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: 2101.38.144

May 5, 2017

Cynthia Tomlinson
AFCEC/CZOP
10471 20th Street, Suite 317
JBER, AK 99506-2201

Re: **Decision Document - JBER-Elmendorf OT092 Pipeline Cleanup Complete Determination**

Dear Ms. Tomlinson:

The Alaska Department of Environmental Conservation, Contaminated Sites Program (ADEC) has completed a review of the environmental records associated with the JBER-Elmendorf OT092 Pipeline located on JBER- Elmendorf. 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 OT092, 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:
JBER-Elmendorf OT092 Pipeline
Kenney Avenue between 2nd & 5th Streets
JBER, AK 99506-2201

Name and Mailing Address of Contact Party:
Cynthia Tomlinson
AFCEC/CZOP
10471 20th Street, Suite 317

DEC Site Identifiers:
File No.: 2101.38.144
Hazard ID.: 25887

Regulatory Authority for Determination:
18 AAC 75

Site Description and Background

Site OT092 is located on the Elmendorf side of Joint Base Elmendorf Richardson (JBER). The OT092 site includes 18 segments of a buried fuel pipeline that was used to transfer fuel from the Port of Anchorage to Elmendorf Air Force Base (AFB) and surrounding areas from the 1940s to the 1990s. Closure activities at the site began in 2009 with the decommissioning of 27,000 linear feet of buried pipeline and associated valve boxes and pits. In addition, excavation and removal activities were conducted for soil with petroleum, oil, and lubricants (POL) contamination. These activities were conducted in 2009 and 2010 resulting in closure

for 15 of the 18 segments. In 2013, further site characterization and decommissioning activities were performed on Segment C2, I2, and C3 of the former pipeline. The results of the 2013 activities were closure of Segment I2 and C3. Activities at Segment C2, located immediately north of Taxiway N on the west side of the main east-west runway, indicated contaminants exceeding applicable cleanup levels remain in an estimated 170 cubic yards (cy) of soil.

Contaminants of Concern

During the site characterization and cleanup activities at this site, samples were collected from soil and analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX), gasoline range organics (GRO), diesel range organics (DRO) and residual range organics (RRO) 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)
- Benzene
- Toluene
- Polynuclear Aromatic Hydrocarbons (PAHs)

Cleanup Levels

The applicable cleanup levels for the site are considered the most stringent ADEC Method Two Soil Cleanup Levels listed in Tables B1 and B2 of 18 AAC 75.341.

Table 1 – Approved Cleanup Levels

Contaminant	Human Health Soil (mg/kg)	Migration to Groundwater (mg/kg)
DRO	n/a	250
GRO	n/a	300
RRO	10,000 (ingestion)	11,000
Benzene	11	0.022
Ethylbenzene	49	0.13
Toluene	200	6.7
Total Xylenes	57	1.5
1-Methylnaphthalene	68	0.41
2-Methylnaphthalene	310	1.3
Acenaphthaene	4,600	37
Acenaphthylene	2,300	18
Anthracene	23,000	390
Benzo(a)anthracene	2	0.28
Benzo(a)pyrene	0.2	0.27
Benzo(b)fluoranthene	2.0	2.7
Bezno(g,h,i)perylene	2,300	15,000

Benzo(k)fluoranthene	20	27
Chrysene	200	82
Dibenzo(a,h)anthracene	0.2	0.87
Fluoranthene	3,100	590
Fluorene	3,100	36
Indeno(1,2,3-cd)Pyrene	2.0	8.8
Naphthalene	29	0.038
Phenanthrene	2,300	39
Pyrene	2,300	87

mg/kg = milligrams per kilogram

Characterization and Cleanup Activities

Characterization and cleanup activities conducted under the regulatory authority of the Contaminated Sites Program began in 2009. These activities are described below:

Site characterization under 18 AAC 75.335 included excavation and removal activities were conducted in 2009 and 2010 resulted in closure of 15 of the 18 segments. Two areas along Segment C2 were excavated in 2009. Exceedances of ADEC cleanup criteria were reported for one stockpile sample (679 milligrams per kilogram [mg/kg] DRO) and one excavation sample (estimated 0.026 mg/kg benzene). Approximately two cubic yards of soil from the areas where these two samples were collected were subsequently removed and disposed of at Alaska Soil Recycling (ASR). The stockpile area and excavation were re-sampled and all analytical results were below cleanup criteria.

