



# Vancouver Energy Contaminated Media Management Plan

Plan No. C.02 | Revision 01

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Vancouver Energy  
Contaminated Media Management Plan  
EFSEC Application for Site Certification No. 2013-01  
Docket No. EF131590  
4 August 2015



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# Vancouver Energy Contaminated Media Management Plan

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# 1. Introduction and Background

Vancouver Energy (Facility) provides transloading services for pipeline quality crude oil from railcars to marine vessels. The Facility is located at 5501 NW Old Lower River Road, Vancouver, Washington; it is situated at the Port of Vancouver USA (Port) on the north bank of the Columbia River at approximately River Mile 103.5. The Facility site is approximately 47.4 acres in size and comprises elements within the following “area” groupings, as illustrated in Figure 1.

- Area 200 – Rail Unloading – located at Terminal 5 of the Port
- Area 300 – Storage – located at Parcel 1A of the Port
- Area 400 – Marine Terminal – located at berths 13 and 14 at the Port
- Area 500 –Transfer Pipelines – located in locations between areas 200, 300, and 400
- Rail Infrastructure – located at Terminal 5 of the Port

The Facility receives an average of four unit trains per day and unloads an average of 360,000 barrels (bbl) of crude per day. Six nominal capacity 380,000 bbl tanks are used to store crude oil on site. A transfer pipeline system is used to convey crude oil from Area 200 to Area 300 for storage, and from Area 300 to Area 400 for vessel loading. The transfer pipeline system can also be operated to move oil from Area 200 directly to Area 400. The Terminal is operated 24 hours a day, 7 days a week.

## 1.1 Purpose of Plan

This contaminated media management plan (CMMP) describes how Vancouver Energy will: (1) maintain the effectiveness of remedial measures previously undertaken at the site; (2) prevent the release or exposure to the environment of contaminated media remaining on site or the creation of new exposure pathways; (3) minimize risks to worker health/safety and the environment by disclosing the presence of known contaminants on the site; (4) conduct work in accordance with applicable consent decrees, agreed orders and related environmental restrictive covenants; (5) and handle and dispose of contaminated soil and groundwater that may be encountered during ground-disturbing construction activities. This CMMP establishes a framework for a contractor CMMP to govern procedures related to contaminated media that may be encountered at the site. Procedures for handling unanticipated/suspected contaminated materials are also addressed. Accordingly, this CMMP

- Identifies the locations where construction is expected to adversely disrupt caps or contaminated soils
- Describes measures that will be used to minimize disruptions; properly test, handle, store, and dispose of suspected or confirmed contaminated soils
- Identifies general cap restoration requirements

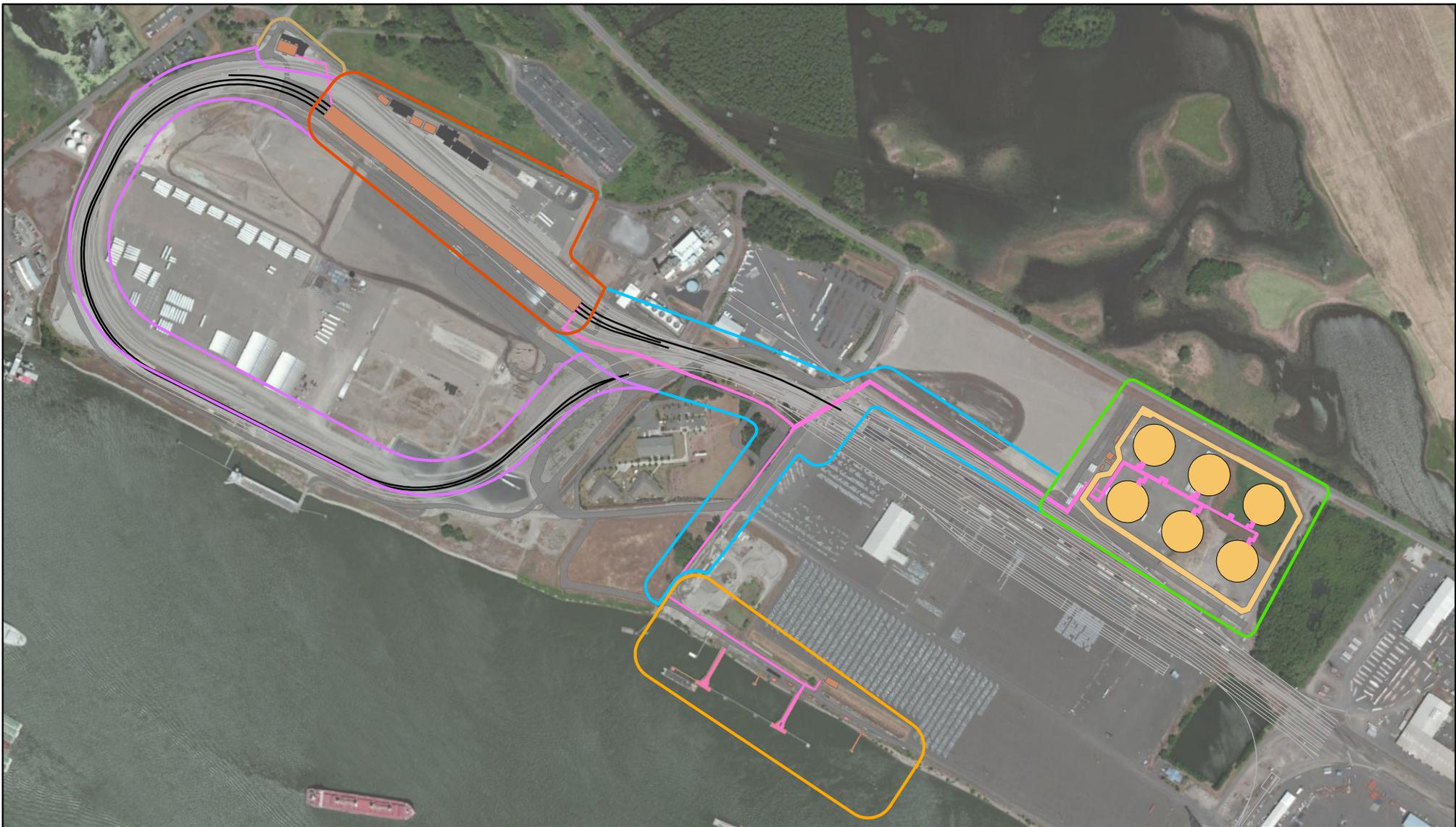
This CMMP applies to areas where ground-disturbing activities will occur in restricted areas of the site during construction and also addresses unanticipated discoveries of potentially contaminated media. Ground-disturbing construction activities will include tree/vegetation removal, grading, excavation for foundations and below-ground Facility components, relocation of on-site services/utilities, relocation of existing Port rail lines, and installation of ground improvements. This CMMP does not apply to Facility operations.

