



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: 2245.38.026

January 20, 2017

Charles and Kathy Von Gunten
4405 South McKenchie Loop Road
Palmer, AK 99645

Re: Decision Document: **Residence – Von Gunten**
Cleanup Complete Determination

Dear Mr. and Mrs. Von Gunten:

The Alaska Department of Environmental Conservation, Contaminated Sites Program (ADEC) has completed a review of the environmental records associated with the Residence-Von Gunten site located at 4405 South McKenchie Loop Road in Palmer. Based on the information provided to date, ADEC has determined that the contaminant concentrations remaining on site do not pose an unacceptable risk to human health or the environment and will require no further remedial action unless new information becomes available that indicates residual contaminants may pose an unacceptable risk.

ADEC files comprising the administrative record that is the basis for this decision are located in the ADEC office in Anchorage, Alaska. This decision letter summarizes the site history, cleanup actions and levels, and the standard site closure conditions that apply to all contaminated sites.

Site Name and Location:

Residence-Von Gunten
4405 South McKenchie Loop Road
Palmer, AK 99645

Name and Mailing Address of Contact Party:

Charles and Kathy Von Gunten
4405 South McKenchie Loop Road
Palmer, AK 99654

DEC Site Identifiers:

File No.: 2245.38.026
Hazard ID.: 3146

Regulatory Authority for Determination:

18 AAC 75

Site Description and Background

A 1,500 gallon home heating oil tank leaked an estimated 400 gallons of fuel in December 1998. Sixty-two tons of contaminated soil was excavated in January 1999 and thermally treated off-site. Soil contaminated by diesel range organics (DRO) above ADEC cleanup levels remained adjacent to the foundation wall where it could not be excavated without risking damage to the house. Additional characterization of soil adjacent to and beneath the foundation was undertaken and completed in 2016. During the 2016 investigation, a Geoprobe push probe was used to collect soil core samples to a depth of 20 feet and to install a piezometer to determine whether groundwater was present at the site. The total depth of 20 feet was over five feet below the maximum depth of contamination documented in 1999. Groundwater was not encountered during coring and was not measurable in the piezometer after drilling.

Contaminants of Concern

Soil:

During the site investigation and cleanup activities, samples were collected from soil and were analyzed for one or more of the following: DRO, volatile organic compounds (VOCs), and polynuclear aromatic hydrocarbons (PAHs). 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 (DRO)
- Total Xylenes

Groundwater:

Groundwater was not encountered to the maximum coring depth of 20 feet below ground surface (bgs).

Cleanup Levels

The most restrictive of the inhalation, ingestion and human health cleanup levels, as listed in 18 AAC 75.341 (c) and (d), Tables B1 and B2, apply to this site. The groundwater cleanup levels listed in 18 AAC 75.345 Table C do not apply to this site because no groundwater was encountered at a depth at least five feet below the maximum depth of previously documented contamination. The migration to groundwater (MTG) exposure pathway is not a concern at the site given the following factors: the depth to groundwater of at least 20 feet bgs; past drinking water well testing showing non-detect for VOCs; the soil strata consisting of granular soil overlying a very low permeability, high density soil known as 'hardpan' present at about 14 feet bgs that would limit potential downward migration; and the age of the spill (18 years). Total xylenes present at 24.4 mg/kg in a soil sample from 10 feet bgs exceeded the MTG cleanup level of 1.5 mg/kg, but were not detected in a sample from 14 feet bgs, and as noted, the MTG cleanup level is not applicable.

Table 1 – Approved Cleanup Levels and Maximum Concentrations of Contaminants Remaining
(Applicable Cleanup Levels are **bolded**)

