INITIAL INVESTIGATION FIELD REPORT

WASHINGTON STATE DEPARTMENT OF ECOLOGY

ERTS Number: 649884
Parcel #(s): 0320013145
COUNTY: Pierce

SITE INFORMATION

Site Name (e.g., Co. name over door):	Site Address (including City and Zip+4):	Site Phone:
Port of Tacoma, Parcel 14	1131 E. Alexander Avenue Tacoma, WA 98424	none
Site Contact and Title: Rob Healy, Sr. Manager Environmental Quality	Site Contact Address (including City and Zip+4): Port of Tacoma PO Box 1837, Tacoma WA 98401	Site Contact Phone: 253/383-5841
Site Owner: Port of Tacoma	Site Owner Address (including City and Zip+4): PO Box 1837 Tacoma WA 98401	Site Owner Phone: 253/383-5841
Site Owner Contact: Mark Larsen	Site Owner Contact Address (including City and Zip+4): Anchor QEA, LLC 1119 Pacific Avenue, Suite 1600; Tacoma 98402	Owner Contact Phone: 206/287-9130
Alternate Site Name(s):	Comments:	
Previous Site Owner(s):	Comments:	

Latitude (Decimal Degrees):	47.24881
Longitude (Decimal Degrees):	-122.36815

INSPECTION INFORMATION

Inspection Conducted? Yes ☐ No ☒	Date/Time:	Entry Notice: Announced ☐	Unannounced ☐
Photographs taken?	Yes ☐	No ☒	
Samples collected?	Yes ☐	No ☒	If *Yes*, be sure to include a figure/sketch showing sample locations.

RECOMMENDATION

No Further Action (Check appropriate box below):		**LIST on Confirmed and Suspected Contaminated Sites List:** ☐
Release or threatened release does not pose a threat	☐	
No release or threatened release	☐	
Refer to program/agency (Name: _____)	☐	
Independent Cleanup Action Completed (i.e., contamination removed)	☒	

COMPLAINT (Brief Summary of ERTS Complaint):
Arsenic contaminated soils were detected at this site in association with the presence of slag deposits.

CURRENT SITE STATUS (Brief Summary of why Site is recommended for Listing or NFA):
The soil contamination has been sufficiently remediated.

Investigator: S. Bell	Date Submitted: 04.22.15

OBSERVATIONS

Description (please be sure to include the following: site observations, site features and cover, chronology of events, sources/past practices likely responsible for contamination, presence of water supply wells and other potential exposure pathways, etc.):

This site is part of a Port of Tacoma wetland mitigation project involving excavation of over 7 acres to create a forested wetland and reconfigure Wapato Creek from a channelized flow around the perimeter of the property to a more naturalized meandering flow. As part of that process, an evaluation of the site conditions was required that led to the discovery of a localized area of arsenic contaminated soil. The arsenic contamination appears to be associated with slag material used as fill on the site, likely originating from the now defunct Asarco Refinery. The impact area is located in the northeast corner of parcel number 0320013145.

The site evaluation documentation provided by the Port of Tacoma encompassed work conducted by GeoEngineers in 2010, and Anchor QEA's efforts in 2014. Investigative efforts included multiple shallow borings and test pits, visual assessment and field screening, soil sampling, and analysis primarily for total metals but also including some limited analysis for petroleum hydrocarbons, SVOCs, VOCs, PCBs, chlorinated pesticides, and organochlorine herbicides. Arsenic was determined to be the only contaminant of concern. Although groundwater monitoring wells were installed, they were only sampled for water levels and conventionals (salinity, conductivity, pH, dissolved oxygen, etc.); no groundwater samples were collected for contaminant analyses. Groundwater was measured at depths ranging from 8.5 to 12 feet bgs in 2009 and from 9 to 13' bgs in 2010.

After finding arsenic contamination in boring B5, GeoEngineers visually identified slag material in four of their test pits near B5, with elevated arsenic concentrations detected in one sample collected from TP-3. The GeoEngineers report concluded "The arsenic contaminated soil appears to extend to 5 feet bgs in the area of test pit TP-3 and grades to 1.5 feet bgs in area of test pits TP-4 and TP-5."

