THE STATE of ALASKA
GOVERNOR MIKE DUNLEAVY

Department of Environmental Conservation

DIVISION OF SPILL PREVENTION AND RESPONSE
Contaminated Sites Program

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File: 2542.38.023
Hazard ID: 2884

October 6, 2023

Rena Flint
USACE, Alaska District
PO Box 6898
JBER, AK 99506-0809

Re: Decision Document: Dutch Hbr-Unalaska Vly UST 2860
Cleanup Complete Determination

Dear Ms. Flint,

The Alaska Department of Environmental Conservation, Contaminated Sites Program (DEC) has completed a review of the environmental records associated with the Dutch Hbr-Unalaska Vly UST 2860, located on Hawley Lane in Unalaska, 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 no further remedial action will be required unless information becomes available that indicates residual contaminants may pose an unacceptable risk.

This Cleanup Complete determination is based on the administrative record for the Dutch Hbr-Unalaska Vly UST 2860, which is located in the DEC 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:
Dutch Hbr-Unalaska Vly UST 2860
Bldg 2860
Hawley Lane
Unalaska, AK, 99685

Name and Mailing Address of Contact Party:
Rena Flint
USACE, Alaska District
PO Box 6898
JBER, AK 99506-0809

DEC Site Identifiers:
File No.: 2542.38.023
Hazard ID.: 2884

Regulatory Authority for Determination:
18 AAC 78 and 18 AAC 75

Site Description and Background
Underground Storage Tank (UST) 2860 was associated with the remnants of a former dining hall, Building 2860, west of East Broadway Avenue on Hawley Lane in Unalaska, Alaska. During a Remedial Investigation in 1997, a single-walled steel 300-gallon UST with heavy corrosion was located

on the southeast corner of the former building. The UST and 720 cubic yards (cy) were removed from the site in August and September 1997. Numerous test pits and ten soil samples were collected to characterize the site. Diesel range organics (DRO) was the only analyte that exceeded DEC Method Two Cleanup Levels, at concentrations ranging from 6.4 milligram per kilogram (mg/kg) to 7,000 mg/kg.

Contaminants of Concern
During the site characterization and cleanup activities at this site, samples were collected from soil and analyzed for DRO, residual range organics (RRO), benzene, toluene, ethylbenzene, and xylenes (BTEX), and polycyclic aromatic hydrocarbons (PAHs). Based on these analyses, the following contaminant was detected above the default DEC cleanup levels and is considered a Contaminant of Concern at this site:

- DRO
- Naphthalene

Cleanup Levels
The applicable cleanup levels at the site are the calculated method three site-specific alternative cleanup level (ACL) under 18 AAC 75.340 (e). A site-specific organic carbon content of soil (foc) value of 0.045 grams per gram (g/g) was used in the Petroleum Cleanup Level Calculator, as opposed to the default Method Two foc value of 0.001 g/g. The most stringent calculated ACL for DRO is the Human Health Ingestion Cleanup Level, and the most stringent cleanup level for naphthalene is the Table B1, Method Two, Human Health Cleanup Level for the over-40 inch zone.

Table 1 – Approved Cleanup Levels

Contaminant	Soil[1] (mg/kg)
DRO	8,300
Naphthalene	20

[1] Alternative Cleanup Level based on approved site-specific soil data and the equations set out in the department's *Procedures for Calculating Cleanup Levels,* dated February 1, 2018. Most stringent ACL value for DRO is the Human Health Ingestion Cleanup Level. For naphthalene, the most stringent cleanup level is the Table B1 Human Health Cleanup Level for the over-40-inch zone.
mg/kg = milligrams per kilogram

Characterization and Cleanup Activities
In the mid 1990's, the Formerly Used Defense Sites (FUDS) program conducted site inspections in Unalaska to find and dispose of remaining debris, USTs, and other potential contaminant sources. During a Remedial Investigation (RI) in 1997, a single-walled steel 300-gallon UST with heavy corrosion was identified at the southeast corner of the former dining hall building 2860. The top of the UST was located at the ground surface, and the bottom of the UST extended to five feet bgs. Groundwater entered the perforated UST between the time of pumping and excavation, resulting in 420 gallons of water being removed from the UST. The tank and a single set of product, return, and vent piping was removed from beneath the footer blocks of the former building 2860 in August of 1997.

