THIRD PERIODIC REVIEW REPORT
FINAL

FORT VANCOUVER PLYWOOD
Facility Site ID#: 1029
Cleanup Site ID#: 3057

West 8th Street
Vancouver, WA 98660

Southwest Regional Office
TOXICS CLEANUP PROGRAM

December 2020

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1.0 INTRODUCTION

This document is a review by the Washington State Department of Ecology (Ecology) of post-cleanup conditions and monitoring data to ensure that human health and the environment are being protected at the Fort Vancouver Plywood site (Site). Cleanup at this Site was implemented under the Model Toxics Control Act (MTCA) regulations, Chapter 173-340 Washington Administrative Code (WAC). The last periodic review was conducted in December 2014. This periodic review covers the period from January 2015 through January 2020.

Cleanup activities at this Site were completed under two Agreed Orders, Number DE 99TC-S108 and 99TCPSR-93 (AO). The cleanup actions resulted in concentrations of metals, petroleum hydrocarbon compounds, and volatile organic compounds (VOCs) in soil that exceeds MTCA Method A/C industrial soil cleanup levels. The MTCA Method A/C cleanup levels for soil are established under WAC 173-340-740 and 745. The groundwater cleanup levels were established under WAC 173-340-730 and 720(2). WAC 173-340-420 (2) requires that Ecology conduct a periodic review of a site every five years under the following conditions:

(a) Whenever the department conducts a cleanup action.
(b) Whenever the department approves a cleanup action under an order, agreed order or consent decree.
(c) Or, as resources permit, whenever the department issues a no further action (NFA) opinion.
(d) And one of the following conditions exists:
    1. Institutional controls or financial assurance are required as part of the cleanup.
    2. Where the cleanup level is based on a practical quantitation limit.
    3. Where, in the department's judgment, modifications to the default equations or assumptions using site-specific information would significantly increase the concentration of hazardous substances remaining at the site after cleanup or the uncertainty in the ecological evaluation or the reliability of the cleanup action is such that additional review is necessary to assure long-term protection of human health and the environment.

When evaluating whether human health and the environment are being protected, the factors the department shall consider include [WAC 173-340-420(4)]:

(a) The effectiveness of ongoing or completed cleanup actions, including the effectiveness of engineered controls and institutional controls in limiting exposure to hazardous substances remaining at the Site.
(b) New scientific information for individual hazardous substances of mixtures present at the Site.
(c) New applicable state and federal laws for hazardous substances present at the Site.
(d) Current and projected Site use.
(e) Availability and practicability of higher preference technologies.
(f) The availability of improved analytical techniques to evaluate compliance with cleanup levels.

The department shall publish a notice of all periodic reviews in the Site Register and provide an opportunity for public comment.

2.0 SUMMARY OF SITE CONDITIONS

2.1 Site History

The former Fort Vancouver Plywood (FVP) Site is located at 901 Port Way, at the end of 8th Street and Port Way, in the industrial-zoned area along the bank of the Columbia River. The Port of Vancouver (Port) owned the property since 1912. The adjacent properties include Great Western Malting Company to the northwest, the former Brazier Forest Industries site to the northeast, Burlington Northern Railroad to the northeast and southwest, and Columbia River to the southwest. A Site vicinity map and a Site Plan are available as Appendix 6.1 and Appendix 6.2, respectively.

The Site consisted of approximately 15.8 acres property was a former plywood mill. The Site buildings included a wood processing and plywood manufacturing plant, chemical storage structures, a boiler house, a maintenance shop, a fuel storage area, a log storage area, a warehouse/retail plywood store, and an office building. The Site has always been used for industrial purposes for over 100 years. Currently the property is being used for industrial purposes and it will continue to be used for industrial activities in the future. Initially, wood cutting for a nearby ship building facility was done on the Site. Since 1930, the Site has been used for the manufacture of plywood. The FVP operated a plywood mill, producing plywood from raw logs or green veneer at the Site from at least 1955. All the plywood mill operations were completely stopped in 1997. All structures and equipment (except the office building) were demolished and removed in summer of 1997 to ensure thorough investigation and cleanup. The Port demolished the remaining office building in summer of 2013.

The Site was divided into two sections or “Cells” for the purposes of Site investigation and cleanup. Cell 1, the eastern half of the Site, included the area once occupied by a log storage area, a warehouse/retail plywood store, and an office building; the Cell 2 was comprised of the western half of the Site, which included the former plywood mill and associated industrial buildings. Appendix 6.2, the Site Plan shows the Cells boundaries. Cell 1 and Cell 2 were cleaned-up by the Port under the Agreed Order (AO) Numbers DE 99TC-S108 and 99TCPSR-93 respectively.

Hydrogeologic conditions in the vicinity of the Site consists of an upper silty sand zone which typically contains the shallow groundwater, an intervening clay and silt zone, and a deeper water-bearing zone composed of gravelly sand. The clay and silt zone form a locally confining layer (approximately 30 to 40 feet thick) that is laterally continuous across the Site, except directly adjacent to the Columbia River. The confining layer is also encountered at two adjacent properties, Great Western Malting and Brazier.

2.2 Cleanup Levels

Given the industrial zoning of the area and the proposed industrial future use of the Site, it was decided that MTCA Method C industrial soil cleanup levels were appropriate for the Site. Therefore, Method C industrial soil cleanup levels were established under WAC 173-340-745.

When Method C soil cleanup levels were not available for certain chemicals (such as lead), MTCA Method A industrial soil cleanup levels were used.

As discussed in section 2.1, two water-bearing zones (separated by approximately 30 feet thick clay and silt aquitard) were identified beneath the Site. The shallow groundwater discharges into the Columbia River and does not appear to be a potential future source of potable groundwater due to low yield. Therefore, MTCA Method C cleanup levels based on the protection of surface water were established under WAC 173-340-730, which is risk-based cleanup levels developed based on the protection for human health and based on the consumption of fish and shellfish. In addition, Ecology's acute Surface Water Quality Standards, WAC 173-201A, was also considered as a part of applicable or relevant and appropriate requirements (ARARs) in establishing the groundwater cleanup levels based on the protection of surface water.

Since the deeper saturated zone (Unconsolidated Aquifer) is used as a source of potable water supply, MTCA Method B residential cleanup levels were established under WAC 173-340-720. When Method B groundwater cleanup levels were not available for certain chemicals, MTCA Method A residential groundwater cleanup levels were used. Appendix 6.3 includes a table presenting the groundwater cleanup levels.

2.3 Remedial Investigations and Feasibility Study

2.3.1 Cell 1 Soils

The remedial investigation (RI) included a total of three phases of investigations. Phase 1 and Phase 2 consisted of focused sampling at specific areas of concern. This included the excavation and sampling of 47 test pits, drilling and sampling of 11 borings, and installation and sampling of nine shallow zone groundwater monitoring wells and one deeper monitoring well in the Unconsolidated aquifer. Based on the preliminary results of Phase I and Phase 2 investigations, Phase 3 investigation was designed to delineate other areas of Cell 1 where debris might have been present. In addition, selected soil samples were submitted for chemical analysis.

In four areas of the Site, chemicals of concerns (COCs) were detected in soil at concentrations exceeding MTCA Method C cleanup levels. These included:

Test Pit 15 Area: Lead was detected at a concentration of 3,070 milligrams per kilogram (mg/Kg) exceeding the MTCA Method A industrial soil cleanup level of 1,000 mg/Kg. The gasoline-and-diesel-range petroleum hydrocarbons (TPH-G and TPH-D) concentrations of 7,900 mg/Kg and 2.200 mg/Kg were also exceeded the current MTCA Method A cleanup levels of 100 mg/Kg and 2,000 mg/Kg respectively. Though elevated level of 1,2,4 trimethylbenzene (440 mg/Kg) was detected, no MTCA cleanup level is available for this compound.

Test Pit 21 Area: Carcinogenic polycyclic aromatic hydrocarbons (cPAHs) and lead were detected at concentrations of 37,300 micrograms per kilogram (µg/Kg) and 2,810 mg/Kg, which exceeded their MTCA Method C soil cleanup level of 18,000 µg/Kg, and MTCA Method A industrial soil cleanup level of 1,000 mg/Kg respectively.

Columbia River Bank Area: cPAHs were detected at concentrations of 42,600 µg/Kg, exceeding MTCA Method C industrial soil cleanup level of 18,000 µg/Kg. The Synthetic Precipitation Leaching Procedure (SPLP) results of soil samples collected along the bank of the Columbia River did display leachable concentration of arsenic exceeding MTCA Method C surface water cleanup level, indicating the potential for impact to surface water.

East-Central Debris Area: The results of a soil sample collected at the test pit TP-7 showed a lead concentration of 7,560 mg/Kg that exceeded the MTCA Method A industrial soil cleanup level of 1,000 mg/Kg.

The soil sampling locations, maximum detected concentrations and areas of contaminants of concern (COCs) exceedances are presented in Appendix 6.4.

2.3.2 Cell 2 Soils

Between 1991 and 1993, a total of three rounds of investigations were conducted to determine the extent of soil and groundwater contamination at the Site. In 1996, based on the available information Kennedy/Jenks Consultants conducted a Site Evaluation and conducted the final RI work between September 1997 and May 1999. Soil sampling locations, maximum detected contaminant concentrations and areas of COCs exceedances are presented in Appendix 6.5.

Based on the results of Site investigations, four areas were identified within which the soil concentrations exceeded MTCA Method C industrial soil cleanup levels. These areas included:

Columbia Riverbank/Buried Debris Areas: Lead and cPAHs concentrations exceeded MTCA Method C industrial soil cleanup levels along the southern portion of the Columbia Riverbank. The maximum detected lead and cPAHs concentrations were 111,500 µg/Kg and 7,660 mg/Kg respectively. These concentrations exceeded their MTCA Method C industrial cleanup level of 18,000 µg/Kg and Method A cleanup level of 1,000 mg/Kg respectively.

