



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: 330.38.098

Article No.: 7010 2780 0000 2178 4209

February 21, 2013

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

Re: Decision Document; Alyeska PS 05 20RB0 Valve Release; Cleanup Complete - Institutional Controls Determination

Dear Mr. Shifflett;

The Alaska Department of Environmental Conservation (ADEC), Contaminated Sites Program (CSP) has completed a review of the environmental records and project files associated with *Alyeska PS 05 20RB0 Valve Release*, which is located approximately 40 miles south of Coldfoot, Alaska on the east side of the Dalton Highway at Milepost 274.7. Based on the information provided to date, ADEC has determined that the remaining contaminant concentrations and disposition do not pose unacceptable risks to human health or the environment, and this site will be closed in the CSP database.

This decision is based on a review of the project files for the subject site, which are available for public review in ADEC offices at 555 Cordova Street, Anchorage, Alaska. This letter summarizes the key factors that have affected this site's environmental status, and provides a summary of the regulatory issues affecting this "Cleanup Complete with Institutional Controls" (CC-IC) Determination.

**Site Name and Location:**  
Alyeska PS 05 20RB0 Valve Release  
Mile 274.7 Dalton Highway  
Coldfoot, Alaska 99701

**Name and Mailing Address of Contact Party:**  
Mr. Jan Shifflett  
900 E. Benson Blvd  
P.O. Box 196660  
Anchorage, AK 99519-6660

**DEC Site Identifiers:**  
ADEC Reckey #: 2001720126501  
File No.: 330.38.098  
Hazard ID: 3852

**Regulatory Authority for Determination:**  
18 AAC 75

**Background**

Pump Station 05 is located approximately 40 miles south of Coldfoot, AK on the east side of the Dalton Highway at Milepost 274.7. The entire pump station, including the manifold building, was constructed over a 6-8 ft. thick gravel pad, and soil borings indicate that the site overlies continuous permafrost<sup>1,2</sup>. The presence of continuous permafrost allows this site to be evaluated under ADEC's Arctic Zone cleanup rules, specified in 18 AAC 75.341(b), Table A2 – Method One for contaminated soil on the pump station's pad and by 18 AAC 75.341(b), Table B1 – Method Two for individual BTEX constituents; henceforth referred to as ADEC's cleanup levels (CULs). Surface water does not exist in the immediate vicinity of Pump Station 05, and suprapermafrost melt water is ephemeral and not productive enough to be considered a source of drinking water. The nearest surface water body is a small lake located nearly 1,500 ft. southwest of the manifold building, but drinking water for Pump Station 05 comes from a well located nearly 3,000 ft. to the northwest along the Jim River.

The release event involved approximately 2,037 gallons of crude oil and originated at a pressure relief valve designated "20RB0" within the manifold building (Figure 1) when power was shut off during routine operations on September 22, 2001. To protect workers and structures during the initial spill response, approximately 12,000 gallons of water mixed with 3% Aqueous Film Forming Foam (AFFF) were released into the manifold building to control the explosive atmosphere. AFFF and up to 200 gallons of crude oil escaped the building through the eastern and western doors and between the concrete floor and metal wall flashings along the building's southern wing. An earthen berm was constructed northeast of the manifold building to contain the AFFF and crude and prevent it from running off of the pad.

**Contaminants of Concern**

During site investigations, soil and groundwater samples were analyzed for Gasoline Range Organics (GRO), Diesel Range Organics (DRO), Residual Range Organics (RRO), Polynuclear Aromatic Hydrocarbons (PAHs), and Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX). Based on these analyses the following Contaminants of Concern (COCs) were identified above ADEC cleanup levels in soil and groundwater samples:

- GRO
- DRO
- RRO
- Benzene
- Toluene
- Ethylbenzene
- Xylenes
- PAHs

**Cleanup Levels**

The Cleanup Levels (CUL) 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, Table B1. However, ADEC considers a number of factors when evaluating site specific cleanup levels in the Arctic Zone, including:

- Risk to human health from ingestion, inhalation, and dermal absorption;
- Ecological impacts (effects on non-human species);
- Suprapermafrost melt water and surface water quality;
- Presence of free phase product;
- Potential impacts to permafrost from remediation techniques; and
- Other factors that might degrade the environment.

