

STATE OF ALASKA

SARAH PALIN, GOVERNOR

**DEPT. OF ENVIRONMENTAL CONSERVATION
DIVISION OF SPILL PREVENTION AND RESPONSE
CONTAMINATED SITES PROGRAM**

555 Cordova Street
Anchorage, AK 99501
PHONE: (907) 269-7526
FAX: (907) 269-7649
www.dec.state.ak.us

File: 330.38.104

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May 1, 2008

Jan Shifflet
Alyeska Pipeline Service Company
Mail Stop 507
PO Box 196660
Anchorage, AK 99519-6660

Re: Alyeska MP400 Bullet Hole Spill
Record of Decision

Dear Mr. Shifflet:

The Alaska Department of Environmental Conservation (ADEC), Contaminated Sites Program, reviewed the environmental records associated with site MP400 Bullet Hole Spill. This site had been contaminated by the release of a hazardous substance; however, based on the information provided to date, ADEC has determined that no further remedial action is required, and that MP400 Bullet Hole Spill site can be closed subject to the conditions outlined in this document. The hazardous substance contamination has been adequately addressed and does not pose an unacceptable risk to human health or the environment.

This decision is based on the administrative record for this site which is located in the offices of the ADEC 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 the ADEC determination.

Introduction

Site Name and Location

Alyeska MP400 Bullet Hole Spill
Pipeline MP 400.9
Adjacent - Check Valve 66
Near Livengood, Alaska

Name and Mailing Address of Contact Party:

Jan Shifflet
Alyeska Pipeline Service Company
900 East Benson Blvd
Anchorage, AK 99519

Database Record Key and CS file number:

ADEC Reckey # 2001720127701

CS file # 330.38.104

Regulatory authority under which the site is being cleaned up:

18 AAC 75 and 18 AAC 70

Background

A bullet ruptured the Trans Alaska Pipeline at pipeline milepost 400.9 on October 4, 2001, releasing an estimated 285,600 gallons of crude oil to the ground surface beneath and to the west of the pipeline. The release was contained to an area of approximately 2.5 acres by excavation of an interception trench around the perimeter. Containment pits were excavated in the pipeline right of way (ROW) sidewall to collect oil. The pipeline ROW in this area consists of fill material on top of the native soil, increasing the elevation in comparison to the surrounding area. An estimated 200,000 gallons of oil was recovered and injected back into the pipeline.

Approximately 27,000 tons of lightly contaminated and 2,500 cubic yards of heavily contaminated soil and vegetation were removed from the site. A lens of contaminated soil within the ROW, at 15 to 22 feet below ground surface, could not be excavated due to concerns about pipeline structural integrity and the presence of a fiber optic cable. The lens was located in the area of the former product containment tanks and within a temporary thaw bulb.

Site Characterization

Following site excavation, 141 soil samples were collected from the impacted areas off the ROW and in the west ROW sidewall, including fifteen duplicate samples and eleven samples from locations that were later overexcavated and resampled. A large majority of confirmation results were non-detect and no sample results exceed Method Two ingestion/inhalation levels for the arctic zone.

Within the ROW, the lens of contamination remaining was characterized using soil boring samples collected in February of 2002. During this effort, heavy crude staining was observed and free crude was found perched on meltwater. The free phase product plume was limited to the area under the drive lane extending approximately 260 feet. The vertical and horizontal extent of this lens was found to be bounded on all sides and at depth by permafrost in 2002. Soil samples collected from borings advanced in the ROW contained concentrations up to 4,240 mg/kg gasoline range organics (GRO), 24,200 mg/kg diesel range organics (DRO), 10,500 mg/kg residual range organics (RRO), 67.5 mg/kg benzene, 187 mg/kg toluene, and 279 mg/kg xylenes. These concentrations represent the highest remaining at the site following excavation.

Monitoring wells were installed in the pipeline ROW in 2002. Borings installed on either side of the ROW encountered permafrost and no groundwater. Water found in the ROW was localized in a shallow lens approximately 12 to 15 feet wide. In 2002, the plume was bounded by permafrost below and to the northeast and southwest with no indication that the separate phase plume or the dissolved plume was migrating off the pipeline ROW.

Groundwater monitoring conducted from 2002 to 2006 indicated the free phase and dissolved phase hydrocarbons were only present within the thaw bulb created during spill response activities, and that the area has largely re-frozen. In 2006 only benzene exceeded Table C levels with concentrations up to 0.024 mg/L in MW-5 which had decreased from a high of 1.17 mg/L in August 2002.

Surface water samples were collected several times per year starting in October 2001 until October 2006 with exceedances of TAH and TAqH occurring only during the first event.

Remedial Actions

Remedial action at the site consisted of the removal and thermal treatment of impacted material, product recovery, and revegetation of the impacted area. Product was recovered from the heavily contaminated material and lightly contaminated material was treated in a thermal remediation unit.

Four product recovery wells were installed in the ROW and efforts initially included bail-down and peristaltic pumps, and later belt skimmers. Product recovery was conducted from 2002 until 2006, when no recoverable free product was observed in any of the four product recovery wells. In 2002, nearly 300 gallons of product and more than 450 gallons of crude impacted water were recovered, but none was recovered in 2005 or 2006.

Approximately 18,500 cubic yards of soil were imported to the site for grading and planting of willow cuttings, small spruce trees, and annual ryegrass and northern alkali grass seeds. Fertilizer was applied to the site, soil tested for fertility, and vegetation assessments conducted. Revegetation was monitored for more than 3 years.

