INITIAL INVESTIGATION FIELD REPORT

WASHINGTON STATE DEPARTMENT OF ECOLOGY

☐ **Check this box if you have attached any documents to this form (using the paperclip icon on the left).**

ERTS #(s):	667003
Parcel #(s):	multiple - see below
County:	King
FSID #:	17593
CSID #:	14452
UST #:	

SITE INFORMATION

Site Name (Name over door):	Site Address (including City, State and Zip):	Phone / Email
SCL Duwamish Substation	10000 W Marginal Place S Seattle, WA 98108	
Site Contact, Title, Business: Tom Meyer, Senior Env. Analyst SCL Environmental Affairs Division	Site Contact Address (including City, State and Zip): PO Box 35023 Seattle, WA 98124	Phone (206) 386-9168 Email tom.meyer@seattle.gov
Site Owner, Title, Business: Seattle City Light	Site Owner Address (including City, State and Zip): PO Box 35023 Seattle, WA 98124	Phone Email
Site Owner Contact, Title, Business:	Site Owner Contact Address (including City, State and Zip):	Phone Email
Previous Site Owner(s):	Additional Info (for any Site Information Item): ENL to Tom Meyer, Seattle City Light	
Alternate Site Name(s):	Parcel numbers: 5624200-0930, -0931, -0950, -0951	

Latitude (Decimal Degrees):	47.51464
Longitude (Decimal Degrees):	-122.30749

INSPECTION INFORMATION

☐ Please check this box if there is relevant inspection information, such as data or photos, in an existing site report for this site.

Inspection Conducted? Yes ☐ No ☒	Date/Time:	Entry Notice: Announced ☐	Unannounced ☐
Photographs taken? Yes ☐	No ☐	Note: Attach photographs or upload to PIMS	
Samples collected? Yes ☐	No ☐	Note: Attach record with media, location, depth, etc.	

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 (contamination removed)	☐	

COMPLAINT (Brief Summary of ERTS Complaint):

Rick Thomas (Ecology) submitted an ERTS report for this site based on the previous usage of Duwamish dredge spoils for fill at the site. A TCP Initial Investigation should be conducted to determine if these fills are contaminated and if the site should be listed.

CURRENT SITE STATUS (Brief Summary of why Site is recommended for Listing or NFA):

Soil samples collected in areas of known 1968 and 1985 Duwamish dredge fill (parcel numbers 5624200-0930 and -0931) are above MTCA Method A cleanup levels for benzo(a)pyrene. Comparison of sampled concentrations to preliminary cleanup levels for the Lower Duwamish Waterway area also indicate concentrations are above screening levels for bis(2-ethylhexyl) phthalate. Contamination does not appear to be homogenously distributed throughout the fill areas. Recommendation: list on Confirmed and Suspected Contaminated Sites List.

Investigator: Kim Wooten Date Submitted: 1/9/18

OBSERVATIONS ☑ **Please check this box if you included information on the Supplemental Page at end of report.**

Description (If site visit made, 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.):

The site is located on the west side of the Duwamish River (approximate RM 4.3 - 4.5) and is bordered by SR 99 (W Marginal Way South) to the east. It currently encompasses tax parcels 562420-0931, -0930, -0950, and -0951 and historically also included the parcel to the north of the current location (562420-0006). The property includes a Seattle City Light substation surrounded by vacant land to the north and south. Based on proximity to the river, the property has previously utilized dredged river sediments as fill; it is unclear what the contamination status of these sediments was when they were relocated to the site.

PREVIOUS SITE ASSESSMENTS - DREDGE FILL AREAS

A number of limited site assessments have previously been conducted on the property (see figure on the supplemental page below for the location of assessments referenced here). Two have specifically referenced the fill soil layer, and are summarized below.

HWA 2006: This assessment was conducted to the south of the substation to assess the suitability of the property for wetlands mitigation. It was noted that the top soil layer appeared to be dredged fill, and that dredging had been going on in this portion of the river since 1918, but a specific dredging event was not linked to this fill layer. Soil and groundwater samples collected as part of the site assessment did not contain concentrations of PAHs, PCBs, diesel or oil range petroleum hydrocarbons, MTCA metals, or pesticides above laboratory reporting limits or natural background. One sediment sample collected contained heptachlor at a concentration of 77 ug/kg.

Weston 1990: This site assessment was conducted as part of a potential long-term Boeing lease of the property north of the substation. The report references a layer of 1968 fill from the Duwamish River that is present across their whole site area, and a smaller area of fill from a 1985 dredging event conducted at the Duwamish Yacht Club property north of the site. It was noted that the 1985 fill area is present in a low spot on the property, and that there was standing water on the site in the area to the NW of the 1985 fill area during the site characterization.

Documents reviewed:

See supplemental information page.

