirmation samples were collected between two and four feet below ground surface from the U-Site on October 7 and October 12, 1992 (Table 1). Soil from sample U3 contained the highest contaminant concentration with TRPH at 1,400 milligrams per kilogram (mg/Kg). This concentration was below the ADEC cleanup levels that were in place in 1992 (TRPH = 2,000 mg/Kg) and are well below contemporary (2013) ADEC Method Two “Migration to Groundwater” (MTG) cleanup levels (RRO = 8,300 mg/kg).

This soil contamination likely remained from the 1987 release event since samples were collected near the previously faulty joint, and the area lacks other plausible source areas within a 350 foot radius. Other COCs analyzed from this boring included TPH-G, TPH-D, and BTEX, but all were below their respective method detection limits. Soil samples collected from eight adjacent areas were also below migration to groundwater cleanup levels and their respective method detection limits for TRPH, and TPH-G, TPH-D, and BTEX.

Groundwater was sampled from the U-site catch basin on July 23, August 21, and October 16, 1993. Petroleum hydrocarbons were not detected in any of these samples, and method reporting limits were below their respective historic and contemporary cleanup levels, as shown in Table 2.

**Table 1. Maximum Soil Contaminant Concentrations and Cleanup Levels.**

Sample Location	Medium	BTEX*	TPH-G* (GRO)	TPH-D* (DRO)	TRPH* (RRO)
U1	Soil	ND	ND	ND	ND
U2	Soil	ND	ND	ND	48
U3	Soil	ND	ND	ND	1,400
U4	Soil	ND	ND	ND	41
U5	Soil	ND	ND	ND	30
U6	Soil	ND	ND	ND	34
U7	Soil	ND	ND	ND	ND
U8	Soil	ND	ND	ND	ND
U9	Soil	ND	ND	ND	ND
<b>1992 Level B</b>	<b>Soil</b>	<b>15<sup>#</sup></b>	<b>100</b>	<b>200</b>	<b>2,000</b>
<b>Contemporary Method Two- Migration to Groundwater</b>	<b>Soil</b>	<b>B = 0.025 T = 6.5 E = 6.9 X = 63</b>	<b>(260)</b>	<b>(230)</b>	<b>(8,300)</b>

Notes to Table 1. All soil contaminant concentrations are below historic and contemporary cleanup levels.

\*Contaminant concentrations are presented in units of mg/Kg. <sup>#</sup>Maximum Contaminant Levels for total BTEX concentrations in 1993 were 15 mg/Kg.

**Table 2. Maximum Groundwater Contaminant Concentrations and Cleanup Levels.**

Sample Date	Medium	BTEX*	TRPH* (RRO)
July 23, 1992	Groundwater	<1	<0.5
August 21, 1992	Groundwater	<1	<0.5
October 16, 1992	Groundwater	<1	<0.5
1993 MCL	Groundwater	B = 0.005 T = 0.7 E = 1 X = 10	ND
Contemporary Method Two-Migration to Groundwater	Groundwater	B = 0.025 T = 6.5 E = 6.9 X = 63	(8,300)

Notes to Table 2. All groundwater contaminant concentrations are below historic and contemporary cleanup levels. \*Contaminant concentrations are presented as mg/L. #Total allowable BTEX concentration in 1993 were 15 mg/L.

An average estimate of 150 yards of contaminated soil was removed during the initial response. The remaining impacted soil was treated by flushing soil and recovering crude from groundwater as it migrated into a series of excavations, sump collection points, and underflow dams. Leaching to groundwater was enhanced by flushing impacted soil with surface spray, and horizontal migration to intercept points was enhanced by augmenting groundwater with water injected through injection wells. Although this technique successfully mobilized contamination toward intercept points, some of the contamination became trapped within soil pore spaces between the source area and intercept trenches. When residual contamination was detected in 1992, approximately 1,720 cubic yards of impacted soil was excavated, removed, and treated by thermal desorption until contamination was no longer detected. The excavation was then backfilled with clean soil. Undetected contamination that may have remained has been subjected to 21 years of natural attenuation processes through 2013.

### Pathway Evaluation

Following investigation and cleanup at this site, exposure to remaining contaminants were evaluated using ADEC's Exposure Tracking Model (ETM). Exposure pathways are conduits by which contamination may reach human and/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 depicted in Table 3.

**Table 3 – Exposure Pathway Evaluation**

Exposure Pathway	Result	Explanation
Surface Soil Contact	Pathway Incomplete	Contaminated soil was excavated and replaced with clean soil. Confirmation sampling indicated that contamination had been successfully removed. Therefore, this pathway is considered to be incomplete.

Sub-Surface Soil Contact	De Minimis Exposure	Sampling after remediation activity indicates that remaining COCs have been below applicable cleanup levels for at least 21 years.
Inhalation – Outdoor Air	Pathway Incomplete	Remaining soil contamination is well below the inhalation levels for all COCs and volatile organic compounds were not detected. Therefore, this pathway is considered to be incomplete.
Inhalation – Indoor Air (vapor intrusion)	Pathway Incomplete	Volatile Organic Compounds were not detected following remediation, and there are no buildings within a 350 ft. radius. Therefore, this pathway is considered to be incomplete.
Groundwater Ingestion	Pathway Incomplete	Site is located within a secured oil terminal at Port Valdez, and COCs were not detected in the three most recent groundwater sampling events. Therefore, this pathway is considered incomplete.
Surface Water Ingestion	Pathway Incomplete	The surrounding area lacks fresh surface water bodies within ¼ mile of the source area. Valdez Arm, which contains saltwater, is the only local water body.
Wild Foods Ingestion	Pathway Incomplete	This site is a commercial facility within Alyeska's Valdez Marine Terminal and is not used for harvesting wild foods.
Exposure to Ecological Receptors	Pathway Incomplete	Remaining contamination is below ADEC cleanup levels, and there is no evidence of prior ecological damage. Therefore, this pathway is considered to be incomplete.

Notes to Table 3: "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 groundwater use, or a physical barrier in place that deters contact with residual contamination.

### ADEC Decision

Based on available information, ADEC has determined that there is no longer an unacceptable risk to human health or to the environment at this facility, and no further assessment or cleanup action is required. Therefore, the sites identified as: *Alyeska VMT U-site* will be designated as "Cleanup Complete" in the Department's database.

Although a Cleanup Complete determination is being granted, ADEC approval is required prior to off-site transport of soil or groundwater that has been subject to the release of hazardous substances 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, regardless of property ownership. Since this site has met the most conservative soil cleanup levels, this letter will serve as your approval for future off-site movement and disposal of soil associated with this release. It should be noted that movement or use of potentially contaminated soil in a manner that results in a violation of 18 AAC 70 "Water Quality Standards" is unlawful, so confirmation samples should be analyzed prior to soil transport and deposition. This determination is in accordance with 18 AAC 75.380(d) and does not preclude ADEC 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, 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 determination, please contact the ADEC project manager, Richard Bernhardt, at (907) 269-7546.

Sincerely,



Richard R. Bernhardt, PhD  
Environmental Program Specialist

cc: Scott Rose, SLR