The combined investigative results found 4 samples with arsenic concentrations exceeding the unrestricted land use cleanup level of 20 mg/kg. The sample exceedances were from 1 boring and 3 test pits:

Data Source	Sample ID	Depth of Sample	Arsenic Detection
GeoEngineers, 2010	TP-3	4. 5' bgs	152 mg/kg
GeoEngineers, 2010	B5-7C	0 – 7' bgs (composite)	53 mg/kg
Anchor QEA, 2014	TP-05A	0 – 1' bgs	49 mg/kg
Anchor QEA, 2014	TP-13A	2 – 3' bgs	95 mg/kg

Two additional samples (TP01A and TP-02A) were collected by Anchor QEA (Anchor) on 03.20.14 within Area B, in proximity to the B5 composite and TP-3 discrete samples, to provide additional information about soil conditions. The results ranged from 9-17 mg/kg arsenic in the 2 to 3' bgs samples and from 8-13 mg/kg arsenic in the 5 to 6' bgs samples. Anchor also evaluated eight samples for arsenic leaching potential using the Synthetic Precipitation Leaching Procedure (SPLP) method (SW-846/1311). No arsenic was detected in the SPLP leachate, so Anchor QEA concluded that the arsenic contamination in the soil at this location was not a potential source of groundwater contamination.

In September 2014, Anchor removed 943 tons of soil from five areas on the site. Three of the areas excavated encompassed the arsenic exceedances tabulated above. The excavated soils were brought to LRI for proper disposal.

- Area A was excavated to 2' bgs and encompassed the contamination detected in TP-05A at 0-1' bgs. It was L-shaped and measured 55' at it longest dimension and 45' wide. 5 confirmation samples were collected, one from each sidewall and the bottom of the excavation. Analytical results for arsenic were below the MTCA Method A cleanup level of 20 mg/kg for arsenic.
- Area B was excavated to 5' bgs and was co-located around contamination detected in TP-3 at 4.5' bgs from a 3-5' bgs fill layer, and a composite sample collected in Boring 5. This excavation was also L-shaped, 65' long and 38' at its widest point. 5 confirmation samples were collected from this excavation, one from each sidewall and the bottom of the excavation. Analytical results were below the MTCA Method A cleanup level.
- Area C was excavated to 4' bgs, encompassing the contamination detected in TP-13A at 2-3' bgs. The excavation measured 52' long by 40' wide. Initial performance sampling indicated two residual areas of contamination that were subsequently overexcavated. Final confirmation soil samples were collected from the sidewalls and bottom of the excavation. Analytical results for arsenic were below the MTCA Method A cleanup level.

Summary: Arsenic contaminated soil detected in the northeast corner of this site was removed and properly disposed of; SPLP results were used in lieu of actual groundwater sampling to demonstrate no potential for groundwater impact. The TPCHD recommends no further action at this time.

(fill in contaminant matrix below with appropriate status choice from the key below the table)