CONTAMINANT GROUP	CONTAMINANT	SOIL	GROUNDWATER	SURFACE WATER	AIR	SEDIMENT	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.nih.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)	C	B				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						TEX
	Petroleum Diesel						Petroleum Diesel
	Petroleum Gasoline						Petroleum Gasoline
	Petroleum Other						Oil-range organics
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.nih.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						PCE, chloroform, EDB, EDC, MTBE
	Polychlorinated Biphenyls (PCB)	B	B				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	B	B				Cr, Se, Ag, Ba, Cd
	Lead	B	B				Lead
	Mercury	B	B				Mercury
	Arsenic	B	B				Arsenic
Pesticides	Non-halogenated pesticides						Pesticides without halogens (Examples: parathion, malathion, diazinon, phosmet, carbaryl (sevin), fenoxycarb, aldicarb)
	Halogenated pesticides	B					Pesticides with halogens (Examples: DDT; DDE; Chlordane; Heptachlor; alpha-beta and delta BHC; Aldrin; Endosulfan, dieldrin, endrin)

CONTAMINANT GROUP	CONTAMINANT	*SOIL*	*GROUNDWATER*	*SURFACE WATER*	*AIR*	*SEDIMENT*	DESCRIPTION
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	C					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)

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

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 derivative. Referral to the HSDB is recommended if 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 WAC 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 II REVIEWER 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: _____

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 ☐ Independent Action
☐ Voluntary Cleanup Program ☐ Ecology-supervised or conducted
☐ Federal-supervised or conducted

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

Site Manager (Default: _____): _____

Specific confirmed contaminants include:

PAHs in Soil

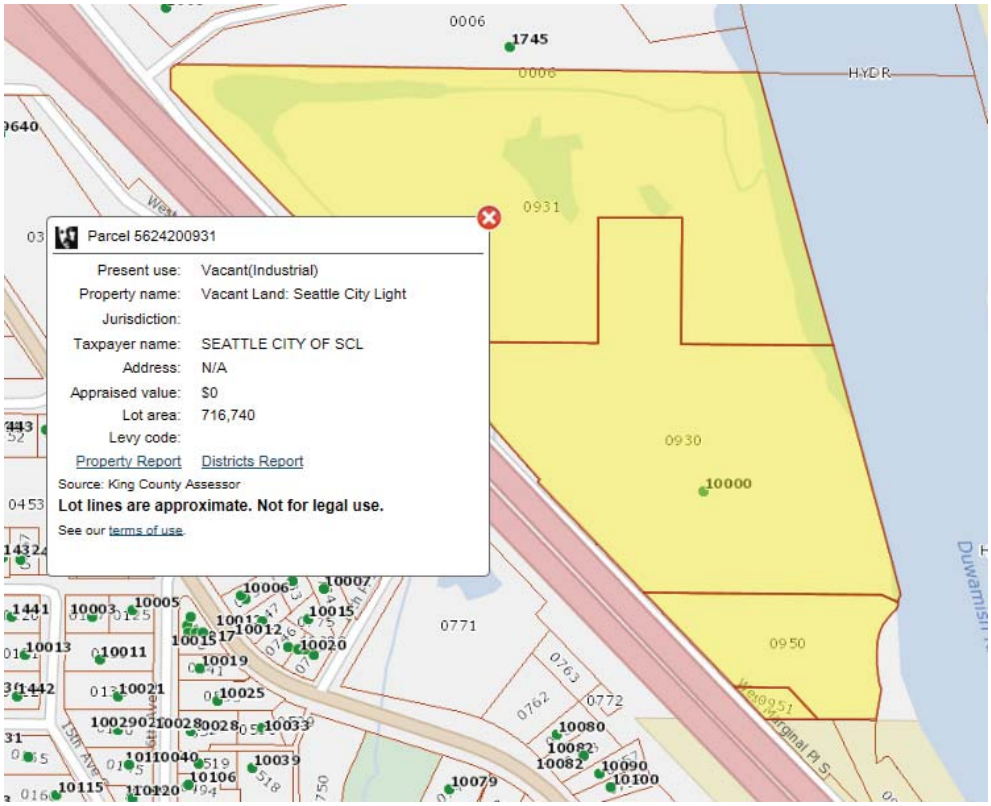
_____ in Groundwater

_____ in Other (specify matrix: _____)

Facility/Site ID No. (if known):
17593

Cleanup Site ID No. (if known):
14452

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.



Additional or Supplemental Information from Observations Page (A)

Additional or Supplemental Information from Observations Page (B)

The Weston report references a site assessment conducted by Raven in 1987 on the property to the north of the Weston site that was not available for review as part of this Initial Investigation. This site was part of the 1968 fill area, and results of the soil analysis for this area were summarized as below detection limits or state hazardous waste limits for PCBs, PAHs, metal toxicity, and halogenated hydrocarbons.

