



THE STATE
of **ALASKA**
GOVERNOR BILL WALKER

**Department of Environmental
Conservation**

DIVISION OF SPILL PREVENTION AND RESPONSE
Contaminated Sites Program

555 Cordova St
Anchorage, AK 99501
Main: 907-269-7546
Fax: 907-269-7687
www.dec.alaska.gov

File: 300.38.311

Return Receipt Requested
Article No. 7015 1660 0000 0543 2428

December 10, 2015

Irene Garcia
Exxon Mobile
P.O. Box 196601
Anchorage, AK 99519-6601

Re: Decision Document; West Staines State 18-09-23
Cleanup Complete Determination

Dear Ms. Garcia:

The Alaska Department of Environmental Conservation, Contaminated Sites Program (ADEC) has completed a review of the environmental records associated with West Staines State 18-09-23 located in the Point Thomson Unit, 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 West Staines State 18-09-23 administrative record 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

West Staines State 18-09-23
Point Thomson, Alaska

Name and Mailing Address of Contact Party:

Irene Garcia
Exxon Mobile
P.O. Box 196601
Anchorage, AK 99519-6601

ADEC Site Identifiers

File: 300.38.311
Hazard ID: 26107

Regulatory authority under which the site is being cleaned up:

18 AAC 75

Background

West Staines State 18-09-23 is a former oil and gas exploration site located in the Point Thompson area of the North Slope of Alaska. The one onsite well was plugged and abandoned on July 2, 1971. The site consisted of a gravel pad that was about two to three feet thick and a closed drilling waste reserve pit. The reserve pit was capped at the time of well abandonment. During 2013-2014 winter season, the wellhead and wellhead marker were removed as well as the casing removed to three feet below tundra level.

Contaminants of Concern

During the investigations at this site, soil and surface water samples were analyzed for diesel range organics (DRO), gasoline range organics (GRO), polynuclear aromatic hydrocarbons (PAHs), metals, as well as benzene, toluene, ethylbenzene, and xylenes (BTEX). Based on these analyses and knowledge of the source area, the following Contaminants of Concern (COCs) were identified in soil:

- Gasoline Range Organics (GRO)
- Diesel Range Organics (DRO)
- Residual Range Organics (RRO)
- Benzene
- Ethylbenzene
- Toluene
- Xylenes
- Chromium

Cleanup Levels

Factors below are considered by ADEC when evaluating site specific cleanup levels and the need for institutional controls in the Arctic Zone.

- Arctic Zone cleanup levels **promulgated** in 18 AAC 75
- ecological impacts
- surface water quality
- presence of free phase product
- whether a cleanup action would cause more severe or long-lasting damage than the discharge or release for undisturbed tundra and native vegetation;
- other factors that might cause a deleterious impact to the environment.

The migration to groundwater pathway is not considered applicable in the Arctic Zone due to the presence of continuous permafrost. However, the migration to surface water pathway is evaluated for risk to human health (drinking water source), and for compliance with Alaska Water Quality standards (18 AAC 70) due to the tundra wetland ecosystem that exists throughout the Arctic region.

Arctic Zone cleanup levels **promulgated** in 18 AAC 75.341 include Method One Table A2 (for manmade gravel pads and roads), Method Two - Table B1 (for hazardous substances) and B2 (for petroleum hydrocarbons). If cleanup levels in Table A.2 - Method One are met, the site may be considered for unrestricted closure without institutional controls (ICs). If contaminant concentrations exceed Method One, then risk-based Method Two cleanup levels are utilized to evaluate the potential risk to human health via specific exposure pathways (such as inhalation and ingestion). Contaminants of concern and applicable cleanup levels for the subject site are listed in the table below.

Soil Cleanup Levels – Arctic Zone

Contaminants of Concern	Method One, BTEX > 15 mg/kg	Method One, BTEX < 15 mg/kg	Method Two, Direct Contact/Ingestion*	Method Two, Inhalation*	Migration to Groundwater*
GRO	100	100	1,400	1,400	N/A
DRO	200	500	12,500	12,500	N/A
RRO	2,000	2,000	13,700	22,000	N/A
Benzene	N/A	N/A	200	17	N/A
Ethylbenzene	N/A	N/A	13,700	110	N/A
Toluene	N/A	N/A	11,000	220	N/A
Total Xylenes	N/A	N/A	24,700	63	N/A
Chromium	N/A	N/A	410	N/A	N/A

Notes to Table. *All soil contaminant concentrations are presented as mg/kg. Method One criteria cover only contamination related to manmade pads, i.e. gravel. Due to continuous permafrost in the Arctic Zone, the "Migration to Groundwater" pathway is considered incomplete or non-applicable (N/A). The department will determine the cleanup levels for undisturbed tundra and native vegetation on a site-specific basis, depending on whether a cleanup action would cause more severe or long-lasting damage than would the discharge or release alone.