Petroleum contaminated soils were observed around the UST, and numerous test pits were advanced to determine contaminant boundaries and guide the extent of soil excavation. Approximately 720 cy of contaminated soil was removed from the 2,700 square foot excavation, with bedrock and groundwater

limiting the vertical extent of soil removal. Due to the infiltration of groundwater into the excavation during removal activities, approximately 5,000 gallons of interflow was also removed. Ten confirmation soil samples were collected in September 1997 and the excavation was backfilled with clean fill.

All ten samples were analyzed for DRO, RRO, and BTEX, and four samples were also analyzed for PAHs. RRO was detected in three of the 10 soil samples with concentrations ranging from 25 mg/kg to 340 mg/kg. Ethylbenzene was detected in one sample at a concentration of 0.0181 mg/kg, and total xylenes were detected in two of ten soil samples with concentrations ranging from 0.0374 mg/kg to 0.0928 mg/kg. Eight different PAH compounds were detected in one sample, however none of the detected concentrations exceeded DEC cleanup levels at the time and the cumulative risk for the site was below the DEC risk level of 1×10^{-5}. DRO was the only analyte to exceed DEC cleanup levels in two samples and was detected in eight of ten samples with concentrations ranging from 6.4 mg/kg to 7,000 mg/kg. The site layout and sample locations are shown in Figure 1.

The two sample locations exceeding DEC cleanup levels were located at the bedrock interface beneath UST 2860 (8.8 and 10 ft bgs, respectively) in the downgradient direction. The profile view of the 1997 sampling locations is shown in Figure 2. Contaminated soil was horizontally bound by a further downgradient DRO sample, at 74 mg/kg.

Following the 1997 RI, the UST 2860 site was recommended by the FUDS program for no further action, supported by the following factors:

- The primary (i.e., 300-gallon storage tank) and secondary sources (approximately 720 cy of soil) of contamination were removed.
- There was no recorded history of spills associated with the site, and any spills would not be of significant volume based on the small size of the storage tank (300 gallons).
- Soil contamination remaining above cleanup levels was bound horizontally by samples below cleanup levels, and vertically by bedrock.
- Additional excavation to remove the localized area of residual DRO contamination is not a viable option due to the presence of bedrock underlying the site.
- Based on field notes, field screening results (visual observation and photoionization detector (PID) readings, and analytical sampling indicate residual contamination is isolated to a small area on the south-southeastern portion of the excavation, and possible contaminant contribution through fractured bedrock to groundwater would be minimal.

In 2009, because two historical DRO sample results were above DEC Method Two migration to groundwater cleanup level, a Method Three alternative cleanup level of 8,300 mg/kg was calculated and approved in the *Final Soil Sampling and Statistical Analysis for Background Concentrations and Alternative Cleanup Levels,* dated August 2009. All DRO sample results are below this DEC Method Three alternative cleanup level as well as DEC ingestion and inhalation cleanup levels. The Method Three Alternative Cleanup Level calculations are shown in Figure 3. In 2023, during evaluation of the site for closure, historical data of one soil sample from the 1997 sampling event indicate a concentration of naphthalene remaining above the most current DEC cleanup levels. Per the 2018 *Procedures for Calculating Cleanup Levels*, the site specific foc value of 0.045 grams g/g was used in the Petroleum Cleanup Level Calculator, as opposed to the default Method Two foc value of 0.001 g/g. The site-specific Migration to Groundwater ACL of 130 mg/kg is less stringent than the Table B1, Method Two Human Health Cleanup Level for the over-40 inch zone, therefore the default cleanup level is the Human Health Cleanup Level in Table B1. The remaining concentration of naphthalene in soil is below

the Table B1 Human Health Cleanup Level, therefore it is no longer considered a contaminant of concern at the UST 3860 site.