CONTAMINANT GROUP	CONTAMINANT	SOIL	GROUNDWATER	SURFACE WATER	AIR	BEDROCK	DESCRIPTION
Non-Halogenated Organics	Phenolic Compounds						Compounds containing phenols (Examples: phenol; 4-methylphenol; 2-methylphenol)
	Non-Halogenated Solvents						Organic solvents, typically volatile or semi-volatile, not containing any halogens. To determine if a product has halogens, search HSDB (http://toxnet.nlm.nlh.gov/cgi-bin/sis/htmlgen?HSDB) and look at the Chemical/Physical Properties, and Molecular Formula. If there is not a Cl, I, Br, F in the formula, it's not halogenated. (Examples: acetone, benzene, toluene, xylenes, methyl ethyl ketone, ethyl acetate, methanol, ethanol, isopropranol, formic acid, acetic acid, stoddard solvent, Naptha). *Use this when TEX contaminants are present independently of gasoline.*
	Polynuclear Aromatic Hydrocarbons (PAH)						Hydrocarbons composed of two or more benzene rings.
	Tributyltin						The main active ingredients in biocides used to control a broad spectrum of organisms. Found in antifouling marine paint, antifungal action in textiles and industrial water systems. (Examples: Tributyltin; monobutyltin; dibutyltin)
	Methyl tertiary-butyl ether						MTBE is a volatile oxygen-containing organic compound that was formerly used as a gasoline additive to promote complete combustion and help reduce air pollution.
	Benzene						Benzene
	Other Non-Halogenated Organics						Other Non-Halogenated Organics (Example: Phthalates)
	Petroleum Diesel						Petroleum Diesel
	Petroleum Gasoline						Petroleum Gasoline
	Petroleum Other						Crude oil and any fraction thereof. Petroleum products that are not specifically Gasoline or Diesel.
Halogenated Organics (see notes at bottom)	PBDE						Polybrominated di-phenyl ether
	Other Halogenated Organics						Other organic compounds with halogens (chlorine, fluorine, bromine, iodine). search HSDB (http://toxnet.nlm.nlh.gov/cgi-bin/sis/htmlgen?HSDB) and look at the Chemical/Physical Properties, and Molecular Formula. If there is a Cl, I, Br, F in the formula, it is halogenated. (Examples: Hexachlorobutadiene; hexachlorobenzene; pentachlorophenol)
	Halogenated solvents						Solvents containing halogens (Halogen is typically chlorine, but can also be fluorine, bromine, iodine), and their breakdown products (Examples: Trichloroethylene; Tetrachloroethylene (aka Perchloroethylene); TCE; TCA; trans and cis 1,2 dichloroethylene; vinyl chloride)
	Polychlorinated Biphenyls (PCB)						Any of a family of industrial compounds produced by chlorination of biphenyl, noted primarily as an environmental pollutant that accumulates in animal tissue with resultant pathogenic and teratogenic effects
	Dioxin/dibenzofuran compounds (see notes at bottom)						A family of more than 70 compounds of chlorinated dioxins or furans. (Examples: Dioxin; Furan; Dioxin TEQ; PCDD; PCDF; TCDD; TCDF; OCDD; OCDF). *Do not use for 'dibenzofuran', which is a non-chlorinated compound that is detected using the semivolatile organics analysis 8270*
Metals	Metals - Other						Metals other than arsenic, lead, or mercury. (Examples: cadmium, antimony, zinc, copper, silver)
	Lead						Lead
	Mercury						Mercury

CONTAMINANT GROUP	CONTAMINANT	SOIL	GROUNDWATER	SURFACE WATER	AIR	BEDROCK	DESCRIPTION
	Arsenic	RB					Arsenic
Pesticides	Non-halogenated pesticides						Pesticides without halogens (Examples: parathion, malathion, diazinon, phosmet, carbaryl (sevin), fenoxycarb, aldicarb)
	Halogenated pesticides						Pesticides with halogens (Examples: DDT; DDE; Chlordane; Heptachlor; alpha-beta and delta BHC; Aldrin; Endosulfan, dieldrin, endrin)
Other Contaminants	Radioactive Wastes						Wastes that emit more than background levels of radiation.
	Conventional Contaminants, Organic						Unspecified organic matter that imposes an oxygen demand during its decomposition (Example: Total Organic Carbon)
	Conventional Contaminants, Inorganic						Non-metallic inorganic substances or indicator parameters that may indicate the existence of contamination if present at unusual levels (Examples: Sulfides, ammonia)
	Asbestos						All forms of Asbestos. Asbestos fibers have been used in products such as building materials, friction products and heat-resistant materials.
	Other Deleterious Substances						Other contaminants or substances that cause subtle or unexpected harm to sediments (Examples: Wood debris; garbage (e.g., dumped in sediments))
	Benthic Failures						Failures of the benthic analysis standards from the Sediment Management Standards.
	Bioassay Failures						For sediments, a failure to meet bioassay criteria from the Sediment Management Standards. For soils, a failure to meet TEE bioassay criteria for plant, animal or soil biota toxicity.
Reactive Wastes	Unexploded Ordinance						Weapons that failed to detonate or discarded shells containing volatile material.
	Other Reactive Wastes						Other Reactive Wastes (Examples: phosphorous, lithium metal, sodium metal)
	Corrosive Wastes						Corrosive wastes are acidic or alkaline (basic) wastes that can readily corrode or dissolve materials they come into contact with. Wastes that are highly corrosive as defined by the Dangerous Waste Regulation (WAC 173-303-090(6)). (Examples: Hydrochloric acid; sulfuric acid; caustic soda)

