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: 100.38.217
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December 7, 2020

Via electronic and certified mail
Markel Underwriting Manager, Inc.
Attn: Pat Dunstan, RN, JD, Senior Claims Examiner
310 Highway 35 South
Red Bank, New Jersey 07701-5921

Re: Decision Document: Residence – 578 Canoro Rd.
Cleanup Complete Determination

Dear Ms. Dunstan:

The Alaska Department of Environmental Conservation, Contaminated Sites Program (ADEC) has completed a review of the environmental records associated with the Residence – 578 Canoro Rd located at 578 Canoro Road, North Pole, 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 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 – 578 Canoro Rd 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:
Residence – 578 Canoro Rd
578 Canoro Rd
North Pole, AK 99705

Name and Mailing Address of Contact Party:
Pat Dunstan, RN, JD, Senior Claims Examiner
Markel Underwriting Manager, Inc.
310 Highway 35 South
Red Bank, New Jersey 07701-5921

ADEC Site Identifiers:
File No.: 100.38.217
Hazard ID.: 4441

Regulatory Authority for Determination:
18 AAC 75

Site Description and Background

In November 2006, approximately 470 gallons of heating oil was inadvertently delivered under pressure to the property's drinking water well (DWW) located east of (behind) the house. Badger Fuel, the fuel delivery company, went out of business shortly after the release and their insurance responded to the release. The homeowners Timothy and Jacquelyn Ballard have resided at this address since the injection of fuel oil into their drinking water well. The well extends to a depth of approximately 35.5 feet below ground surface (ft bgs). The site is located within a meander of the Chena River and is approximately 700 to 900 feet from the Chena River in the west, north, and east directions. About 250 to 300 gallons of fuel was reportedly recovered by a vacuum truck immediately after the spill, and continued until there was little free product remaining in the drinking water well. A large diameter product recovery well was installed adjacent to the original drinking water well. All contaminated soil above the groundwater smear zone was removed during excavation for the recovery well installation. A temporary holding tank and replacement water system were installed to provide water for the house distribution system after the system was cleaned, flushed and tested.

Contaminants of Concern

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

- DRO
- Benzene
- Toluene
- Ethylbenzene

Cleanup Levels

DRO and benzene were detected in soil above the approved Method 2 migration to groundwater cleanup levels established in 18 AAC 75.341(c), Table B1, and 18 AAC 75.341(d), Table B2. The site is located in the under 40-inch precipitation zone.

Diesel range organics, benzene, toluene, and ethylbenzene were detected in groundwater above the approved cleanup levels established in 18 AAC 75.345 Table C.

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

mg/kg = milligrams per kilogram

mg/L = milligrams per liter

Characterization and Cleanup Activities

Characterization and cleanup activities conducted under the regulatory authority of the Contaminated Sites Program began in 2006 after the release of heating fuel to the drinking water well was reported to ADEC. These activities are described below.

Site characterization was conducted under 18 AAC 75.335 in December 2006 after the released fuel oil was pumped from the drinking water well. Water lines to the house were removed, and distribution lines were cleaned and flushed. A temporary holding tank and replacement water system parts (softener, filters, etc.) were installed to provide water to the house. Samples were taken monthly for three months, and then quarterly to ensure safe drinking water until a new well could be installed. Approximately 25 cubic yards of contaminated soils were excavated from around the contaminated drinking water well, during the installation of a product recovery well. Transport and disposal were approved by ADEC to be treated at OIT in January 2007. Two samples were collected to confirm clean soils at the limits of excavation above the water table after screening samples indicated the sidewalls were below background levels. Based upon the field screening and laboratory results, the contaminated material associated with the fuel release from the well head area was removed and the site soils above the groundwater smear zone meet the ADEC cleanup levels. Soil sample results collected from the smear zone during monitoring well installation had exceedances for benzene, and DRO in concentration exceeding the ADEC cleanup level for Migration to Groundwater.

Seven groundwater monitoring wells were installed around the release area to determine the groundwater direction and magnitude of hydraulic gradient and delineate the extent of the contaminant plume. Two of the seven wells were installed to 35 ft bgs which is the depth from which the water supply well was pumping water. The remaining five wells (SW1-SW5) were installed down to 17 ft bgs. Groundwater sample results indicate benzene, toluene, ethylbenzene, and DRO exceeded the ADEC groundwater cleanup levels.