In the Arctic Zone, the migration to groundwater pathway is not considered to be applicable due to the presence of continuous permafrost. Therefore, migration to surface water is evaluated as the primary migratory pathway for compliance with Alaska Water Quality Standards (18 AAC 70) since impacted surface water can adversely affect both human and ecological receptors. The migration to surface water pathway is also evaluated for ecological receptors because the tundra wetland ecosystem is pervasive throughout the arctic region.

Differentiating between a “Cleanup Complete” and a “Cleanup Complete with Institutional Controls” determination is based on site specific conditions, potential future use of the property, and site specific exposure pathways, as evaluated by ADEC.

#### **Site Characterization and Cleanup Activities**

A total of 23 soil borings were advanced to permafrost, soil refusal, or to the geomembrane liner following the initial characterization effort, and five additional soil borings were advanced along the manifold building’s southern perimeter in 2006. Ten monitoring wells were installed and sampled annually between 2001 and 2006, at which point four monitoring wells were decommissioned. The four remaining wells were sampled at least once per year through 2012.

Initial field screening and confirmation sampling indicated crude oil escaped the building through the eastern and western doors but only impacted shallow, surface soil at those locations. The use of sorbent pads and excavation of over 135 cubic yards of soil during the initial response effort in 2001 adequately addressed contaminated soil near the eastern and western doorways, and subsequent confirmation sampling on September 28 and 29, 2001 showed that surface contaminant residues were below ADEC CUL in these areas. However, crude oil that escaped between the concrete floor and metal wall flashings penetrated more deeply into the subsurface along the manifold building’s southern footings.

Excavations along the building’s southern perimeter removed impacted subsurface soil to the maximum extent practical without jeopardizing the integrity of building footers, but benzene and DRO concentrations above ADEC CUL were left in place along the building’s southern perimeter (Figure 1). Before backfilling the excavation, a corrugated metal sump, called Sump B, was installed in the excavation along with a Vapor Extraction System (VES). The VES operated between 2003 and 2006 before recovery rates declined to the point that ADEC authorized its use to be discontinued. Soil vapors collected from the southern edge of the manifold building in 2006<sup>3</sup> were analyzed, and contaminant concentrations did not pose a significant vapor intrusion risk.

Free-phase product was noted in Sump B in 2001 but has not been detected in this area since the initial sighting. Sump B was converted into a monitoring well in 2002 and has been sampled

every year since its conversion. Contaminants of concern, including GRO, RRO, BTEX, and PAHs, were not detected in Sump B in 2012, but samples were estimated (i.e. J-flagged) to contain DRO at 0.519 mg/L, which was below the laboratory's practical quantitation limit and well below ADEC's arctic CUL.

### 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 1.

**Table 1 – Exposure Pathway Evaluation**

<b>Exposure Pathway</b>	<b>Result</b>	<b>Explanation</b>
Surface Soil Contact	Pathway Incomplete	Contaminated surface soil was over excavated and replaced with clean soil. Therefore, this pathway is considered to be incomplete.
Subsurface Soil Contact	De Minimis Exposure	Excavation continued to the maximum extent practical without jeopardizing the manifold building's integrity. Subsurface soil contamination likely remains near the building's southern edge and will need to be addressed when the building is dismantled.
Inhalation – Outdoor Air	De Minimis Exposure	Remaining soil contamination is below ADEC inhalation cleanup levels. Therefore, the risk posed by this pathway is considered to be insignificant.
Inhalation – Indoor Air (vapor intrusion)	De Minimis Exposure	Suprapermafrost melt water fluctuates between four and six feet below ground surface, which provides the minimum separation distance based on ADEC's vapor intrusion target levels. Therefore, the risk posed by this pathway is considered to be insignificant.
Groundwater Ingestion	Pathway Incomplete	Suprapermafrost melt water is ephemeral in this area, and groundwater is not a source of drinking water in the Arctic Zone. Therefore, this pathway is considered to be incomplete.
Surface Water Ingestion	Pathway Incomplete	Migration to surface water bodies are not considered to be a viable exposure route at this site due to their distance from the source area.
Wild Foods Ingestion	Pathway Incomplete	Site is within a fenced, pump station on a gravel pad with no evidence of off-pad migration, and wild foods are not gathered within the pump station. Therefore, this pathway is considered to be incomplete.
Exposure to Ecological Receptors	Pathway Incomplete	Site is within an active, fenced, pump station with a gravel pad. There is no evidence of ecological damage or off-pad migration. Therefore, this pathway is considered to be incomplete.

