



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: 100.38.210

August 2, 2017

Allen & Anita Prewitt
904 Les Rogers Turnaround
North Pole, Alaska, 99705

**Re: Decision Document: 904 Les Rogers Turnaround HHOT
Cleanup Complete Determination – Institutional Controls**

Dear Mr. and Mrs. Prewitt:

The Alaska Department of Environmental Conservation (ADEC), Contaminated Sites Program, has completed a review of the environmental records associated with the site located at 904 Les Rogers Turnaround, North Pole, Alaska, 99705. 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. No further remedial action will be required as long as the institutional controls are maintained and effective and no new information becomes available that indicates residual contamination poses an unacceptable risk.

This Cleanup Complete with Institutional Controls (ICs) determination is based on the administrative record for the Site which is located in the offices of the ADEC in Fairbanks, Alaska. This decision letter summarizes the site history, cleanup actions, regulatory decisions, and specific conditions required to effectively manage remaining contamination at this site.

Site Name and Location:

904 Les Rogers Turnaround HHOT
Fairbanks, Alaska 99705

Name and Mailing Address of Contact Party:

Allen & Anita Prewitt
904 Les Rogers Turnaround
North Pole, Alaska 99705

DEC Site Identifiers:

File No.: 100.38.210
Hazard ID.: 4342

Regulatory Authority for Determination:

18 AAC 75

Site Description and Background

In October 2006, during fence installation, a fencepost severed the return line to a 500-gallon heating oil underground storage tank (UST). The homeowner was out of town at the time and the heating oil tank was refilled. It is estimated that up to 1,000-gallons of heating oil may have been released to the subsurface before detection. Cleanup actions occurred when the homeowner returned two weeks later. Soil and groundwater had been impacted by the spill. Soil contamination was cleaned up to the extent possible and three monitoring wells were installed to monitor the groundwater plume. Contaminant concentrations in groundwater are stable or decreasing, and the plume does not extend off the subject property.

Contaminants of Concern

During site investigation and cleanup activities at this site, samples were collected from soil and groundwater and analyzed for diesel range organics (DRO), benzene, toluene, ethylbenzene, and xylenes (BTEX). Drinking water samples were analyzed for petroleum volatile organic compounds (VOCs). Based on these analyses, the following contaminants were detected above the applicable cleanup levels and are considered Contaminants of Concern at this site:

- diesel range organics
- benzene
- toluene
- ethylbenzene
- xylenes

Cleanup Levels

Soil cleanup levels applicable to the site are the most stringent levels found in 18 AAC 75.341(c), Table B1, and 18 AAC 75.341 (d), Table B2. Groundwater cleanup levels are found in 18 AAC 75.345 Table C. Contaminants detected above their respective cleanup levels in soil or groundwater are considered contaminants of concern at the site and are listed below in Table 1.

Table 1 – Approved Cleanup Levels

Contaminant	Soil (mg/kg)	Groundwater (mg/L)
DRO	250	1.5
Benzene	0.022	0.0046
Toluene	6.7	1.1
Ethylbenzene	0.13	0.015
Xylenes	57	0.190

mg/kg = milligrams per kilogram

mg/L = milligrams per liter

Characterization and Cleanup Activities

After discovery of the release in October 2006, initial response and cleanup actions began at this site. Contaminated soil was excavated along the side of the house and in the yard. During the remedial actions, 143.5-tons of contaminated soil was removed from the property for thermal remediation. Contaminated soil was left in place in the structural prism of the house.

A passive aeration system consisting of a perforated pipe on top of bull-rock was installed above the remaining contaminated soil to aide with natural petroleum attenuation and to mitigate vapor intrusion.

During excavation the groundwater table was exposed in a large area. A pump was utilized to recover heating oil from the impacted groundwater and a slotted culvert was installed to act as a long term recovery well. Approximately 500-gallons of heating oil was recovered during cleanup work with 250-gallons more being recovered over the following year by the landowner. Recovered product was of high enough quality to be placed back into the UST and used for heating the home. A monitoring well was installed downgradient from the release and the nearest eight drinking water wells on the subject and adjacent properties were analyzed for VOCs using EPA Method 524.2.

