



THE STATE  
of **ALASKA**  
GOVERNOR BILL WALKER

**Department of  
Environmental Conservation**

DIVISION OF SPILL PREVENTION AND RESPONSE  
Contaminated Sites Program

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www.dec.alaska.gov

File No: 2100.26.249

February 18, 2016

Municipality of Anchorage  
Maintenance and Operations  
Attn: Mr. Jon Clark  
3640 East Tudor Road Warehouse #1  
Anchorage, Alaska 99507

Subject: **Decision Document: MOA- Fire Station #7  
Corrective Action Complete with Institutional Controls Determination**

Dear Mr. Clark:

The Alaska Department of Environmental Conservation, Contaminated Sites Program (ADEC) has completed a review of the environmental records associated with the Municipality of Anchorage (MOA) – Fire Station #7 on West 84<sup>th</sup> Avenue 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 as long as the site is in compliance with established institutional controls (ICs).

This decision is based on the administrative record for the MOA – Fire Station #7 site 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 with ICs determination.

**Site Name and Location:**

MOA- Fire Station #7  
3939 W. 84th Avenue  
Anchorage, Alaska 99502

**Name and Mailing Address of Contact Party:**

Municipality of Anchorage  
Maintenance and Operations  
3640 East Tudor Road Warehouse #1  
Anchorage, Alaska 99507

**DEC Site Identifiers:**

File No: 2100.26.249  
Hazard ID: 23699  
RecKey No: 2000210112301

**Regulatory Authority for Determination:**

18 AAC 75 and 18 AAC 78

### Site Description and Background

In 1994 a 1,000 gallon gasoline tank and a 500 gallon diesel tank and the associated piping were removed. Samples from the base of the excavation had concentrations of gasoline range organics (GRO) at 220 mg/kg, diesel range organics (DRO) at 3,000 mg/kg, benzene at 2.7 mg/Kg and toluene and 11 mg/kg.

### Contaminants of Concern

Based on the applicable cleanup levels at the time of site discovery and results of the investigation, the following Contaminants of Concern were identified in the soil and/or groundwater:

- DRO
- GRO
- Benzene
- Toluene

### Cleanup Levels

The applicable soil cleanup levels for this site are established in 18 AAC 75.341, Method Two, Tables B1 and B2, Under 40 Inch Zone, for the migration to groundwater pathway. Applicable groundwater cleanup levels are established in 18 AAC 75.345 Table C.

**Table 1 – Approved Cleanup Levels**

Contaminant	Soil (mg/Kg)	Groundwater (mg/L)
DRO	250	1.5
GRO	300	2.2
Benzene	0.025	0.005
Toluene	6.5	1.0

### Characterization and Cleanup Activities

In 1994 petroleum contaminated soil was discovered during removal of two underground storage tanks (UST), associated piping and dispenser at the MOA former fire station #7. The diesel UST excavation reached a depth of 6.5 feet below ground surface (bgs) and groundwater was encountered. Confirmation soil samples contained diesel range organics (DRO) up to 3,000 mg/kg. The gasoline UST excavation reached a depth of 8 feet however groundwater was not encountered. Confirmation soil samples collected from the gasoline UST excavation contained gasoline range organics (GRO) concentrations of up to 220 mg/kg, benzene concentrations of up to 2.7 mg/kg, and toluene concentrations of up to 11 mg/kg. The gasoline UST excavation was restricted in the north by a buried water line and in the west by a culvert. Approximately 250 tons of contaminated soil excavated from the two areas was stockpiled at the site.

Eleven borings were advanced at the site in 1995, three associated with the diesel UST and eight associated with the gasoline UST. DRO in exceedance of cleanup levels was detected in borehole B11 near the former diesel UST at 260 mg/kg. Benzene was detected above cleanup levels up to 0.48 mg/kg in samples from three of the gasoline UST borings. Three of the borings were completed as monitoring wells MW1, MW2, and MW3. After installation of MW3, it was discovered that static groundwater was higher than the top of the screen and MW3 was replaced by MW3A. Only samples collected from MW3A yielded concentrations of contaminants that exceeded groundwater cleanup levels at 12 mg/L GRO and 6.1 mg/L benzene. Additional excavation of 65 cubic yards was completed at the former diesel UST location and MW2 was removed. Confirmation soil samples collected from the limits of the

1995 excavation at the former diesel UST did not contain contaminants above cleanup levels. The material from the 1994 and 1995 excavations was transported off site for thermal remediation.

