



THE STATE
of **ALASKA**

GOVERNOR SEAN PARNELL

Department of
Environmental Conservation

DIVISION OF SPILL PREVENTION & RESPONSE
Contaminated Sites Program

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dec.alaska.gov

File: 300.38.193

December 31, 2013

Mr. Rob Dixon
Caribou Construction Inc.
5100 Cordova St., Suite 206
Anchorage, AK 99503

Re: Decision Document; Caribou Construction
Cleanup Complete Determination-Institutional Controls

Dear Mr. Dixon;

The Alaska Department of Environmental Conservation, Contaminated Sites Program (ADEC) has completed a review of the environmental records associated with Caribou Construction located 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 Caribou Construction 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:

Caribou Construction
Lot 2 and 3, Block 2000 Deadhorse Airport
Deadhorse, Alaska

ADEC Site Identifiers

File: 300.38.193
Hazard ID: 3850

Name and Mailing Address of Contact Party:

Mr. Rob Dixon
Caribou Construction Inc.
5100 Cordova St., Suite 206
Anchorage, AK 99503

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

Background

Petroleum contamination at this site resulted from spills and leaks of diesel fuel and waste oil from drums and tanks at the site. The site is on a gravel pad approximately 4-7 feet thick on top of native tundra and surface water is intermittently present at several locations along the edge of the pad.

Facilities at this site consist of a shop, an office building, and a Quonset hut. Caribou construction provides winter travel vehicles and cat trains for exploration and other activities on the North Slope. The equipment is serviced and staged on the pad during the summer months, then deployed throughout much of the winter.

Contaminants of Concern

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

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

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.

For the purposes of this Cleanup Complete with ICs Determination, the following cleanup levels from 18 AAC 75.341 Method One, Table A2 were used:

<u>Contaminant</u>	<u>Site Cleanup Level (mg/kg)</u>
• Gasoline Range Organics (GRO)	100
• Diesel Range Organics (DRO)	500
• Residual Range Organics (RRO)	2,000

Site Characterization and Cleanup Activities

In response to a complaint, a site visit was conducted in 2001 that found numerous areas of stained soil, petroleum releases from drums and tanks, and uncontained oily waste in the Shop Building. Sheen was noted on surface water adjacent to the pad. Spill response actions commenced shortly after the site visit and consisted of removing stained soil and petroleum contaminated snow, and using absorbent pads to clean up oil in the shop building. A vertical barrier liner was also installed around the perimeter of the Shop Building to stem the potential migration of contaminants to other areas of the pad.

Following spill response activities in 2001, a Site Assessment was conducted in 2002 during which surface soil samples were collected from impacted areas of the gravel pad near the Shop Building. DRO was detected up to 19,000 mg/kg, RRO was detected up to 28,000 mg/kg and GRO was detected up to 418 mg/kg. Additional investigation conducted in 2002 included the excavation of 30 test pits across the entire gravel pad and the analysis of surface and subsurface soil samples from 15 of the test pits. DRO was detected up to 4,770 mg/kg and GRO was detected up to 797 mg/kg. Pad pore water samples collected from open test pits contained benzene up to 6.95 mg/l. Soil contamination was generally greatest near the Shop Building, whereas benzene in pad pore water was greatest along the northwest corner of the pad.

For the next several years, Caribou Construction conducted in-place landfarming at the petroleum impacted areas that consisted of tilling and turning over soil from the surface to the base of the pad and amending the soil with fertilizer. Caribou construction focused its efforts in the most impacted areas, but also addressed other outlying areas of the pad.

To evaluate the effectiveness of the landfarming effort, 16 soil borings were advanced across the site in 2012 and soil samples were collected from two depth intervals in each borehole. Soil samples contained DRO up to 3,910 mg/kg in a sample from 2.5 feet below ground surface in soil boring TH12 nearest the Shop Building and inside of the vertical barrier liner. GRO was detected up to 1,100 mg/kg in the same sample and RRO was detected up to 287 mg/kg in soil boring TH4 near the northeast corner of the pad. The results of the investigation indicated that the greatest concentrations of contaminants remained near the Shop Building.

To evaluate the potential migration of contaminants to the surrounding tundra, surface water samples were collected from 5 areas around the perimeter of the pad in 2013. Contaminants were not detected in surface water samples at concentrations above 18 AAC 70 Alaska Water Quality Criteria.

Cumulative Risk Calculation

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 at this site.