Initial analytical results indicated that the limits of excavation were below all cleanup levels with the exception of underneath the foundation where DRO, toluene, ethylbenzene, and xylenes were detected at levels of up to 18,100-mg/kg, 7.797-mg/kg, 16.9-mg/kg, and 78-mg/kg, respectively. Initial sampling results from downgradient monitoring well #1 were below all cleanup levels. Samples from each drinking water well indicated that BTEX was not detected.

In 2007, two more monitoring wells were installed. Groundwater downgradient and near the release was monitored between 2006 and 2010 using the three monitoring wells and the recovery well. No analytes were detected in any of the sampling events for the well furthest downgradient from the release, monitoring well #2. Groundwater contamination still exists near the site of the release but the plume is stable and contaminant concentrations are decreasing. The latest sampling event in the release area at monitoring well #3 was conducted in 2010. Sampling results from this event indicated that DRO, benzene, ethylbenzene, and toluene were present at concentrations of 87-mg/l, 0.146-mg/l, 0.105-mg/l, and 0.259-mg/l, respectively. The homeowner has been testing their drinking water well, which is located 20-feet cross-gradient from the point of release, for VOCs using EPA method 524.2 at least once per year since the release happened. Drinking water samples have never had a detectable result for petroleum compounds.

In June of 2017, ADEC personnel visited the site to screen indoor air and the passive aeration system for VOCs with a Rae Systems ppbRae photo-ionization detector (PID), and to complete the ADEC vapor intrusion building inventory. Air screening results inside the house were not higher than expected and no diesel odors were detected anywhere at the site. Air in the passive aeration system vent tube was screened in 2010 and 2017 at 9 parts per million (ppm) and 60 parts per billion (ppb) respectively, indicating that the remaining contaminated soil has weathered and significant volatilization has occurred.

Cumulative Risk Evaluation

Risk at this site was calculated assuming a residential land use and using the highest detected concentrations of contaminants in all of the samples collected following the cleanup action in 2012. The results indicate a cumulative carcinogenic cancer risk of 39 in 100,000 and a non-carcinogenic hazard index of 6. The potential cumulative risk is via the groundwater ingestion pathway. The site does not meet the residential cumulative risk standards for groundwater ingestion, but exposure is controlled through institutional controls that prevent the installation of water wells without prior DEC approval.

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, Exposure Controlled, or Pathway Incomplete. A summary of this pathway evaluation is included in Table 2.

Table 2 – Exposure Pathway Evaluation

Pathway	Result	Explanation
Surface Soil Contact	Pathway Incomplete	Contamination is not present in surface soil (0 to 2 feet below ground surface).
Sub-Surface Soil Contact	Exposure Controlled	Contamination remains above the direct contact cleanup levels in the sub-surface soil located 6 feet below ground surface (ft bgs) and under the foundation of the house. An NEC has been recorded requiring proper management of contaminated soil if it becomes accessible in the future.
Inhalation – Outdoor Air	Exposure Controlled	Contamination remains above the inhalation cleanup levels in the subsurface soil located 6 ft bgs and under the foundation of the house. Soil at this depth is not likely to impact outdoor air quality. An NEC has been recorded requiring proper management of contaminated soil if it becomes accessible in the future.
Inhalation – Indoor Air (vapor intrusion)	De Minimis Exposure	Soil contamination is separated from the garage slab by a foundation wall and several feet of clean soil. Additionally, a passive aeration system has been in place since 2006 and directs vapor migration away from the house. Field screening indicates volatiles are no longer present at levels likely to impact indoor air.
Groundwater Ingestion	Exposure Controlled	Groundwater contamination remains at the site of the release. The plume is stable and not impacting the on-site drinking water well. An NEC has been recorded restricting installation of new water wells without prior ADEC approval.
Surface Water Ingestion	Pathway Incomplete	Surface water is not present in the vicinity of the site.
Wild and Farmed Foods Ingestion	Pathway Incomplete	Contaminants of concern do not have the potential to bio-accumulate in plants or animals.
Exposure to Ecological Receptors	Pathway Incomplete	No ecological receptors are present in the vicinity of the site.

