

STATE OF ALASKA

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

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File: #~~2100~~.38.117

Return Receipt Requested

Article No: 7007 3020 0000 1948 7738

April 30, 2009

Renee Huntman
Halliburton Energy Services
6900 Arctic Blvd.
Anchorage, Alaska 99518

Re: Record of Decision; Halliburton Otis Engineering Facility
Cleanup Complete Determination- Institutional Controls

Dear Ms. Huntman:

The Alaska Department of Environmental Conservation, Contaminated Sites Program (ADEC) has completed a review of the environmental records associated with Halliburton Otis Engineering Facility located on Alaska Department of Natural Resources lease number ADL 47660 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 no further remedial action will be required as long as the site is in compliance with established institutional controls.

This decision is based on the administrative record for Halliburton Otis Engineering Facility 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 with ICs' determination.

Introduction

Site Name and Location

Halliburton Otis Engineering Facility
ADL 47660
Spine Road
Deadhorse, AK

Name and Mailing Address of Contact Party:

Renee Huntman
Halliburton Energy Services
6900 Arctic Blvd.
Anchorage, Alaska 99518

ADEC Site Identifiers:

Hazard ID #1977

ADEC Reckey # 1993730903901

CS file # 300.38.117

Regulatory authority under which the site is being cleaned up:

18 AAC 75 and 18 AAC 70

Background

Contaminated soil was identified at the site during a Phase I Site Assessment performed for the Alaska Department of Natural Resources in 1992. Areas of concern included above ground fuel storage tanks, vehicle areas, and areas of stained soil and tundra.

Contaminants of Concern

During the various investigations at this site, soil and/or groundwater and/or surface water samples were analyzed for diesel range organics (DRO), gasoline range organics (GRO), residual range organics (RRO) polynuclear aromatic hydrocarbons (PAHs), and benzene, toluene, ethylbenzene, and xylenes (BTEX). Based on analytical results from these investigations the following Contaminants of Concern were identified in soil:

- Diesel Range Organics (DRO)
- Gasoline Range Organics (GRO)

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);
- groundwater and surface water 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 because the migration to groundwater pathway is not considered applicable due to the presence of continuous permafrost. Impacted surface water can adversely affect both human and ecological receptors, depending on the location of the contaminant source, its proximity to surface waters, and water usage in the impacted area. Therefore 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). 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. Potential future use of the property must also be taken into account when determining closure status. Differentiating between a "Cleanup Complete" and a "Cleanup Complete with Institutional

Controls" determination will be based on site specific conditions and exposure pathways as determined by ADEC.

Site Characterization and Cleanup

Following the identification of contaminated areas in 1993, more comprehensive investigation and remediation activities were conducted in 1997. Six test pits were excavated at areas of concern at the pad and based on the results of test pit samples, contaminated soil excavation was conducted in three areas of the pad (see Attachment B).

Excavation #1 was conducted southwest of Building A at an unknown source area. Approximately 20 cubic yards (cy) of petroleum contaminated soil was excavated and transported to Alaska Interstate Construction (AIC) for thermal treatment. A confirmation sample collected from the west sidewall of the excavation contained DRO up to 1,650 mg/kg. A confirmation sample collected below this sample at the pad/tundra interface did not contain detectable concentrations of contaminants.

Excavation #2 was conducted east of Building A near a former above ground fuel storage tank (AST). Approximately 770 cy of petroleum contaminated soil was excavated and transported to AIC for thermal treatment. Excavation in this area was limited in extent by Buildings A and B and based on sample results, contamination is likely present beneath both buildings. Confirmation samples from this excavation contained DRO up to 4,180 mg/kg at the pad/tundra interface and up to 2,800 mg/kg along the sidewall next to Building A.

Excavation #3 was conducted east and south of Building B at an unknown source area. Approximately 1,480 cy of petroleum contaminated soil was excavated and transported to AIC for thermal treatment. Excavation in this area was limited in extent by Building B. Based on sample results, contamination is likely to exist beneath the building. Confirmation soil samples collected from the base and sidewalls of the excavation contained DRO up to 1,980 mg/kg and GRO up to 1,200 mg/kg along the sidewall next to Building B. Following excavation in this area, a surface water sample was collected from an adjacent tundra pond that contained DRO at 2.12 mg/l.