Cumulative Risk Evaluation
Pursuant to 18 AAC 78.600(d), 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, DEC 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 DEC'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 soil (0-2 ft bgs)
Sub-Surface Soil Contact	De Minimis Exposure	Contamination remains in the sub-surface (>2 ft bgs) but is below the ingestion cleanup level.
Inhalation – Outdoor Air	Pathway Incomplete	Contaminants in soil are not volatile.
Inhalation – Indoor Air (vapor intrusion)	Pathway Incomplete	Contaminants in soil are not volatile. There are no occupied buildings at the site.
Groundwater Ingestion	De Minimis Exposure	Contaminants in soil are below the site-specific calculated migration to groundwater cleanup levels. Site is underlaid by bedrock and groundwater in the vicinity of the site is not currently used as a drinking water source.
Surface Water Ingestion	Pathway Incomplete	Contaminants in soil are below the site-specific method Three Migration to Groundwater cleanup levels for the site and contamination is not expected to migrate to surface water. A small pond is located 800 feet northeast of the site.
Wild and Farmed Foods Ingestion	Pathway Incomplete	Contaminants of concern do not have the potential to bioaccumulate in plants or animals.
Exposure to Ecological Receptors	Pathway Incomplete	Contaminants are not present in surface soil and does not have the potential to migrate to surface water.

Notes to Table 2: "De Minimis Exposure" means that in DEC's judgment receptors are unlikely to be adversely affected by the minimal volume or concentration of remaining contamination. "Pathway Incomplete" means that in DEC's judgment contamination has no potential to contact receptors.

DEC Decision
Soil contamination at the site have 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 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 78.600(h). A "site" [as defined by 18 AAC 78.995(134)] 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 78.276(f) and does not preclude DEC from requiring additional assessment and/or cleanup action if information indicates that contaminants at this site may pose an unacceptable risk to human health, safety, or welfare or to the environment.

Informal Reviews and Adjudicatory Hearings
A person authorized under a provision of 18 AAC 15 may request an informal review of a contested decision by the Division Director in accordance with 18 AAC 15.185 and/or an adjudicatory hearing in accordance with 18 AAC 15.195 – 18 AAC 15.340. See DEC's "Appeal a DEC Decision" web page https://dec.alaska.gov/commish/review-guidance/ for access to the required forms and guidance on the appeal process. Please provide a courtesy copy of the adjudicatory hearing request in an electronic format to the parties required to be served under 18 AAC 15.200. Requests must be submitted no later than the deadline specified in 18 AAC 15.

If you have questions about this closure decision, please feel free to contact me at (907) 451-2181, or email at cascade.galasso-irish@alaska.gov.