Contaminant	Soil cleanup level: Migration to Groundwater (MTG)		Soil cleanup level: Ingestion	Soil cleanup level: Inhalation	Soil cleanup level: Human Health	Maximum concentrations remaining in site soil
DRO	250 mg/kg (N/A)		10,250 mg/kg	12,500 mg/kg (N/A)		57 mg/kg (sample depth: 14 ft)
Total Xylenes	1.5 mg/kg (N/A)				57 mg/kg	24.4 mg/kg (sample depth: 10 ft)

mg/kg = milligrams per kilogram

N/A = not applicable

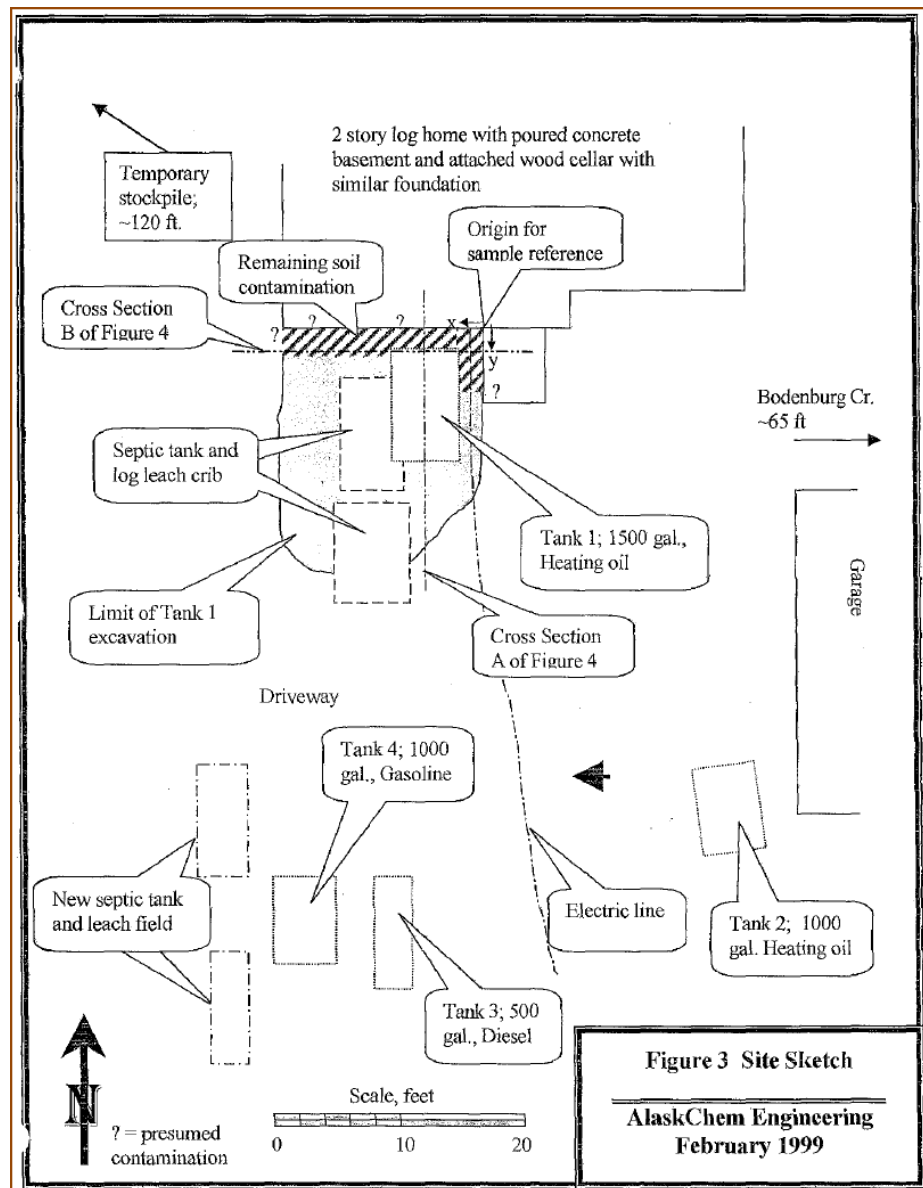
Characterization and Cleanup Activities

ADEC was notified in early January 1999 that a 1,500 gallon home heating oil storage tank was suspected to have leaked in December 1998 based on the presence of water in the fuel supply line that caused the furnace to fail. An estimated 400 gallons of fuel was released. Characterization and cleanup work began in mid-

January 1999 following ADEC approval of a work plan¹ that included removal of four residential, non-commercial use underground storage tanks on the property, including the heating oil storage tank that was the source of the release. The location of the leaking tank is shown on Figure 3 below as Tank 1, installed partially over the septic tank. Upon removal of Tank 1 the tank bottom was found to be corroded through, with the corrosion presumed to have resulted from contact with a high water table associated with the adjacent septic system.² No contamination was identified at the locations of the other three tanks that were also removed in January 1999. The septic system was also removed and relocated farther south of the house as shown on Figure 3.