Pentachlorophenol Dip Tank Area: Elevated lead concentrations were detected in shallow (upper 5 feet) soil sampling in the vicinity of the former pentachlorophenol (PCP) dip tank area. The maximum concentrations of 2,110 mg/Kg and 1,740 mg/Kg were detected from samples SP-8-3 and SP-8-5 collected at 3 and 5 feet below ground surface (bgs), respectively. Samples collected beneath these samples contained lead at concentrations below 20 mg/Kg. The shallow lead concentrations exceeded the MTCA Method A cleanup level of 1,000 mg/Kg. The limited horizontal and vertical extent of lead-impacted soil indicated a localized exceedance with minimal vertical migration.

West Rail Spur Alignment Area: A shallow soil sample (upper 6 inches) collected at RRT-3 location showed the total cPAHs concentrations of 281,000 µg/Kg, which exceeded its MTCA Method C industrial soil cleanup level of 18,000 µg/Kg. Concentrations of total cPAHs in deeper samples (collected at 5 feet bgs) and surrounding samples in the area were all either below MTCA Method C industrial cleanup levels or below the laboratory detection limits, indicating minimal vertical migration of cPAHs.

East Rail Spur Alignment Area: Soils containing concentrations of total cPAHs and lead in excess of Method A/C industrial soil cleanup levels were detected along the alignment of the

former east rail spur. The results of shallow soil samples (3 to 6 feet bgs) collected at test pits TP-82, TP-84, and TP-117 showed a maximum total cPAHs concentrations of 21,350 µg/Kg, which exceeded its MTCA Method C cleanup level of 18,000 µg/Kg. The deeper soil sample results were less than 1,000 µg/Kg. Lead concentrations were detected in shallow soil samples collected (from 0 to 5 feet bgs) from test pits TP-82, TP-83, TP-84, and TP-117 at concentrations above MTCA Method A cleanup level of 1,000 mg/Kg. The lead concentrations in deeper soil samples were detected at concentrations ranging from 3 to 69 mg/Kg, below MTCA industrial cleanup levels.

2.3.3 Site Groundwater Investigations

2.3.3.1 Shallow Zone Groundwater

Since the shallow groundwater discharges into the Columbia River, the groundwater cleanup levels for the shallow zone are based on protection of surface water i.e., MTCA Method B surface water standards (SWQS) or National Toxics Rule (NTR) values. For shallow zone groundwater monitoring, wells C2MW-9, C2MW-10, and C2MW-1, installed adjacent to the bank of the Columbia River, are used as conditional point of compliance.

Columbia Riverbank Wells: Only bis(2-ehtyl hexyl)phthalate (BEP) was detected in one of the conditional point of compliance wells (C2MW-11) at concentrations ranging from 3.9 µg/L to 6.7 µg/L during November 1998 and March 1999 sampling events. These concentrations exceeded the Method B surface water cleanup level of 3.56 µg/L, the NTR standard of 1.8 µg/L, and the Method B residential groundwater cleanup level of 6.25 µg/L. All other BEP concentrations were below cleanup levels.

In general, total metal concentrations in shallow zone point-of-compliance wells were higher than dissolved metal concentrations. Total metal concentrations exceeded their respective cleanup levels for arsenic, beryllium, chromium(VI), copper, lead, and thallium. With the exception of arsenic, dissolved metals concentrations were below the MTCA Method B surface water and groundwater cleanup levels, Ecology's acute SWQS, and the corresponding NTR values. However, the detected dissolved metal concentrations were within the naturally occurring background range for these metals in groundwater.

2.3.3.2 Unconsolidated Aquifer

The deeper Unconsolidated Aquifer (UA) groundwater is used as a potable water supply source. Therefore, the MTCA Method A/B residential groundwater cleanup levels were established for this zone. Monitoring wells C2MW-12B and C2MW-13B were used for monitoring the UA. Low levels of organic compounds were detected in groundwater samples collected from UA wells. Vinyl chloride was detected at 6.8 µg/L and 7.8 µg/L during November 1998 and March 1999 sampling events respectively. These concentrations exceeded the Method B groundwater level of 2 µg/L, based on the practical quantitation limit (PQL). During March 1999 sampling event, BEP was detected at 8.1 µg/L in monitoring well C2MW-13B, which exceeded its MTCA Method B residential groundwater cleanup level of 6.25 µg/L. The source of vinyl chloride and BEP at the Site has not been identified.

Both total and dissolved arsenic concentrations exceeded the MTCA Method B residential groundwater cleanup levels. Dissolved thallium concentration of 1.6 µg/L also exceeded its cleanup level of 1.12 µg/L in monitoring well C2MW-13B. No other total or dissolved metal concentrations exceeded Method B residential groundwater cleanup levels. All the dissolved metal concentrations were generally within the naturally occurring background range for these metals in groundwater. Monitoring well locations and water level contour map is included in Appendix 6.6.

2.3.4 Feasibility Study

Following the remedial investigation, a conceptual Site model was developed and a feasibility study was conducted. Initially a number of technologies were considered for developing remedial alternatives. After the evaluation of remedial technologies, three remedial alternatives were developed to address the COCs in soil and groundwater at the Site. The three alternatives developed for the Property are:

Alternative 1: Excavation and Offsite Disposal of Contaminated Soils/Institutional Controls/Groundwater Monitoring.

Alternative 2: Excavation and Removal of Contaminated Soils/Asphalt Cap/Institutional Controls/Groundwater Monitoring.

Alternative 3: Excavation/Thermal Treatment of Petroleum-Affected Soils/Solidification of Beach Area Soils.

After a detailed evaluation of the above alternatives, alternative 2 was selected as the appropriate remedy for the Site.

2.4 Remedial Actions

2.4.1 Cell 1: Excavation of Contaminated Soils

The remedial investigation indicated that lead, and cPAHs were present in Site soils at concentrations exceeding the MTCA Method A or Method C industrial soil cleanup levels. These COCs were associated with anthropogenic debris (i.e., concrete and brick rubble, wood, industrial trash, and boiler ash) buried at three distinct locations, Area A, B, and C on the Site. The maximum contaminant concentrations detected in each area, soil cleanup levels, and remedial excavation areas are presented in Appendix 6.7. After the excavation of contaminated soils, the Cell 1 area was backfilled with clean imported soil and capped with low permeability composite asphalt cap.

2.4.1.1 Area A Soil Excavation

Lead and cPAHs concentrations in soil exceeded the MTCA Method A/C industrial soil cleanup levels. The highest detected lead and cPAHs concentrations were 3,070 mg/Kg and 37,300 µg/Kg respectively. These concentrations exceeded their respective MTCA Method A/C industrial soil cleanup levels of 1,000 mg/Kg and 18,000 µg/Kg respectively. In November 1998, approximately 4,200 cubic yards (5,750 tons) of contaminated soils were excavated and

transported to Chemical Waste Management's, Inc. landfill located in Hillsboro, Oregon for disposal.

During the soil excavation, a 6,000-gallon single-wall steel underground storage tank (UST) was encountered at the east boundary of Area A. The UST contained approximately 6,000 gallons of water with oil residue. The water was removed from the UST using vacuum truck and transported to Harbor Oil, Inc. in Portland, Oregon for disposal. The UST was removed and appeared to be in good condition with no readily visible holes and corrosion. However, approximately 200 cubic yards (280 tons) of petroleum contaminated soils that was impacted by the historical spills during the filling operations, were excavated and transported to the landfill for disposal. The results of a total of thirty-eight final performance soil samples were all either below cleanup levels or below the laboratory detection limits.

2.4.1.2 Area B Soil Excavation

The soil sampling results showed that the lead concentrations exceeded its MTCA Method A industrial soil cleanup level of 1,000 mg/Kg. The highest lead concentration detected in Area B was 7,560 mg/Kg. In addition, based on the leaching tests, some soil designated as dangerous waste. Approximately 650 tons of soils exhibiting dangerous waste characteristics were excavated and transported to Waste Management's hazardous waste (Subtitle C) facility in Arlington, Oregon for chemical stabilization and disposal. In Area B, approximately 7,400 cubic yards (10,400 tons) of non-dangerous waste soils were excavated and transported to landfill for disposal. A total of thirty-three final performance soil samples were collected and all the results were either below cleanup levels or below the laboratory detection limits.

2.4.1.3 Area C Soil Excavation

The maximum detected cPAHs concentration of 42,600 µg/Kg exceeded the MTCA Method C industrial soil cleanup level of 18,000 µg/Kg. In addition, the extraction test results showed that the soluble concentrations of arsenic, barium, chromium, and lead and/or possibility of erosion that could pose a threat to the Columbia River. The remedial activities at Area C included:

- Removal of approximately 4,000 cubic yards of wood waste material (derived from former log sorting activities) that was stockpiled within 50-feet of the Columbia Riverbank with low levels of cPAHs and total petroleum hydrocarbons (TPH).
- Excavation of approximately 12,350 cubic yards (approximately 17,300 tons) of contaminated soils and wood waste and transported to Hillsboro landfill for disposal.

None of the final performance soil samples contained PAHs or metals at concentrations exceeding the MTCA Method A/C industrial cleanup levels.

