

# STATE OF ALASKA

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

**SEAN PARNELL, GOVERNOR**

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File: 2258.38.009

June 16, 2010

Alan P. Kingsbury  
HC 89 P.O. Box 8100  
Talkeetna, AK 99676-9701

Subject: Decision Document; Birch Creek Ranch; Cleanup Complete Determination

Dear Mr. Kingsbury:

The Alaska Department of Environmental Conservation, Contaminated Sites Program (ADEC) has completed a review of the environmental records associated with Birch Creek Ranch located at 29340 South Mastodon Road, Talkeetna. 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 Birch Creek Ranch, 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:

Birch Creek Ranch  
29340 South Mastodon Road  
Talkeetna, Alaska 99676

#### Legal Description

Bartlett Hills Alaska, ASLS 79-109, Tract 13. Matanuska-Susitna Borough (MSB) Parcel Account Number 1896000T013.

#### Name and Mailing Address of Contact Party:

Alan P. Kingsbury  
HC 89 P.O. Box 8100  
Talkeetna, AK 99676-9701

#### Database Record Key and File Number:

ADEC Reckey: 2006220105301  
File: 2258.38.009  
Hazard ID: 4240

#### Regulatory authority under which the site is being cleaned up:

18 AAC 75

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## Background

Based on MSB records, the property consists of 533.33 acres classified as Residential Land Use. South Mastodon Road is connected to the Talkeetna Spur Highway via East Birch Creek Boulevard to the south or via South Comcast Road to the north. Currently, as classified by the MSB, there are two residential cabins located on the property along with several non-connected buildings located nearby, including three greenhouse. The private residence is served by a private onsite drinking water well 179 feet deep and an onsite wastewater disposal system. The well is approximately 177 feet from the spill area.

Approximately 900 gallons of arctic diesel fuel were released from a heating furnace inside a heated greenhouse in February 2006. The release point was a furnace connection where fuel enters from a 1,000-gallon outside aboveground storage tank (AST). Samples taken from the excavation, biocell, and during boring were sent for laboratory analysis including gasoline-range organics (GRO), diesel-range organics (DRO), benzene, toluene, ethylbenzene, and total xylenes (collectively known as BTEX), and polycyclic aromatic hydrocarbons (PAH). An on-site drinking water well exists and water samples from this source were sent for laboratory analysis including GRO, DRO, BTEX, and VOCs.

## Cleanup Activities

During the interim removal action of contaminated soils associated with the release in 2006, approximately 430 cubic yards (c.y.) of soil were excavated. Within the parameters of safety and extent of the excavating equipment used, the excavation went to between 25 feet and 27 feet below the ground surface (bgs). Four excavation sidewall samples were taken within the pit at depths ranging from 15 feet to 24 feet bgs and sent for laboratory analysis for GRO, DRO, and BTEX. The laboratory results were either non-detectable (ND) or below the Migration to Groundwater Cleanup Levels applicable to this locale.

One excavation bottom sample was also collected and submitted for laboratory analysis for GRO, DRO, BTEX, and polycyclic aromatic hydrocarbons (PAH). The maximum laboratory results for this sample, in mg/kg, were with the results being 634 GRO, 3,890 DRO, 0.596 benzene, 6.65 toluene, 9.57 ethylbenzene, and 41.5, and total xylenes, respectively. All but the total xylenes value were above ADEC's most stringent Method Two cleanup levels, i.e., migration to groundwater pathway. The excavation bottom sample was also analyzed for PAHs. The only detectable PAHs were 1-methylnaphthalene at 7.08 mg/kg and naphthalene at 5.1 mg/kg. The former value is above the migration to groundwater cleanup level of 6.2 mg/kg. All of the maximum detections for GRO, DRO, BTEX and PAHs are below the dermal/ingestion and outdoor inhalation cleanup levels.

Excavated soil was screened as it was removed. Soil that was deemed contaminated was placed directly into a biocell that was constructed on the property about 186 feet away from the onsite private drinking water well and about 900 feet away from the closest surface water body. A relatively minor amount was deemed "clean" and stockpiled for later use as fill. A drain tile and attached riser were placed in the bottom of the excavation, filled to the top of the drain tile with clean gravel, and then followed by two layers of visquene. The remainder of the excavation was backfilled with clean material. Another visquene vapor barrier was laid down two feet bgs prior to the final fill and grading to level.

The majority of the 430 c.y. of excavated material was considered contaminated and placed in a biocell for remediation. Biocell soil sampling for DRO, GRO, and BTEX occurred four times since the biocell was created. The maximum initial laboratory analytical stockpile/biocell sampling

results were 1,230 mg/kg GRO, 13,500 mg/kg DRO, 1.29 mg/kg benzene, 18.1 mg/kg toluene, 22.2 mg/kg ethylbenzene, and 123 mg/kg total xylenes. Sampling reports from the four events showed that there was a downward trend over time in the concentration of all sampled contaminants. As of the last sampling in May 2009 BTEX constituents are ND, the maximum value for GRO was 42.5 mg/kg, and the maximum value for DRO was 1,340 mg/kg. The DRO level remained above the migration to groundwater cleanup level but far below both the dermal contact/ingestion and outdoor inhalation cleanup levels of 10,250 mg/kg and 12,500 mg/kg.