## 1.2 Regulatory Requirements

This CMMP is implemented so that construction activities are in compliance with the following regulatory requirements.

- Washington Administrative Code (WAC) 173-303
- WAC 463-60-352 (3) as applicable
- Code of Federal Regulations (CFR) 260-268

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**Figure 1 - Site Plan**

**Proposed Project Facilities**

- Containment Berm
- Storage Tank
- Roads
- Marine Terminal
- Parking
- Building
- Rail
- Transfer Pipeline

**TSPT Improvement Areas**

- 200 - Unloading and Office
- 300 - Storage
- 400 - Marine Terminal

- 500 - Transfer Pipelines
- 600 - West Boiler
- Rail Infrastructure

Tesoro Savage Petroleum Terminal LLC

Date: February 2015

Map Notes: Aerial photo dated July 2010, courtesy of ESRI World Imagery service





## 1.3 Related Documents

The following documents and plans implement additional protective measures and procedures in addition to those presented in this CMMP.

- Construction Stormwater Pollution Prevention Plan (SWPPP) – the construction SWPPP describes the site conditions and proposed construction activities in detail and enumerates the mitigation measures and best management practices (BMPs) that apply to each activity. Part of the construction SWPPP deals with managing materials that are or could be hazardous that are used and/or stored on site—paint, petroleum, solvents, etc. In contrast, the CMMP addresses contaminated media already at the site and how to manage it if encountered (or excavated, etc.).
- Construction Spill Prevention, Control, and Countermeasures Plan (SPCCP) – the construction SPCCP outlines BMPs, response actions in the event of a release, and notification and reporting procedures. The construction SPCCP also outlines management elements, such as personnel responsibilities, construction site security, site inspections, and training. Finally the construction SPCCP lists spill response equipment and where such equipment is maintained on site.
- Construction Health and Safety Plan – this plan provides personnel protective measures for construction activities conducted within areas of known or suspected contamination.
- Construction Security Plan – this plan prevents access to construction site by non-authorized personnel and public.