Sincerely,

Cas Galasso
Project Manager

cc: Spill Prevention and Response, Cost Recovery Unit

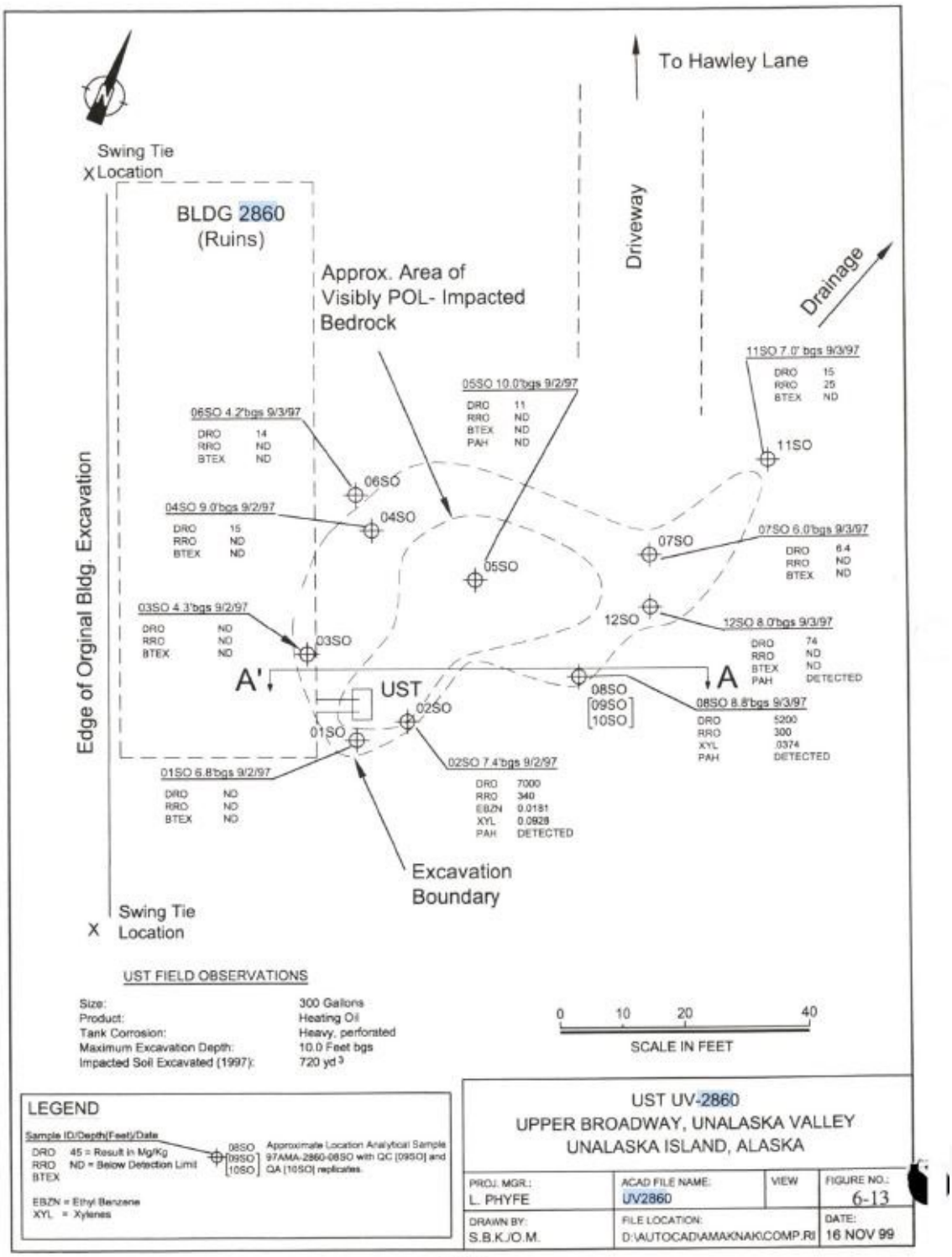

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Figure 1 - Site figure of sampling locations and results from the 1997 Remedial Investigation

