STATE OF ALASKA

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

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File: 2100.38.502

April 28, 2010

The Alaska Zoo
4731 O'Malley Road
Anchorage AK 99507-6573
Attn: Kevin Pickel

Subject: Decision Document; Alaska Zoo; Cleanup Complete Determination

Dear Mr. Pickel:

The Alaska Department of Environmental Conservation, Contaminated Sites Program (ADEC) has completed a review of the environmental records associated with the Alaska Zoo located at 4731 O'Malley Road, Anchorage. Based on the information provided to date, the ADEC has determined that the contaminant concentrations remaining on site do not pose an unacceptable risk to human health or the environment, and this site will be closed.

This decision is based on the administrative record for the Alaska Zoo, which is located in the offices of the Alaska Department of Environmental Conservation (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 Cleanup Complete Determination.

Introduction

Site Name and Location:
Alaska Zoo
4731 O'Malley Road
Anchorage, Alaska 99507-6573
Tract A, Alaska Zoo

Name and Mailing Address of Contact Party:
Mr. Kevin Pickel
The Alaska Zoo
4731 O'Malley Road
Anchorage AK 99507-6573

Database Record Key and File Number:

ADEC Reckey: 2008210121901
File: 2100.38.502
Hazard ID: 4706

Regulatory authority under which the site is being cleaned up:
18 AAC 75

Background

The site is located in the southeast corner of a 24 acre parcel located near the intersection of O'Malley and Our Roads. The property is commercially used and in a suburban setting.

During construction activities related to zoo parking lot improvements, petroleum impacted soils were encountered on July 28, 2008. The area of discovered contamination was adjacent to a former foundation of a homestead house on the zoo's property and it was determined that the release originated from a former above-ground diesel storage tank (AST) associated with the house. The AST was assumed to be used as storage for home heating oil. Soil samples collected at this site have been tested for: gasoline-range organics (GRO); diesel-range organics (DRO); residual-range organics (RRO); and benzene, toluene, ethylbenzene, and total xylenes (BTEX).

The zoo includes several administrative and public buildings and is served by a Transient / Non-Community type (former state Class B system) public water supply system, AK2215401, and private wastewater disposal system. Groundwater was not encountered during any related site work but is reported to be eight feet or more below the ground surface.

Characterization and Cleanup Activities

During initial excavation activities, a soil sample was taken on July 28, 2008 to evaluate impacted soil encountered before performing further excavating activity and it was submitted for laboratory analysis for GRO, DRO, RRO, and BTEX. There were detections for all the analytes sampled, however, only DRO and benzene resulted in exceedances of the cleanup levels at 4,610 milligrams per kilogram (mg/kg) and 0.033 mg/kg, respectively. The depth of the sample was not reported.

The 2008 excavation occurred in two stages. Some of the impacted area was excavated and stockpiled in July, prior to discovery and notification of the spill, therefore exact sample depths could not be recorded by the consultant. However, based on the pre-development site survey, the consultant estimated that the average total excavation depths ranged from 2 to 3.5 feet below the ground surface (bgs). On August 18, 2008, further excavation occurred laterally and vertically from the original excavated area. The final excavation area measured approximately 40 by 50 feet and was about 3.5 feet deep. A total of 361.04 tons of petroleum-impacted soil was excavated and subsequently transported to Alaska Soil Recycling for thermal treatment.

Seven confirmation samples from the bottom and sidewalls of the final excavation, including one duplicate, were submitted for laboratory analysis for GRO, DRO, RRO, and BTEX on August 18, 2008. Based on laboratory results, the only contaminant not detected was ethylbenzene. However, all detections were well below the 18 AAC 75 soil cleanup levels and near detection limits. The highest concentrations of detected contaminants based on laboratory analytical results, in mg/kg, were 0.818 GRO, 3.27 DRO, 23.2 RRO, 0.0117 benzene, 0.0309 toluene, and 0.0378 total xylenes.

Contaminants of Concern

During the investigations at this site, soil samples were analyzed for DRO, GRO, and BTEX. Based on these analyses and knowledge of the source area, the following Contaminants of Concern were identified:

- Gasoline Range Organics (GRO)
- Benzene

Cleanup Levels

The default soil cleanup levels for this site are established in 18 AAC 75.341, Method Two, Tables B1 and B2, Migration to Groundwater.

Contaminant	Site Cleanup Level (mg/kg)
DRO	250
Benzene	0.025

The default groundwater cleanup levels for this site are established in 18 AAC 75.345 Table C Groundwater Cleanup Levels. However, no groundwater was encountered during remedial activities at the site and it is highly unlikely that it was impacted by the release.

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 1.

Table 1 – Exposure Pathway Evaluation

Pathway	Result	Explanation
Surface Soil Contact	Pathway Incomplete	All soil to 3.5 feet bgs has been removed, replaced with clean backfill, and paved over with asphalt.
Sub-Surface Soil Contact	De Minimis Exposure	All soil to 3.5 feet bgs has been removed, replaced with clean backfill, and paved over with asphalt. All excavation bottom soil samples were below the 18 AAC 75.341 Method Two Migration to Groundwater Cleanup Levels
Inhalation – Outdoor Air	De Minimis Exposure	All contaminated soil above the 18 AAC 75.341 Method Two Migration to Groundwater Cleanup Levels has been removed.
Inhalation – Indoor Air (vapor intrusion)	De Minimis Exposure	All contaminated soil above the 18 AAC 75.341 Method Two Migration to Groundwater Cleanup Levels has been removed.
Groundwater Ingestion	Pathway Incomplete	Groundwater was not encountered during the investigations. Remaining soil contamination is

		below migration to groundwater cleanup levels.
Surface Water Ingestion	Pathway Incomplete	Little Campbell Creek is located approximately 1,000 feet north of the site, not used as a drinking water source, and highly unlikely to be affected by this spill.
Wild Foods Ingestion	Pathway Incomplete	The collection of wild foods at this site is highly unlikely.
Exposure to Ecological Receptors	Pathway Incomplete	There are no terrestrial or aquatic exposure routes present.

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.

ADEC Decision

The cleanup actions to date have served to excavate and adequately remove contaminated soil from the site. Based on the information available, ADEC has determined no further assessment or cleanup action is required. There is no longer a risk to human health or the environment, and this site will be designated as closed on the Department's database.

Although a Cleanup Complete Determination has been granted, ADEC approval is required for off-site soil disposal in accordance with 18 AAC 75.325(i). However, 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.

This determination is in accordance with 18 AAC 75.380(d) and does not preclude the 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 decision, please contact the ADEC project manager, Bill Petrik at (907) 269-7546.

Approved by

Rich Sundet
Environmental Manager

Recommended by

Bill Petrik
Environmental Program Specialist

CC: David Nyman, Restoration Science & Engineering
Bill Petrik, Contaminated Sites Program, Anchorage
Veris Lunasin, SPAR-RF, Juneau
Stacy Gullufsen, SPAR-RF, Juneau