THE STATE of ALASKA
GOVERNOR MIKE DUNLEAVY

Department of Environmental Conservation
SPILL PREVENTION & RESPONSE
Contaminated Sites Program
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File: 2107.26.013

December 23, 2021

Electronic Delivery Only
Michael Rhodes, PE
Municipality of Anchorage, Solid Waste Services
1111 East 56th Avenue
Anchorage, AK 99518

Subject: **Decision Document: Cleanup Complete Determination**
MOA Anchorage Regional Landfill

Dear Mr. Rhodes:

The Alaska Department of Environmental Conservation (ADEC) has completed a review of the environmental records associated with the Municipality of Anchorage (MOA), Anchorage Regional Landfill located at 9450 Glenn Highway, Eagle River, Alaska. Based on the information provided to date, residual contaminant concentrations at the site do not pose an unacceptable risk to human health or the environment. No further remedial action will be required unless information becomes available that indicates residual contaminants may pose an unacceptable risk.

Site Background

In 1987, a 10,000-gallon diesel underground storage tank (UST) was installed at the Anchorage Regional Landfill. In 1990, this tank and associated fuel island failed a tightness test that was traced to loose joints in the fuel delivery piping. The UST and two dispensers were upgraded and repaired and brought back online in 1991. Contaminated soil was excavated from above and around the UST to approximately 8 feet below ground surface (bgs), and from beneath the fuel island to approximately 12 feet bgs. Due to the presence of underground piping and the presence of the concrete fuel island, contamination could not be delineated vertically. The maximum extractable petroleum hydrocarbon concentration in the remaining soil was 2,300 milligrams per kilogram (mg/kg).

In 1998, a leaching assessment[1] was conducted at the location of the release to determine the potential for migration of diesel from the UST to groundwater. The leaching assessment model demonstrated that contamination is unlikely to impact groundwater due to the depth of groundwater (120 – 130 feet bgs) at this site.

[1] Hart Crowser, Inc. *Leaching Assessment Diesel-Range Hydrocarbons, Anchorage Regional Landfill Underground Storage Tank*. A-8245-03, April 14, 1998.

In 2017, DEC issued a cleanup complete determination for the MOA Anchorage Regional Landfill, based on the results of the 1998 leaching assessment model. A cleanup complete determination letter was sent to MOA on May 11, 2017 (see attachment).

Shortly after the 2017 Cleanup Complete determination was issued, contaminated soil was observed under the UST piping and fuel dispensers during a routine upgrade. The release was reported to DEC in accordance with 18 AAC 78.210 and the site was reopened. Contaminated soil was excavated around the dispenser up to approximately 3.5 feet bgs. The depth of the excavation was limited due to the presence of the fuel island canopy, fuel island, adjacent AST, UST infrastructure, and the spill response shack. Analytical samples were collected from beneath the two dispenser units, from three sidewalls, and at the base of the excavation. A sample was not collected from the fourth sidewall because the excavation was tapered in the direction of the UST. Analytical results from sidewall samples were below cleanup levels for all analytes. Naphthalene and diesel range organics (DRO) exceeded their respective 18 AAC 75 Table B1/B2 cleanup levels at the base of the excavation with concentrations of 0.072 mg/kg, and was detected at 842 mg/kg, respectively.

ADEC Decision

Based on review of the MOA Anchorage Regional Landfill file and 1998 Soil Leaching Assessment, ADEC agrees that residual contamination at this site is unlikely to reach groundwater as noted in the 2017 Cleanup Complete letter. The UST is also located within the boundaries of an active landfill where groundwater monitoring is conducted annually. The MOA Anchorage Regional Landfill will receive a Cleanup Complete designation in the Contaminated Sites database[2], subject to the standard conditions outlined in the attached 2017 Cleanup Complete Determination letter.

This determination is in accordance with 18 AAC 78.276(f) and does not preclude ADEC from requiring additional assessment and/or cleanup action if information indicates that contaminants at this site may pose an unacceptable risk to human health, safety, or welfare or to the environment.

If you have any questions, please feel free to contact me at (907) 451-2166, or email at kelly.walker@alaska.gov.

Sincerely,

Kelly Walker

Kelly Walker
Environmental Program Specialist

Attachment: 2017 Cleanup Complete Determination letter

cc (via email): Jamie McKellar, DEC
Bill O'Connell, DEC
Nick Waldo, DEC

[2] Contaminated Sites Database entry for MOA Anchorage Regional Landfill: http://dec.alaska.gov/Applications/SPAR/PublicMVC/CSP/SiteReport/24063

THE STATE of ALASKA
GOVERNOR BILL WALKER

Department of Environmental Conservation

DIVISION OF SPILL PREVENTION AND RESPONSE
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File No.: 2107.26.013

May 11, 2017

Mark Madden, PE
Municipality of Anchorage, Solid Waste Services
1111 East 56th Avenue
Anchorage, AK 99518

Re: Decision Document: MOA Anchorage Regional Landfill
Cleanup Complete Determination

Dear Mr. Madden:

The Alaska Department of Environmental Conservation, Contaminated Sites Program (ADEC) has completed a review of the environmental records associated with the MOA Anchorage Regional Landfill located at 9450 Glenn Highway, Eagle River, 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 MOA Anchorage Regional Landfill, 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:
MOA Anchorage Regional Landfill
9450 Glenn Highway
Eagle River, AK 99577

Name and Mailing Address of Contact Party:
Mark Madden
Municipality of Anchorage, Solid Waste Services
1111 East 56th Avenue
Anchorage, AK 99518

DEC Site Identifiers:
File No.: 2107.26.013
Hazard ID.: 24063

Regulatory Authority for Determination:
18 AAC 78 and 18 AAC 75

Site Description and Background

A 10,000 gallon underground storage tank (UST) at the Anchorage Regional Landfill failed tightness testing in 1990. The tank had a loose fitting on the top that had leaked diesel fuel, and the tank was decommissioned in September 1990 after approximately three years in service. Subsequently, the tank was

repaired and put back into use. Contaminated soils were excavated from one side of the tank, however not all contaminated soils were excavated.

