



THE STATE
of **ALASKA**
GOVERNOR MICHAEL J. DUNLEAVY

Department of
Environmental Conservation

DIVISION OF SPILL PREVENTION AND RESPONSE
Contaminated Sites Program

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File: 300.38.305

March 26, 2020

Mike McAnulty
BP Exploration (Alaska) Inc.
900 East Benson Blvd, 223B
Anchorage, AK 99519

Re: Decision Document: BPX GC1 Skid 40 Snow Shelter
Cleanup Complete Determination

Dear Mr. McAnulty:

The Alaska Department of Environmental Conservation, Contaminated Sites Program (ADEC) has completed a review of the environmental records associated with the BPX GC1 Skid 40 Snow Shelter site located in the Western Operating Area in Prudhoe Bay. 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 BPX GC1 Skid 40 Snow Shelter site, 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:

BPX GC1 Skid 40 Snow Shelter
Western Operating Area - Prudhoe Bay
Latitude: 70.309012
Longitude: -148.726209

Name and Mailing Address of Contact Party:

Mike McAnulty
BP Exploration (Alaska) Inc.
900 East Benson Blvd, 223B
Anchorage, AK 99519

DEC Site Identifiers:

File No.: 300.38.305
Hazard ID.: 26013

Regulatory Authority for Determination:

18 AAC 75

Site Description and Background

Petroleum sheening was discovered on June 17, 2009 on a tundra pond southwest of the GC1 Skid 40 pad during flare pit dewatering activities. The source of sheening was unknown at the time, but was suspected to be from the contaminated soils beneath the skid 40 structure. Initial actions included placing shoreseal boom around the sheened area to prevent further migration, and daily dewatering until a cleanup action was performed.

Contaminants of Concern

During the site characterization and cleanup activities at this site, samples were collected from soil, groundwater, and surface water and analyzed for one or more of the following: gasoline range organics (GRO), diesel range organics (DRO), residual range organics (RRO), polycyclic aromatic hydrocarbons (PAHs), total aromatic hydrocarbons (TAH), total aqueous hydrocarbons (TAqH), and benzene, toluene, ethylbenzene, and xylenes (BTEX). Based on these analyses, the following contaminants were detected above the applicable cleanup levels and are considered Contaminants of Concern at this site:

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

Cleanup Levels

The cleanup levels for petroleum hydrocarbon-contaminated soil on manmade gravel pads and roads in the Arctic Zone are established in 18 AAC 75.341 Method One, Table A2, and 18 AAC 75.341 Method Two Tables B1 and B2.

A number of factors are considered by ADEC when evaluating site specific cleanup levels in the Arctic Zone including:

- human health (ingestion/inhalation);
- ecological impacts (contamination impacting ecological species other than humans);
- groundwater and surface water quality;
- presence of free phase product; and
- any other factors that might cause a deleterious impact to the environment.

In the Arctic Zone, the migration to surface water pathway is evaluated as the primary migration pathway because the migration to groundwater pathway is not considered applicable due to the presence of continuous permafrost. Impacted surface water can adversely affect both human and ecological receptors depending on the location of the contaminant source, its proximity to surface waters, and water usage in the impacted area. Therefore the migration to surface water pathway is evaluated as a possible risk to human health (drinking water source) and for compliance with Alaska Water Quality standards (18 AAC 70).

In addition, the migration to surface water is evaluated as a possible exposure pathway for ecological receptors because of the tundra wetland ecosystem that exists throughout the Arctic region. Potential future use of the property must also be taken into account when determining closure status. Differentiating

between a “Cleanup Complete” and a “Cleanup Complete with Institutional Controls” determination will be based on site specific conditions and exposure pathways as determined by ADEC. For the purposes of this Cleanup Complete Determination, the following cleanup levels from 18 AAC 75 were used:

Table 1 – ADEC Soil Cleanup Levels

Contaminant	Method Two Table B2 (mg/kg)	Method Two Table B1 (mg/kg)	<i>Maximum Concentration Remaining (mg/kg)</i>
GRO	1,400	NA	<i>681</i>
DRO	12,500	NA	<i>4,370</i>
RRO	13,700	NA	<i>7,110</i>
Benzene	NA	16	<i>4.5</i>
Toluene	NA	200	<i>6.73</i>
Ethylbenzene	NA	72	<i>5.06</i>
Xylenes	NA	57	<i>15.4</i>

Notes to Table 1

GRO = gasoline range organics; DRO = diesel range organics; RRO = residual range organics;
mg/kg = milligrams per kilogram; NA = not applicable

Characterization and Cleanup Activities

Characterization of the site was initially performed on July 10, 2009. A total of 64 surface soil samples were collected from depths of three and six inches below ground surface (bgs). Sample results varied and revealed some sporadic contamination; however the mass of contamination was consolidated near Samples GC1-13 and GC1-14, both of which had levels of GRO, DRO, RRO, and BTEX above Method Two human health soil cleanup levels at 3 and 6 inches bgs.