2.4.2 Cell 2: Excavation of Contaminated Soils

The Site investigation results revealed that concentrations of lead, cPAHs, and diesel-range total petroleum hydrocarbons (TPH-D) exceeded the MTCA Method A/C industrial soil cleanup levels. The remedial activities at the Site consisted of excavation and disposal of the impacted

soils in a permitted landfill. Based on the results of soil samples, a total of six areas (Area A through Area F) were identified with COC concentrations exceeding the MTCA Method A/C industrial soil cleanup levels. In Area F buried debris that may potentially leach COCs that could be discharged to the Columbia River were also removed. Excavations included the removal of all soils exceeding MTCA Method A/C industrial cleanup levels. Furthermore, excavation in Area F included the removal and disposal of the buried debris within 50 feet of the Columbia River bank that contained COCs and was subject to leaching and erosion. The maximum contaminant concentrations detected in each area and their cleanup levels, maximum detected contaminant concentrations, and remedial excavation areas are presented in Appendix 6.8. After the excavation of contaminated soils, the Cell 2 area was backfilled with clean imported soil and capped with a low permeability composite asphalt cap. In addition to the contaminated soils excavation, a 320-foot rip-rap wall was constructed along the Columbia River bank to maintain the integrity of the riverbank.

2.4.2.1 Area A and Area C Soil Excavation

In Area A and C, lead and/or cPAHs concentrations exceeded MTCA Method A/C industrial soil cleanup levels. The maximum lead and cPAHs concentrations of 4,220 mg/Kg and 21,350 µg/Kg were detected in Area A; whereas maximum concentration of 281,800 µg/Kg was detected in Area C. All of these concentrations were exceeded their MTCA Method A/C industrial soil cleanup levels of 1,000 mg/Kg (lead) and 18,000 µg/Kg (cPAHs) respectively. Approximately, 1,500 and 250 cubic yards of contaminated soils were excavated from Area A and Area C respectively. The excavated soil was disposed offsite in a licensed landfill. Results of confirmation soil samples were all below MTCA Method A/C industrial cleanup levels.

2.4.2.2 Area B, Area E, and Area F Soil Excavation

In Area B, E, and F, lead concentrations exceeded MTCA Method A industrial soil cleanup level of 1,000 mg/Kg. The maximum lead concentrations of 2,110 mg/Kg, 7,660 mg/Kg, and 1,760 mg/Kg were detected in Area B, E, and F respectively. In Area B a small quantity of dangerous waste was also discovered. First the dangerous waste was excavated and directly transported to a licensed disposal facility for treatment and disposal. Approximately 250, 2,000, and 10, 750 cubic yards of contaminated soils were excavated from Area B, E, and F respectively. All the confirmation soil sample results were below MTCA Method A industrial cleanup levels.

2.4.2.3 Area D Soil Excavation

In Area D, the diesel-range petroleum hydrocarbons (TPH-D) were detected at 14,000 mg/Kg exceeding its MTCA Method A industrial soil cleanup of 2,000 mg/Kg. Approximately 250 cubic yards of contaminated soils were excavated to remove all the contaminated soils above 2,000 mg/Kg. The contaminated soil was transported and disposed of at the licensed disposal facility.

2.4.3 Conformational Groundwater Monitoring

There were a total of 24 groundwater monitoring wells on Cells 1 and 2. The two Agreed Orders required the collection of groundwater samples from ten of the monitoring wells and depth to

groundwater measurements at all 24 wells on a tri-annual basis. Based on these requirements, the groundwater monitoring was conducted tri-annually (first, second, and fourth quarters) at each Cell from 2001 through the first quarter of 2011.

In April 2011, the Port requested to reduce the monitoring frequency from tri-annual to semiannual (first and third quarters), discontinue the analysis of volatile organic compounds (VOCs) in two wells, and remove eight wells (C1-MW-6, C1-MW-6B, C2-MW-4, C2-MW-5, C2-MW-7, C2-MW-8, C2-MW-13B, and C2-MW-16) from the groundwater monitoring plan. Ecology evaluated the Port's request and approved it in May 2011. In 2012 and 2013, five of the above wells (C1-MW-6, C1-MW-6B, C2-MW-5, C2-MW-8, and C2-MW-13B) were decommissioned with Ecology's approval; however, three wells (C2-MW-4, C2-MW-7, and C2-MW-16) were inadvertently paved over and were not able to be located.

As a result of West Vancouver Freight Access Project, wells C1-MW-3 and, C1-MW-5 were re-installed in the same approximate configuration and depths with the same well numbers. However, C1-MW-8, C2-MW-10, and C2-MW-11 replacement wells were labeled as C1-MW-8(R), C2-MW-10(R2), and C2-MW-11(R), respectively.

In June 2016, Ecology approved the decommissioning of 12 monitoring wells and the reduction of groundwater monitoring frequency form semi-annual to every 18 months. In November and December 2016, 8 monitoring wells (C1-MW-1, C1-MW-2,, C1-MW-3, C1-MW-5, C1-MW-8(R), C1-MW-9, C2-MW-6, and C2-MW-15) were decommissioned and 4 wells (C2-MW-1, C2-MW-4, C2-MW-7, and C2-MW-16) were inadvertently paved over and were not able to be located.

Currently seven monitoring wells (C1-MW-4, C1-MW-7, C2-MW-3, C2-MW-9, C2-MW-10 (R2), C2-MW-11(R), and C2-MW-12B) are being monitored on 18 months frequency. Since last five years (October 2014 through March 2019), seven groundwater monitoring events have been conducted at the Site. The groundwater samples were analyzed for VOCs, gasoline, diesel, and oil-range petroleum hydrocarbons (TPH-G, TPH-D, and TPH-O), benzene, toluene, ethylbenzene, and xylenes (BETX), and methyl tertiary butyl ether (MTBE). The vinyl chloride was detected consistently in monitoring wells C1-MW-4, C2-MW-9, C2-MW-11R, C2-MW-10, and C2-MW-11 with concentrations ranging from 0.16 micrograms per liter (µg/l) to 0.453 µg/l. Some of these vinyl chloride concentrations exceeded the MTCA Method A cleanup level of 0.2 µg/l. The TPH-O was also detected in well C2-MW-10(R) exceeding MTCA Method A cleanup level of 0.5 milligrams per liter (mg/l) and the concentrations ranged from 1.1 mg/l to 5.25 mg/l. However, results showed a decreasing trend in the vinyl chloride and TPH-O concentrations. None of the other contaminants were detected above the laboratory detection limits.

The latest groundwater monitoring was conducted on March 2019. The depth of groundwater measured during this sampling event in the Shallow Zone ranged from 12.88 feet (well C2-MW-3; groundwater elevation 19.55 feet) to 27.12 feet (C2-MW-10(R2); groundwater elevation 6.45 feet) below ground surface (bgs). The hydraulic gradient calculated at 0.02 foot/foot to the south-southwest consistent with previous sampling events. The groundwater monitoring well locations, sample results, groundwater elevation contours and the inferred direction of groundwater flow are available in Appendix 6.6.

2.5 Restrictive Covenant/Environmental Covenant

Following remedial actions, two separate Restrictive Covenants (RC, now referred to as an Environmental Covenant), for Cells 1 and 2 were recorded on 6/14/2000 and 4/21/2006 respectively. The Cell 1 Environmental Covenant (EC) was required because the Remedial Action resulted in residual concentrations of metals, petroleum hydrocarbon compounds, VOCs, concentrations exceeding MTCA Method A Residential Cleanup Levels for soils established under WAC 173-340-740. This RC was also required because a conditional point compliance has been established for shallow groundwater discharging from the Site to the Columbia River in accordance with WAC 173-340-720(6)(d).

2.5.1 Cell 1 Environmental Covenant

The Cell 1 EC imposes the following restrictions on the property:

Section 1:

a. The Property shall be used only for traditional industrial uses, as described in RCW 70.105D.020(23) and defined in and allowed under the City of Vancouver's zoning regulations codified in the City of Vancouver Municipal Code, Chapter 20 as of the date of this RC.

b. Shallow-zone groundwater from the property shall not be used e.g., domestic, agricultural, or any use as a potable supply source.

c. Any activity on the Property that results in the release or exposure to the environment of the contaminated soil that was contained as part of the Remedial Action, or creates a new exposure pathway, is prohibited. Some examples of activities that are prohibited in the capped areas include: drilling, digging, placement of any objects or use of any equipment which deforms or stresses the surface beyond its load bearing capability, piercing the surface with a rod, spike or similar item, bulldozing or earthwork.

Section 2: Any activity on the Property that may interfere with the integrity of the Remedial Action and continued protection of human health and the environment is prohibited.

Section 3: Any activity on the Property that may result in the release or exposure to the environment of a hazardous substance that remains on the Property as part of the Remedial Action, or create a new exposure pathway, is prohibited without prior written approval from Ecology.

Section 4: The owner of the property must give thirty (30) day advance written notice to Ecology of the Owner's intent to convey any interest in the Property. No conveyance of title, easement, lease, or other interest in the Property shall be consummated by the Owner without adequate and complete provision for continued monitoring, operation, and maintenance of the Remedial Action.

Section 5: The Owner must restrict leases to uses and activities consistent with the Covenant and notify all lessees of the restrictions on the use of the Property.

Section 6: The Owner must notify and obtain approval from Ecology prior to any use of the Property that is inconsistent with the terms of this EC. Ecology may approve any inconsistent use only after public notice and comment.

Section 7: The Owner shall allow authorized representatives of Ecology the right to enter the Property at reasonable times for the purpose of evaluating the Remedial Action; to take samples, to inspect remedial actions conducted at the property, to determine compliance with this Covenant, and to inspect records that are related to the Remedial Action.

Section 8: The Owner of the Property reserves the right under WAC 173-340-440 to record an instrument that provides that this EC shall no longer limit use of the Property or be of any further force or effect. However, such an instrument may be recorded only if Ecology, after public notice and opportunity for comment, concurs.

2.5.2 Cell 2 Environmental Covenant

The EC was required because the Remedial Action resulted in residual concentrations of petroleum hydrocarbons in soil exceeded the applicable MTCA Method A cleanup levels. In addition, concentrations of halogenated VOCs and metals were also exceeded MTCA Method A groundwater cleanup levels.