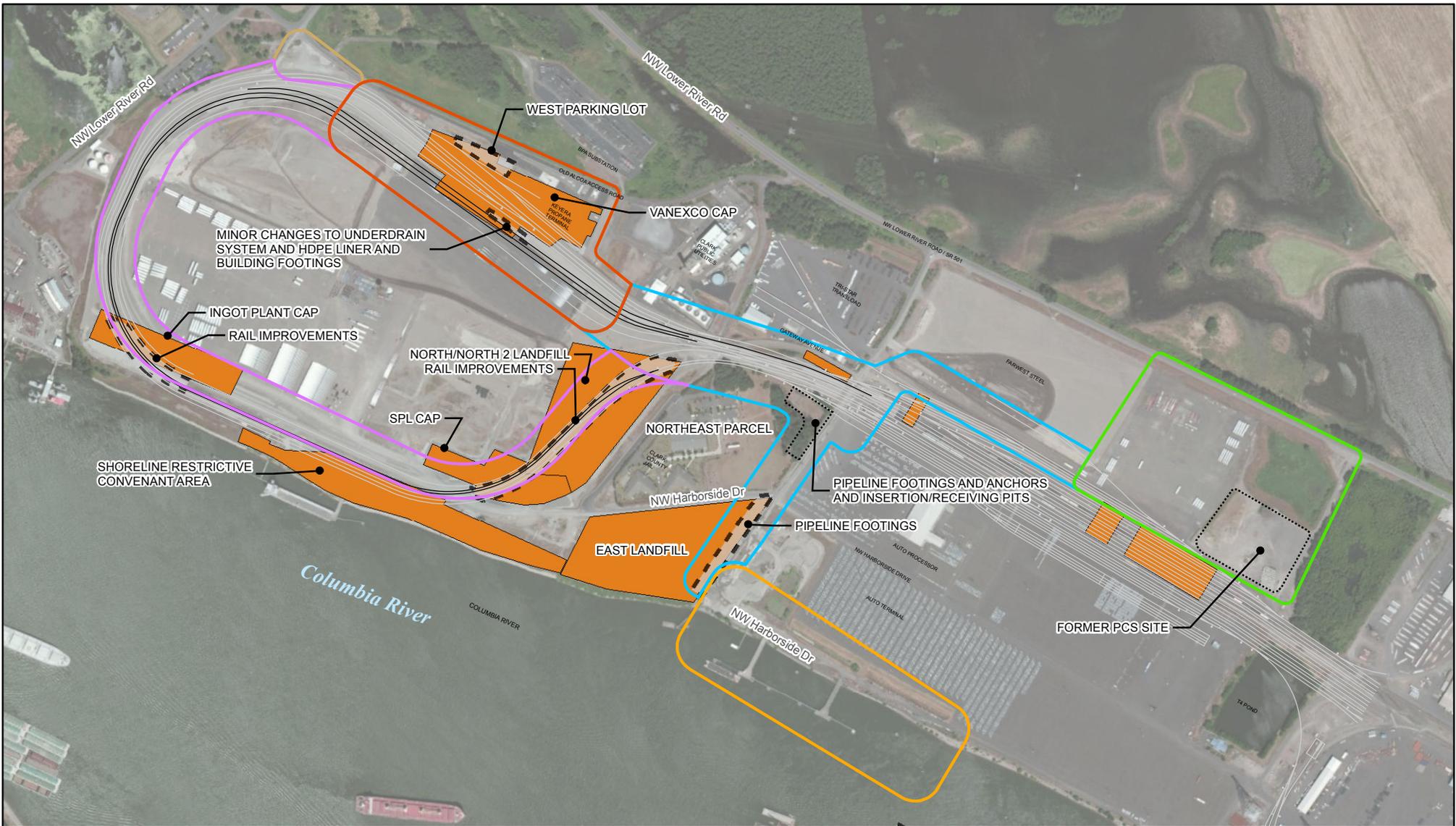
## 2. Existing Site Conditions

The Facility site consists of approximately 47.4 acres adjacent to the Columbia River. Portions of the Facility are being constructed at the former location of the Evergreen/ALCOA aluminum smelter site. Historic site use as an aluminum smelter resulted in soil and groundwater contamination with the following contaminants of concern (COCs): polychlorinated biphenyls (PCBs), polynuclear aromatic hydrocarbons (PAHs), fluoride, cyanide, volatile organic compounds (VOCs), and metals. Multiple regulatory orders have been implemented at the site in accordance with the Washington State Model Toxics Control Act (MTCA) and the Washington State Department of Ecology (Ecology) Waste 2 Resources Program. As of 2010, all of the remedial action work (other than monitoring) have been completed at the site. Current conditions and applicable restrictions at the site are summarized in Table 1.

Areas of the site and/or adjacent to the site are restricted for use because of the presence of subsurface soil and/or groundwater contamination remaining at the site following the remedial actions. In some areas, contaminated soil with low concentrations of contaminants was consolidated, capped, and left on site under the approved cleanup plans.

Currently there are six “deed restricted” or “capped/covered” areas where construction is proposed that contain contaminants at concentrations that exceed MTCA cleanup levels. These areas are shown on Figure 2. There may be additional areas where construction activities could encounter previously unidentified contaminated material. The management protocols discussed in section 5 of this plan apply to known areas of contamination and other potentially contaminated materials that could be inadvertently discovered during construction.

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**Figure 2 - Contaminated Media Locations**

**LEGEND**

**TSPT Improvement Areas**

200 - Unloading and Office

300 - Storage

400 - Marine Terminal

500 - Transfer Pipelines

600 - West Boiler

Rail Infrastructure

Environmental Covenant Areas

Limits of Construction Activity within Deed Restricted Area

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Map Notes: Aerial photo dated July 2010, courtesy of ESRI World Imagery service

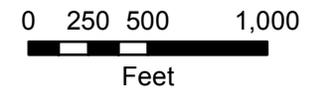




Table 1 below summarizes the deed restricted/capped areas that could be impacted during construction of the proposed Facility.