In 1997, seven additional temporary monitoring wells were installed to delineate the extent of groundwater impacts. MW2 was replaced with MW2A, and a new monitoring well, MW4, was installed south of 84<sup>th</sup> Avenue (see attached figure). Groundwater flow direction was determined to be generally to the south, with some variation to the east and west within the site boundaries. Benzene above the cleanup level was detected in two of the temporary wells and in MW3A and MW4.

In 2003 and 2004 groundwater monitoring occurred several times. GRO and benzene exceeded cleanup levels in MW3A up to 3.98 mg/L and 2.13 mg/L, respectively. In MW4, benzene was detected up to 0.0051 mg/L. The ADEC approved of a plan to inject oxygen releasing compound (ORC) in the gasoline UST location. A sample collected following the treatment indicated that the ORC may have facilitated attenuation.

In 2005, MW4 was destroyed and replaced with MW4R. Samples collected from MW3A still exceeded groundwater cleanup levels for GRO and benzene. Samples collected from MW4R were below cleanup levels for GRO and benzene.

Between 2005 and 2014, detections of contaminants of concern in MW4R (the most downgradient well) were all below cleanup levels. In MW3A detections of benzene and GRO remained above cleanup levels, though a decreasing trend in contaminant concentrations was established. In 2012, another well MW5, was installed between MW3A (source area) and MW4R (across 84<sup>th</sup>). MW5 was installed as the most downgradient well still within the former fire station property boundary. No contaminants above cleanup levels were detected. At the final monitoring event in 2014 samples were collected from MW3A, MW4R, and MW5. In MW4R and MW5, both downgradient of the former source area, contaminants were not detected above the cleanup levels. In MW3A, the source area well, only benzene was still above cleanup levels. GRO decreased to 2.14 mg/L (below cleanup levels) but benzene remained above the cleanup level at 0.735 mg/L. Delineation of the groundwater plume, by installation and monitoring of wells MW4R and MW5, indicated that the area of groundwater contaminated with GRO and benzene above cleanup levels is limited to a small area in the former gasoline UST source area.

In 2015, ADEC approved decommissioning of the monitoring wells.

### **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.

Cumulative risk was calculated assuming a residential land use and using the highest detected concentrations of contaminants from all of the groundwater and soil samples collected during the soil and groundwater investigations.

The cumulative risk calculation indicates a cumulative carcinogenic cancer risk of 4.9 in 10,000 and a non-carcinogenic hazard index of 5. The cumulative risk at this site is high based on an assumption that groundwater contaminated with benzene could be used for drinking water. However, contaminants are limited to the site and use of groundwater for a drinking water source at this site must be approved by ADEC, so exposure via this pathway is controlled.



### Exposure Pathway Evaluation

Following a review of the environmental records for the site, exposure to the remaining contaminants were 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
Direct Contact with Surface Soil	De Minimis Exposure	Surface soil is not known to be contaminated and the site is covered by a paved parking lot.
Direct Contact with Sub-Surface Soil	De Minimis Exposure	Contamination remains in discrete locations in subsurface soil however the site is covered by a paved parking lot.
Inhalation-Outdoor Air	De Minimis Exposure	The site is covered by a paved parking lot and contaminants do not exceed outdoor air inhalation cleanup levels.
Inhalation-Indoor Air	De Minimis Exposure	Benzene contaminated groundwater capable of causing risk via this pathway is located away from the building and is de minimis in extent
Groundwater Ingestion	De Minimis Exposure	The groundwater plume is contained within the site. There is no well on the site and use of groundwater for drinking water is prohibited without ADEC approval
Surface Water Ingestion	Pathway Incomplete	There is no surface water nearby and surface water in the area is not used for drinking water purposes.
Wild Foods Ingestion	Pathway Incomplete	The site is in a paved industrial area and no wild foods are collected.
Exposure to Ecological Receptors	Pathway Incomplete	There are no complete exposure pathways to ecological receptors at the 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.

The vapor intrusion pathway could warrant additional consideration if a building is placed over the former source area in the future.

### ADEC Decision

Contamination remains on site above established cleanup levels, however, the ADEC has determined there is no unacceptable risk to human health or the environment, given the current site use, and this site will be granted a Corrective Action Complete - ICs determination.

1. Any future change in land use may impact the exposure assumptions cited in this document. If land use and/or ownership changes, current ICs may not be protective and ADEC may require additional remediation and/or ICs. Therefore the Municipality of Anchorage or their designee shall report to ADEC as soon as they become aware of any change in land ownership or use. **The report can be sent to the ADEC project manager or electronically to [DEC.ICUnit@alaska.gov](mailto:DEC.ICUnit@alaska.gov).**

2. Due to the remaining contamination in groundwater, groundwater wells, drinking or otherwise, may not be installed at the site without prior approval from the ADEC Contaminated Sites Program.
3. ADEC approval is required for any disturbance of soil at the site in areas having potential or documented contamination. Please coordinate with the ADEC in advance to avoid project delays.
4. Any proposal to transport soil or groundwater off of this site requires ADEC approval in accordance with 18 AAC 78.600(h). 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.
5. Movement or use of contaminated material in a manner that results in a violation of 18 AAC 70 water quality standards is prohibited.
6. A Notice of Environmental Contamination (NEC) will be placed on the property record of this site and will remain in effect until a written determination from ADEC states that soil and groundwater have been shown to meet the most stringent soil cleanup levels and that off-site transport is not a concern.