The Cell 2 EC imposes the following restrictions on the property:

Section 1:

a. The Property shall be used only for traditional industrial uses, as described in RCW 70.105D.020(23) and defined in and allowed under the City of Vancouver's zoning regulations codified in the City of Vancouver Municipal Code, Chapter 20 as of the date of this RC.

b. Groundwater contaminated with halogenated VOCs and metals remains beneath the property in the shallow-zone. No shallow-zone groundwater may be taken from the Property for domestic, agricultural, or any other use.

c. Soil contaminated with petroleum hydrocarbons, lead, and carcinogenic polycyclic aromatic hydrocarbons was removed from the Property during the Remedial Action but some contaminated soil remains at the property. To complete the Remedial Action, an asphalt cap was constructed over the entire Property to contain residual soil contamination. Any activity on the Property that may result in the release or exposure to the environment of the contaminated soil that was contained as part of the Remedial Action, or creates a new exposure pathway, is prohibited. Some examples of activities that are prohibited in the capped areas include: drilling, digging, placement of any objects or use of any equipment which deforms or

stresses the surface beyond its load bearing capability, piercing the surface with a rod, spike or similar item, bulldozing or earthwork.

Section 2: Any activity on the Property that may interfere with the integrity of the Remedial Action and continued protection of human health and the environment is prohibited.

Section 3: Any activity on the Property that may result in the release or exposure to the environment of a hazardous substance that remains on the Property as part of the Remedial Action, or create a new exposure pathway, is prohibited without prior written approval from Ecology.

Section 4: The owner of the property must give thirty (30) day advance written notice to Ecology of the Owner's intent to convey any interest in the Property. No conveyance of title, easement, lease, or other interest in the Property shall be consummated by the Owner without adequate and complete provision for continued monitoring, operation, and maintenance of the Remedial Action.

Section 5: The Owner must restrict leases to uses and activities consistent with the Covenant and notify all lessees of the restrictions on the use of the Property.

Section 6: The Owner must notify and obtain approval from Ecology prior to any use of the Property that is inconsistent with the terms of this EC. Ecology may approve any inconsistent use only after public notice and comment.

Section 7: The Owner shall allow authorized representatives of Ecology the right to enter the Property at reasonable times for the purpose of evaluating the Remedial Action; to take samples, to inspect remedial actions conducted at the property, to determine compliance with this Covenant, and to inspect records that are related to the Remedial Action.

Section 8: The Owner of the Property reserves the right under WAC 173-340-440 to record an instrument that provides that this EC shall no longer limit use of the Property or be of any further force or effect. However, such an instrument may be recorded only if Ecology, after public notice and opportunity for comment, concurs.

The ECs are available in Appendix 6.9.

3.0 PERIODIC REVIEW

3.1 Effectiveness of Completed Cleanup Actions

Based upon the Site visit conducted on February 24, 2020, the asphalt cap at the Site continues to eliminate direct exposure pathways (ingestion, contact) to contaminated soils. The asphalt cap is in satisfactory condition and no repair, maintenance or contingency actions are required at this time. A photo log is available in Appendix 6.10.

A total of approximately 26,000 cubic yards of contaminated soils were excavated as part of the remedial action on Cell 1 and Cell 2. However, some metals, VOCs, petroleum hydrocarbons, cPAHs contaminated soils were left in place on the property. These soils remain contained beneath a low permeability composite asphalt cap. Results of groundwater investigation and long term groundwater monitoring results showed that only sample with a vinyl chloride concentration exceeded the MTCA Method A cleanup level. Based on the Site investigation results, it was concluded that the chlorinated solvents present in the groundwater beneath the Site is from an off-site source. Currently semiannual groundwater monitoring is being conducted at the Site. Results of the latest semiannual groundwater monitoring showed that all the samples either contained contaminant concentrations below cleanup levels or below the laboratory detection limits except for vinyl chloride, whose concentration exceeded the MTCA Method A cleanup level one groundwater monitoring well. However, the results indicated that the concentration is decreasing from previous monitoring events.

Two separate ECs for Cell 1 and 2 were recorded for the Site and remain active. These ECs prohibit any use of the property that is inconsistent with the Covenants or that will allow the release of contaminants remaining in soil at the Site to the environment. Also the ECs restrict the shallow-zone groundwater use at the Property and use of deeper saturated zone groundwater is not subject to any restriction.

As a part of West Vancouver Freight Access (WVFA) project, the Port began the construction of a new rail trench passing through the cleanup area impacting portions of Cell 1 and Cell 2 caps. The new concrete rail trench construction was started in 2013 and was completed in April 2015. The construction of this project and impacts to Cell 1 and Cell 2 asphalt caps were approved by Ecology prior to the commencement of the construction. The new rail trench structure runs the entire length (east-west) of the former FVP Site along the river (approximately 1100 feet, Appendix 6.9). A retaining wall comprised of soldier and sheet pile was installed along the land side of the trench to a total depth averaging approximately 34 feet below ground surface. This project indirectly has created a barrier that likely prevents residual Site contamination in shallow soil and groundwater from migrating to the river.

3.2 New Scientific Information for Individual Hazardous Substances for Mixtures Present at the Site

There is no new relevant scientific information for hazardous substances remaining at the Site.

3.3 New Applicable State and Federal Laws for Hazardous Substances Present at the Site

MTCA Method A/C industrial soil cleanup levels for COCs at the Site have not changed since the Remedial Actions were conducted at the Site.

3.4 Current and Projected Site Use

The area is zoned as industrial and Cell 1 and portions of Cell 2 of the property is occupied by a metal recycling facility and the remaining Cell 2 property is occupied by the malting facility. The whole property is covered with a low permeability composite asphalt cap and this use is not likely to have a negative impact on the risk posed by hazardous substances contained at the Site. There are no projected changes in the property use.

3.5 Availability and Practicability of Higher Preference Technologies

The remedy implemented included the excavation and disposal of majority of contaminated soils and containment of remaining soils/hazardous substances with long term groundwater monitoring. The implemented remedy continues to be protective of human health and the environment. While higher preference cleanup technologies may be available, they are still not practicable at this Site.

3.6 Availability of Improved Analytical Techniques to Evaluate Compliance with Cleanup Levels

The analytical methods used at the time of the remedial actions were capable of detection below Site cleanup levels. The presence of improved analytical techniques would not affect decisions or recommendations made for the Site.

4.0 CONCLUSIONS

- The cleanup actions completed at the Site appear to be protective of human health and the environment.
- Soil cleanup levels have not been met at the Site; however, under WAC 173-340-740(6)(d), the cleanup action could comply with cleanup standards if the long-term integrity of the containment system was ensured and the requirements for containment technologies in WAC 173-340-360(8) have been met.
- The results of groundwater investigation and post cleanup confirmation groundwater monitoring are all below the laboratory detection limits except for vinyl chloride, whose concentration exceeded in one well its MTCA Method A cleanup level. However, the post cleanup concentrations are decreasing and there is a restriction on the groundwater use at the Site.
- Both Cells 1 and 2 ECs for the property are in place and will be effective in protecting the public health from exposure to hazardous substances and protecting the integrity of the cleanup action.

Based on this review, Ecology has determined that the remedial actions conducted at the Site continue to be protective of human health and the environment. The requirements of both ECs are being satisfactorily followed and no additional remedial actions are required at this time. It is the property owner's responsibility to continue to inspect the Site to assure that the integrity of the surface cover is maintained.

4.1 Next Review

The next review for the Site will be scheduled five years from the date of this periodic review. In the event that additional cleanup actions or institutional controls are required, the next periodic review will be scheduled five years from the completion of those activities.

5.0 REFERENCES

Kennedy/Jenks Consultants. 1997. Final Remedial Investigation Work Plan and Sampling and Analysis Plan, Fort Vancouver Plywood Site, dated September 1997.

Kennedy/Jenks Consultants. 1998. Final Remedial Investigation and Feasibility Study Report, Former Fort Vancouver Plywood Site, dated October 1998.

Department of Ecology. 1999. Cell 1 Agreed Order Number DE 99TC-S108 for Remedial Action, Former Fort Vancouver Plywood Site, dated January 14, 1999.

Department of Ecology. 2000. Cell 2 Agreed Order Number 99TCPSR-93 for Remedial Action, Former Fort Vancouver Plywood Site, dated February 11, 2000.

Kennedy/Jenks Consultants. 1999. Cell 1 Interim Remedial Action Report, Former Fort Vancouver Plywood, dated November 1999.

