

## Ecoscoping Form

**Site Name:** Cape Prominence FUDS F10AK080601, Unalaska Island, Alaska

**Completed by:** Caryn Orvis, Ahtna Engineering Services

**Date:** Updated 9 December 2020

*Instructions: Follow the italicized instructions in each section below. “Off-ramps,” where the evaluation ends before completing all of the sections, can be taken when indicated by the instructions. Comment boxes should be used to help support your answers.*

### 1. Direct Visual Impacts and Acute Toxicity

Are direct impacts that may result from the site contaminants evident, or is acute toxicity from high contaminant concentrations suspected? *Check the appropriate box.*

- Yes – *Describe observations below and evaluate all of the remaining sections without taking any off-ramps.*
- No – *Go to next section.*

Comments:

Only fuel-related contaminants remain following the 2019 Removal Action and the 2020 Incidental Contaminant Removal Action. Contaminant concentrations, below project screening levels, and are not expected to cause acute toxicity in potential ecological receptors.

### 2. Terrestrial and Aquatic Exposure Routes

*Check each terrestrial and aquatic route that could occur at the site.*

#### Terrestrial Exposure Routes

- Exposure to water-borne contaminants as a result of wading or swimming in contaminated waters or ingesting contaminated water.
- Contaminant uptake in terrestrial plants whose roots are in contact with contaminated surface water.
- Contaminant migration via saturated or unsaturated groundwater zones and discharge at upland “seep” locations (not associated with a wetland or waterbody).
- Contaminant uptake by terrestrial plants whose roots are in contact with soil moisture or groundwater present within the root zone (generally no more than 4 feet below ground surface).
- Particulates deposited on plants directly or from rain splash.
- Incidental ingestion and/or exposure while animals grub for food, burrow (up to 2 feet for small animals or 6 feet for large animals), or groom.

- Inhalation of fugitive dust or vapors disturbed by foraging or burrowing activities.
- Bioaccumulatives (other than PAHs, which bioaccumulate more readily in aquatic environments) taken up by soil invertebrates, which are in turn eaten by higher food chain organisms (see the *Policy Guidance on Developing Conceptual Site Models*).
- Other site-specific exposure pathways.

Aquatic Exposure Routes

- Contaminated surface runoff migration to water bodies through swales, drainage ditches, or overland flow.
- Aquatic receptors exposed through osmotic exchange, respiration, or ventilation of surface waters.
- Contaminant migration via saturated or unsaturated groundwater zones and discharge at “seep” locations along banks or directly to surface water.
- Deposition into sediments from upwelling of contaminated groundwater.
- Aquatic receptors may be exposed directly to contaminated sediments through foraging or burrowing, or indirectly exposed due to osmotic exchange, respiration, or ventilation of sediment pore water.
- Aquatic plants rooted in contaminated sediments.
- Bioaccumulatives (see the *Policy Guidance on Developing Conceptual Site Models*) taken up by sediment invertebrates, which are in turn eaten by higher food chain organisms.
- Other site-specific exposure pathways.

*If any of the above boxes are checked, go on to the next section. If none are checked, end the evaluation and check the box below.*

- OFF-RAMP: NO FURTHER ECOLOGICAL EVALUATION NECESSARY

Comments:

Excavation areas are currently unvegetated and remaining contaminants are fuel-related and do not bioaccumulate. Surface water samples collected indicate that surface water in the vicinity of the site has not been impacted by site contaminants. PAH compounds were detected in 2017 at concentrations slightly above screening levels but below 18 AAC 75.341 cleanup levels. Nickel and mercury were detected in sediment but are not associated with refined fuel or site-related activities and likely represent background conditions.

**3. Habitat**

*Check all that may apply. See *Ecoscoping Guidance* for additional help.*

- Habitat that could be affected by the contamination supports valued species (i.e., species that are regulated, used for subsistence, have ceremonial importance, have commercial value, or provide recreational opportunity).
- Critical habitat or anadromous stream in an area that could be affected by the contamination.
- Habitat that is important to the region that could be affected by the contamination.