**Table 1. Summary of the Deed Restricted Areas at the Proposed Project Site**

Area (see Fig 2)	Summary	Contaminants of Concern <sup>1</sup>		Regulatory or Cleanup Status
		Soil	Groundwater	
<b>Ecology/ALCOA Consent Decree 95-2-03268-4</b>				
Vanexco Cap	PCB impacted soil removal occurred in 1992. Groundwater monitoring from 1996 through 2001 indicated that groundwater is not affected by residual PCB impacted soils. The building foundations and floor slabs were left in place to form a cap over the contaminated soils as required by the Consent Decree. Approximately 4 feet of surface material was placed above the foundation and is sloped to provide drainage away from the area or the foundation is replaced with an impervious layer and stormwater control facilities are located above the layer.	PCBs – (concentrations up to 2,000 ppm left in soil and 16,000 ppm in concrete pit chip samples left in place after EPA approval in 1992) and hydraulic oil (greater than 2,000 ppm. 9 feet below the ground surface	No COCs detected (depth ranges from approximately 15 feet to 25 feet bgs)	Deed restricted site with no further remedial action required. The construction and groundwater monitoring portions of the Consent Decree have been completed. Ecology approved disturbance of the Vanexco cap during rail improvement construction in 2009.
<b>Ecology/ALCOA Consent Decree 92-2-00783-9</b>				
Spent Pot Liner (SPL) Cap	A former EPA NPL site; 47,500 cubic yards of SPL and reclaimed alumina insulation were removed in 1992. The residual affected soils were capped with a high-density polyethylene (HDPE) cover. In 2010, the Port placed a specially engineered double-layered asphalt cap over the HDPE cover.	Cyanide (concentrations up to 491 mg/kg) and fluoride (concentrations up to 2,500 mg/kg) Potentially extending from the HDPE cover to approximately 15 feet bgs, the vertical point of compliance defined in the Final 2008 Corrective Action Plan	Fluoride (concentrations up to 27,500 ug/l)	Deed restricted area. No further remedial actions are required. The operation and maintenance activities consisting of groundwater monitoring, institutional controls and cover maintenance continue. Ecology approved disturbance of the SPL cap during rail improvement construction in 2009.
<b>Ecology/Evergreen Enforcement Order 4931</b>				
Ingot Cap	Approximately 14,000 tons of brick, concrete, and soil were removed and the area was covered with 1 foot of soil. Subsequently the Port has placed additional material over the capped area to raise the site grade.	PCBs at concentrations less than 10 mg/kg are estimated to be present from 1 foot bgs to the depth of the groundwater surface, between approximately 15 and 25 feet bgs	None detected	Deed restricted area. No further remedial action required.

<sup>1</sup> Anchor Environmental LLC, 2008. "ALCOA/Evergreen Vancouver Site RI/FS"



Area (see Fig 2)	Summary	Contaminants of Concern <sup>1</sup>		Regulatory or Cleanup Status
		Soil	Groundwater	
<b>Ecology/ALCOA Agreed Orders DE90-I053 and DE03 TCPIS-5737</b>				
North/North 2 Landfill	In 2004 approximately 38,000 cubic yards of contaminated soil at the North/North 2 Landfill site was removed and the area was covered with 1 foot of sand.	Concentrations likely present up to the following industrial MTCA site soil clean levels: PCBs (up to 10 mg/kg), PAHs (20 mg/kg), VOCs (up to 0.03 mg/kg trichloroethylene [TCE]) (estimated to be present from 1 foot bgs down to at least groundwater level)	VOCs [vinyl chloride at 3.3 micrograms per liter (ug/l)], PAHs [benzo(a)-pyrene up to 0.30 ug/l] and PCBs (up to 2 ug/l)  Groundwater level is estimated at 15 to 25 feet bgs.	Deed restricted area with no further remedial action required.
<b>Ecology/ALCOA Consent Decree 09-2-00247-2</b>				
East Landfill	Contaminated material from the South Bank and North/North 2 landfills were placed into the East Landfill in 2003. A multi-layer impermeable cap consisting of a geosynthetic liner and a clay layer covered with HDPE, a synthetic drainage net, a 19-inch layer of compacted fill soil, a 6-inch layer of soil and vegetation was placed over the East Landfill in 2004. The shoreline adjacent to the East Landfill was armored to help stabilize the riverbank and engineered cap.	Lead, cyanide, fluoride, PCBs (concentrations exceeding 10 mg/kg), petroleum hydrocarbons, VOCs (concentrations potentially exceeding 0.03 mg/kg for TCE) and PAHs (concentrations potentially exceeding 20 mg/kg) (estimated present in soil below approximately 2 feet bgs)	VOCs: (TCE, vinyl chloride) (TCE concentrations up to 620 ug/L in the intermediate zone)	The area is capped and monitored for natural attenuation by conducting quarterly groundwater sampling.
<b>Ecology/Alcoa Agreed Order DE97 TCI032</b>				
Northeast Parcel	In 1997 approximately 12,000 tons of contaminated soil were removed from the Northeast Parcel. Confirmation soil samples indicated that the site was remediated in accordance with MTCA Method A unrestricted use soil cleanup levels. The area was covered with clean fill compacted, graded for proper surface water drainage, and vegetated.	PCBs, metals, and PAHs (estimated to be present below groundwater depth at concentrations less than MTCA Method A CULs.	VOCs (vinyl chloride – 6.6 ug/l) Groundwater level is estimated at about 10 feet bgs (Hahn and Associates, 2013)	Remediated and covered; no further remedial action required.



## 2.1 Soil and Groundwater Conditions

The dominant native soil type at the site is silt or clay between 15 and 25 feet thick. This soil is overlain by fine to medium dredge sand fill that varies from 15 to 25 feet thick. Crushed concrete and imported fill rock lie above the dredge sands throughout the site.