Following the characterization effort, an area of roughly 2,900 square feet was excavated to between one and three feet bgs, however excavation was limited by the Skid 40 Snow Shelter. The shelter was removed during the summer of 2010, and additional excavation and sampling was completed in 2010 and 2011. A 225 square feet (15 feet by 15 feet) grid was established over the excavation to allow for confirmation soil sampling. Sampling along the flow lines near the southern grid area could not be accomplished during the winter because of drifted snow. For this reason, two additional analytical soil samples and two surface water samples were collected during summer 2011 to evaluate the area near the flowlines. Confirmation soil samples were submitted for GRO, DRO, RRO, BTEX and polycyclic aromatic hydrocarbons (PAHs). Water samples were submitted for BTEX and PAHs for comparison to the Alaska Water Quality Standards (AWQS) total aromatic hydrocarbons (TAH) and total aqueous hydrocarbons (TAqH).

Results of the investigation concluded that most of the contamination was successfully removed, except for beneath the flow lines where excavation could not be feasibly accomplished without jeopardizing the structural integrity of the vertical support members (VSMs). Because of this limitation, an estimated 10 cubic yards (cy) of DRO contaminated soil and up to 50 cy of benzene contaminated soil is estimated left in place. Sample results from beneath the VSMs were above Method One Table A2 soil cleanup levels, but below the less stringent Method Two Tables B1 and B2 cleanup levels: GRO up to 113 mg/kg, DRO up to 4,370 mg/kg, RRO up to 7,110 mg/kg, and benzene up to 4.5 mg/kg. Water sample results exceeded the TAqH criteria, but not TAH. Based on a review of the data, this is likely because of elevated method detection limits (MDLs) for the PAH analysis and not because of contaminants.

Additional characterization was completed on August 17, 2016 and included a visual inspection of surface water, as well as analytical sampling completed at five co-located surface soil and surface water locations. Sheens were not evident during the inspection. All soil and water samples were submitted for laboratory analysis of GRO, DRO, PAHs, and BTEX. None of the results for soil or water exceeded applicable cleanup levels or AWQS criteria. As a follow up to the 2016 effort, additional shovel sheen testing was completed in September 2019. Again, no sheens were identified.

In summary, the remaining contamination is limited in extent and is covered by a tundra pond that contains a few feet of water. The tundra pond is bordered by a gravel pad to the east and north. Water level in the pond varies seasonally, but is mainly driven by snowmelt in the spring. Vegetation is poorly developed in the area and the section of the site off the gravel pad is continuously under water unless artificially dewatered. Sheen is not present, even with sediment disturbance, and none of the surface water sample results exceed AWQS.

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.

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, 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	Pathway Incomplete	Contamination is not present in surface soils.
Sub-Surface Soil Contact	De-Minimis Exposure	Contaminant concentrations are below direct contact and human health cleanup levels.
Inhalation – Outdoor Air	De-Minimis Exposure	Contaminant concentrations are below inhalation and human health cleanup levels.
Inhalation – Indoor Air (vapor intrusion)	Pathway Incomplete	There are no buildings within 30 feet of the contaminant plume.
Groundwater Ingestion	Pathway Incomplete	Supra-permafrost groundwater is not a potential drinking water source. Sub-permafrost groundwater is found at depths greater than 250 feet and is not impacted by site contamination.
Surface Water Ingestion	De-Minimis Exposure	Surface water is not used as a drinking water source in the vicinity of the site. Water samples collected

		from the surface water above the impacted soil did not exceed AWQS criteria. Sheen is not present.
Wild and Farmed Foods Ingestion	Pathway Incomplete	Wild foods are not collected in this area.
Exposure to Ecological Receptors	Pathway Incomplete	Contaminants detected in surface water are below AWQS indicating a low potential for exposure to ecological receptors.

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. “Exposure Controlled” means there is an institutional control in place limiting land or groundwater use and there may be a physical barrier in place that prevents contact with residual contamination.

ADEC Decision

Soil and groundwater contamination at the site have been cleaned up to concentrations below the Method Two Arctic Zone cleanup levels. 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 from a site that is subject to the site cleanup rules or for which a written determination from the department has been made under 18 AAC 75.380(d)(1) that allows contamination to remain at the site above method two soil cleanup levels or groundwater cleanup levels listed in Table C requires DEC 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.
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 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, 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) 269-7691 or email at joshua.barsis@alaska.gov.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Joshua Barsis', with a long horizontal flourish extending to the right.

Joshua Barsis
Project Manager

Note: This letter is being transmitted to you in electronic format only. If you require a paper copy, let us know and we will be happy to provide one to you. In the interest of reducing file space, the Division of SPAR/Contaminated Sites Program is transitioning to electronic transmission of project correspondence.

cc: Spill Prevention and Response, Cost Recovery Unit