- Contamination is in a park, preserve, or wildlife refuge.

*If any of the above boxes are checked, go on to the next scoping factor. If none are checked, end the evaluation and check the box below.*

- OFF-RAMP: NO FURTHER ECOLOGICAL EVALUATION NECESSARY

Comments:

The site is located within the Alaska Maritime National Wildlife Refuge, but contaminant concentrations are all below applicable screening and cleanup levels.

#### 4. Contaminant Quantity

*Check all that may apply. See Ecoscoping Guidance for additional help.*

- Endangered or threatened species are present.
- The aquatic environment is or could be affected.
- Non-petroleum contaminants may be present, or the total area of petroleum-contaminated surface soil exceeds one-half acre.

*If any of the above boxes are checked, go on to the next scoping factor. If none are checked, end the evaluation and check the box below.*

- OFF-RAMP: NO FURTHER ECOLOGICAL EVALUATION NECESSARY

Comments:

No endangered or threatened species inhabit the contaminated areas. Surface water has not been impacted by former site activities. Fuel-related chemicals are the only remaining COPCs at the site. The total surface area with DRO contamination is approximately 0.02 acres, but containment concentrations are below applicable screening and cleanup levels.

#### 5. Toxicity Determination

*Check all that apply.*

- Bioaccumulative chemicals are present (see *Policy Guidance on Developing Conceptual Site Models*).
- Contaminants exceed benchmark levels (see the Ecological Benchmark Tool in RAIS, available at: [http://rais.ornl.gov/tools/eco\\_search.php](http://rais.ornl.gov/tools/eco_search.php)).

*If either box is checked, complete a detailed Ecological Conceptual Site Model (see DEC's Policy Guidance on Developing Conceptual Site Models) and submit it with the form to your DEC project manager.*

*If neither box is checked, check the box below and submit this form to your DEC project manager.*

OFF-RAMP: NO FURTHER ECOLOGICAL EVALUATION NECESSARY

Comments:

# Appendix A - Human Health Conceptual Site Model Scoping Form and Standardized Graphic

**Site Name:**

**File Number:**

**Completed by:**

### Introduction

The form should be used to reach agreement with the Alaska Department of Environmental Conservation (DEC) about which exposure pathways should be further investigated during site characterization. From this information, summary text about the CSM and a graphic depicting exposure pathways should be submitted with the site characterization work plan and updated as needed in later reports.

*General Instructions: Follow the italicized instructions in each section below.*

### 1. General Information:

**Sources** *(check potential sources at the site)*

- USTs
- ASTs
- Dispensers/fuel loading racks
- Drums
- Vehicles
- Landfills
- Transformers
- Other:

**Release Mechanisms** *(check potential release mechanisms at the site)*

- Spills
- Leaks
- Direct discharge
- Burning
- Other:

**Impacted Media** *(check potentially-impacted media at the site)*

- Surface soil (0-2 feet bgs\*)
- Subsurface soil (>2 feet bgs)
- Air
- Sediment
- Groundwater
- Surface water
- Biota
- Other:

**Receptors** *(check receptors that could be affected by contamination at the site)*

- Residents (adult or child)
- Commercial or industrial worker
- Construction worker
- Subsistence harvester (i.e. gathers wild foods)
- Subsistence consumer (i.e. eats wild foods)
- Site visitor
- Trespasser
- Recreational user
- Farmer
- Other:

\* bgs - below ground surface

**2. Exposure Pathways:** *(The answers to the following questions will identify complete exposure pathways at the site. Check each box where the answer to the question is "yes".)*

a) Direct Contact -

1. Incidental Soil Ingestion

Are contaminants present or potentially present in surface soil between 0 and 15 feet below the ground surface? (Contamination at deeper depths may require evaluation on a site-specific basis.)