The site is located at an active landfill. Groundwater in the immediate vicinity of the site is not used for drinking water, and the nearest known drinking water well is ¼ to ½ mile up gradient.

Contaminants of Concern

During the site characterization and cleanup activities at this site, samples were collected from soil and analyzed for potential contaminants of concern. 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)
- Gasoline Range Organics (GRO)
- Xylene

Cleanup Levels

Table 1 outlines the approved cleanup levels for this site. Remaining contaminants of concern are below the human health cleanup levels, but exceed the soil migration to groundwater cleanup levels. Sufficient characterization and landfill perimeter groundwater monitoring has been completed and ADEC has made a determination that the remaining contaminants in soil are steady-state or decreasing and will not migrate to groundwater.

Table 1 – Approved Cleanup Levels, Method 2 (under 40 inch zone)

Contaminant	Soil, Human Health (mg/kg)	Soil, Migration to Groundwater (mg/kg)	Groundwater (ug/L)
DRO/EPH	10,250	250	1,500
GRO/TPH	1,400	300	2,200
Xylene	57	1.5	190

mg/kg = milligrams per kilogram
ug/L = micrograms per liter

Characterization and Cleanup Activities

Following tank repair in 1990, the soils around the UST were excavated to approximately 8 feet in depth, and the soils underneath the former pump island were excavated to approximately 12 feet in depth. The excavation was deemed to have been performed to the maximum extent practicable. The excavated soil was stockpiled onsite, sampled, and disposed of at the landfill. Ten soil samples were collected from the excavation boundaries, with a maximum Extractable Petroleum Hydrocarbons (EPH) concentration at 2,300 mg/kg. Four borings were advanced adjacent to (but not within) the excavation, ranging in depths from 21-31 feet. Nine analytical samples for Total Petroleum Hydrocarbons (TPH) were collected from these borings, all of which were non-detect. The vertical extent of contamination was not fully defined.

Xylene was detected in the soil stockpile at .037 ppm, total petroleum hydrocarbons at 1,450 ppm, and all other tested analytes were non-detect..

Following excavation work, the site was paved over to prevent surface water infiltration.

In 1998 a leaching model assessment (SESOIL) of the site was completed. The model concluded that individual contaminants (benzo(a)pyrene, fluorine, naphthalene, phenanthrene, pyrene, and zylenes) would either not reach groundwater, or would reach groundwater at concentrations orders of magnitude below clean up levels. Assumptions used in the model simulation include the following: the diesel product was fresh/unweathered, soil type does not vary, all precipitation goes into the system, infiltration occurs during seven months per year, soil porosity is 35%.

Groundwater at the site ranges from approximately 92 feet to approximately 200, depending on the document referenced. The nearest drinking water well is over ¼ mile up gradient.

Groundwater directly beneath the site has not been evaluated. The landfill conducts semi-annual groundwater monitoring around the perimeter of the landfill in accordance with ADEC's Solid Waste Program permit number SW1 A001-17. Data from ADEC's Solid Waste Program documents that the landfill has not detected any Benzene, Toluene, Ethylbenzene and Xylene (BTEX) constituents in any of the landfill perimeter wells for the past 10 years. Groundwater data older than 10 years was not reviewed as part of this closure.

Cumulative Risk Evaluation

Pursuant to 18 AAC 78.600(d), 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 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	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 human health cleanup levels.
Inhalation – Indoor Air (vapor intrusion)	Pathway Incomplete	Buildings are not present within the site boundaries. Groundwater is not believed to be contaminated below the site.
Groundwater Ingestion	Pathway Incomplete	There are no groundwater drinking wells currently or expected on the property as it is a landfill. Groundwater data at the perimeter of the landfill does not show contamination.
Surface Water Ingestion	Pathway Incomplete	Surface water is not used as a drinking water source in the vicinity of the site. Surface water was not impacted by site contamination.
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	Ecological receptors are not impacted by contamination as this site is an active landfill.

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.

ADEC Decision

Contaminants of concern remain in the sub-surface soil at levels below the human health cleanup levels, but exceeding the soil migration to groundwater cleanup levels. Sufficient characterization and landfill perimeter groundwater monitoring has been completed and ADEC has made a determination that the remaining contaminants in soil are steady-state or decreasing and will not migrate to groundwater.

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 78.600(h). A "site" as defined by 18 AAC 78.995(134) means an area that is contaminated, including areas contaminated by the migration of hazardous substances from a source area, regardless of property ownership.

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 78.276(f) 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, 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) 269-7530, or email at kara.kusche@alaska.gov.

Sincerely,

Kara Kusche

Kara Kusche
Environmental Program Manager

cc: Spill Prevention and Response, Cost Recovery Unit