



THE STATE
of **ALASKA**
GOVERNOR SEAN PARNELL

Department of
Environmental Conservation

DIVISION OF SPILL PREVENTION & RESPONSE
Contaminated Sites Program

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File: 2100.57.016

October 13, 2014

Ms. Tammy Oswald
Director, Real Estate Department
Municipality of Anchorage
4700 Elmore Road
Anchorage, AK 99507

Re: Decision Document; MOA Muldoon Estates Tract A
Cleanup Complete Determination

Dear Ms. Oswald;

The Alaska Department of Environmental Conservation, Contaminated Sites Program (ADEC) has completed a review of the environmental records associated with the MOA Muldoon Estates Tract A site, located at 1301 Muldoon Road in Anchorage, 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 this site will be closed.

This decision is based on the administrative record for MOA Muldoon Estates Tract A, which is located in the offices of the ADEC in Anchorage, Alaska. This letter summarizes the decision process used to determine the environmental status of this site and provides a summary of the regulatory issues considered in the Cleanup Complete determination.

Introduction

Site Name and Location:

MOA Muldoon Estates Tract A
1301 Muldoon Road
Anchorage, AK

Name and Mailing Address of Contact Party:

Ms. Tammy Oswald
Director, Real Estate Department
Municipality of Anchorage
4700 Elmore Road
Anchorage, AK 99507

ADEC Site Identifiers

File: 2100.57.016

Hazard ID: 25859

Regulatory authority under which the site is being cleaned up:

18 AAC 75

Background

This 2.5 acre property was an operational nursery from the late 1960s to the mid-2000s and included two operational greenhouses, both of which have since been demolished. Chester Creek currently flows to the west along the northern portion of the property however this reach of the creek will be relocated to flow south along the western portion of the site before turning east and flowing under Muldoon Road.

The property is currently undeveloped land, but is serviced by the municipal water supply.

Contaminants of Concern

During the investigations at this site, soil and groundwater samples were analyzed for diesel range organics (DRO), gasoline range organics (GRO), residual range organics (RRO), benzene, toluene, ethylbenzene, and xylenes (BTEX), pesticides, polychlorinated biphenyls (PCBs), dioxins, and metals. Based on these analyses and knowledge of the source area, the following Contaminants of Concern were detected above ADEC cleanup levels in soil:

Metals

- Arsenic
- Chromium
- Thallium

Pesticides

- Alpha-chlordane
- Gamma-chlordane
- Gamma-BHC (Lindane)
- Heptachlor

Contaminants were not detected above ADEC 18 AAC 75.345 Table C cleanup levels in groundwater

Cleanup Levels

The default soil cleanup levels for this site are established in 18 AAC 75.341, Method Two, Table B2, Migration to Groundwater Pathway for the Under 40 inch Zone.

<u>Contaminant</u>	<u>Site Cleanup Level (mg/kg)</u>
• Arsenic	3.9
• Chromium	25
• Thallium	1.9

• Alpha-chlordane	2.3*
• Gamma-chlordane	2.3*
• Gamma-BHC (Lindane)	0.0095
• Heptachlor	0.28

*cleanup level cited is for chlordane

Site Characterization Activities

In 2009, soil samples that were collected from geotechnical boreholes advanced along the planned route of the Chester Creek realignment contained GRO, DRO, RRO, pesticides and dioxins in soil at concentrations below ADEC cleanup levels, indicating the potential presence of contamination at the property. A groundwater sample collected from a temporary well at the site did not contain detectable concentrations of contaminants.

To evaluate for the presence of contamination at the site, an Environmental Protection Agency (EPA) Targeted Brownfield Assessment (TBA) was conducted at the site in 2012 that included the collection of 42 surface soil samples, 18 subsurface soil samples from nine soil borings, and the collection of five sediment samples in Chester Creek. Groundwater samples were collected from two of the boreholes. Sample locations were evenly distributed across the site with the objective of characterizing potential contaminant source areas including the northern and southern greenhouses, the location of a former septic leach field, and the suspected location of an underground fuel storage tank.