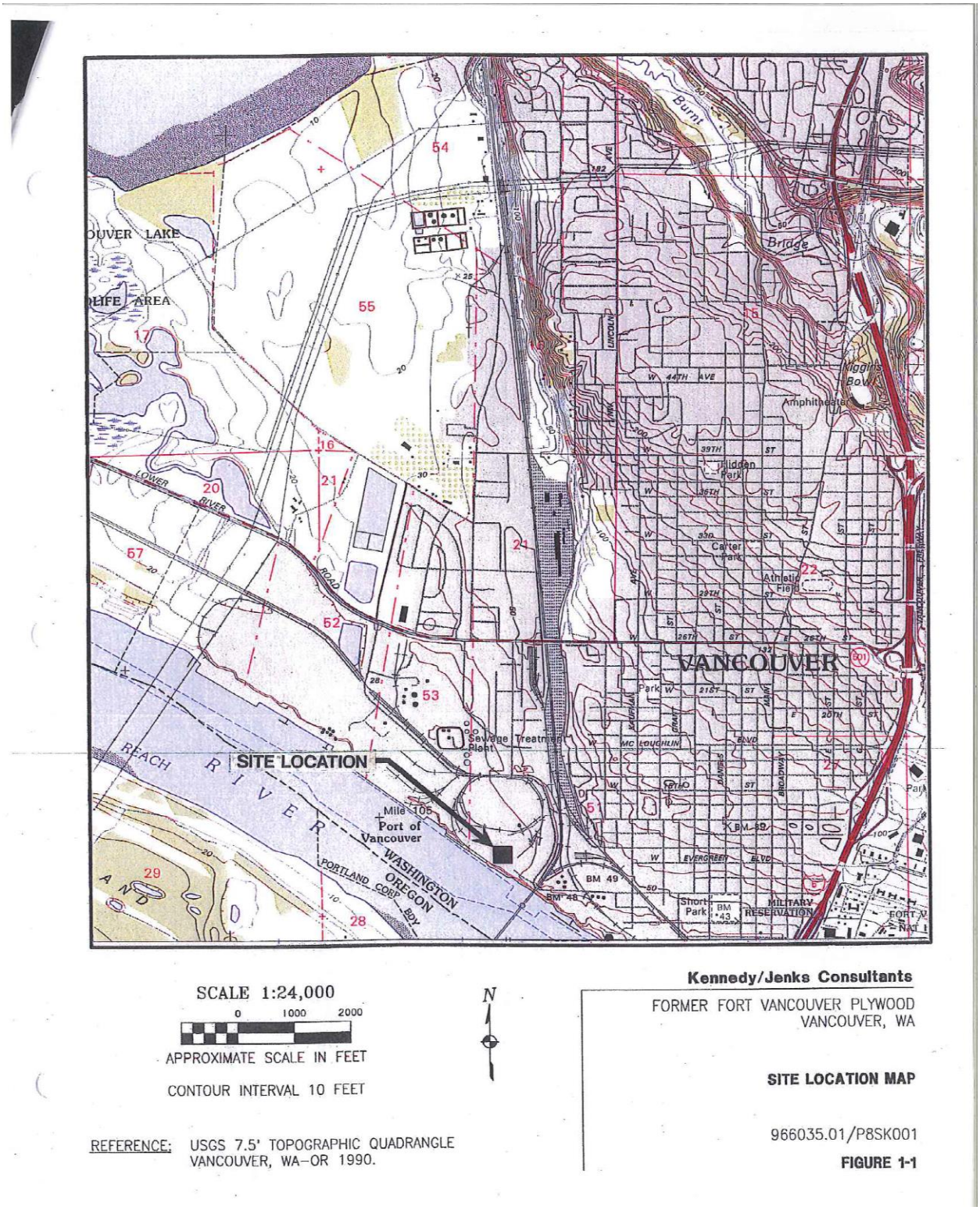
Kennedy/Jenks Consultants. 2002. Cell 2 Final Engineering Design Report, Former Fort Vancouver Plywood Site, dated August 2002.

Kennedy/Jenks Consultants. 2002 – 2014. Tri-annual and Semiannual Groundwater Monitoring Reports, Former Fort Vancouver Plywood Site, dated January 2002 through February 2014.

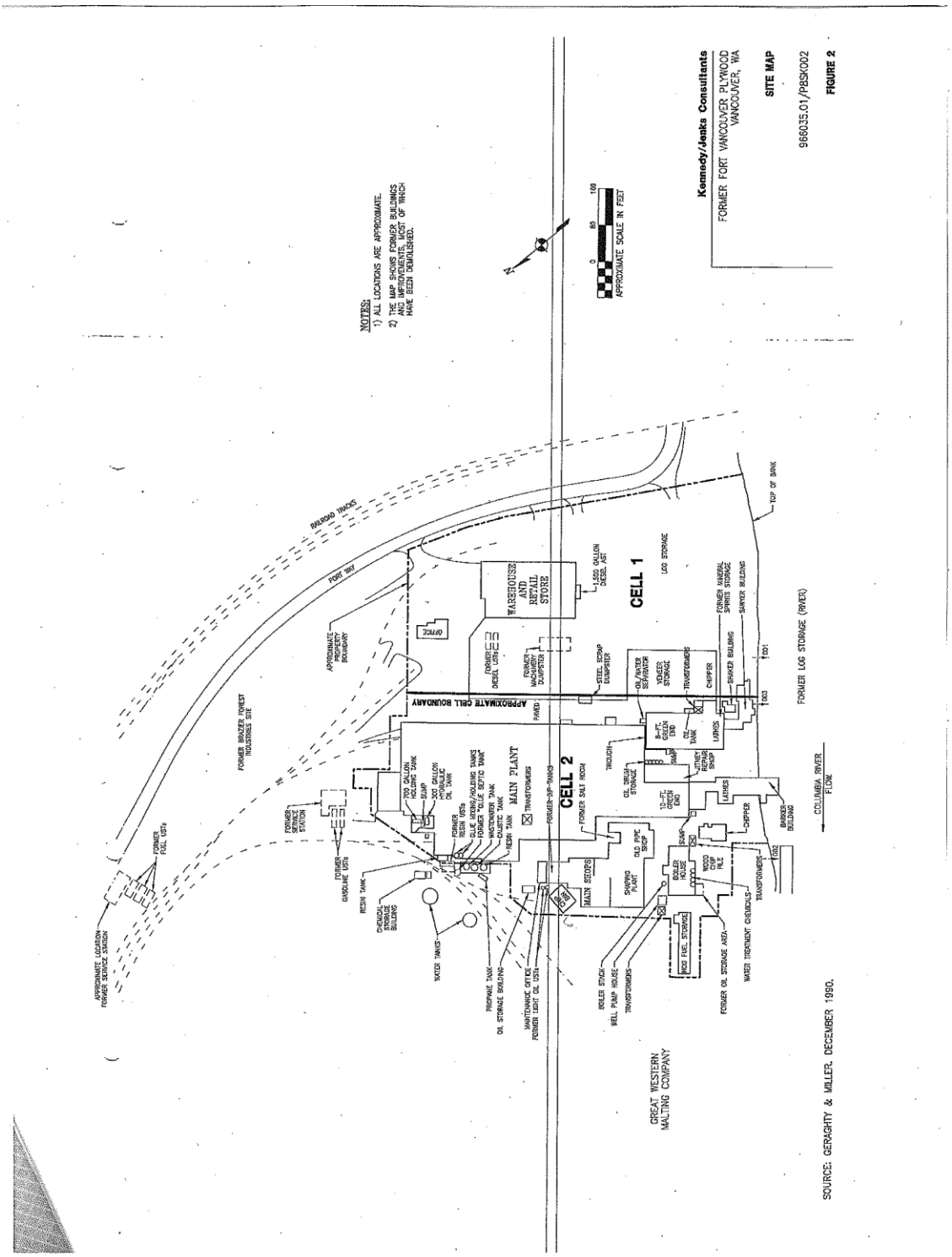
Department of Ecology, Site Visit, February 24, 2020.

6.0 APPENDICES

6.1 Vicinity Map



6.2 Site Plan


Kennedy/Jenks Consultants
FORMER FORT VANCOUVER PLYWOOD
VANCOUVER, WA
SITE MAP
968035.01/P8SK002
FIGURE 2
NOTES:
1) ALL LOCATIONS ARE APPROXIMATE.
2) THE MAP SHOWS FORMER BUILDINGS AND IMPROVEMENTS, MOST OF WHICH HAVE BEEN DEMOLISHED.
APPROXIMATE SCALE IN FEET
0
80
160
N
RAILROAD TRACKS
PORT WAY
TOP OF BANK
WAREHOUSE AND REPAIL STORE
CELL 1
CELL 2
LOG STORAGE
FORMER LOG STORAGE (RIVER)
COLUMBIA RIVER FLOW
MAIN PLANT
MAIN STORES
SHIPPING PLANT
BOILER HOUSE
WOOD WASTE PILE
OLD PIPE SHOP
BARKER BUILDING
SAWYER BUILDING
CHIPPER
TRANSFORMERS
FORMER MINERAL SPIRITS STORAGE
FORMER BRAZER FOREST INDUSTRIES SITE
APPROXIMATE PROPERTY BOUNDARY
APPROXIMATE CELL BOUNDARY
FORMER SERVICE STATION
FORMER FUEL USTs
APPROXIMATE LOCATION FORMER SERVICE STATION
GREAT WESTERN MALTING COMPANY
SOURCE: GERAGHTY & MILLER, DECEMBER 1990.

