



THE STATE  
of **ALASKA**  
GOVERNOR BILL WALKER

**Department of Environmental Conservation**  
DIVISION OF SPILL PREVENTION AND RESPONSE  
Contaminated Sites Program

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File: 530.38.005

February 16, 2017

Bill Heubner  
National Park Service – Anchorage  
240 West 5<sup>th</sup> Avenue  
Anchorage, Alaska, 99501

Re: Decision Document: NPS Bering Land Bridge – Cottonwood Cabin  
Cleanup Complete Determination

Dear Mr. Heubner:

The Alaska Department of Environmental Conservation (ADEC), Contaminated Sites Program has completed a review of the environmental records associated with the National Park Service (NPS) Bering Land Bridge Cottonwood Cabin site, located in the Bering Land Bridge National Preserve on the Seward Peninsula. 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 unless new information becomes available that indicates residual contaminants may pose an unacceptable risk.

This Cleanup Complete determination is based on the administrative record for the NPS Bering Land Bridge Cottonwood Cabin site, which is located in the ADEC office in Fairbanks, Alaska. This decision letter summarizes the site history, cleanup actions and levels, and standard site closure conditions that apply.

**Site Name and Location:**

NPS Bering Land Bridge, Cottonwood Cabin  
Bering Land Bridge National Preserve  
76 miles southeast of Shishmaref

Section 36, Township 5 North, Range 24 West,  
Kateel Meridian

**ADEC Site Identifiers:**

File No: 530.38.005  
Hazard ID 25963

**Regulatory Authority for Determination:**

18 AAC 75

### **Site Description and Background**

Cottonwood Cabin is an emergency use cabin in the Bearing Land Bridge National Preserve on the northern half of the Seward Peninsula, north of Nome, Alaska. The cabin was built and maintained by the NPS to act as emergency shelter for stranded winter travelers. It is located approximately 20-feet east of Cottonwood Creek, within the floodplain of the river.

During a 2012 site assessment, the heating oil tank, a 55-gallon drum on its side on a stand, was observed to be knocked over, presumably by a bear, and the copper tubing fuel line was broken. An approximately 100 square foot area (10 feet by 10 feet) was observed with no vegetation.

### **Contaminants of Concern and Cleanup Levels**

Contamination at this site is associated with a diesel fuel release. Samples have been analyzed for gasoline and diesel range organics (GRO and DRO); benzene, toluene, ethylbenzene, and xylenes (BTEX); and polycyclic aromatic hydrocarbons (PAHs). DRO is the only contaminant that has been detected above the cleanup level.

Cleanup levels for this site are established in 18 AAC 75.341, Table B2, Method 2 Petroleum Hydrocarbon Soil Cleanup Levels, under 40-inch zone, and are presented in the table below.

**Soil Cleanup Levels Table**

<b>Contaminant of Concern</b>	<b>Migration to Groundwater Cleanup Level</b>	<b>Inhalation Cleanup Level</b>
DRO	250 mg/kg	12,500 mg/kg

### **Characterization and Cleanup Activities**

In 2012, the NPS conducted activities at the Cottonwood Cabin and discovered the fuel tank overturned, presumably by a bear. An area of 100 square feet was observed with no vegetation. Analytical samples were collected from the location of the highest field screening result from the surface and from 2-feet and analyzed for GRO, DRO, and BTEX. The sample from 2-feet was also analyzed for PAHs. The DRO concentration was 28,300-mg/kg in the shallow sample and 5,240-mg/kg in the sample from 2-feet. No other contaminants were detected above cleanup levels. The upper 6 to 8 inches of the impacted area was turned over to allow for aeration and 3 pounds of 22-11-11 N-K-P fertilizer was added into the soil to promote biodegradation and plant growth.

In 2014, the NPS returned to the site to collect soil and groundwater samples and to add Terramend, a bioremediation enhancement product, to the area. Upon arrival, it was discovered that a bear had again torn the heating oil tank off its wooden rack. The tank was found lying on the ground near the northwest corner of the cabin. A small volume of contaminated soil from an area approximately 2 feet by 2 feet was encountered at the tank location and moved to the previously impacted area. The tank has been replaced with a new tank with hard tubing that will prevent bears from overturning it.