Notes to Table 1: “De-Minimis Exposure” means that in ADEC’s judgment receptors are unlikely to be affected by the minimal volume of contamination that remains. “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 the environment, and no further assessment or cleanup action is required until the manifold building is dismantled. 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. Therefore, the site identified as *Alyeska PS 05 20RBO Valve Release* will be designated as “Cleanup Complete with Institutional Controls” in the Department's database, subject to the following conditions:

1. Soil beneath the manifold building’s southern wing must be characterized within one year of the building being dismantled. Any contamination that remains above ADEC cleanup levels at that time must also be excavated and remediated (or stockpiled/landfarmed) within one year of the building being dismantled in accordance with an ADEC approved workplan.
2. An entry shall be made into Alyeska’s MAC database, describing the location, concentration, and estimated volume of contamination that remains, as well as the requirement to characterize, excavate, and remediate contaminated soil within one year of the building being dismantled (if contamination remains above ADEC cleanup levels at that time).
3. Any future change in land use may impact the exposure assumptions cited in this document; thus affecting the usefulness of current ICs. Therefore, the responsible party (Mr. Shifflett or Alyeska’s designated representative) shall report to ADEC every five years to report the status of the manifold building, or report as soon as Alyeska becomes aware of any change in land use, if earlier. **This report can be sent to the local ADEC office or electronically to [DEC.ICUnit@alaska.gov](mailto:DEC.ICUnit@alaska.gov).**

Although a Cleanup Complete with Institutional Controls determination is being granted, ADEC approval is required for off-site soil disposal 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. 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 transport and soil deposition.

### **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.

**Please sign and return *Attachment A* to ADEC within 30 days of receipt of this letter.** If you have questions about this closure decision, please contact the ADEC project manager, Richard Bernhardt at (907) 269-7546 or Rick.Bernhardt@Alaska.gov.

Sincerely,



Richard R. Bernhardt, PhD  
Environmental Program Specialist

Cc: Scott Rose, SLR International

**References:**

1. SLR Alaska. 2003. *Final 2003 Pump Station 5 Soil Vapor Extraction Unit Installation and Water Monitoring Report*. Publish date: 12/31/2003.
2. SLR Global Environmental Solutions. 2013. *Final 2012 Groundwater Monitoring Report Pump Station 5 Manifold Building*. Publish date: January 2013.
3. SLR Alaska. 2006. *Final 2006 Water Monitoring and Remedial Action Report, Pump Station 5*. Publish date: January 2007.

**Attachment A: Cleanup Complete-ICs Agreement and Signature Page\***

Mr. Jan Shifflett / Alyeska Pipeline Service Company agrees to the terms of this Cleanup Complete with Institutional Controls determination as stated in this Closure Decision Document dated February 21, 2013 for *Alyeska PS 05 20RBO Valve Release*. Failure to comply with the terms of this agreement may result in ADEC reopening this site and requiring further remedial action in accordance with 18 AAC 75.380(d).

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Signature of Authorized Representative, Title  
Mr. Jan Shifflett, SME / Alyeska Pipeline Service Company

\_\_\_\_\_  
Printed Name of Authorized Representative, Title  
Mr. Jan Shifflett, SME / Alyeska Pipeline Service Company