Notes to Table 2: “De-Minimis Exposure” means that in ADEC’s judgment receptors are unlikely to be 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. “Exposure Controlled” means there is an institutional control in place limiting land or groundwater use and there may be a physical barrier in place that prevents contact with residual contamination.

ADEC Decision

Petroleum contamination remains in sub-surface soil and groundwater above levels suitable for unrestricted future use; however contamination is not leaving the property and institutional controls are in place to limit potential future exposure and risk to human health or the environment. A Notice of Environmental Contamination and Institutional Controls (NEC-IC) has been recorded in the land records maintained by the Alaska Department of Natural Resources.

Groundwater meets the applicable cleanup levels at the down gradient wells (MW-1 and MW-2 shown in the figure attached), the groundwater contaminant plume has been demonstrated to be shrinking and the contaminant concentrations are decreasing. Therefore, ADEC has determined the residual soil contamination does not pose an unacceptable migration to groundwater concern.

Institutional controls necessary to support this closure determination include:

1. In the event that the remaining contaminated soil becomes accessible in the future due to the building being removed, the land owner shall notify ADEC, characterize, and, if determined necessary, cleanup the soil.
2. No additional groundwater wells shall be installed on the subject property covered by the institutional controls without prior DEC approval.

The Landowner agrees to notify ADEC prior to any sale or transfer of the property and shall report to ADEC every 5 years to document the status of compliance with the institutional controls described in this notice. Such notice and reports should be submitted electronically to CS.Submittals@alaska.gov or sent to ADEC at:

Alaska Department of Environmental Conservation
Division of Spill Prevention and Response
Contaminated Sites Program
Attention: IC Unit
P.O. Box 111800
Juneau, AK 99811-1800

Standard site closure conditions that apply to all sites include:

1. ADEC approval is required prior to moving any soil or groundwater off any site that is, or has been, subject to the site cleanup rules (see 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. In the future, if soil will be excavated (or groundwater will be brought to the surface (for example to dewater in support of construction) it must be characterized and managed following regulations applicable at that time and ADEC approval must be obtained before moving the soil or water off the property.
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 characterization and treatment may be required to ensure the water is suitable for its intended use.

ADEC has determined the cleanup is complete as long as the institutional controls are properly implemented and no new information becomes available that indicates residual contamination may pose an unacceptable risk.

The ADEC Contaminated Sites Database will be updated to reflect the change in site status to "Cleanup Complete with Institutional Controls" and will include a description of the contamination remaining at the site.

The institutional controls will be removed in the future if documentation is provided that shows concentrations of all residual hazardous substances remaining at the site are below the levels that allow for unrestricted exposure to, and use of, the contaminated media and that the site does not pose a potential unacceptable risk to human health, safety or welfare, or to the environment. Standard conditions 9-11 above will remain in effect after ICs are removed.

This determination is in accordance with 18 AAC 75.380 and does not preclude ADEC from requiring additional assessment and/or cleanup action if the institutional controls are determined to be ineffective or if new information indicates that contaminants at 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, 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) 451-5174 or email at michael.hooper@alaska.gov.

Sincerely,



Michael Hooper
Project Manager

Enclosures: 1) Site diagram that shows the locations of existing structures, locations of former monitoring and recovery wells, the area that has been cleaned up, and the approximate location and extent of remaining soil contamination.

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

Figure 1: Excavation, remaining contamination, and well locations.

Compiled by M. Hooper (ADEC) using figures from the Rockwell Engineering (2006) and the Alaska Resources and Environmental Services, LLC. (2010) spill response and groundwater monitoring reports.

7/21/2017



⊕ MW-2

Trees/shrubs

Grass

⊕ MW-1

2006
Excavation
limits

Aeration
system
outlet

Recovery well
(abandoned)

⊕ Point of release

⊕ MW-3

Remaining soil
contamination
under foundation

Buried UST

⊕ Drinking
water well

Garage

Basement

Driveway