Site Characterization Activities

In 2010, a Phase II assessment was conducted by Weston in which a total of 111 soil boreholes were advanced to the gravel pad/tundra interface to a depth of 5 feet bgs and at least one soil samples was collected per borehole. The soil samples collected contained GRO up to 250 mg/kg, DRO up to 4,770 mg/kg, and RRO up to 3,860 mg/kg. Two out of 35 samples analyzed for GRO exceeded Method One criteria, two of 137 for RRO, and 31 out of 137 for DRO.

In 2012, ERM performed a site inspection which included a debris inventory and shovel sheen testing. No sheening was observed but a stained area was noted near the center of the pad, north of the reserve pit and about 185 feet north of the wellhead marker. The results of the 2010 and 2012 investigations were used to plan the Corrective Action.

The Corrective Action took place during early 2015. This effort included the removal of 8,900 loose cubic yards (lcy) of impacted gravel. Soil concentrations in confirmation samples up to 0.0496 mg/kg benzene, 0.951 mg/kg ethylbenzene, 0.327 mg/kg toluene, 9.82 mg/kg xylenes, 252 mg/kg GRO, 846 mg/kg DRO, and 2460 mg/kg RRO. Debris was encountered during this corrective action effort that was not detected during previous assessments, the majority of which was found at the satellite pad and grid cells C1 and D. In grid cells C1, D, and a portion of M, a blue and white powder was found buried in decomposing bags which was sampled and determine to contain chromium levels requiring disposal of the material as hazardous waste with a final disposition at an appropriate facility in Idaho. About 100 lcy of chromium-impacted material was removed along with another 650 lcy of miscellaneous non-hazardous debris. Excavation was guided using XRF screening and confirmation samples contained chromium up to 314 mg/kg. This confirmation sample and the other one above migration to groundwater levels (which can be used as indicators of propensity to migrate although otherwise considered not applicable) were also analyzed using TCLP preparation and those results are below the Table C value for chromium.

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.

Cumulative risk at this site was calculated assuming a residential land use (potential future) and using the highest concentrations of confirmation samples collected in 2015. The cumulative risk calculation indicates a cumulative cancer risk of 9 in 1,000,000,000 and a cumulative non-carcinogenic hazard index of 0.8. The potential cumulative risk is a combination of the inhalation and direct contact pathways. These pathways are de minimis due to soil concentrations below Method Two direct contact and inhalation.

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 1.

Table 1 – Exposure Pathway Evaluation

Pathway	Result	Explanation
Surface Soil Contact	De Minimis exposure	Contaminated surface soil is not present above Method Two direct contact cleanup levels at the site.
Sub-Surface Soil Contact	De Minimis exposure	Contaminated subsurface soil is not present above Method Two direct contact cleanup levels at the site.
Inhalation – Outdoor Air	De Minimis exposure	Contaminant concentrations are below Method Two inhalation cleanup levels in soil at the site.
Inhalation – Indoor Air (vapor intrusion)	Pathway Incomplete	There are no structures present at the site nor are they reasonably expected to place on this site in an area that could be affected by contaminant vapors. Contaminants remaining at the site in soil are below inhalation cleanup levels.
Groundwater Ingestion	Pathway Incomplete	Groundwater is not utilized as a drinking water source in this area.
Surface Water Ingestion	De Minimis exposure	Surface water is not currently utilized as a drinking water source in this area. Confirmation sample results indicate contaminants are unlikely to migrate offsite. Site is currently unoccupied and very remote being more than 50 miles from any road and more than six miles inland from the coast.
Wild Foods Ingestion	De Minimis exposure	Contaminants of concern are not bioaccumulative compounds. Confirmation sample results indicate contaminants are unlikely to migrate offsite. Site is currently unoccupied and very remote being more than 50 miles from any road and more than six miles inland from the coast.
Exposure to Ecological Receptors	De Minimis exposure	Contaminants are well below Method Two cleanup levels and there is no evidence of contamination reaching the surrounding tundra environment. Further disturbance of the tundra will likely cause degradation of the permafrost.

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 longer a risk to human health or the environment, and this site will be designated as closed on the Department's database.

Standard Conditions

1. Any proposal to transport soil or groundwater off-site requires ADEC approval in accordance with 18 AAC 75.325. 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.

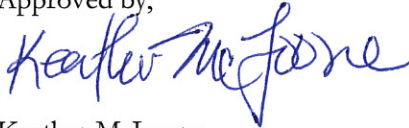
This determination is in accordance with 18 AAC 75.380 and does not preclude ADEC from requiring additional assessment and/or cleanup action if future information indicates that this site may pose an unacceptable risk to human health or the environment.

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 Keather McLoone at (907) 269-7546.

Approved by,



Keather McLoone
Environmental Program Specialist

Cc: Melissa Head, ADNR
Mai Le, Exxon
Bryan Duran, Exxon
Brad Authier, ERM