The drinking water supply and pond was sampled for DRO and VOCs in March 2006. The drinking water well was sampled for DRO and BTEX in May 2006, for GRO, DRO, and VOCs in May of 2007, 2008, and 2009, and all the results were ND.

Inspection of the pond and a seep on the property, assumed down-gradient of the spill area, has been performed each time the drinking water was analyzed and no sheen was observed as of the last sampling event.

### Contaminants of Concern

During the investigations at this site, soil samples were analyzed for diesel range organics (DRO); gasoline range organics (GRO); benzene, toluene, ethylbenzene, and xylenes (BTEX); and polycyclic aromatic hydrocarbons (PAH). Based on these analyses and knowledge of the source area, the following Contaminants of Concern were identified above the Migration to Groundwater cleanup levels:

- GRO
- DRO
- Benzene
- Toluene
- Ethylbenzene
- 1-Methylnaphthalene

### 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.

<u>Contaminant</u>	<u>Site Cleanup Level (mg/kg)</u>
GRO	300
DRO	250
Benzene	0.025
Toluene	6.5
Ethylbenzene	6.9
1-Methylnaphthalene	6.2

The default groundwater cleanup levels for this site are established in 18 AAC 75.345 Table C Groundwater Cleanup Levels. No groundwater was encountered 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 or Pathway Incomplete. A summary of this pathway evaluation is included in Table 1.

**Table 1 – Exposure Pathway Evaluation**

<b>Pathway</b>	<b>Result</b>	<b>Explanation</b>
Surface Soil Contact	De-minimis exposure	The contaminants of concern in the soil biocell are below the dermal contact/ingestion cleanup levels.
Sub-Surface Soil Contact	Pathway Incomplete	The contaminants of concern in the bottom of the excavation are at 27 feet bgs, below the dermal contact/ingestion cleanup levels, and highly unlikely to be encountered.
Inhalation – Outdoor Air	De-minimis exposure	All remaining soil contamination in the biocell and subsurface is below their respective outdoor inhalation cleanup levels.
Inhalation – Indoor Air (vapor intrusion)	De-minimis exposure	There are seasonal greenhouses at the site within 100 feet of the release site. The remaining subsurface contaminated soil is at or below 27 feet bgs. Clean gravel was placed over the remaining contamination at 27 feet bgs results in little likelihood of any indoor air vapors from the remaining contamination in the excavation. The only contaminant of concern above its migration to groundwater cleanup level in the biocell soils is DRO and it is not evaluated for this pathway.
Groundwater Ingestion	De-minimis exposure	No viable aquifer was encountered in a boring to bedrock at 42 feet bgs at the release point. The drinking water well first encountered bedrock at 52 feet bgs. Water is being withdrawn from a fractured bedrock aquifer at 144 feet bgs and 163 feet bgs. Based on these data, the CSP assumes a low potential for contaminant mobility to the well.
Surface Water Ingestion	Pathway Incomplete	A surface water pond is located approximately 900 feet from the spill site and possibly down-gradient. The surface water is not a source of drinking water.
Wild Foods Ingestion	Pathway Incomplete	Contaminants remaining at the site do not have the potential to bioaccumulate in plants or animals.
Exposure to Ecological Receptors	Pathway Incomplete	No terrestrial or aquatic exposure routes are 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. “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**

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, the biocell remains at the site. ADEC approval is required for off-site soil disposal of any of this soil in accordance with 18 AAC 75.325(i). The biocell may be dismantled and soils spread or reused. If the soil from the biocell is redistributed on the property, it must be moved at least 100 feet away from inhabited spaces and not placed within 100 feet of a surface water body or environmentally sensitive area. The CSP recommends landspreading the biocell to a maximum one foot thickness to facilitate further natural attenuation of contaminated soils. 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.

For any movement of contaminated soil off property, you must obtain ADEC approval prior to transport of those soils per 18 AAC 75.325(i).

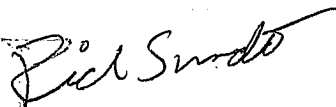
This determination is in accordance with 18 AAC 75.380 (d) and does not preclude ADEC from requiring additional assessment and/or cleanup action if future information indicates that this site may pose an unacceptable risk to human health or the environment.

### 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 the ADEC project manager, Bill Petrik at (907) 269-7546.

Approved by,



Rich Sundet  
Environmental Manager

Recommended by,



Bill Petrik  
Environmental Program Specialist

cc: Bob Braunstein, BGES, Inc.  
Veris Lunasin, Response Fund Administration, Juneau  
Natalie Lawrence, Attorney General's Office, Anchorage