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 this site may pose an unacceptable risk to human health or the environment.

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.

**Please sign and return Attachment A to ADEC within 30 days of receipt of this letter.** If you have questions about this closure decision, please feel free to contact me at (907) 269-7522.

Sincerely,



Chelsy Passmore  
Environmental Program Specialist

Attachment A: Cleanup Complete-IC Agreement and Signature Page

Attachment B: Site Figure

Enclosure: Notice of Environmental Contamination

**Attachment A: Cleanup Complete- ICs Agreement and Signature Pages\***

**The Municipality of Anchorage** agrees to the terms of this Cleanup Complete with Institutional Controls determination as stated in this Decision Document dated **March 22, 2016** for the MOA Fire Station #7 site. Failure to comply with the terms of this agreement may result in ADEC reopening this site and requiring further remedial action in accordance with 18 AAC 78.380(d).

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Signature of Authorized Representative, Title

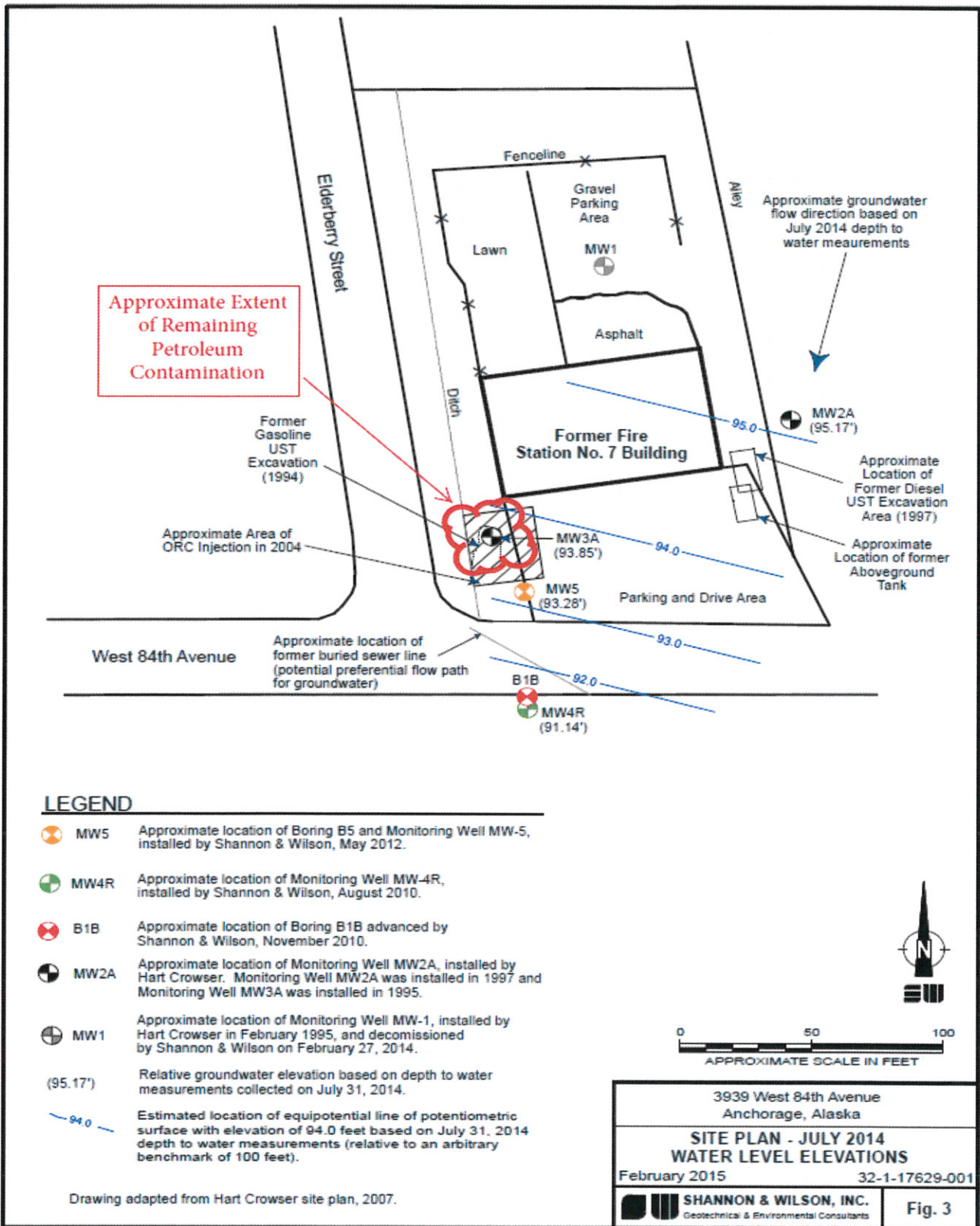
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Printed Name of Authorized Representative, Title