Some vegetation had grown in along the fringes of the impacted area including a few small patches of grass within the area; however the area of highest contamination, near the north wall of the cabin, generally remained devoid of vegetation.

In accordance with an ADEC approved work plan, soil samples were collected from the same location as 2012, from 0.5-feet and 4.5-feet. Samples were analyzed for GRO, DRO, BTEX, and PAHs. The DRO concentration was 410-mg/kg at 0.5-feet, and 310-mg/kg from the sample at 4.5-feet. No other contaminants were detected above cleanup levels. After sampling, the upper 1.5-feet of soil was excavated and broken up to the extent possible using hand tools, and 250 pounds of Terramend were incorporated as the soil was returned to the excavation to promote biodegradation. Groundwater was not encountered during sampling activities. The depth to groundwater is anticipated to be between 5 to 10 feet below the ground surface.

Five pore water samples were collected along Cottonwood Creek and analyzed for BTEX and PAH to calculate total aromatic hydrocarbons (TAH) and total aqueous hydrocarbons (TAQH). BTEX results were all non-detect. Three PAHs were detected below the cleanup levels. TAH and TAQH calculations were below the water quality standards.

### **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 non-carcinogenic 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 meet the human health cumulative risk criteria for residential land use.

### **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, or Pathway Incomplete. De Minimis Exposure means that in ADEC's judgment receptors are unlikely to be adversely affected by the minimal volume or concentration of remaining contamination. Pathway Incomplete means that in ADEC's judgment contamination has no potential to contact receptors. A summary of this pathway evaluation is included in the table below.

**Exposure Pathway Evaluation Table**

<b>Pathway</b>	<b>Result</b>	<b>Explanation</b>
Surface Soil Contact	De Minimis	Residual contaminant concentrations at this site are below ingestion cleanup level, and concentrations are expected to decrease due to the addition of fertilizer and Terramend to promote biodegradation.
Sub-Surface Soil Contact	De Minimis	Residual contaminant concentrations at this site are below ingestion cleanup level, and concentrations are expected to decrease due to the addition of fertilizer and Terramend to promote biodegradation.
Inhalation – Outdoor Air	Pathway Incomplete	Residual contaminant concentrations at this site are below inhalation cleanup levels.

Inhalation – Indoor Air (vapor intrusion)	Pathway Incomplete	Residual contaminant concentrations at this site are below inhalation cleanup levels.
Groundwater Ingestion	De Minimis	Residual contaminant concentrations at this site are above the migration to groundwater cleanup levels. Pore water sampling results were below groundwater cleanup levels.
Surface Water Ingestion	Pathway Incomplete	Pore water sample results along the shoreline of Cottonwood Creek were all below water quality standards.
Wild and Farmed Foods Ingestion	Pathway Incomplete	Contaminants of concern are not bio-accumulative.
Exposure to Ecological Receptors	De Minimis	Contaminants of concern are not bio-accumulative. An area devoid of vegetation was observed, however with the addition of fertilizer and Terramend to promote biodegradation, the vegetation is expected to grow back.

### **ADEC Decision**

Soil sampling results suggest that aeration and mixing of fertilizer with the soil in 2012 was effective at reducing the DRO levels in the soil. Laboratory results showed DRO decreased from 28,300-mg/kg in 2012 to 410-mg/kg in 2014. ADEC has determined that the remaining contaminated soil is De Minimis. With the addition of Terramend to the soil, along with additional aeration, in 2014, the DRO concentrations are expected to continue to decrease. Pore water sample results show that Cottonwood Creek is not impacted by this release.

This site will receive a “Cleanup Complete” designation on the Contaminated Sites Database, subject to the following standard conditions.