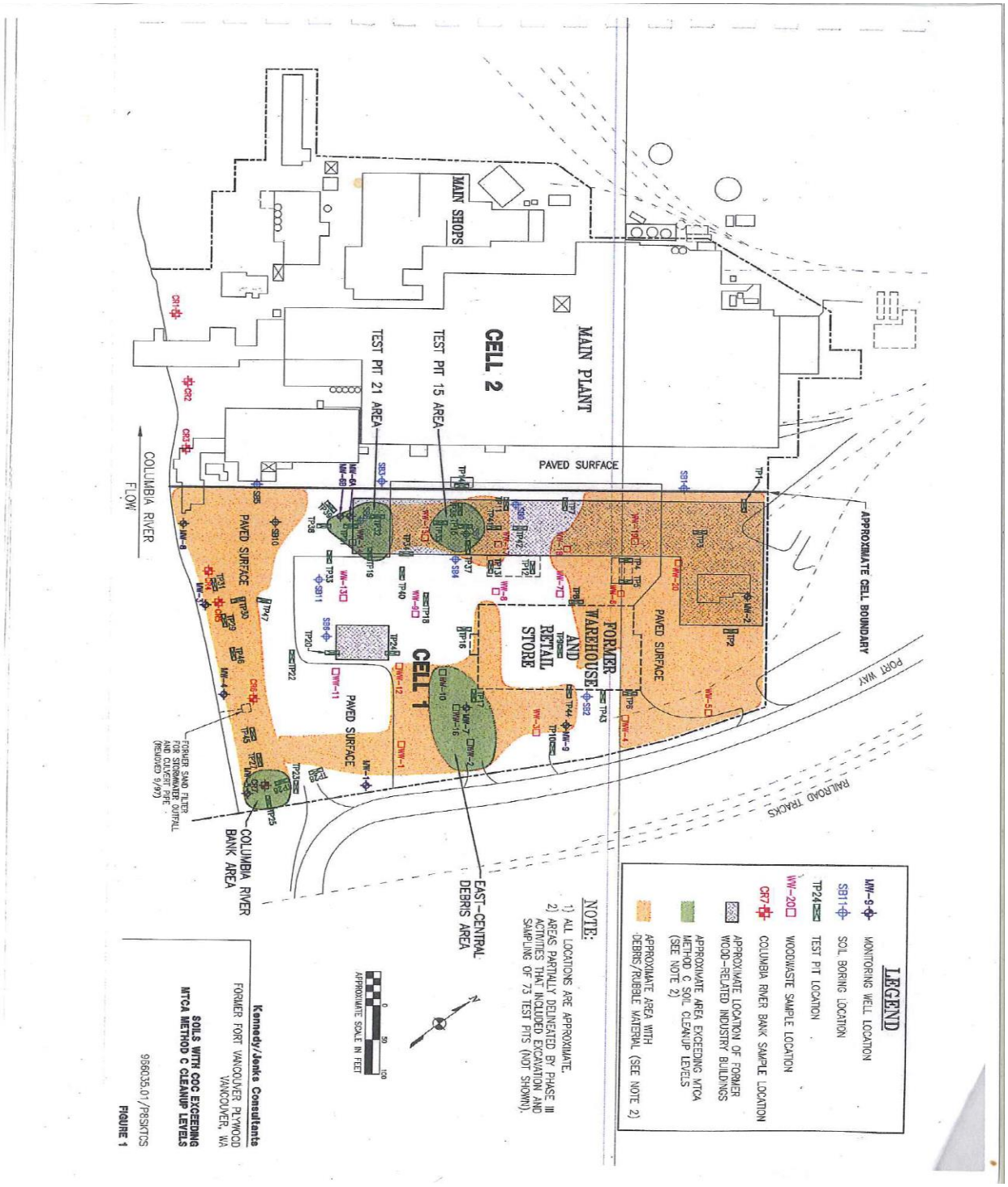
6.3 Groundwater Cleanup Levels

TABLE 2

Groundwater Cleanup Level and ARARs
Former Fort Vancouver Plywood Site
Vancouver, Washington

Chemical of Concern	Shallow Zone Cleanup Level	Unconsolidated Aquifer Cleanup Level
Volatile Organic Compounds (µg/L)		
1,1-Dichloroethane	N/A	800
cis-1,2-Dichloroethene	N/A	80
1,1-Dichloroethene	0.057(1.0)	0.0729/(1.0)
1,1,1-Trichloroethane	$4.17x10^5$	7,200
Chloroethane	N/A	N/A
Acetone	N/A	800
Metals (µg/L)		
Antimony	14	6.4
Arsenic	0.018/(1)	0.0583/(1)
Beryllium	0.0793/(2)	0.0203/(2)
Cadmium	15.84	8
Chromium	1,648.18/15	16,800/80
Copper	60.31	592
Lead	268.6	5.0/(10)
Mercury	0.14	4.8
Nickel	610	320
Selenium	20	80
Silver	34.75	80
Thallium	1.56	1.12
Zinc	357.07	4,800
Semivolatile Organic Compounds (µg/L)		
bis (2-Ethylhexyl)phthalate	1.8	6.25
Naphthalene	<1.0	320
Acenaphthylene	N/A	N/A
Fluorene	1,300	640
Phenanthrene	N/A	N/A
Anthracene	9,600	4,800
Fluoranthene	90	640
Pyrene	960	480
Benzo(a)anthracene	0.0028/(1)	0.012/(1)
Chrysene	0.0028/(1)	0.012/(1)
Benzo(b)fluoranthene	0.0028/(1)	0.012/(1)
Benzo(k)fluoranthene	0.0028/(1)	0.012/(1)
Benzo(a)pyrene	0.0028/(1)	0.012/(1)
Indeno(1,2,3-cd)pyrene	0.0028/(1)	0.012/(1)
Dibenzo(a,h)anthracene	0.0028/(1)	0.012/(1)
Benzo(g,h,i)perylene	N/A	0.012/(1)
Total cPAHs	0.0028/(1)	0.012/(1)

6.4 Cell 1: Soil Sampling Locations, Areas with MTCA Method C Industrial Soil Cleanup Level Exceedances, and Maximum Detected Containment Concentrations



Cell 1: Maximum Detected Contaminant Concentrations in Soil

TABLE 1

Maximum Detected Contaminant Concentrations in Soil and Cleanup Levels
Former Fort Vancouver Plywood Leasehold - Cell 1
Vancouver, Washington

Page 1 of 2

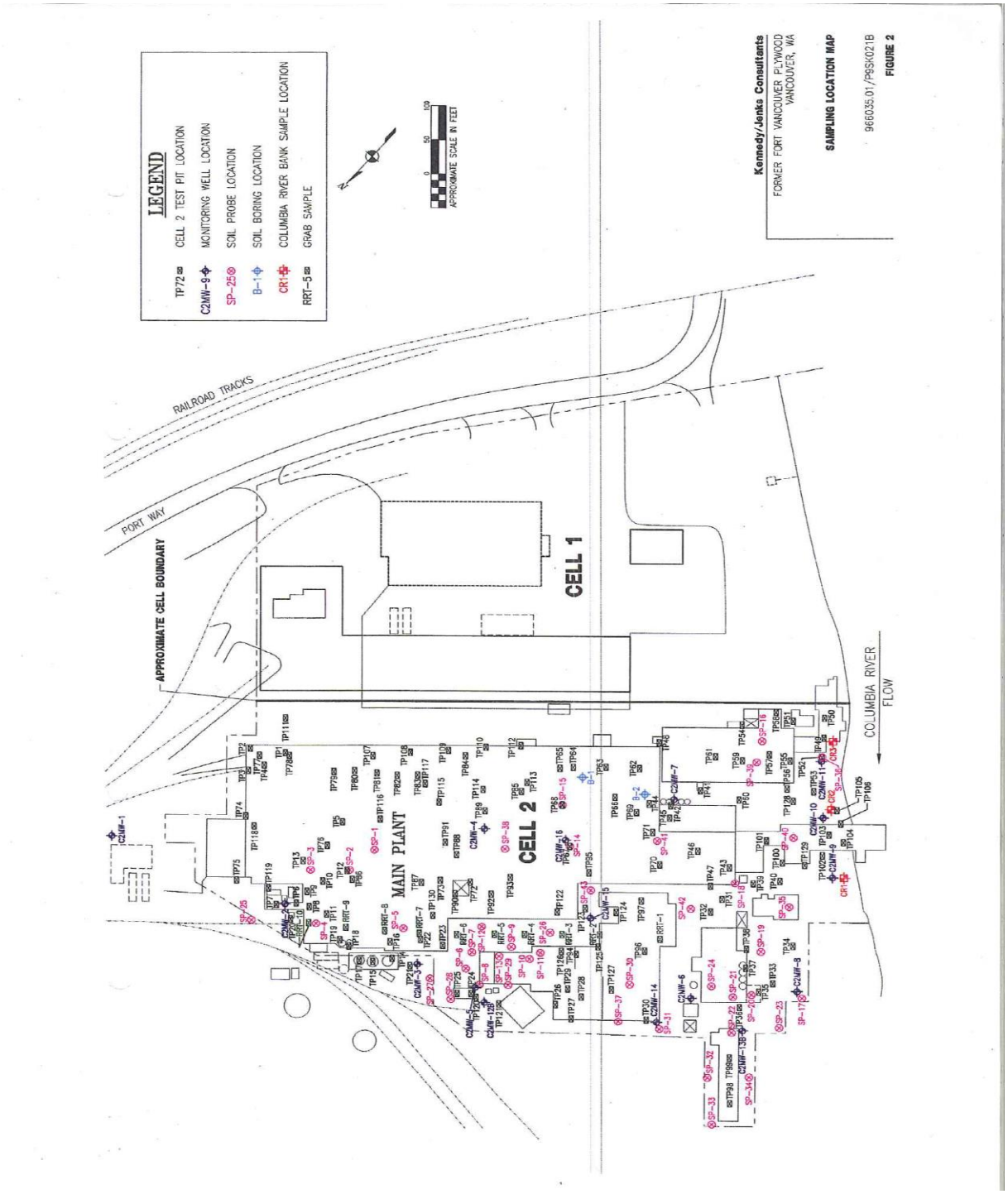
Chemical of Concern	Area A Maximum Detected Concentration	Area B Maximum Detected Concentration	Area C Maximum Detected Concentration	MTCA Method C Soil Cleanup Levels[a]
Petroleum Hydrocarbons (mg/kg)				
TPH-diesel	2,200	110[b]	14,000	200[c]
TPH-gasoline	7,900	--[d]	--	200[c]
TPH-other	2,300	290	5,300	200[c]
Volatile Organic Compounds (µg/kg)				
Toluene	5,700	ND[e]	180	7.0E+08
Ethylbenzene	6,800	ND	ND	3.5E+08
Total Xylenes	66,000	ND	ND	7.0E+09
Acetone	88	ND	940	3.5E+08
1,3,5-Trimethyl-benzene	110,000	ND	ND	NA[f]
1,2,4-Trimethyl-benzene	440,000	ND	ND	NA
4-Isopropyl-toluene	82,000	ND	8,600	NA
Metals (mg/kg)				
Antimony	ND	ND	20	1,400
Arsenic	14	ND	30	219
Barium	348	ND	446	245,000
Beryllium	0.6	0.5	0.8	30.5
Cadmium	1.5	3.4	12.7	3,500
Chromium	26	30	150	17,500
Copper	101	7,680	10,900	130,000
Lead	***3,070***	***7,560***	433	1,000[c]
Mercury	0.28	0.43	0.23	1,050
Nickel	35	37	90	70,000
Selenium	30	20	13	17,500
Silver	3.0	ND	8	17,500
Thallium	16	ND	ND	245
Zinc	134	12,520	2,910	1,050,000
Semivolatile Organic Compounds (µg/kg)				
Naphthalene	55,000	14	1,700	1.4E+08
4-Methylphenol (P-Cresol)	19,000	ND	220	1.75E+07
2-Methylphenol (O-Cresol)	12,000	ND	ND	1.75E+08
Acenaphthalene	1,100	ND	270	NA
Acenaphthene	1,000	18	2,400	2.1E+08
Semivolatile Organic Compounds (µg/kg) (continued)				
Dibenzofuran	200	30	1,100	NA
Fluorene	1,200	25	2,600	1.4E+08
Phenanthrene	6,500	98	29,000	NA
Anthracene	670	14	4,500	1.05E+09
Fluoranthene	15,000	92	19,000	1.4E+08
Pyrene	13,000	95	18,000	1.05E+08
Benzo(a)-anthracene	6,500	30	7,500	18,000
Chrysene	6,800	71	8,800	1.8E+04
Benzo(b)-fluoranthene	6,100	57	5,600	18,000
Benzo(k)-fluoranthene	6,200	43	5,800	18,000
Benzo(a)-pyrene	6,000	54	7,900	18,000
2-methylnaphthalene	ND	ND	1,700	NA
Carbazole	ND	ND	2,900	6,560,000
Pentachlorophenol	ND	ND	29	1,090,000
2,3,4,5-tetra-chlorophenol	ND	ND	14	42,600
Indeno(1,2,3-cd)pyrene	4,100	49	5,300	18,000
Dibenzo(a,h)-anthracene	1,600	18	1,700	18,000
Benzo(g,h,i)-perylene	3,700	82	5,000	NA
Total cPAHs	***37,300***	319	***42,600***	18,000