Status choices for contaminants	
Contaminant Status	**Definition**
B - Below Cleanup Levels (Confirmed)	The contaminant was tested and found to be below cleanup levels. (Generally, we would not enter each and every contaminant that was tested; for example if an SVOC analysis was done we would not enter each SVOC with a status of "below". We would use this for contaminants that were believed likely to be present but were found to be below standards when tested
S - Suspected	The contaminant is suspected to be present; based on some knowledge about the history of the site, knowledge of regional contaminants, or based on other contaminants known to be present
C - Confirmed Above Cleanup Levels	The contaminant is confirmed to be present above any cleanup level. For example - above MTCA method A, B, or C; above Sediment Quality Standards; or above a presumed site-specific cleanup level (such as human health criteria for a sediment contaminant).
RA - Remediated - Above	The contaminant was remediated, but remains on site above the cleanup standards (for example - capped area).
RB - Remediated - Below	The contaminant was remediated, and no area of the site contains this contaminant above cleanup standards (for example - complete removal of contaminated soils).

Halogenated chemicals and solvents: Any chemical compound with chloro, bromo, iodo or fluoro is halogenated; those with eight or fewer carbons are generally solvents (e.g. halogenated methane, ethane, propane, butane, pentane, hexane, heptane or octane) and may also be used for or registered as pesticides or fumigants. Most are dangerous wastes, either listed or categorical. Organic compounds with more carbons are almost always halogenated pesticides or a contaminant or derivitive. Referral to the HSDB is recommended you are unfamiliar with a chemical name or compound, as it contains useful information about synonyms, uses, trade names, waste codes, and other regulatory information about most toxic or potentially toxic chemicals.

Dibenzodioxins and dibenzofurans are normalized to a combined equivalent toxicity based on 2,3,7,8-tetrachloro-p-dibenzodioxin as set out in Ch. 173-340-708(8)(d) and in the Evaluating the Toxicity and Assessing the Carcinogenic Risk of Environmental Mixtures using Toxicity Equivalency Factors Focus Sheet (https://fortress.wa.gov/ecy/clarc/FocusSheets/tef.pdf). Results may be reported as individual compounds and isomers (usually lab results), or as a toxic equivalency value (reports).

FOR ECOLOGY USE ONLY (For Listing Sites):

How did the Site come to be known: ☐ **Site Discovery (received a report):** _____ (Date Report Received)
☒ **ERTS Complaint**
☐ **Other (please explain):** _____

Does an Early Notice Letter need to be sent: ☐ Yes ☒ No
If *No*, please explain why: N/A

NAICS Code (if known): _____
Otherwise, briefly explain how property is/was used (i.e., gas station, dry cleaner, paint shop, vacant land, etc.):
_____

Site Unit(s) to be created (Unit Type): ☒ Upland (includes VCP & LUST) ☐ Sediment

If multiple Units needed, please explain why: _____

Cleanup Process Type (for the Unit):
☐ No Process
☐ Voluntary Cleanup Program
☐ Federal-supervised or conducted
☒ Independent Action
☐ Ecology-supervised or conducted

Site Status:
☐ Awaiting Cleanup
☐ Cleanup Started
☒ No Further Action Required
☐ Construction Complete – Performance Monitoring
☐ Cleanup Complete – Active O&M/Monitoring

Site Manager (Default: Southwest Region): _____

Specific confirmed contaminants include:

_____ in Soil

_____ in Groundwater

_____ in Other (specify matrix: _____)

Facility/Site ID No. (if known):
_____

COUNTY ASSESSOR INFO:

Please attach to this report a copy of the tax parcel/ownership information for each parcel associated with the site, as well as a parcel map illustrating the parcel boundary and location.