### **Standard Conditions**

1. 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)
2. Movement or use of contaminated material in a manner that results in a violation of 18 AAC 70 water quality standards is prohibited.
3. Groundwater throughout Alaska is protected for use as a water supply for drinking, culinary and food processing, agriculture including irrigation and stock watering, aquaculture, and industrial use. Contaminated site cleanup complete determinations are based on groundwater being considered a potential drinking water source. In the event that groundwater from this site is to be used for other purposes in the future, such as aquaculture, additional testing and treatment may be required to ensure the water is suitable for its intended use.

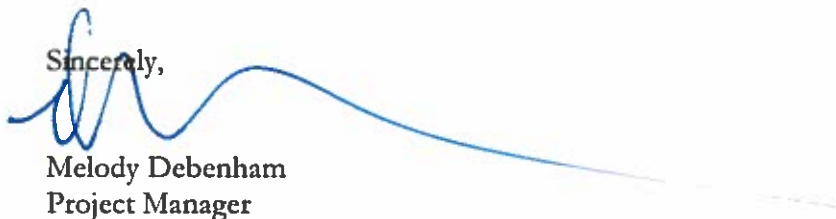
This determination is in accordance with 18 AAC 75.380 and does not preclude ADEC from requiring additional assessment and/or cleanup action if future information indicates that contaminants at this site may pose an unacceptable risk to human health, safety, or welfare or to the environment.

**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, 555 Cordova Street, Anchorage, Alaska, 99501-2617, 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, P.O. Box 111800, Juneau, Alaska, 99811-1800, 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 feel free to contact me at (907) 451-5175 or by email at [melody.debenham@alaska.gov](mailto:melody.debenham@alaska.gov).

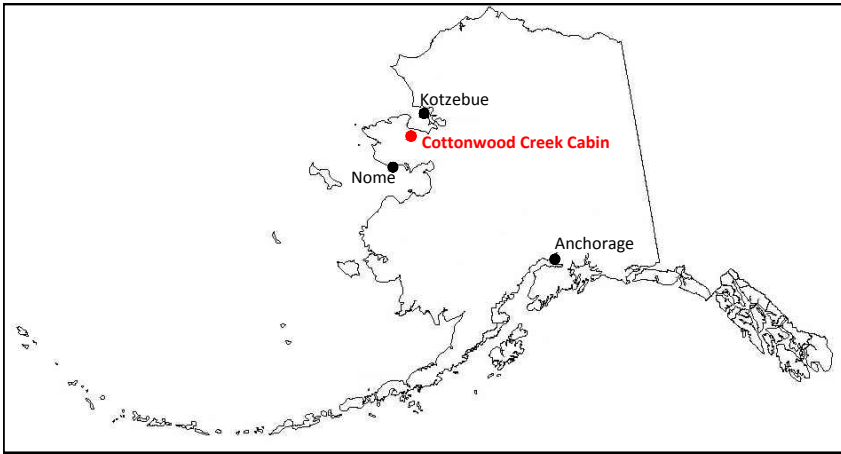
Sincerely,



Melody Debenham  
Project Manager

Enclosures: Figure 1, State and Site Vicinity Maps (Ahtna, 2014)  
Figure 4, Pore Water Sample Locations (Ahtna, 2014)