Soil sampling for DRO was done following the removal of Tank 1, with three samples collected from the limits of the excavation. Excavation was limited by the proximity of the foundation wall, which enclosed a basement with a slab-on-grade floor. The two samples collected next to the foundation exceeded DRO cleanup levels, with 5,730 mg/kg DRO in a sample from 7 feet bgs and 3,310 mg/kg DRO in a sample from 10.5 feet bgs. The drinking water well was tested for the volatile organic compounds benzene, toluene, ethylbenzene and total xylenes (BTEX) on February 9, 1999. All results were non-detect.

Sixty-two tons of contaminated soil was excavated and stockpiled during the Tank 1 and septic system removal. The soil was thermally remediated at Alaska Soil Recycling in September 1999. No additional work was done until 2016, when ADEC contacted the addressees regarding the open status of the site and requested additional investigation to determine the vertical extent of contamination, and to determine whether groundwater was present within 5 vertical feet of



¹ See *Safe Work Plan, Von Gunter Residence, Underground Storage Tank Closure*, prepared by AlaskChem Engineering and dated January 12, 1999.

² See *Underground Storage Tank Permanent Closure Site Assessment and Release Investigation*, prepared by AlaskChem Engineering and received by ADEC March 31, 1999.

contamination exceeding cleanup levels. ADEC requested sampling and analysis for VOCs including BTEX, PAHs, and DRO.

The requested investigation took place in October 2016 in accordance with an ADEC approved work plan. Work reported in the site characterization report³ included placing an angled push probe and collecting soil cores within the area of previously documented contamination, with the coring continuing to a depth below the contaminated area to confirm the presence or absence of groundwater. Groundwater was not encountered during coring or in the piezometer installed in the hole, which terminated at 20 feet bgs in the very low permeability, high density 'hardpan' soil present from about 14 ft bgs to the bottom of the hole. The only compounds detected in site soils were DRO and total xylenes, both below the applicable cleanup levels shown in Table 1. No PAHs or other BTEX constituents were detected.

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 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 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	De Minimis Exposure	No contaminants remain in sub-surface soils above applicable cleanup levels which are the Human Health exposure pathway for total xylenes and the ingestion exposure pathway for DRO as shown in Table 1.
Inhalation – Outdoor Air	De Minimis Exposure	Contamination remaining in the subsurface is below inhalation cleanup levels.
Inhalation – Indoor Air (vapor intrusion)	De Minimis Exposure	The only volatile organic compound present in site soil is total xylenes, which do not exceed the applicable cleanup level for the Human Health exposure pathway.
Groundwater Ingestion	Pathway Incomplete	No contaminants exceeded the MTG cleanup level in the deepest soil sample collected and analyzed in 2016. Additionally, past sampling of the drinking water at the property for the VOCs had results of non-detect. Further

³ See *Site Characterization Closure Report; Von Gunten Residence, File 2245.38.026* prepared by AlaskChem Engineering and dated December 5, 2016.

		reducing the likelihood of migration of contaminants to groundwater is the low permeability layer of soil that separates the upper soil horizon from the drinking water aquifer present at least 20 feet bgs and reportedly present at over 40 feet bgs.
Surface Water Ingestion	Pathway Incomplete	Surface water is not used as a drinking water source in the vicinity of the site.
Wild and Farmed Foods Ingestion	Pathway Incomplete	The contaminants of concern do not have the potential to bioaccumulate in plants or animals.
Exposure to Ecological Receptors	Pathway Incomplete	There are no ecological receptors in the area of the site that could be affected by the remaining low-level contaminants.

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. 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 Figure 3 above).
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. If 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 Spill Prevention and Response (SPAR) Division Director in accordance with 18 AAC 15.185. Informal review requests must be the SPAR Division Director, 555 Cordova Street, Anchorage, Alaska 99501-2617, within 15 days after receiving the ADEC 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, PO 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) 269-7527, or by email at eileen.olson@alaska.gov.

Sincerely,

A handwritten signature in cursive script, appearing to read "Eileen Olson".

Eileen Olson
Project Manager

cc: Spill Prevention and Response, Cost Recovery Unit