In 2013, further site characterization and decommissioning activities were performed on Segment C2, I2, and C3 of the former pipeline (USAF, 2014). The 2013 activities resulted in closure of Segment I2 and C3. Investigation at Segment C2 identified one sample that exceeded ADEC cleanup criteria for benzene and toluene with concentrations of 0.069 mg/kg and 10 mg/kg, respectively.

Additional excavation was conducted in 2016. Approximately sixty-two cubic yards of contaminated soil in the vicinity of Segment C2 were excavated and thermally treated at an off-site facility. Confirmation soil samples collected from the bottom and sidewalls of the excavation showed that cleanup levels had been achieved for all contaminants of concern listed in the Table 1 above.

Additionally, the vertical extent of contamination in soil 4-6' below ground surface (bgs) did not reach the groundwater table[1] and all soil remaining on site is below the ADEC Migration to Groundwater Cleanup Levels. Therefore, it has been determined that potential exposure from groundwater is considered "de minimis." There is not an unacceptable risk of surface water contamination in violation of water quality standards, because contamination did not reach groundwater and the nearest surface water body is 8,000 feet away.

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

[1] Groundwater levels at PL518 vary seasonally between about 8 and 17 feet bgs and the groundwater flow direction is southwesterly toward Ship Creek, about 1.5 miles downgradient [Site Characterization and Risk Evaluation Report PL518 (Taxiway N) August 2014].

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.

Table 2 Cumulative Risk COCs

Analyte	Max Concentration (ug/kg)	Comment
Benzo(a)anthracene	0.0484	Detection
Benzo(a)pyrene	0.0739	Detection
Naphthalene	0.0131	LOQ
Ethylbenzene	0.0139	LOQ
Benzene	0.00695	LOQ

The overall cumulative cancer risk calculated for hypothetical[2] residential land use is 2.9×10^{-6} (which does not exceed a cumulative carcinogenic risk standard of 1 in 100,000[3] across all exposure pathways) and the overall cumulative hazard index is 0.0002 (which does not exceed a cumulative non-carcinogenic risk standard at a hazard index of 1 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 OT092, 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	De-Minimis Exposure	Contamination is below the most stringent cleanup levels.
Sub-Surface Soil Contact	De-Minimis Exposure	Contamination is below the most stringent cleanup levels.
Inhalation – Outdoor Air	De-Minimis Exposure	Contamination is below the most stringent cleanup levels.
Inhalation – Indoor Air (vapor intrusion)	De-Minimis Exposure	Contamination is below the most stringent cleanup levels.

[2] The Segment C2 of OT092 is located immediately north of Taxiway N on the west side of the main east-west runway within the active JBER airfield. Access to this area is restricted and under active security control. Therefore, the only reasonable receptors to contaminants at this site are commercial or industrial workers, trespassers and construction workers.

[3] 18 AAC 75.325(g) If using method two or method three for determining the applicable soil cleanup levels as described in 18 AAC 75.340 and 18 AAC 75.341, or if applying the groundwater cleanup levels at Table C in 18 AAC 75.345, a responsible person shall ensure that, after completing site cleanup, 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, reported to one significant figure, across all exposure pathways.

Groundwater Ingestion	Pathway Incomplete	Contamination is below the most stringent cleanup levels.
Surface Water Ingestion	Pathway Incomplete	Contamination is below the most stringent cleanup levels.
Wild and Farmed Foods Ingestion	Pathway Incomplete	Contamination is below the most stringent cleanup levels.
Exposure to Ecological Receptors	Pathway Incomplete	Contamination is below the most stringent cleanup levels.

