



THE STATE
of **ALASKA**
GOVERNOR MIKE DUNLEAVY

**Department of Environmental
Conservation**

DIVISION OF SPILL PREVENTION AND RESPONSE
Contaminated Sites Program

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File: 2230.38.003

March 5, 2021

Linda Bjore
P.O. Box 877891
Wasilla, AK 99687

Re: Decision Document: Residence – 11433 Meadowood Drive HHOT
Cleanup Complete Determination

Dear Ms. Bjore:

The Alaska Department of Environmental Conservation, Contaminated Sites Program (ADEC) has completed a review of the environmental records associated with the Residence – 11433 Meadowood Drive Home Heating Oil Tank (HHOT) site located in Houston, AK. 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 Residence – 11433 Meadowood Drive HHOT site, which is located in the ADEC office in Anchorage, Alaska. This decision letter summarizes the site history, cleanup actions and levels, and standard site closure conditions that apply.

Site Name and Location:

Residence – 11433 Meadowood Drive HHOT
11433 W Meadowood Drive
Houston, AK 99694

Name and Mailing Address of Contact Party:

Linda Bjore
P.O. Box 877891
Wasilla, AK 99687

DEC Site Identifiers:

File No.: 2230.38.003
Hazard ID.: 4420

Regulatory Authority for Determination:

18 Alaska Administrative Code (AAC) 75

Site Description and Background

In February 2007 a burglar stole the Toyo stove at 11433 Meadowood Drive. The burglar did not crimp the line to the home heating oil tank outside of the residence, and 175 gallons of diesel fuel leaked into the house, through the floorboards and vapor barrier onto the soil below. The site was reported to the

Prevention Preparedness and Response Program (formerly known as the Prevention and Emergency Response Program) and was assigned the spill number 07239904503. To encourage natural attenuation in the spill area, 50 pounds of urea and 25 pounds of fertilizer were mixed with water and poured over the fuel area by a consultant. The area was then covered with two inches of peat and a reinforced poly vapor barrier. Soil vapor probes were installed on the site and were used as a vapor extraction system that operated for an unspecified amount of time. The system was evaluated using field screening, but no laboratory samples were taken. In 2017, the Alaska Department of Law determined that the spill was the result of third party liability. From 2018 -2020, ADEC conducted characterization activities to collect data on contaminant concentrations in soil, indoor and outdoor air, soil gas, groundwater and a groundwater sample from drinking water well.

Contaminants of Concern (COCs)

During the site characterization activities completed in 2018-2020, samples were collected from the soil, groundwater, drinking water, soil gas and indoor and ambient outdoor air. Based on these analyses, the following contaminants were detected above the applicable cleanup levels and are considered contaminants of concern at the site:

- Benzene
- Naphthalene

Cleanup Levels

Soil data were compared to the most stringent soil cleanup levels in 18 AAC75.341, Table B1 and B2, under 40-inches of precipitation climate zone (March 2020) which for the above COCs are the migration to groundwater exposure pathway levels. Groundwater and drinking water data were compared to 18 AAC 75.345 Table C (March 2020) groundwater cleanup levels. Soil gas data were compared to exterior or sub-slab soil gas target levels presented in Appendix E in ADEC's Vapor Intrusion Guidance for Contaminated Sites (November 2017) and indoor/outdoor ambient air results were compared to the Indoor Air Target Levels presented in Appendix D in ADEC's Vapor Intrusion Guidance for Contaminated Sites (November 2017).

Naphthalene was located in the soil exceeding the migration to groundwater cleanup level in Table B1. naphthalene was detected above the Indoor Air Target Levels in the first of the two sampling events completed in May 2019, but not in February 2020. Benzene was detected above the exterior or sub-slab soil gas target levels in February 2020 but not May 2019.

Table 1 – Approved Cleanup Levels

Contaminant	Soil (mg/kg)	Groundwater (µg/L)	Indoor Air Target Level µg/m ³	Soil Gas Target Level µg/m ³
Benzene	0.022	4.6	3.6	36
Naphthalene	0.038	1.7	0.83	8.3

mg/kg = milligrams per kilogram

µg/L = milligrams per liter

µg/m³ = micrograms per meter cubed

Characterization and Cleanup Activities

Characterization conducted under the authority of the Contaminated Sites Program began in 2018. These activities are described below:

The site characterization under 18 AAC 75.335 conducted in 2018-2020 included drilling three boreholes, installing three groundwater monitoring wells and installing three soil gas points. Two soil samples plus a duplicate were collected per borehole for a total of nine soil samples. One sample from each groundwater monitoring well and one sample from the drinking water well plus a duplicate were collected for a total of five water samples. One sample from each soil gas point plus a duplicate during two separate sampling events for a total of eight soil gas samples. Lastly one indoor air sample plus a duplicate and an ambient air sample during two separate sampling events for a total of six air samples. Results indicated that naphthalene is present in subsurface soil at 0.41 mg/kg, above ADEC Migration to Groundwater Cleanup Levels (0.038 mg/kg), but not above human health levels (29.0 mg/kg) at 14-16 feet below ground surface. A deeper sample in the same borehole did not contain detectable concentrations of naphthalene (36-38 feet below ground surface). Naphthalene was not detected in the groundwater. Naphthalene was detected in indoor air above ADEC target levels in May 2019 in a duplicate sample (0.880 µg/m³) with the primary sample having a naphthalene concentration below the target level of 0.830 µg/m³ (0.760 µg/m³). It should be noted that this exceedance was after a small spill occurred inside the home while changing the filter on the Toyo stove in October 2018. Indoor air samples taken in February 2020 did not find naphthalene present above ADEC target levels in indoor air.

Benzene was detected in the duplicate soil gas sample for soil gas point 2 located to the west of the front door closest to the source area, but outside of the building footprint in February 2020 at 400 µg/m³, with the original sample detecting benzene at 62 µg/m³, Benzene was not detected above ADEC target levels in the previous sampling event in May 2019. The large discrepancy between the original sample and the duplicate indicate poor field precision making the actual concentration detected estimated. Benzene was also not detected in indoor air above ADEC target levels in May 2019 or February 2020. It is for the above reasons that benzene is not believed to be migrating into the home on site.

No contaminants were detected at concentrations above the ADEC cleanup levels in the drinking water sample collected in October 2018 or the groundwater samples collected in June 2019.

In October 2020, the soil gas points were decommissioned. A final mobilization will occur in Spring 2021 to decommission the groundwater monitoring wells. A database action will be entered into the Contaminated Sites Database to document when the groundwater monitoring well decommissioning is accomplished.

Cumulative Risk Evaluation

Pursuant to 18 AAC 75.325(g), when detectable contamination remains on-site, a cumulative risk determination must be made. If 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 meet the human health cumulative risk criteria for residential land use.

Exposure Pathway Evaluation

Following the 2018-2020 investigation, 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 expected to be present in surface soil (0 to 2 feet below ground surface).
Sub-Surface Soil Contact	De-Minimis Exposure	Contamination remains in the sub-surface but is below human health cleanup levels.
Inhalation – Outdoor Air	De-Minimis Exposure	Contamination remains in the sub-surface but is below inhalation cleanup levels.
Inhalation – Indoor Air (vapor intrusion)	De-Minimis Exposure	Naphthalene was detected in indoor air in May 2019, but not in February 2020. Soil gas samples did not contain naphthalene. Benzene was not detected in soil gas in May 2019, but was detected in February 2020. Indoor air samples from February 2020 did not indicate that benzene was present above target levels for indoor air.
Groundwater Ingestion	Pathway Incomplete	Data indicate that the contaminants of concern are not present in groundwater.
Surface Water Ingestion	Pathway Incomplete	Surface water is located between 0.13 to 0.5 miles from the site. Additionally, these water bodies are not in the direction of groundwater flow found on site.
Wild and Farmed Foods Ingestion	Pathway Incomplete	Contaminants of concern do not have the potential to bioaccumulate in plants or animals.
Exposure to Ecological Receptors	Pathway Incomplete	The spill occurred within the building footprint and no ecological impacts were noted.

Notes to Table 2: “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. “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

Naphthalene in soil is not expected to cause risk to human health or the environment due to the singular detection, the concentration and depth found. The concentrations of naphthalene found in indoor air in May 2019 were likely influenced by the 2018 spill of diesel within the home, as naphthalene was not detected above ADEC target levels in the following sampling event in February 2020. While benzene was detected above soil gas target levels in the soil gas point to the west of the front door closest to the source area but outside of the building footprint in February 2020, benzene was not detected above ADEC target levels inside the home indicating that vapor intrusion is not likely occurring. 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 from a site that is subject to the site cleanup rules or for which a written determination from the department has been made under 18 AAC 75.380(d)(1) that allows contamination to remain at the site above method two soil cleanup levels or groundwater cleanup levels listed in Table C requires DEC 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, 410 Willoughby Avenue, P.O. Box 111800, Juneau, Alaska 99811-1800, within 20 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, 555 Cordova Street, sixth floor, Anchorage, Alaska 99501-2617., 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.

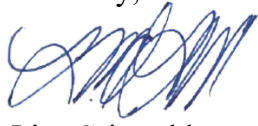
Ms. Linda Bjore

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March 5, 2021

If you have questions about this closure decision, please feel free to contact me at (907) 269-2021, or email at lisa.griswold@alaska.gov.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Lisa Griswold', written over a light blue horizontal line.

Lisa Griswold
Project Manager

cc: Spill Prevention and Response, Cost Recovery Unit