To evaluate migration of contaminants to surface water, samples were collected from four locations adjacent to the areas of concern at the pad in 1999. Surface water samples contained DRO up to 4.81 mg/l, but BTEX and PAHs were not detected at concentrations that exceed Alaska Water Quality Standards (AWQS) promulgated in 18 AAC 70.

Surface water samples were collected again in 2000 from the same areas sampled in 1999. DRO was detected up to 3.66 mg/l, but BTEX and PAHs did not exceed AWQS and no sheen was noted. Since the contaminated source area on the pad has been removed, there is no longer a potential for migration of petroleum contaminants from the pad to surface water that could result in a violation of Alaska Water Quality (AWQ) standards.

Pathway Evaluation

Following investigation and cleanup at the site, human health exposure to the remaining GRO and DRO contaminants in soil and surface water was evaluated using ADEC's Exposure Tracking Model. The human health exposure pathways that were evaluated included: inhalation

of indoor and outdoor air, ingestion of soil, dermal contact with soil, and ingestion of surface water.

The inhalation, ingestion, and dermal contact pathways may be complete but the remaining contamination at the site is below the inhalation and ingestion health-based Method Two Arctic Zone cleanup levels and is located at a depth where contamination is not available to receptors.

In the Arctic Zone, the migration to surface water pathway is evaluated for a possible risk to human health as a drinking water source. The ingestion of surface water pathway is considered incomplete as surface water adjacent to this pad is not used as a drinking water source in this area.

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,) and for compliance with Alaska Water Quality standards (18 AAC 70). The migration to surface water pathway may be complete, but surface water sampling did not indicate any exceedance of AWQ standards. Furthermore, the amount of contaminated soil remaining is considered to be De Minimis and does not pose a risk to ecological receptors via this pathway.

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

The ADEC has determined there is no unacceptable risk to human health or the environment, and this site will be granted a Cleanup Complete- ICs determination subject to the following.

1. Any future change in land use may impact the exposure assumptions cited in this document. If land use and/or ownership changes, current ICs may not be protective and ADEC may require additional remediation and/or ICs. Therefore Halliburton shall report to ADEC once every five years or as soon as they become aware of any change in land ownership and/or land use. **The report can be sent to the ADEC project manager or electronically to DEC.ICUnit@alaska.gov.**
2. Contaminated soil that remains beneath Buildings A and B must be cleaned-up in accordance with an ADEC-approved work plan once the buildings are removed and the soil becomes accessible.
3. Any proposal to transport soil or groundwater off site requires ADEC approval 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 from a source area, regardless of property ownership. (See attached site figure.)
4. Movement or use of contaminated material in a manner that results in a violation of 18 AAC 70 water quality standards is prohibited.

The ADEC Contaminated Sites Database will be updated to reflect the change in site status as detailed above, and will include a description of the contamination remaining at the site. Institutional Controls will be terminated once the site meets the requirements for a Cleanup Complete as determined by ADEC.

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.

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

Sincerely,

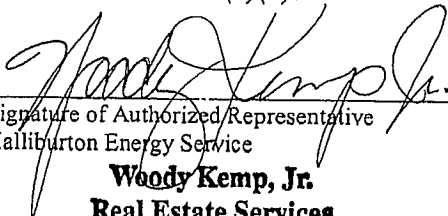


William O'Connell
Environmental Program Specialist

Attachment: Attachment A: Cleanup Complete-ICs Agreement Signature Page
Attachment B: Site Figure

Attachment A: Cleanup Complete-ICs Agreement and Signature Page

*Halliburton Energy Service agrees to the terms of this Cleanup Complete-ICs determination as stated in this Record of Decision (ROD) document dated **April 30, 2009** for Halliburton Otis Engineering Facility, File # 300.38.117. 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)(2).*



Signature of Authorized Representative
Halliburton Energy Service
Woody Kemp, Jr.
Real Estate Services
Attorney-In-Fact

Printed Name of Authorized Representative
Halliburton Energy Service

Note to Responsible Person:

After making a copy for your records, please return a signed copy of this form to the ADEC project manager, William O'Connell, at the address on this correspondence within 30 days of receipt of this letter.

Attachment B: Site Figure