Notes:

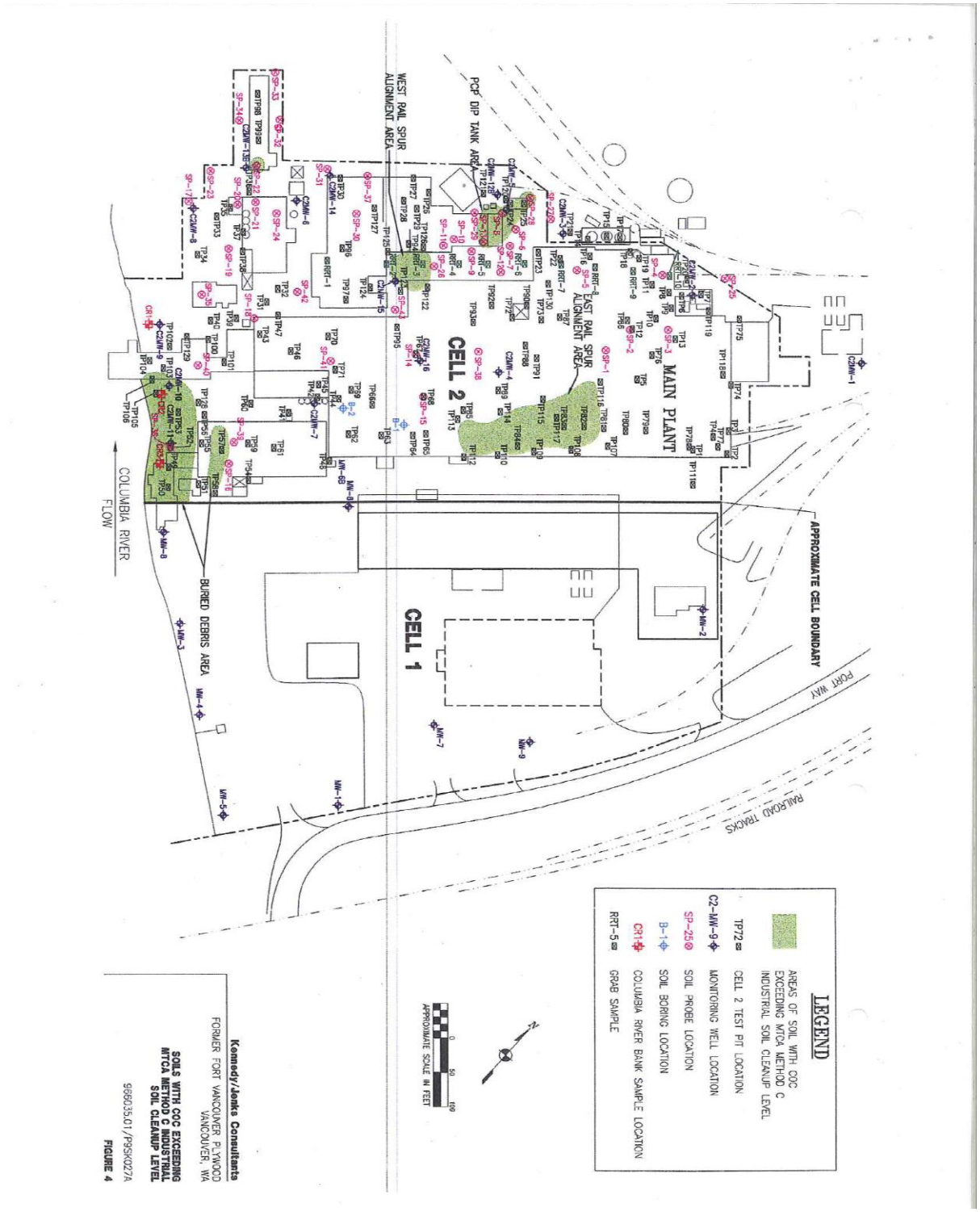
(a) Interim action plan cleanup goals are equivalent to the MTCA Method C industrial soil cleanup levels.
(b) In the opinion of the analyst, there was not a pattern match for diesel
(c) No MTCA Method C cleanup level is available; therefore, MTCA Method A cleanup level for industrial soils is presented.
(d) --- Indicates not analyzed.
(e) ND indicates analyte was not detected in sample.
(f) NA indicates that no cleanup level is available for the analyte.

Analyte concentrations above cleanup levels are indicated in bold and italics.

6.5 Cell 2: Soil Sampling Locations, Areas with MTCA Method C Industrial Soil Cleanup Levels Exceedances, and Maximum Detected Contaminant Concentrations



Cell 2: Areas with MTCA Method C Industrial Soil Cleanup Level Exceedances



Cell 2: Maximum Detected Contaminant Concentrations

TABLE 1

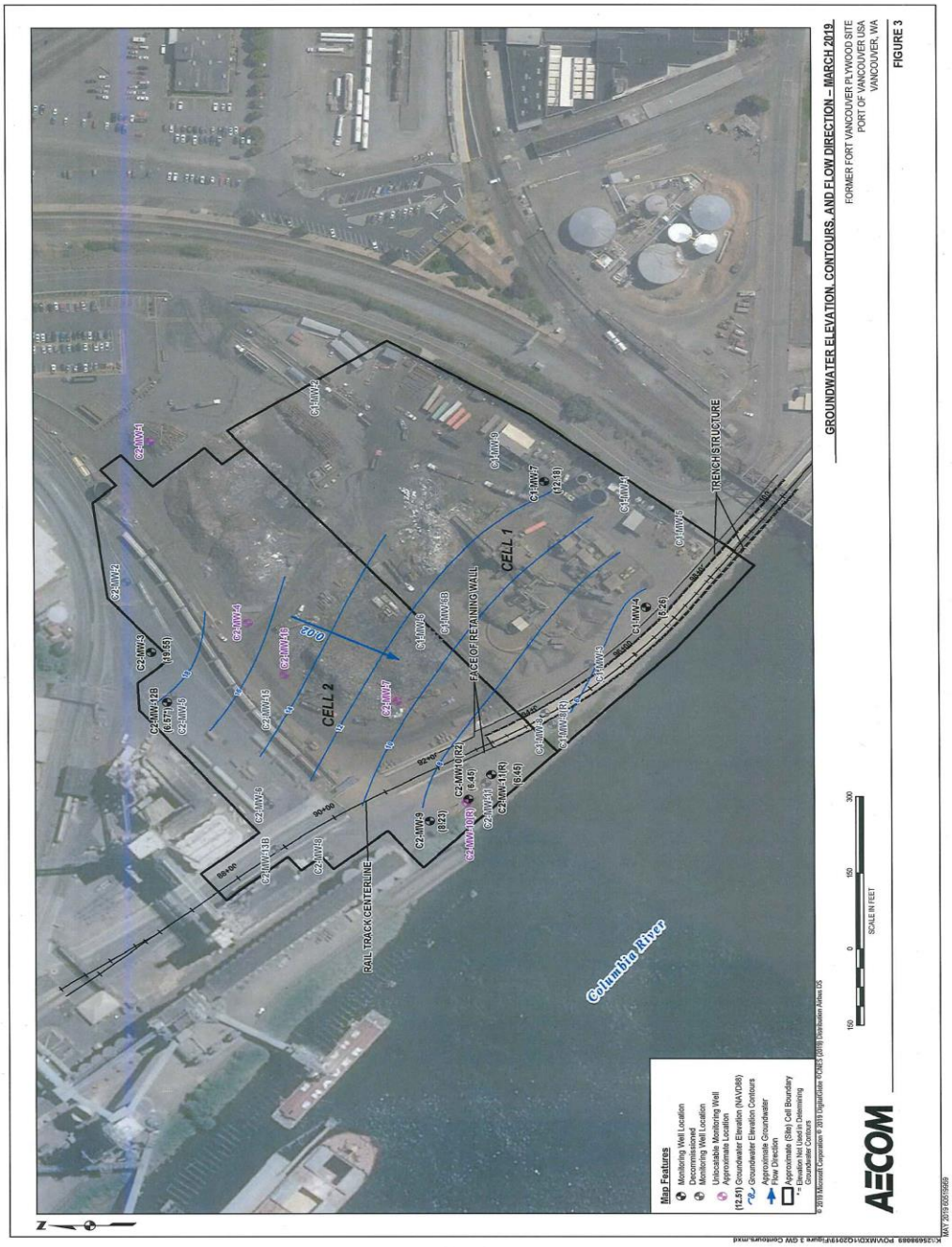
Maximum Detected Contaminant Concentrations in Soil
Exceeding MTCA Method A/C Cleanup Levels
Former Fort Vancouver Plywood Leasehold - Cell 2
Vancouver, Washington