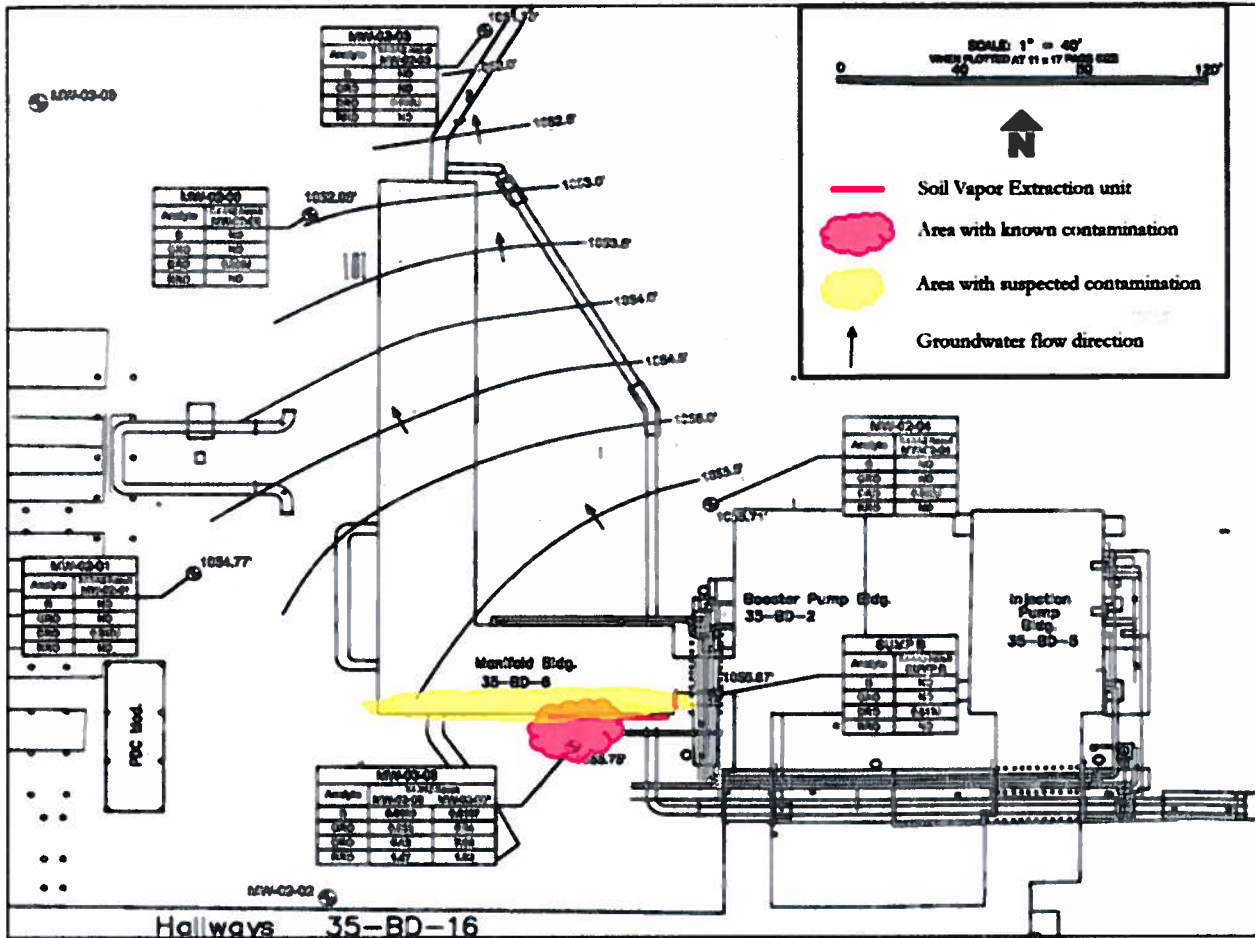
**Note to Responsible Person (RP):**  
**After making a copy for your records, please return a signed copy of this form to the ADEC project manager at the address on this correspondence within 30 days of receipt of this letter.**

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ADEC File No.                    330.38.098  
Hazard ID:                        3852  
Source ID:                        74827  
ADEC Project Manager:        Richard R. Bernhardt, PhD

**For Internal Use Only**

**\*Attention ADEC Administrative Staff:** Please follow the procedure below after Attachment A is signed/returned to ADEC.

1. Log-in and Date Stamp *Attachment A*.
2. Scan and Save to the appropriate electronic folder on the network drive.
3. File the hard copy in the appropriate project/site file Correspondence Folder (blue in Anchorage).
4. Provide the Correspondence folder (with the filed *Attachment A* hard copy) to the ADEC Project Manager so that the PM can update the CS database.



**Figure 1. Manifold Building at Alyeska PS 05.** As of July 2012, contamination in excess of ADEC's Table C cleanup levels remained in MW-03-08. This included benzene at 0.0167 mg/L, DRO at 7.66 mg/L, and RRO at 1.92 mg/L. Contamination likely also remains beneath the manifold building's southern wing.