THE STATE of ALASKA
GOVERNOR SEAN PARNELL

Department of Environmental Conservation

DIVISION OF SPILL PREVENTION & RESPONSE
Contaminated Sites Program

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File: 300.38.068
Article No: 7012 1010 0003 0389 1174

April 30, 2014

Doug Smith
Little Red Services, Inc.
9 3700 Centerpoint Drive, Suite 1300
Anchorage, AK 99507

Re: Decision Document; Little Red Services Pad
Cleanup Complete Determination

Dear Mr. Smith;

The Alaska Department of Environmental Conservation, Contaminated Sites Program (ADEC) has completed a review of the environmental records associated with Little Red Services Pad located along Spine Road in Deadhorse, Alaska. 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 this site will be closed.

This decision is based on the Little Red Services Pad administrative record 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 Cleanup Complete determination.

Introduction

Site Name and Location
Little Red Services Pad
Prudhoe Bay, Alaska

ADEC Site Identifiers
File: 300.38.068
Hazard ID: 1974

Name and Mailing Address of Contact Party:
Doug Smith
Little Red Services, Inc.
3700 Centerpoint Drive, Suite 1300
Anchorage, AK 99507

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

Background

The Little Red Services Pad is located on Tract 11 of the North Slope Lease Tracts, Spine Road, Deadhorse Alaska. The property is leased to Little Red Services from the Alaska Department of Natural Resources. The

pad has been used for oilfield support services and equipment storage from 1982 until the present. The gravel pad has been estimated to be approximately 4 feet thick.

Contaminants of Concern

During the investigations at this site, soil and surface water samples were analyzed for diesel range organics (DRO), gasoline range organics (GRO), polynuclear aromatic hydrocarbons (PAHs), metals, as well as benzene, toluene, ethylbenzene, and xylenes (BTEX). Based on these analyses and knowledge of the source area, the following Contaminants of Concern (COCs) were identified in soil:

- Diesel Range Organics (DRO)
- Xylenes

Cleanup Levels

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.

Arctic Zone cleanup levels promulgated in 18 AAC 75.341 include Method One Table A2 (for manmade gravel pads and roads), Method Two - Table B1 (for hazardous substances) and B2 (for petroleum hydrocarbons). If cleanup levels in Table A.2 - Method One are met, the site may be considered for unrestricted closure without institutional controls (ICs). If contaminant concentrations exceed Method One, then risk-based Method Two cleanup levels are utilized to evaluate the potential risk to human health via specific exposure pathways (such as inhalation and ingestion). Contaminants of concern and applicable cleanup levels for the subject site are listed in the table below.

Soil Cleanup Levels – Arctic Zone

Contaminants of Concern	Method One, BTEX > 15 mg/kg	Method One, BTEX < 15 mg/kg	Method Two, Direct Contact/Ingestion*	Method Two, Inhalation*	Migration to Groundwater*
DRO	200	500	12,500	12,500	N/A
Total Xylenes	NA	NA	24,700	63	N/A

Notes to Table. *All soil contaminant concentrations are presented as mg/kg. Method One criteria cover only contamination related to manmade pads, i.e. gravel. 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.

Site Characterization Activities

Petroleum impacted gravel at the pad had been identified as the result of spills and leaks from two aboveground diesel storage tanks. Four impacted areas were identified in the 1990's and identified as Areas A, B, C and D. These areas were excavated between 1998 and 2005 and the contaminated gravel was thermally treated at Alaska Interstate Construction in Deadhorse, Alaska. Confirmation samples from all of the

excavated areas contained DRO below 500 mg/kg, except Area D. Total BTEX concentrations have typically been less than 15 mg/kg for samples less than 500 mg/kg DRO at this site as the diesel contamination is weathered. The maximum DRO concentration sampled from this area was 5,070 mg/kg. Excavation was halted after it threatened to undercut existing buildings on site.

In 2006, a Cleanup Complete with Institutional Controls was issued for areas identified in the 1990's as Areas A, B, C and D. In subsequent years, additional work has been conducted in order to achieve a closure decision without conditions. Also, some of the structures that previously existed on the property had been removed, thereby allowing greater access to the areas with contamination remaining.

In 2008 and 2009, additional treatment of soils was conducted in an onsite treatment cell and treated soils used to backfill the excavations. In 2013 additional site characterization was performed in order to more clearly identify areas of contamination remaining and to confirm that polynuclear aromatic hydrocarbons were not a contaminant of concern.

In 2014, additional removal to below tundra grade was conducted and a total of forty confirmation samples were collected from Areas A through G. Native/non-gravel soil confirmation samples were well below Method Two cleanup levels at concentrations up to 1,000 mg/kg DRO. One soil sample collected at a six foot depth at the floor of the excavation contained 80 mg/kg total xylenes which is above the outdoor inhalation criteria but below the direct contact/ingestion cleanup level. The gravel side wall confirmation samples contained less than the applicable Method One criteria of 500 mg/kg. All of the excavated soil was disposed of at Oxbow Landfill and wastewater created during excavation of frozen material near utilities was disposed of at British Petroleum's Pad 3 disposal facility.

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 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	De Minimis exposure	Contaminated surface soil is not present above Method Two direct contact cleanup levels at the site.
Sub-Surface Soil Contact	De Minimis exposure	Contaminated subsurface soil is not present above Method Two direct contact cleanup levels at the site.
Inhalation – Outdoor Air	De Minimis exposure	Contaminant concentrations are below inhalation cleanup levels in all but one sample that is de minimis in extent; the site is covered with gravel as well as snow/ice for much of the year which further mitigates risk via this pathway.
Inhalation – Indoor Air (vapor intrusion)	Pathway Incomplete	There are no structures present at the site.

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	Wild foods are not collected in this area.
Exposure to Ecological Receptors	De Minimis exposure	Contaminants are well below Method Two cleanup levels and there is no evidence of contamination reaching the surrounding tundra environment.

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 groundwater use, or a physical barrier in place that deters contact with residual contamination.

ADEC Decision

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.

Standard Conditions

1. Any proposal to transport soil or groundwater off-site requires ADEC approval in accordance with 18 AAC 75.325. 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.

This determination is in accordance with 18 AAC 75.380 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 decision, please contact ADEC Project Manager Keather McLoone at (907) 269-7546.

Approved By,

Keather McLoone
Environmental Program Specialist

Cc: Melissa Head, ADNR