The 2006 site characterization efforts suggested that the hydraulic gradient was to the west across the site, but the heating oil appeared to be moving east in most of the sample events. The recovery well FRW2 was installed downgradient of the source area, but has never had free product to recover. Groundwater monitoring well SW5, on the other hand, which was installed upgradient of FRW2 contained free product during installation, and remained the one well where results continued to be above ADEC groundwater cleanup levels. An aquifer characterization effort was discussed in a March 2008 report, in which the consultant described confining layers that might control petroleum migration in a pattern of sloping upward towards the north and east.

A well search was conducted in December 2007 for area drinking water wells, and the search identified six nearby residential wells down-gradient of the source area. The well search was reported in the Nortech March 2008 report, which also reported the findings of the aquifer characterization effort. All six wells were tested for drinking water standards and showed that no offsite drinking water wells were impacted by the release at 578 Canoro Road.

An indoor air quality assessment was conducted in May 2017 to determine air total organic compounds in the crawlspace, garage and occupied areas of the home. Using a low level photoionization detector (PID), the garage, kitchen and lower bathroom had readings from 290 to 350 parts per billion (ppb). The crawlspace had the lowest reading of 42 ppb. Because of these findings, it was decided there was no reason to take analytical air samples.

The new drinking water well was tested on eight different occasions after it was installed in 2008. None of the BTEX compounds or other contaminants related to the 2006 petroleum release has been found. Chloromethane was detected in the duplicate sample below the ADEC cleanup level, but not found in the primary sample. In the September 2018 comment letter, ADEC approved additional site characterization work that would not include drinking water sampling.

Groundwater monitoring show BTEX and DRO concentrations have decreased through the twelve years of site characterization efforts (2006 – 2018). Since the 2011 sample event, SW5 has remained the only well that had contaminants above ADEC cleanup levels. This resulted in a detailed analysis of the construction and material differences between SW5 and FRW2. This analysis concluded the FRW2 data is more likely representative of aquifer conditions than the SW5 data due to differences in well construction and installation. After this analysis, sample results continued to decrease and the remaining contamination in 2016 was only found in SW5, and only for ethylbenzene and xylenes. In 2018, a temporary well was installed 2.5 feet from the previously existing well SW5 to a depth of 13 feet to evaluate the groundwater conditions in this area. A sample was analyzed for BTEX and DRO to compare to results from other well data. The sample, duplicate and trip blank were found to be non-detect levels for all contaminants of concern.

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, 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	No contaminants are expected in surface soil due to this release of fuel beneath the groundwater table.

Sub-Surface Soil Contact	De Minimis Exposure	Contaminated soils were excavated from the area surrounding the drinking water well that received the heating fuel so that remaining contaminant levels are below Table B1 human health and Table B2 ingestion cleanup levels.
Inhalation – Outdoor Air	De Minimis Exposure	Contaminated soils were excavated from the area surrounding the drinking water well that received the heating fuel so that remaining contaminant levels are below Table B1 human health and Table B2 inhalation cleanup levels.
Inhalation – Indoor Air (vapor intrusion)	De Minimis Exposure	Soil and groundwater contamination do not exceed the most stringent cleanup levels, and vapors are not expected to migrate indoors. The indoor air assessment in 2017 did not find evidence of elevated levels of volatile compounds indoors.
Groundwater Ingestion	De Minimis Exposure	Area drinking water wells were sampled and found to not be affected by the injection of fuel oil into the former drinking water well. Site groundwater samples have decreased through time to levels below ADEC Groundwater Cleanup Levels.
Surface Water Ingestion	Pathway Incomplete	Sample efforts have shown that contaminants did not migrate towards the river and are unlikely to do so in the future.
Wild and Farmed Foods Ingestion	Pathway Incomplete	Only the groundwater had remaining contamination after excavation of soils around the impacted drinking water well. Contaminants are not likely to move towards the river.
Exposure to Ecological Receptors	Pathway Incomplete	Contaminants are not expected to reach the surface water and there is not evidence of surface soil contamination.

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

Soil and groundwater contamination at the site have been cleaned up to concentrations below the approved cleanup levels suitable for residential land use. This site will receive a "Cleanup Complete" designation on the Contaminated Sites Database, subject to the following standard conditions.

Standard Conditions

1. Movement or use of contaminated material in a manner that results in a violation of 18 AAC 70 water quality standards is prohibited.

2. 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 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, 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) 451-2911, or email at Laura.Jacobs@alaska.gov.

Sincerely,

Laura Jacobs
Project Manager

ecc: Spill Prevention and Response, Cost Recovery Unit
Timothy and Jacquelyn Ballard
Peter Beardsley, Nortech