Four hydrogeologic zones have been identified at the site. The shallow zone consists of dredge fill sand ranging from 7 to 25 feet. The presence of groundwater varies with the seasons and may be locally perched on the underlying silts. The intermediate zone ranges from 15 to 35 feet below ground surface (bgs) and is comprised of silt, fine sand, and clay. The deep zone is 40 to 60 feet of fine to medium sand. The aquifer zone (Unconsolidated Sedimentary Aquifer or USA) extends from 95 to 125 feet bgs. This zone consists of coarse-grained flood deposits.

Groundwater at the site is expected to flow south towards the Columbia River.

## 3. Proposed Construction Activities

Construction of the facility that will occur in restricted areas includes

- **Vanexco Cap**—(1) Parking facilities and a portion of the rail unloading area within the Vanexco/Rod Mill restricted covenant area (see Figure 2). The parking facilities do not require deep excavations and will not penetrate the cap; new pavement will serve as an additional impervious layer to prevent precipitation from reaching the existing PCB-contaminated soils. (2) Approximately 250 linear feet of the northern edge of the rail unloading area; this will be located above the cap and will not penetrate the cap. (3) Erection of the rail unloading structure will require excavation for concrete foundations and driving piles within the cap area, and modification of the underdrain system and HDPE liner.
- **Ingot Plant Cap**—One additional rail loop will be constructed within the ingot plant area. Excavation into or beneath the 1-foot-thick cap will not be necessary.
- **Spent Pot Liner Cap**—One additional rail loop may be constructed within the SPL storage area. The cap consists of an HDPE liner and asphalt pavement. Excavation into the cap and exposure of the contaminated materials the cap covers will not be necessary.
- **North/North 2 Cap**—Two additional rail loops will be constructed within the North/North 2 area. Excavation into the cap will not be necessary.
- **East Landfill**—Construction within the east landfill cap area consists of grading a suitable level bench within the area to construct foundations for the aboveground crude oil pipeline. Improvements in this area are designed to not impact the engineered cap.

A portion of improvements related to Area 300 - Storage will be constructed in an area previously occupied by Pacific Coast Shredding (PCS). PCS had a two-year lease to store heavy melting steel material at the site. As a result of the heavy melting steel storage activities, soil was contaminated with petroleum hydrocarbons (low levels), PAHS, heavy metals (primarily cadmium), and PCBs. The contamination was confined to a 5-acre portion in the southeast portion of the Port's Parcel 1A (see Figure 2). Approximately 2,600 cubic yards of soil was excavated from the site at depths ranging from 1 inch (east end) to 20 inches. The excavated soil is currently stockpiled pending transport to a landfill. Groundwater was not encountered during the excavation. The Port collected baseline (background) soil samples and excavation confirmation soil samples. Five groundwater samples were also collected. Results from the confirmation soil and groundwater samples did not exceed MTCA unrestricted cleanup levels.

Proposed construction elements with respect to contaminated media and excavation depths are summarized in Table 2 below. Proposed activities to be located in the capped areas are shown on Figure 2.

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**Table 2. Summary of Proposed Ground Disturbing Activities at the Project Site**

Construction Area	Capped/Known Contaminated Area (see Figure 2)	Excavation		Will the Capped or Contaminated Material Be Impacted?
		Activity	Approximate Depth (feet below the existing ground surface)	
Area 200 (Unloading and Office Area)	Vanexco	West Parking Lot	4	No, the proposed excavations will occur above the concrete Vanexco cap and will not remove or penetrate the cap.
		Northern Edge of Rail Unloading	4	
		Footings for the rail unloading building and associated minor modifications to the underdrain system and HDPE liner	6	Yes, excavation will occur about 2 feet below the liner. The liner will be attached to the footing so that an impermeable surface is maintained. Please see the engineering drawings for details on how the cap will be repaired attached as Appendix A.
Area 500 (Transfer Pipelines)	East Landfill	Transfer pipeline footings and anchors	8	No, the excavations are designed to be outside of the landfill limits.
	Northeast Parcel	Pipeline footings and anchors	8	Yes. Groundwater, if present in excavations, is suspected to be contaminated with VOCs (vinyl chloride). According to a 2013 subsurface investigation completed by Hahn and Associates vinyl chloride was detected in groundwater at concentrations greater than MTCA adjacent to the west/southwest of the proposed excavations. Groundwater conditions within the proposed excavation are not known. Excavation will not occur within the capped area of the Northeast Parcel.
		Insertion/receiving pits	12	
Rail Line	Ingot Cap, North/North 2 Cap, and SPL Cap	Rail improvements	1 to 2	No, the excavations are designed to occur above the caps.
Area 300 (Storage)	Former PCS Site (southeast corner)	Pump vaults	15	No, soil and groundwater have been cleaned up at this site. The Port has notified Ecology of these activities (Ecology, 2014).
		Stone columns	70	



## 4. Potential Contaminated Media Impacts

The potential for contaminated media impacts summarized below will be managed via a contractor-created CMMP prepared in accordance with the guidance provided in this document, the project health and safety plan, and project-specific BMPs contained in the project SWPPP. The contractor CMMP will be reviewed for compliance with this guidance document.