The Weston sampling was conducted on the 1968 fill area, the 1985 fill area, and along the fence line of the substation. Soil and groundwater samples were collected from the 1968 fill area and soil was collected from the fence line and 1985 fill areas. Fence line samples were analyzed for pesticides and PCBs to ensure no contamination at the substation boundary; these chemicals were not detected in any sample. Samples from both fill areas were analyzed for metals and semivolatile organic compounds including PAHs. Samples from the 1985 fill area were also analyzed for PCBs and pesticides, and groundwater samples from the 1968 fill area were also analyzed for volatile organic compounds.

In the 1968 fill area, one groundwater sample contained very low concentrations of acetone and no detectable concentrations of any other chemical. Out of 5 soil samples, 1 contained detectable pyrene, 3 contained benzo(a)pyrene, and 5 contained bis(2-ethylhexyl) phthalate (BEHP). Of the 2 soil samples in the 1985 fill area, both contained BEHP and one contained multiple PAHs, including benzo(a)pyrene, fluoranthene, phenanthrene, and pyrene. Benzo(a)pyrene concentrations in samples from both fill areas exceed current MTCA Method A screening levels (100 ug/kg; 1968 fill up to 340 ug/kg, 1985 fill 250 ug/kg). Other PAHs and BEHP are present at concentrations below MTCA screening levels, but comparison to preliminary cleanup and screening levels used at Ecology sites in the Lower Duwamish Waterway that take into account impacts on surface water indicate that BEHP is present above soil screening levels.

1985 FILL ANALYSIS

As part of the land application of the 1985 fill from the Duwamish Yacht Club, a composite sample was analyzed for metals, PCBs, halogenated hydrocarbons, and gravimetric PAHs. As the results indicated no contaminant above screening levels at the time, both the King County Department of Public Health and Ecology deemed the material acceptable for fill. The Ecology decision does note that that determination may change in the future based on changes in state or federal law.

SUBSTATION ASSESSMENTS

Additional sampling has been conducted within the substation boundaries in areas not directly impacted by the fill layer. These include multiple analyses for PCBs in areas around transformers and other equipment (Raven 1985, Raven 1988, Raven 1990, Herrera 1997). None of these samples have indicated soil contaminated with concentrations above MTCA Method A cleanup levels. In 2015, as part of NPDES permitting, Leidos analyzed one water and 3 sediment samples from within the stormwater management system within the substation. Chemicals identified above screening levels in the water sample were copper, total PCBs, and dioxin/furan TEQ. In at least one sediment sample, concentrations of cadmium, lead, silver, zinc, total PCBs, TPH-oil, PAHs (total PAH and individual PAHs), phthalates (DMP, DBP, BBP, BEHP), and dioxin/furan TEQ were above screening levels. These results are not included in the II contaminant table since sources and affected matrices are unclear.

Additional or Supplemental Information from Observations Page (C)

DOCUMENTS REVIEWED

1. Letter From: Wallace (Wally) Safford, Seattle, King County Dept. of Health
To: Ilene Hollibaugh, Duwamish Yacht Club; 6/13/1985

2. Laucks Testing Labs (Analytical Results); 7/18/1985

3. Letter From: Wallace (Wally) Safford, Seattle, King County Dept. of Health
To: Werner Otto, Commodore, Duwamish Yacht Club; 8/5/1985

4. Letter From: Dan Cargill, Ecology
To: Wener Otto, Commodore, Duwamish Yacht Club; 10/18/1985

5. Memo From: Lynn Davidson, EAD
To: Walt Stickler Subject: Compliance Audit Conducted for Duwamish Substation; 6/8/1988

6. Memo From: Roger Taylor
To: Lynn Best, EAD Subject: Summary of Environmental Incidents at Duwamish Transformer Dismantling Operation; 5/5/1989

7. Weston (Report); Baseline Soil and Groundwater Quality Assessment Seattle City Light Long-Term Lease Option, Seattle, WA; May 1990

8. Herrera (Preliminary Site Assessment – Duwamish Substation); October 1997

9. Duwamish Substation Drainage Map (SPCC Plan), SCL, S. McLean, 9/8/2000

10. Email From: Allison Crowley To: Dan Cargill, Ecology re:Draft Data Gaps Report RM 4.2 to 5.8 West

11. Raven Systems & Research Inc., Duwamish Substation Breaker Pads Soil Testing; 4/20/90

12. Raven Systems & Research Inc., PCB Soil Testing at Three City Light Substations: Bothell, Duwamish, and South. 3/28/85

13. Raven Systems & Research Inc., PCB Testing at Duwamish Substation and a Private Residence; 7/28/88

14. HWA GeoSciences Inc., Phase II ESA Duwamish Substation, Parcel #5624200950. 5/12/06

15. Leidos, LDW NPDES Inspection Sampling Support 2014/2015, Appendix T: Duwamish Substation. June 2015.