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	Contaminant concentrations are below direct contact cleanup levels and the pad is covered with snow and ice for much of the year minimizing exposure to potentially contaminated surface soil
Sub-Surface Soil Contact	De minimis exposure	Contaminant concentrations are below direct contact cleanup levels and the pad is covered with snow and ice for much of the year minimizing exposure to potentially contaminated subsurface soil
Inhalation – Outdoor Air	De minimis exposure	Contaminant concentrations are below inhalation cleanup levels and the pad is covered with snow and ice for much of the year minimizing volatilization and potential exposure via this pathway.
Inhalation – Indoor Air (vapor intrusion)	De minimis exposure	Contaminant concentrations are below inhalation cleanup levels and the pad is covered with snow and ice for much of the year minimizing volatilization and potential exposure via this pathway.
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	Low Potential	Contaminants detected in surface water are below Alaska Water Quality Standards indicating a low potential for exposure to ecological receptors.

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

Contamination remains on site above established default cleanup levels, however ADEC has determined there is no unacceptable risk to human health or the environment. Therefore this site will be issued 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 Caribou Construction or ADOT&PF Northern Region Airport Leasing shall report to ADEC every five years to document land use, or as soon as they become aware of any change in land ownership and/or use, if earlier. **The report can be sent to the local ADEC office or electronically to DEC.ICUnit@alaska.gov.**
2. Contaminated soil that remains below the Shop Building must be addressed in accordance with an ADEC approved work plan at the time the building is removed.
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. When the site meets the requirements for a Cleanup Complete determination, Institutional Controls will be terminated.

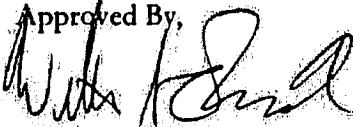
This determination is in accordance with 18 AAC 75.380(d) and does not preclude ADEC from requiring additional assessment and/or cleanup action if future information indicates that this site may pose an unacceptable risk to human health or the environment.

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.

Please sign and return *Attachment A* to ADEC within 30 days of receipt of this letter. If you have questions about this closure decision, please contact the ADEC project manager, Bill O'Connell at (907) 269-3057.

Approved By,




Bill O'Connell
Environmental Program Manager

Cc: Penny Adler, ADOT&PF Northern Region Airport Leasing
Donald Pearson, Don Pearson of Alaska

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

Attachment A: Cleanup Complete-ICs Agreement and Signature Page*

Caribou Construction agrees to the terms of this Cleanup Complete with ICs determination as stated in this Closure Decision Document dated **December 31, 2013** for the Caribou Construction site. 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 18 AAC 75.380(d).


 Signature of Authorized Representative, Title
 RP/Company Name

Robert A. Dixon
 Printed Name of Authorized Representative, Title
 RP/Company Name

Note to Responsible Person (RP):

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

ADEC File No. 300.38.193
 Hazard ID: 3850
 ADEC Project Manager: Bill O'Connell

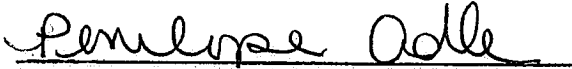
For Internal Use Only

*Attention ADEC Administration Staff: Please follow the procedure below after Attachment A is signed/returned to ADIC:

1. Log-in and Date Stamp *Attachment A*
2. Scan and Save to the appropriate electronic folder on the network Drive
3. File the hard copy in the appropriate project/site file Correspondence Folder (blue in Anchorage)
4. Provide the Correspondence folder (with the filed *Attachment A* hard copy) to the ADIC Project Manager so that the PM can update the CS database

Attachment A: Cleanup Complete-ICs Agreement and Signature Page*

ADOT&PF Northern Region Airport Leasing agrees to the terms of this Cleanup Complete with ICs determination as stated in this Closure Decision Document dated **December 31, 2013** for the Caribou Construction site. 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 18 AAC 75.380(d).



Signature of Authorized Representative, Title
RP/Company Name

Penelope Adler, Chief, Northern Region Aviation Leasing

Printed Name of Authorized Representative, Title
RP/Company Name

ADOT&PF

2301 Peger Road
Fairbanks, AK 99709

Note to Responsible Person (RP):

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

ADEC File No.	300.38.193
Hazard ID:	3850
ADEC Project Manager:	Bill O'Connell

For Internal Use Only

***Attention ADEC Administration Staff:** Please follow the procedure below after Attachment A is signed/returned to ADEC.

1. Log-in and Date Stamp *Attachment A*
2. Scan and Save to the appropriate electronic folder on the network Drive
3. File the hard copy in the appropriate project/site file Correspondence folder (blue in Anchorage).
4. Provide the Correspondence folder (with the filed *Attachment A* hard copy) to the ADEC Project Manager so that the PM can update the CS database.

Attachment B: Site Figure