Mobilization of contaminated soil within and beyond the boundaries of the site could result from construction activities via the following mechanisms.

- Erosion of contaminated soil by stormwater from uncontrolled/unprotected excavations
- Stormwater erosion or entrainment of contaminants and/or contaminated soil from unprotected stockpiles of excavated material
- Stormwater mobilization of contaminants through the site or off site from improperly controlled stormwater management and flow through excavations, stockpiled soil, and/or improper handling of dewatering water
- Vehicle traffic
- Improper dust control
- Slope destabilization resulting from construction activities, including improperly sloped/shored excavations, improper dewatering protocols, etc.

Contaminated groundwater may be encountered in the areas identified in Tables 1 and 2 (unloading area footings, pipeline footings, anchors, and inserting/receiving pits). Groundwater contamination may also be present in other areas at the site and may be encountered during excavations. Groundwater encountered throughout the site during construction should be assumed to be contaminated. Impacts associated with contaminated groundwater at the site include the following.

- Mobilization of contaminants by increasing stormwater recharge of the groundwater from impervious surface (concrete, asphalt, etc.) removal
- Creation of preferred pathways for contaminated groundwater when installing utilities, foundations, etc.
- Improper handling of dewatering processes and management of potentially contaminated groundwater

Activities in locations of known contamination will include the following general mitigation measures.

- Areas that are disturbed or removed as part of final construction will be covered with at least 1 foot of clean soil fill to prevent a future direct contact hazard. Where new pavement is placed, it will substitute for 1 foot of clean fill to prevent a future direction contact hazard.
- Soils that are excavated will either be direct loaded or stockpiled, sampled, and analyzed for PAHs and total petroleum hydrocarbons and other parameters based on the anticipated contaminants, and disposed of off site, or reused on site in accordance with applicable regulations and covenant restrictions.
- Groundwater that is pumped out of the excavations will be collected, stored, characterized, and treated in accordance with state and federal regulations prior to disposal.
- Stormwater generated in construction areas with known soil contamination will be collected, managed, treated, and disposed of in accordance with the Facility National Pollutant Discharge Elimination System (NPDES) Construction Stormwater Permit. The permit will require additional sampling of constituents known or found on the site.
- Standard dust control measures, such as spraying exposed soil surfaces with water, will be employed during construction to prevent the release of airborne particulates.
- Construction workers will employ appropriate health and safety measures during the handling of contaminated soils.

## 5. Contaminated Media Handling and Disposal

Soil and groundwater encountered in restricted areas of the site and any suspected contaminated soil or water will be handled/disposed of in accordance with procedures described in this document, including transport to an approved location and storage in a lined container or stockpile that is covered and

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protected from wind/stormwater erosion pending further analysis, reuse and/or off-site disposal. Handling and disposal procedures will include

- Protocols for tracking all excavated soil and/or groundwater from site of origin through disposal or reuse will be established and used throughout construction activities.
- Contaminated soil will be separated and stored on an impervious surface or in containers until it can be transported to an appropriate facility or reused as fill material.
- Soil will be reused on site if it meets the Port's fill acceptance criteria included as Table 3 below.

**Table 3. MTCA and Port of Vancouver Fill Acceptance Criteria<sup>2</sup>**

Analyte	Port Guidance Tier 1 <sup>(1,2)</sup> (mg/kg)	MTCA Method A Soil Cleanup Levels for Unrestricted Land Use (mg/kg)	MTCA Method B Soil Cleanup Levels for Unrestricted Land Use (mg/kg)	MTCA Method C Soil Cleanup Levels for Industrial Land Use (mg/kg)
EPA Priority Pollutant Metals				
Antimony	15.5	NE	32	1,400
Arsenic	10	20	24	8,750
Beryllium	150	NE	1,600	7,000
Cadmium	1	2	80	3,500
Chromium	9.5	19	240	1.10E+07
Copper	3,100	NE	3,200	1.40E+05
Lead	125	250	NE	NE
Mercury	1	2	NE	NE
Nickel	1,600	NE	1,600	70,000
Selenium	390	NE	400	17,500
Silver	390	NE	400	17,500
Thallium	NE	NE	0.8	35
Zinc	23,000	NE	24,000	1.10E+06
cPAHs				
Benzo (a) anthracene (TEF 0.1)	NE	MTCA Method A clean up level for the sum of all cPAHs	1.37	180
Benzo (a) pyrene (TEF 1.0)	0.05		0.137	18
Benzo (b) fluoranthene (TEF 0.1)	NE		1.37	180
Benzo (k) fluoranthene (TEF 0.1)	NE		13.7	1,800
Chrysene (TEF 0.01)	NE		137	18,000
Dibenz (a,h) anthracene (TEF 0.1)	NE		0.137	18
Indeno (1,2,3-cd) pyrene (TEF 0.1)	NE		137	180
Total TEQ cPAHs	--		0.1	--

<sup>2</sup> For the purposes of this document, the contaminants listed in this table reflect only potential contaminants of concern at the project site. See the Port's 2014 Fill Acceptance Criteria Document included as Appendix B for additional information.