*If the box is checked, label this pathway complete:*

Incomplete

Comments:

There are no exceedances of calculated site-specific cleanup levels or 18 AAC 75.341 Method Two Tables B1 and B2 Human Health soil cleanup levels in soils remaining at the site, nor do detected analyte concentrations exceed 1/10th of 18AAC75.341 default cleanup levels.

2. Dermal Absorption of Contaminants from Soil

Are contaminants present or potentially present in surface soil between 0 and 15 feet below the ground surface? (Contamination at deeper depths may require evaluation on a site specific basis.)

Can the soil contaminants permeate the skin (see Appendix B in the guidance document)?

*If both boxes are checked, label this pathway complete:*

Incomplete

Comments:

There are no exceedances of calculated site-specific cleanup levels or 18 AAC 75.341 Method Two Tables B1 and B2 Human Health soil cleanup levels in soils remaining at the site, nor do detected analyte concentrations exceed 1/10th of 18AAC75.341 default cleanup levels.

b) Ingestion -

1. Ingestion of Groundwater

Have contaminants been detected or are they expected to be detected in the groundwater, or are contaminants expected to migrate to groundwater in the future?

Could the potentially affected groundwater be used as a current or future drinking water source? Please note, only leave the box unchecked if DEC has determined the groundwater is not a currently or reasonably expected future source of drinking water according to 18 AAC 75.350.

*If both boxes are checked, label this pathway complete:*

Incomplete

Comments:

The site is located in a remote, seldom visited part of the Alaska Maritime National Wildlife Refuge and future site development is unlikely. Therefore it is unlikely that drinking water wells will be installed on site. Samples collected in 2019 were all below 18 AAC 75 Table C groundwater cleanup levels. Sufficient groundwater was not found in 2020 to allow for sample collection.

## 2. Ingestion of Surface Water

Have contaminants been detected or are they expected to be detected in surface water, or are contaminants expected to migrate to surface water in the future?

Could potentially affected surface water bodies be used, currently or in the future, as a drinking water source? Consider both public water systems and private use (i.e., during residential, recreational or subsistence activities).

*If both boxes are checked, label this pathway complete:*

Incomplete

Comments:

Contaminants were not detected in site surface water in 2019 or 2020, and harmful concentrations of contaminants in the source areas have been removed.

## 3. Ingestion of Wild and Farmed Foods

Is the site in an area that is used or reasonably could be used for hunting, fishing, or harvesting of wild or farmed foods?

Do the site contaminants have the potential to bioaccumulate (see Appendix C in the guidance document)?

Are site contaminants located where they would have the potential to be taken up into biota? (i.e. soil within the root zone for plants or burrowing depth for animals, in groundwater that could be connected to surface water, etc.)

*If all of the boxes are checked, label this pathway complete:*

Incomplete

Comments:

Contaminant removal meets 18 AAC 75.341 Method Two Tables B1 and B2 Human Health soil cleanup levels. There are no bioaccumulative contaminants remaining in site soils.

### c) Inhalation-

#### 1. Inhalation of Outdoor Air

Are contaminants present or potentially present in surface soil between 0 and 15 feet below the ground surface? (Contamination at deeper depths may require evaluation on a site specific basis.)

Are the contaminants in soil volatile (see Appendix D in the guidance document)?

*If both boxes are checked, label this pathway complete:*

Incomplete

Comments:

Contaminant removal meets 18 AAC 75.341 Method Two Tables B1 and B2 Human Health soil cleanup levels and concentrations no longer exceed applicable screening levels.

## 2. Inhalation of Indoor Air

Are occupied buildings on the site or reasonably expected to be occupied or placed on the site in an area that could be affected by contaminant vapors? (within 30 horizontal or vertical feet of petroleum contaminated soil or groundwater; within 100 feet of non-petroleum contaminated soil or groundwater; or subject to "preferential pathways," which promote easy airflow like utility conduits or rock fractures)

Are volatile compounds present in soil or groundwater (see Appendix D in the guidance document)?