Chemicals of Concern

The contaminants of concern identified at this site are:

- Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX)
- Gasoline Range Organics (GRO)
- Diesel Range Organics (DRO)
- Residual Range Organics (RRO)
- Naphthalene

Cleanup Levels

Although the Mile Post 400 Bullet Hole Spill site is not physically located north of latitude 68 degrees North, the site (or area where the spill occurred) is underlain by continuous permafrost, and Method Two Arctic Zone cleanup levels are applicable. A number of factors are considered by ADEC when evaluating site specific cleanup levels for sites that meet Arctic Zone criteria including:

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

In the Arctic Zone or for sites that are underlain by continuous permafrost, the migration to surface water pathway is evaluated as the primary migration pathway since the migration to groundwater pathway is not considered applicable due to the presence of continuous permafrost.

The 18 AAC 75.341 Method Two Table B2 regulations also limit soil hydrocarbon concentrations to a “maximum allowable concentration”. This concentration was established based on a specific soil type in which hydrocarbon product may become mobile as a separate phase and migrate in the soil. If a petroleum hydrocarbon exceeds a soil saturation limit, there may be an increased risk of migration off the gravel pad to surface water or tundra that has to be evaluated when making environmental decisions. Therefore, the soil type must be evaluated when establishing cleanup levels in the Arctic Zone to ensure the petroleum hydrocarbon does not exceed the residual saturation levels and pose a risk by migrating.

ADEC has evaluated the current site specific information regarding North Slope soil types and considers a coarse gravel soil type to be representative of those gravel pads rather than a fine sandy silt soil that was considered when establishing the Table B2 Arctic Zone levels. The diesel range saturation point in a coarse gravel material is 2,200 mg/kg; the gasoline range saturation point is 950 mg/kg with residual range being 4,800 mg/kg.

NOTE: Even though the migration to groundwater pathway is not complete in the Arctic Zone, the soil cleanup levels established for the migration to groundwater pathway in the Over 40 inch Zone are considered to be the most stringent cleanup levels, and protective of human health and the environment. If these cleanup levels are achieved at an Arctic Zone site, it will allow for unrestricted closure. In addition, the 18 AAC 75.341 Method One Table A2 cleanup levels may also be considered when making a final closure determination. Either Method One or Method Two migration to groundwater cleanup levels are considered protective to allow full site closure. The guidance document, “Policy for Establishing Cleanup Levels for Sites in the Arctic Zone in Accordance With 18 AAC 75, Article 3,” provides additional information for management of residual contamination in the Arctic Zone.

Pathway Evaluation

The human health (HH) exposure and migration pathways that were evaluated for this decision document included: inhalation of outdoor air; ingestion of soil; dermal contact with soil; and ingestion of groundwater. The inhalation and ingestion pathways may be complete and remaining contaminant concentrations for BTEX, GRO, DRO, and RRO may exceed 18 AAC 75.341 Table B2, Method Two risk based cleanup levels for either ingestion or inhalation. However, the contaminated soil is located below the fiber optic cable and pipeline structural support members and not readily available to typical receptors. Therefore, the HH exposure risk is considered acceptable for inhalation, ingestion of soil, and dermal contact with soil.

If excavation activities were to occur under these active features, receptors such as construction workers could come in contact with contaminated soil. Therefore, a Notice of Residual Contamination will be recorded in the CS database that identifies the nature and extent of the contamination remaining on the site.

In the Arctic Zone, or at sites underlain by continuous permafrost, the migration to surface water pathway is evaluated as a possible risk to HH (drinking water source) and/or for

compliance with Alaska Water Quality standards (18 AAC 70). Any surface water adjacent to this pad is not a drinking water source; therefore, the human exposure pathway is not considered complete.

In addition, migration to surface water is evaluated as a possible exposure pathway for ecological receptors. The migration to surface water pathway may be complete but the remaining contamination is below tundra grade and covered with overburden, and is not anticipated to impact ecological receptors.

The exposure pathway analysis above was supported by the most recent ADEC Exposure Tracking Model (ETM) ranking. The ETM results showed all pathways to be one of the following: De Minimus Exposure, Exposure Controlled, or Pathway Incomplete.

ADEC Decision

ADEC has determined that the cleanup action employed at the Alyeska MP400 Bullet Hole Spill were effective in removing a majority of the contaminant source material. 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 is required at Alyeska MP400 Bullet Hole Spill.

This determination is subject to the following conditions:

1. An institutional control will be recorded on the ADEC database that identifies the nature and extent of the contamination remaining on the site.
2. Any proposal to transport soil off site requires ADEC approval in accordance with 18 AAC 75.370 (b).
3. Visual monitoring and reporting of surface water observations to ADEC for potential offsite migration of contaminants is required on an annual basis.

This determination is also subject to 18 AAC 75.380 (d) (2) whereby additional investigation and cleanup may be required if new information is discovered that indicates the cleanup described in this decision is not protective of human health or the environment.

Site closure (without conditions) will be considered when sampling confirms that soil and groundwater meet the 18 AAC 75 cleanup levels established for this site.

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 Keather McLoone at (907) 269-7526.

Sincerely,



Linda Nuechterlein
Environmental Manager

cc: Scott Rose, SLR
Gary Schultz, ADNR Fairbanks

Alyeska Pipeline Services Company agrees to the terms of this conditional closure as discussed above.



Jan Shifflet

with the understanding noted below

Response and Remediation SME, Alyeska Pipeline Services Company

Condition 3: Alyeska will conduct visual monitoring of surface water quality annually and report the observations to ADEC by e-mail. The annual monitoring will be conducted until deemed unnecessary by Alyeska and ADEC. If ADEC does not concur with this approach, please notify Alyeska accordingly.

(JAS) 8/11/08