Analyte	Port Guidance Tier 1 <sup>(1,2)</sup> (mg/kg)	MTCA Method A Soil Cleanup Levels for Unrestricted Land Use (mg/kg)	MTCA Method B Soil Cleanup Levels for Unrestricted Land Use (mg/kg)	MTCA Method C Soil Cleanup Levels for Industrial Land Use (mg/kg)
Chlorinated VOCs				
Trichloroethylene	0.015	0.03	12	2.85E+03
Vinyl Chloride	NE	NE	2,400	1.05E+04
PCBs				
PCB Sum <sup>(1)</sup>	0.5	1	NE	NE
Petroleum Hydrocarbons				
GRO without Benzene <sup>(1)</sup>	50	100	NE	NE
Other GRO <sup>(1)</sup>	15	30	NE	NE
DRO	1,000	2,000	NE	NE
Heavy Oil	1,000	2,000	NE	NE

Notes:

<sup>1</sup> Tier 1 Port Guidance Levels are generally one-half of the MTCA Method A concentrations

<sup>2</sup> If concentrations are higher than Tier 1, the approval to replace on site is subject to more stringent analysis by the Port's Environmental Department prior to acceptance

GRO = Gasoline Range Organics

DRO = Diesel Range Organics

cPAHS = carcinogenic polynuclear aromatic hydrocarbons

NE = not established

TEF = toxic equivalency factor

TEQ = toxic equivalent

Soil analysis will be conducted by an accredited analytical laboratory for the following COCs and laboratory methods. COCs for known areas of contamination are identified in Table 4.

- PCBs using EPA Method 8082
- PAHs using EPA Method 8270-SIM
- VOCs (including TCE and vinyl chloride) using EPA Method 8260B
- Priority Pollutant 13 Metals using EPA Methods 6010C/200.8/7471
- Cyanide using EPA Method 9016
- Fluoride EPA Method 9214
- Petroleum hydrocarbons using NWTPH-HCID



Groundwater and/or dewatering water encountered at the site from the areas identified in Tables 1 and 2 and/or groundwater suspected of contamination will be analyzed by an accredited analytical laboratory<sup>3</sup> for the COCs by the methods indicate below. COCs for known areas are identified in Table 4.<sup>4</sup>

- VOCs (including TCE and vinyl chloride) using EPA Method 8260B
- PAHs using EPA Method 8270-SIM
- Fluoride EPA Method 9214

**Table 4. Soil and Groundwater Analysis Requirements for Restricted Areas**

Restricted Area (see Fig 2)	PAHs	VOCs	Metals	PCBs	Cyanide	Fluoride	Petroleum Hydrocarbons	PAHs	VOCs	Metals	PCBs	Cyanide	Fluoride <sup>5</sup>	Petroleum Hydrocarbons
	Soil							Groundwater						
Vanexco Cap				X			X				X		X	
Spent Pot Liner Cap					X	X							X	
Ingot Cap				X							X		X	
North/North 2 Landfill	X	X	X	X	X	X			X		X		X	
East Landfill	X	X	X	X	X	X	X	X	X		X		X	

All contaminated media encountered at the site, whether identified prior to or during construction, will be handled in accordance with the following BMPs. All hazardous materials removed from the site will be disposed in a manner that meets all local, state, and federal regulations.

- Contaminated soil stored on site will be covered to prevent contact with rain/stormwater.
- Stockpiled contaminated soil will be isolated (temporary fencing, roping off, signs etc.) from site workers and activities and clearly designated as accessible only as authorized by persons with hazardous waste operations and emergency response (HAZWOPER) training.
- Contaminated groundwater from dewatering excavations will be collected, stored, and characterized for appropriate disposal. Analytical results will be used to determine the appropriate disposal facility to which it can be transported and disposed.
- Infiltration of stormwater will be avoided in the identified capped areas to the maximum extent possible; potentially contaminated groundwater collected during dewatering will not be disposed by on-site infiltration unless the analytical data show compliance with MTCA groundwater quality criteria.
- All contaminated media excavation, transport, and management will be conducted by workers trained in 40-hour HAZWOPER and in the proper use of personal protection equipment (PPE) and decontamination procedures. Hazardous materials handling training is discussed in more detail in the health and safety plan.

<sup>3</sup> Test parameters for groundwater dewatering water and construction stormwater must use EPA Part 136C test methodology. Or go through alternative procedure to approve the tests with EPA.

<sup>4</sup> The groundwater/dewatering water will be tested initially for all parameters (VOCs, PAHs, fluoride, PCBs, metals, cyanide, and petroleum hydrocarbons). If the additional COCs are not detected, ongoing testing will occur for the COCs specific to the work area, as well as what tests are required for disposal.

<sup>5</sup> Included for all sites due to a site-wide restrictive covenant for fluoride in groundwater.