Cc (via email): Spill Prevention and Response, Cost Recovery Unit



**Key:**  
 Project Site

**Notes:**  
 1. All locations are approximate.  
 2. Image is from Google Earth accessed on 05.05.2014.

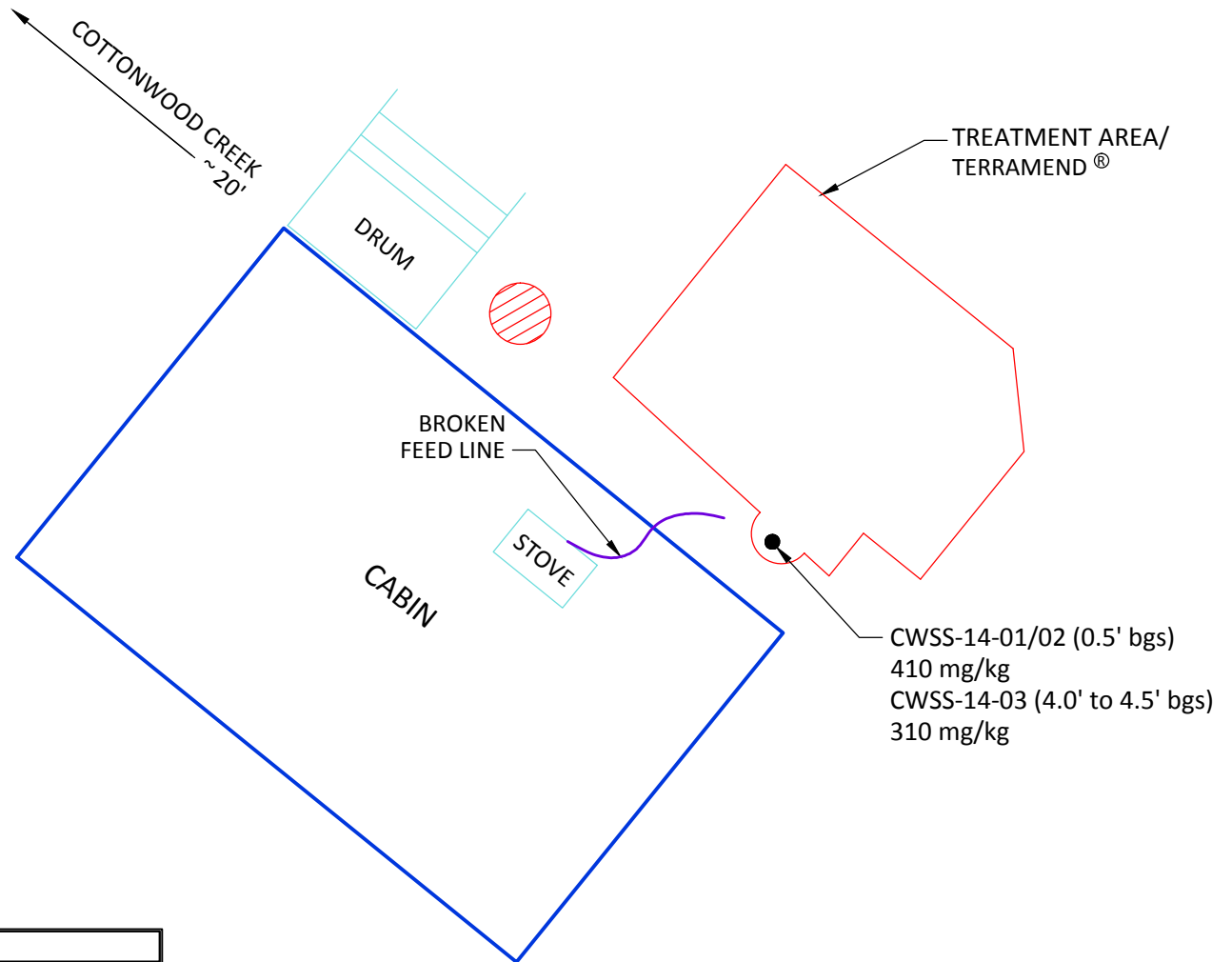
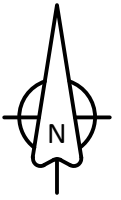
NOT TO SCALE

Cottonwood Cabin Site Assessment 2014 Report  
 Bering Land Bridge National Preserve, Alaska

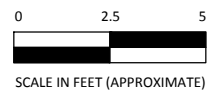


State and Site Vicinity Maps

Project Number: 20194.4642	Figure Number:
Date: 10.22.2014	<b>1</b>
Drawn By: G.R.	



Key	
bgs	Below Ground Surface
DRO	Diesel Range Organics
mg/kg	Milligrams per kilogram
	Minor Release Area
	Soil Sample with DRO Result
	Pipeline
	Aboveground Structure
	Existing Structure



Cottonwood Cabin Site Assessment 2014 Report  
Bering Land Bridge National Preserve, Alaska



Soil Sampling and Treatment Locations

Project Number: 20194.4642	Figure Number: <b>4</b>
Date: 10.28.2014	
Drawn By: G.R.	