STATE OF ALASKA

SARAH PALIN, GOVERNOR

DEPT. OF ENVIRONMENTAL CONSERVATION

DIVISION OF SPILL PREVENTION AND RESPONSE
CONTAMINATED SITES PROGRAM

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File: # 300.38.118

April 28, 2008

Chuck Stilwell
BP Exploration (Alaska) Inc
P.O. Box 196612
900 East Benson Blvd
Anchorage, AK 99519-6612

Re: Kuparuk River State 1
Record of Decision

Dear Mr. Stilwell:

The Alaska Department of Environmental Conservation, Contaminated Sites Program (ADEC) reviewed the environmental records associated with Kuparuk River State 1. 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 Kuparuk River State 1 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 site is included on the Existing (Contaminated) Sites Charter for the Development of the Alaska North Slope (Paragraph II.A.3; Exhibit D.2).

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
Kuparuk River State 1
Prudhoe Bay, AK

Name and Mailing Address of Contact Party:
Chuck Stilwell
BP Exploration (Alaska) Inc
P.O. Box 196612
900 East Benson Blvd
Anchorage, AK 99519-6612

Database Record Key and CS file number:
ADEC Reckey # 1969360117801
CS file # 300.38.118

Regulatory authority under which the site is being cleaned up:
18 AAC 75 and 18 AAC 70

Background
Kuparuk River State 1 (KRS 1) was built in 1969 adjacent to the Kuparuk River and included a drill pad and an adjoining runway. One exploration well was present on the pad which was plugged and abandoned in 1993. Contamination at this remote site is the result of fuel spills and associated drilling operations at the pad.

Site Characterization
Phase I and II investigations at the pad resulted in a removal action in 2002 during which approximately 4,500 cubic yards (cy) of contaminated gravel were removed. Porewater monitoring which was conducted following the excavation, found Diesel Range Organics (DRO) in pore water in a thaw bulb adjacent to the Kuparuk River. After pore water monitoring continued to show the presence of petroleum contamination from 2003-2005, another removal action was conducted in 2006 during which an additional 4,800 cy of petroleum impacted material was removed from the site. Confirmation soil sampling indicated all material with DRO above 300 mg/kg had been successfully removed.

Sampling conducted in 2007 found elevated DRO levels in pore water, however DRO concentrations have decreased from historic highs and the pore water plume is considered stable. Further, there has been no exceedance of Alaska Water Quality standards in the adjacent Kuparuk River.

Contaminants of Concern
Diesel Range Organics

Cleanup Levels
The cleanup levels 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 Tables B1 and B2.

A number of factors are considered by ADEC when evaluating site specific cleanup levels in the Arctic Zone 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, 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 2200 mg/kg; the gasoline range saturation point is 950 mg/kg with residual range being 4800 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 exposure 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 but contaminant concentrations did not exceed 18 AAC 75.341 Table B2, Method Two risk based cleanup levels for either ingestion or inhalation. Therefore, the HH exposure risk is considered acceptable. The dermal contact pathway is considered incomplete as the remaining contamination is sub-surface and is not available to receptors.

In the Arctic Zone, the migration to surface water pathway is evaluated as a possible risk to human health (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, the migration to surface water is evaluated as a possible exposure pathway for ecological receptors because of the tundra wetland ecosystem that exists throughout the Arctic region. The migration to surface water pathway may be complete but the source material has been removed, and there have been no observable impacts to the Kuparuk River.

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 Minimis Exposure, Exposure Controlled, or Pathway Incomplete.

ADEC Decision

There is contamination remaining above established cleanup levels at Kuparuk River State 1 but ADEC has determined there is no unacceptable risk to human health or the environment, and this site will be conditionally closed.

This decision is subject to the following conditions:

1. A Notice of Environmental Contamination will be recorded on the ADEC database to document that there is residual contamination remaining on site above the most stringent ADEC cleanup levels;

2. Any proposal to transport soil off site requires ADEC approval in accordance with 18 AAC 75.370 (b)

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.

Site closure (without conditions) can be achieved when soil sampling confirms that all soil meets the most stringent ADEC cleanup levels.

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 William O'Connell at (907) 269-3057.

Sincerely,

Linda Nuechterlein
Environmental Manager

Cc. Gary Schultz, ADNR Fairbanks
Lori Aldrich, ADEC