**Note to Responsible Party (RP):**

**After making a copy for your records, please return a signed copy of this form to the ADEC project manager at the address on this correspondence within 30 days of receipt of this letter.**

**Attachment B: Site Figure**



# Notice of Environmental Contamination

**Grantor:** State of Alaska  
Department of Environmental Conservation  
Contaminated Sites Program

**Grantee:** Municipality of Anchorage  
MOA Fire Station #7

**Legal Description:** Lot 11A, Lake Center Subdivision

**Recording District:** Anchorage

**Return to:** Chelsy Passmore  
ADEC Contaminated Sites Program  
555 Cordova St.  
Anchorage, AK 99501

**State Business- No Charge**



## NOTICE OF ENVIRONMENTAL CONTAMINATION

As required by the Alaska Department of Environmental Conservation, Grantor, pursuant to 18 AAC 75.375, Municipality of Anchorage, Grantee(s), as the owner of the subject property, hereby provides public notice that the property located at: 3939 West 84<sup>th</sup> Ave, Anchorage, AK, 99502 and more particularly described as follows:

Lot 11A, Lake Center Subdivision

has been subject to a discharge or release of oil or other hazardous substances, regulated under 18 AAC 75, Article 3, revised as of April 8, 2012. This release and cleanup are documented in the Alaska Department of Environmental Conservation (ADEC) contaminated sites database at [http://www.dec.state.ak.us/spar/csp/db\\_search.htm](http://www.dec.state.ak.us/spar/csp/db_search.htm) under Hazard ID number 23699.

ADEC reviewed and approved, subject to this and other institutional controls, the cleanup as protective of human health, safety, welfare, and the environment. No further cleanup is necessary at this site unless new information becomes available that indicates to ADEC that the site may pose an unacceptable risk to human health, safety, welfare, or the environment. ADEC determined, in accordance with 18 AAC 75.325 – 390 site cleanup rules, that cleanup has been performed to the maximum extent practicable even though benzene contamination remains in soil and groundwater on-site. The presence of contamination is attributed to two former underground storage tanks located along the southern border of this property.

Attached is a site survey or diagram drawn to scale that shows the property boundaries, locations of existing structures, and the approximate location and extent of remaining soil and/or groundwater contamination.

Additional investigation and/or cleanup of residual contamination is not required so long as the property is managed in accordance with the following institutional controls:

1. Groundwater wells may not be installed without the prior approval of the ADEC Contaminated Sites Program
2. Soil excavated from the affected area of the property must be characterized and disposed of in accordance with applicable state and federal regulations
3. If excavation dewatering is conducted at the site, it must be done so in accordance with applicable state and federal regulations

In the event that information becomes available which indicates that the site may pose an unacceptable risk to human health, safety, welfare or the environment, the land owner and/or operator are required under 18 AAC 75.300 to notify ADEC and evaluate the environmental status of the contamination in accordance with applicable laws and regulations; further site characterizations and cleanup may be necessary under 18 AAC 75.325-.390.

Pursuant to 18 AAC 75.325(i)(1) and (2), DEC approval is required prior to moving soil or groundwater that is, or has been, subject to the cleanup rules found at 18 AAC 75.325-.370. At this site, in the future, if soil is removed from the site or groundwater is brought to the surface (for example to dewater in support of construction) it must be characterized and managed following regulations applicable at that time.

This NEC remains in effect until a written determination from ADEC is recorded that states that soil and groundwater at the site has been shown to meet the most stringent soil cleanup levels in method two of 18 AAC 75.340 and groundwater meets the cleanup levels in Table C in 18 AAC 75.345 and that off-site transportation of soil or groundwater is not a concern.

For more information on the contaminated site in this Notice of Environmental Contamination, please see ADEC Contaminated Sites Program file number 2100.26.249 for the site named MOA – Fire Station #7.

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Signature of Authorized ADEC Representative

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Date