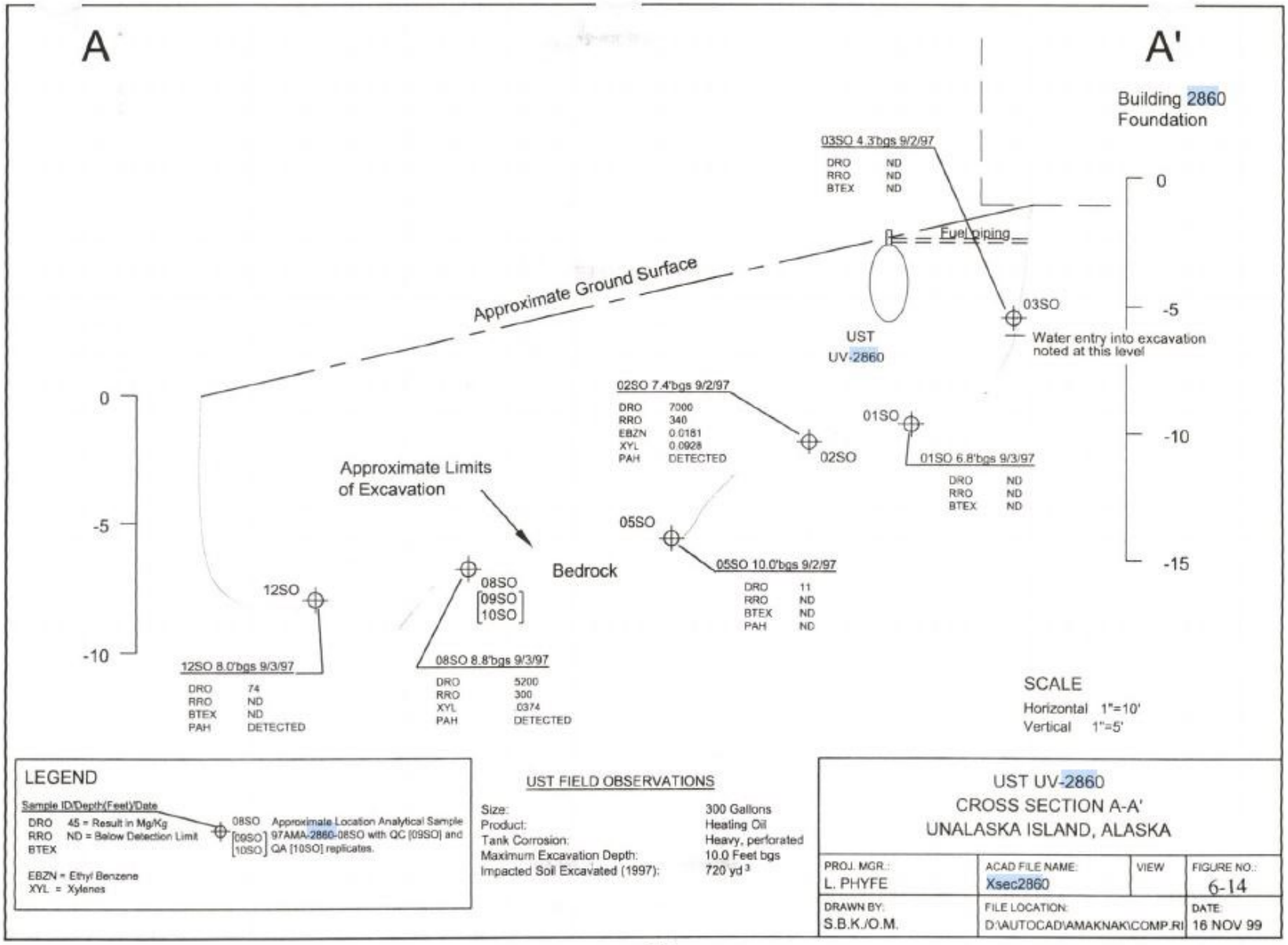

Figure 2 - Profile of sampling locations from the 1997 Remedial Investigation

Division of Spill Prevention and Response

Contaminated Sites Program

Method Three & Cumulative Risk Calculator

Site Name: UST 2860 (For viewing on printout.)

Site zone and exposure scenario: Over 40-inch Zone - Residential Exposures

Cleanup Level Calculations 8/12/2009

Chemical	CAS	Type	Calculations	
DRO (Total)		Organic Non-Carcinogenic Petroleum	Ingestion Cleanup Level:	8300 mg/kg
			Inhalation Cleanup Level:	98500 mg/kg
			Groundwater Cleanup Level:	1.5 mg/L
			Migration to Groundwater:	9800 mg/kg

Please Note

Chemical	Notes
DRO (Total)	The Maximum Allowable DRO concentration is 12500 mg/kg

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The parameters used to calculate the above cleanup levels and the parameters' default values are as follows:

Volatilization Pathway Parameters

Symbol	Description	Value	Default	Units
ρ_b	Dry soil bulk density	1.5	1.5	g/cm^3
n	Total soil porosity	0.434	0.434	L_{pore}/L_{soil}
Θ_w	Water-filled soil porosity	0.15	0.15	L_{water}/L_{soil}
Θ_a	Air-filled soil porosity	0.284	0.284	L_{air}/L_{soil}
w	Average soil moisture content	0.1	0.1	g_{water}/g_{soil}
f_{oc}	Organic carbon content of soil	0.045	0.001	g/g

Groundwater Pathway Parameters

Figure 3 - Unalaska Valley UST 2860 Method 3 Alternative Cleanup Level calculations