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

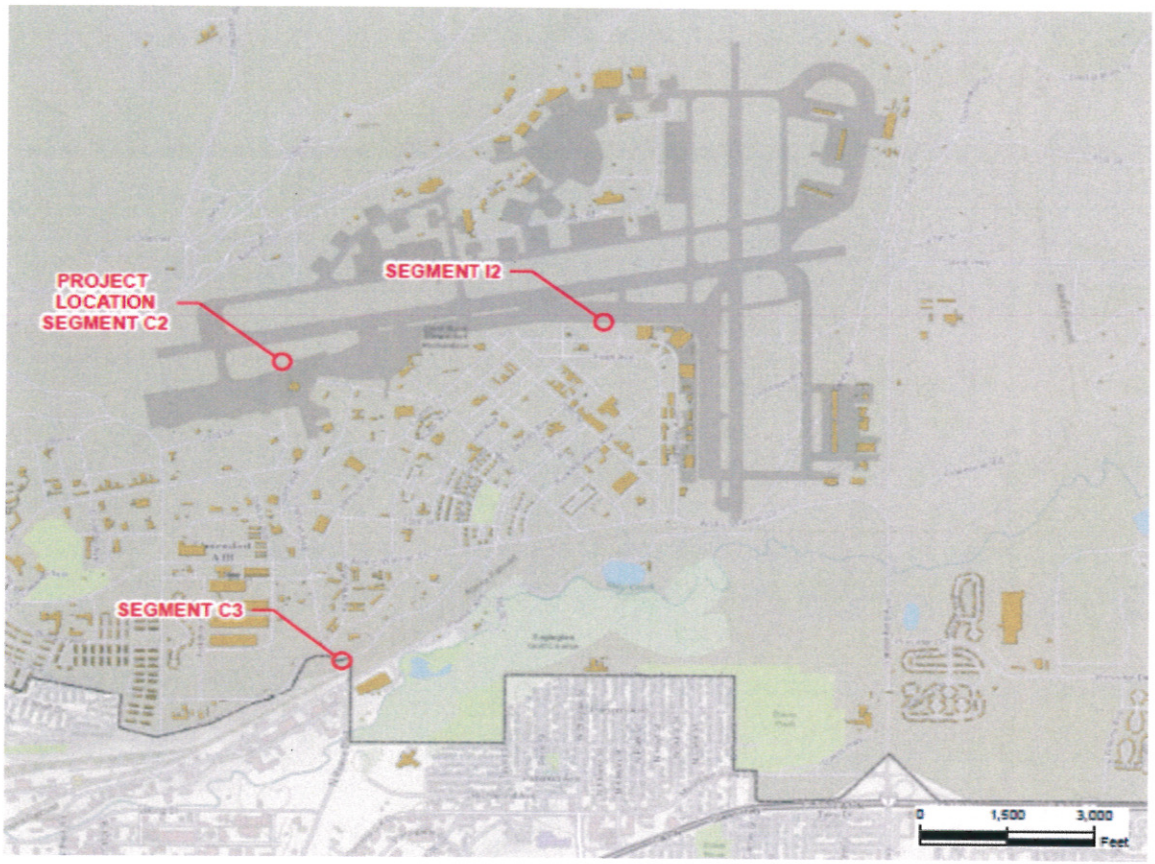
Soil contamination at OT092 has been cleaned up to concentrations below the approved cleanup levels suitable for residential land use. This site will receive a "Cleanup Complete" designation on the Contaminated Sites Database, subject to the following standard conditions.

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 attached site figure.)

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 75.380 and does not preclude ADEC from requiring additional assessment and/or cleanup action if future information indicates that contaminants at OT092 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, 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) 269-7552, or email at louis.howard@alaska.gov.

Sincerely,

Louis Howard
Project Manager

cc: Kim DeRuyter via email