## 5.1 Soil Excavation

- Soil excavated from areas above existing caps will be stockpiled separately from materials excavated from areas beneath caps and can be reused as on-site backfill.
- Excavation of soils in areas of concern at depths known or suspected to have contaminated soil will be excavated and placed directly into a truck to be transported to the contaminated soil management area.
- Stockpile areas will be lined with HDPE or heavy-duty plastic to prevent stormwater infiltration into existing soils.
- Stockpile areas will be bermed to prevent stormwater flow into the stockpile and covered to prevent rain from infiltrating stockpiled soils.
- Stormwater runoff from the covered piles will be routed to a collection sump and transferred to a tank for storage, characterization, and disposal.
- Stockpiled soil will be sampled and submitted to a laboratory for analysis of chemicals of concern in accordance with their origin. Additional analyses, such as toxicity characteristic leaching procedure, may be required.
- Soil with concentrations greater than Port criteria will be transported to an off-site landfill as appropriate based on the contaminants present, their concentrations, and waste disposal profile. Appropriate disposal facilities include, but are not limited to, the Waste Management Hillsboro Landfill in Hillsboro, Oregon; Waste Connection Wasco Landfill in The Dalles, Oregon Cowlitz County Landfill; and Chemical Waste Management in Arlington, Oregon.
- Contaminated soils will be transported by rail or truck to the landfill facility in accordance with Washington’s waste transport regulations (Washington Administrative Code 173-303-250).
- Waste disposal manifests and transport records will be maintained and submitted to the project engineer and the Port.
- If the soil meets the Port’s fill acceptance criteria, it can be reused on site as backfill.

## 5.2 Groundwater<sup>6</sup>

Groundwater encountered and removed from excavations during construction activities in areas of known contamination will be handled as follows.

- All groundwater removed from a contaminated area will be captured and transferred to temporary holding tanks for characterization and disposal.
- If the water meets the City’s disposal criteria, it will be treated on site and disposed of via the City’s sanitary sewer system; or if the water does not exceed state water quality levels, it will be managed in accordance with the Facility NPDES Construction Stormwater Permit requirements. If the dewatering water exceeds the City or state criteria, it will be removed by a licensed commercial waste disposal facility for off-site treatment and disposal

## 5.3 Unanticipated Discoveries

Soil, groundwater, and/or other materials in “unrestricted” areas that exhibit the following characteristics will be designated as suspected of contaminated media.

- Visible staining or unusual color
- Presence of black granular material
- Unusual odor
- Presence of debris
- Presence of visible sheen

The following actions will be taken if suspected contaminated media are encountered in areas not previously identified as restricted or contaminated.

- Work will be stopped in the suspect area.
- The Port, Vancouver Energy, and Ecology will be notified immediately.
- The nature and extent of the contaminated media will be evaluated.

<sup>6</sup> Note: Groundwater is expected to be encountered in only one construction area: the Northeast Parcel. See Table 2 for more information.

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- Handling, characterization, and appropriate disposal or reuse will be conducted in accordance with the procedures described in this CMMP.

## 5.4 Decontamination Procedures

Decontamination procedures will be required for all personnel and equipment working with and/or contacting potentially contaminated media. Decontamination stations will be established and used as needed in the known areas of contaminated media in accordance with work activities. The decontamination areas will be located adjacent to contaminated media work areas and will include

- Restricted access, limited to only people and equipment potentially contacting contaminated media.
- Designated decontamination zones with soap, water, and brushes for PPE and hand-operated tools and large equipment cleaning, along with a means to contain wash water.
- Waste receptacles for used disposable PPE, such as gloves, booties, protective overalls, etc.
- Decontamination pads constructed of concrete, wood, or plastic sheeting to prevent wash water from infiltrating into the ground.
- Wash water will be captured and transferred<sup>7</sup> to temporary holding tanks for characterization and disposal.
- Each decontamination area will have a designated exit to “clean” zones.
- Water or steam for cleaning heavy equipment tires and body, soap and brushes and a means for capturing the water generated.
- Protocols and tracking methods for decontamination area use and disposal of generated waste and used water.

The contractor will design a decontamination plan that will be submitted for approval to the project engineer. The plan will be set up before any personnel or equipment may enter the areas of known contamination. The plan will delineate the contaminated areas, exclusion zone, contamination reduction zone, safe zone, and decon area entrance/exit.

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<sup>7</sup> Decontamination water can be collected in a variety of ways (i.e., a lined decontamination pad) depending on the site and the equipment being used. The decontamination water will be piped to a holding tank prior to testing/disposal.

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## 7. List of Acronyms and Abbreviations

bbl: barrel and barrels

bgs: belowground surface

BMPs: best management practices

CFR: Code of Federal Regulations

City: City of Vancouver

CMMP: contaminated media management plan

COCs: contaminants of concern

DRO: diesel range organics

Ecology: Washington State Department of Ecology

EFSEC: Energy Facility Site Evaluation Council

EPA: U.S. Environmental Protection Agency

Facility: Vancouver Energy

GRO: gasoline range organics

HAZWOPER: hazardous waste operations and emergency response

HDPE: high-density polyethylene

MTCA: Model Toxics Control Act

NE: not established

NPDES: National Pollutant Discharge Elimination System

PAHs: polynuclear aromatic hydrocarbons

PCBs: polychlorinated biphenyls

PCS: Pacific Coast Shredding

PPE: personal protection equipment

ppm: parts per million

SPCCP: spill prevention, control, and countermeasures plan

SWPPP: stormwater pollution prevention plan

SPL: spent pot liner

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TCE: trichloroethylene

TEF: toxic equivalency factor

TEQ: toxic equivalent

VOCs: volatile organic compounds

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