Arsenic, chromium, and thallium were detected at or above the cleanup level in almost all soil samples. These metals are frequently detected above ADEC cleanup levels due to natural background conditions and the consistent detection of these metals at similar concentrations across the site and absence of known source areas suggests these concentrations are the result of natural background conditions at the site and are not related to the release of a contaminant.

Other than the metals noted above, contaminants were not detected above cleanup levels in subsurface soil, groundwater, or sediment samples. Surface soil samples contained alpha-chlordane, gamma-chlordane, gamma-BHC (Lindane) and heptachlor above ADEC cleanup levels. In August 2014, EPA contacted ADEC and indicated there were data quality issues associated with all of the data collected during the TBA and none of this data should be used for decision making purposes or for comparison with cleanup levels at the site.

Prior to the data quality notification from EPA, the Municipality of Anchorage conducted additional sampling at the site to more closely delineate the vertical and horizontal extent of pesticide contamination in preparation for remedial action. Surface and shallow subsurface soil samples were collected from the same locations as the TBA samples that contained pesticides above ADEC cleanup levels and from 4-6 locations evenly distributed around the initial sampling location for a total of 33 soil samples analyzed for pesticides. Three additional soil samples were collected and analyzed for dioxins to confirm the absence of dioxins above cleanup levels. Gamma-BHC (Lindane) was detected above the ADEC cleanup level at 0.0116 mg/kg in one of the 33 samples. This concentration is above the migration to groundwater cleanup level of 0.0095 mg/kg, but below the direct contact cleanup level of 5.6 mg/kg. No other pesticides were detected above cleanup levels. Dioxins were not detected above cleanup levels in the three samples analyzed for dioxins.

Cumulative Risk Calculation

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 do not pose a cumulative human health risk at this site.

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 1.

Table 1 – Exposure Pathway Evaluation

Pathway	Result	Explanation
Surface Soil Contact	De Minimis Exposure	Contaminants were not detected above direct contact cleanup levels in surface soil
Sub-Surface Soil Contact	De Minimis Exposure	Contaminants were not detected in subsurface soil above direct contact cleanup levels
Inhalation – Outdoor Air	Pathway Incomplete	Volatile contaminants capable of causing risk via this pathway are not present at the site.
Inhalation – Indoor Air (vapor intrusion)	Pathway Incomplete	Volatile contaminants capable of causing risk via this pathway are not present at the site.
Groundwater Ingestion	Pathway Incomplete	Contaminants are present above cleanup levels in groundwater at the site
Surface Water Ingestion	Pathway Incomplete	Surface water is not utilized as a drinking water source in this area.
Wild Foods Ingestion	Pathway Incomplete	Wild foods are not collected in this area.
Exposure to Ecological Receptors	Pathway Incomplete	When Chester Creek is realigned, ecological receptors will not be present at this site.

Notes to Table 1: “De-minimis exposure” means that in ADEC’s judgment receptors are unlikely to be affected by the minimal volume of remaining contamination. “Pathway incomplete” means that in ADEC’s judgment contamination has no potential to contact receptors. “Exposure controlled” means there is an administrative mechanism in place limiting land or groundwater use, or a physical barrier in place that deters contact with residual contamination.

ADEC Decision

Based on the information available, ADEC has determined no further assessment or cleanup action is required. There is no risk to human health or the environment from contamination, and this site will be designated as closed on the Department's database.

Although a Cleanup Complete determination has been granted, ADEC approval is required for off-site soil disposal in accordance with 18 AAC 75.325(i). It should be noted that movement or use of potentially contaminated soil in a manner that results in a violation of 18 AAC 70 water quality standards is unlawful.

This determination is in accordance with 18 AAC 75.380(d) and does not preclude ADEC from requiring additional assessment and/or cleanup action if future information indicates that 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, 410 Willoughby Avenue, Suite 303, Juneau, Alaska 99801, 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, Juneau, Alaska 99801, 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 contact ADEC Project Manager Bill O'Connell at (907) 269-3057.

Approved By,



Bill O'Connell
Environmental Program Manager