*If both boxes are checked, label this pathway complete:*

Incomplete

Comments:

Cape Prominence is located in the Alaska Maritime National Wildlife Refuge and no buildings are currently present or planned for the site.



**3. Additional Exposure Pathways:** *(Although there are no definitive questions provided in this section, these exposure pathways should also be considered at each site. Use the guidelines provided below to determine if further evaluation of each pathway is warranted.)*

**Dermal Exposure to Contaminants in Groundwater and Surface Water**

Dermal exposure to contaminants in groundwater and surface water may be a complete pathway if:

- Climate permits recreational use of waters for swimming.
- Climate permits exposure to groundwater during activities, such as construction.
- Groundwater or surface water is used for household purposes, such as bathing or cleaning.

Generally, DEC groundwater cleanup levels in 18 AAC 75, Table C, are deemed protective of this pathway because dermal absorption is incorporated into the groundwater exposure equation for residential uses.

*Check the box if further evaluation of this pathway is needed:*

Comments:

Dermal exposure to contaminants in groundwater and surface water is unlikely due to the remote nature of the site. Concentrations of COPCs in site groundwater and surface water are all below applicable criteria.

**Inhalation of Volatile Compounds in Tap Water**

Inhalation of volatile compounds in tap water may be a complete pathway if:

- The contaminated water is used for indoor household purposes such as showering, laundering, and dish washing.
- The contaminants of concern are volatile (common volatile contaminants are listed in Appendix D in the guidance document.)

DEC groundwater cleanup levels in 18 AAC 75, Table C are protective of this pathway because the inhalation of vapors during normal household activities is incorporated into the groundwater exposure equation.

*Check the box if further evaluation of this pathway is needed:*

Comments:

Site contaminants of potential concern are not volatile compounds and are below applicable screening and cleanup criteria. Cape Prominence is located in the Alaska Maritime National Wildlife Refuge and it is unlikely that site water will be used for household purposes.

## Inhalation of Fugitive Dust

Inhalation of fugitive dust may be a complete pathway if:

- Nonvolatile compounds are found in the top 2 centimeters of soil. The top 2 centimeters of soil are likely to be dispersed in the wind as dust particles.
- Dust particles are less than 10 micrometers (Particulate Matter - PM<sub>10</sub>). Particles of this size are called respirable particles and can reach the pulmonary parts of the lungs when inhaled.

DEC human health soil cleanup levels in Table B1 of 18 AAC 75 are protective of this pathway because the inhalation of particulates is incorporated into the soil exposure equation.

*Check the box if further evaluation of this pathway is needed:*

Comments:

Contaminant removal meets 18 AAC 75.341 Method Two Tables B1 and B2 Human Health soil cleanup levels.

## Direct Contact with Sediment

This pathway involves people's hands being exposed to sediment, such as during some recreational, subsistence, or industrial activity. People then incidentally ingest sediment from normal hand-to-mouth activities. In addition, dermal absorption of contaminants may be of concern if the the contaminants are able to permeate the skin (see Appendix B in the guidance document). This type of exposure should be investigated if:

- Climate permits recreational activities around sediment.
- The community has identified subsistence or recreational activities that would result in exposure to the sediment, such as clam digging.

Generally, DEC direct contact soil cleanup levels in 18 AAC 75, Table B1, are assumed to be protective of direct contact with sediment.

*Check the box if further evaluation of this pathway is needed:*

Comments:

Direct contact with sediment is not a likely exposure pathway due to the extreme remoteness of the site. Contaminants of potential concern have not been detected in sediment at concentrations exceeding 18 AAC 75 Method Two soil cleanup levels.

**4. Other Comments** *(Provide other comments as necessary to support the information provided in this form.)*

[Empty rectangular box for providing other comments]