Chemical of Concern	Columbia Riverbank/Buried Debris Areas Maximum Detected Concentration	PCP Dip Tank Area Maximum Detected Concentration	West Rail Spur Alignment Area Maximum Detected Concentration	East Rail Spur Alignment Area Maximum Detected Concentration	MTCA Method C Soil Cleanup Levels[a]
Petroleum Hydrocarbons (mg/kg)					
TPH-diesel	8,200	NE[b]	NE	240	200[c]
TPH-oil range	21,000	NE	NE	680	200[c]
Metals (mg/kg)					
Lead	7,660	2,110	NE	4,220	1,000[c]
Semivolatile Organic Compounds (µg/kg)					
Benzo(a)-anthracene	20,000	NE	53,000	NE	18,000
Chrysene	24,000	NE	56,000	NE	18,000
Benzo(b)-fluoranthene	NE	NE	44,000	NE	18,000
Benzo(k)-fluoranthene	NE	NE	38,000	NE	18,000
Benzo(a)-pyrene	20,000	NE	52,000	NE	18,000
Indeno(1,2,3-cd)pyrene	NE	NE	31,000	NE	18,000
Total cPAHs	111,500	NE	281,800	21,350	18,000

Notes:

(a) Interim action plan cleanup goals are equivalent to the MTCA Method C industrial soil cleanup levels.
(b) NE indicates analyte concentration did not exceed indicated cleanup level.
(c) No MTCA Method C cleanup level is available; therefore, MTCA Method A cleanup level for industrial soils is presented.

6.6 Groundwater Monitoring Well Locations, Groundwater Sample Results, Groundwater Elevation Contours, and Groundwater Flow Direction (March 2019 Sampling Event)



e 5, Volatile Organic Compounds in the Shallow Zone
ar Fort Vancouver Plywood Site

Page 1 of 4

Table 5

5. Volatile Organic Compounds in the Shallow Zone
er Fort Vancouver Plywood Site

Well Location	Sample ID	Date Sampled	BTEX Compounds and MTBE							Historically Site Detected VOCs (Since 2009)											
			Benzene µg/l	Toluene µg/l	Ethylbenzene µg/l	m,p-Xylene µg/l	o-Xylene µg/l	Total Xylenes µg/l	Methyl Tertiary Butyl Ether µg/l	Acetone µg/l	Chloroethane µg/l	Chloromethane µg/l	1,1-Dichloroethane µg/l	1,1-Dichloroethene µg/l	cis-1,2-Dichloroethene µg/l	Isopropylbenzene (Cumene) µg/l	Naphthalene µg/l	1,2,4-Trimethylbenzene µg/l	Trichlorofluoromethane µg/l	Vinyl Chloride µg/l
ology's MTCA Method B Surface Water Cleanup Levels			23	18,900	6,820	NE	NE	NE	NE	NE	NE	NE	NE	23,100	NE	NE	4,710	NE	NE	3.7
ology's Acute Freshwater Surface Water Quality Criteria			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
A's National Toxics Rule Human Health Criteria for Surface Water			1.2	6,800	3,100	NE	NE	NE	NE	NE	NE	NE	NE	0.057	NE	NE	NE	NE	NE	2
ology's MTCA Method A Groundwater Cleanup Levels			5.0	1,000	700	1,000	1,000	1,000	20	NE	NE	NE	NE	NE	NE	NE	160	NE	NE	0.20
ology's MTCA Method B Groundwater Cleanup Levels			0.795	640	800	1,600	1,600	1,600	24	7,200	NE	NE	7.68	400	16	800	160	NE	2,400	0.029
ll 2 - Shallow Zone																				
C2-MW-3	C2-MW-3	02/26/09	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	—	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	0.20 U
	C2-MW-3	12/17/09	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	—	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U
	C2-MW-3	03/29/10	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	—	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U
	C2-MW-3	05/26/10	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	—	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U
	C2-MW-3	11/30/10	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	—	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U
	C2-MW-3	03/25/11	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	—	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U
C2-MW-9	C2-MW-9	02/27/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	C2-MW-9	05/12/09	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	—	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.7
	C2-MW-9	12/18/09	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	—	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.5	1.0 U	1.0 U	1.0 U	1.0 U	0.61
	C2-MW-9	03/29/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	C2-MW-9	05/26/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	C2-MW-9	11/29/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	C2-MW-9	03/25/11	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	—	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.1	1.0 U	1.0 U	1.0 U	1.0 U	1.2
	C2-MW-9	09/20/12	0.10 U	0.10 U	0.10 U	0.20 U	0.10 U	—	0.10 U	1.0 U	0.10 U	0.10 U	0.10 U	0.10 U	1.3	0.10 U	0.10 U	0.10 U	0.10 U	1.0
	C2-MW-9	03/22/13	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	3.0 U	1.0 U	20 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	1.0 U	1.0 U	0.83
	C2-MW-9	09/23/13	0.24 U	0.23 U	0.24 U	0.48 U	0.24 U	—	0.50 U	10 U	0.50 U	2.0 U	0.50 U	0.24 U	2.5	0.50 U	2.0 U	0.50 U	0.13 U	0.14 U
	C2-MW-9	03/21/14	0.060 U	0.11 U	0.10 U	0.25 UJ	0.13 UJ	—	0.18 UJ	8.3 J	0.17 UJ	1.0 UJ	0.14 UJ	0.14 UJ	0.79 J	0.50 UJ	0.20 UJ	0.16 UJ	0.10 UJ	1.3 J
	C2-MW-9	09/03/14	0.125 U	0.500 U	0.250 U	0.500 U	0.250 U	0.500 U	0.500 U	10.0 U	5.00 U	2.50 UJ	0.250 U	0.250 U	0.250 U	0.500 U	1.00 U	0.500 U	1.00 U	0.55
	C2-MW-9	04/08/15	0.125 U	0.500 U	0.250 U	0.500 U	0.250 U	—	0.500 U	10.0 U	5.00 U	2.50 U	0.250 U	0.250 U	0.93	0.500 U	1.00 U	0.500 U	1.00 U	0.41
	C2-MW-9	09/28/15	0.125 U	0.500 U	0.250 U	0.500 U	0.250 U	—	0.500 U	10.0 U	5.00 U	2.50 UJ	0.250 U	0.250 U	1.84	0.500 U	1.00 U	0.500 U	1.00 U	0.370
	C2-MW-9	03/28/16	0.125 U	0.500 U	0.250 U	0.500 U	0.200 U	—	0.500 U	10.0 U	5.00 U	2.50 U	0.250 U	0.250 U	0.52	0.500 U	1.00 U	0.500 U	1.00 U	0.630
	C2-MW-9	09/11/17	0.100 U	0.500 U	0.250 U	0.500 U	0.250 U	—	0.500 U	20.0 UJ	5.00 U	2.50 U	0.250 U	0.250 U	0.250 U	0.500 U	2.00 UJ	0.500 U	1.00 U	0.860
	C2-MW-9	03/19/19	0.100 U	0.500 U	0.250 U	0.500 U	0.250 U	—	0.500 U	10.0 U	5.00 U	2.50 U	0.200 U	0.200 U	0.956	0.500 U	1.00 U	0.500 U	1.00 U	0.453
C2-MW-11(R)	C2-MW-11R	09/03/14	0.125 U	0.500 U	0.250 U	0.500 U	0.250 U	0.500 U	0.500 U	10.0 U	5.00 U	2.50 UJ	0.250 U	0.250 U	0.250 U	0.500 U	1.00 U	0.500 U	1.00 U	1.08
	C2-MW-11R	04/08/15	0.125 U	0.500 U	0.250 U	0.500 U	0.250 U	—	0.500 U	10.0 U	5.00 U	2.50 U	0.250 U	0.250 U	0.250 U	0.500 U	1.00 U	0.500 U	1.00 U	1.25
	C2-MW-11R	09/28/15	0.125 U	0.500 U	0.250 U	0.500 U	0.250 U	—	0.500 U	10.0 U	5.00 U	2.50 UJ	0.250 U	0.250 U	0.250 U	0.500 U	1.00 U	0.500 U	1.00 U	1.35
	C2-MW-11R	03/28/16	0.125 U	0.500 U	0.250 U	0.500 U	0.200 U	—	0.500 U	10.0 U	5.00 U	2.50 U	0.250 U	0.250 U	0.250 U	0.500 U	1.00 U	0.500 U	1.00 U	0.94
	C2-MW-11(R)	09/11/17	0.100 U	0.500 U	0.250 U	0.500 U	0.250 U	—	0.500 U	20.0 UJ	5.00 U	2.50 U	0.250 U	0.250 U	0.250 U	0.500 U	2.00 UJ	0.500 U	1.00 U	1.13
	C2-MW-11(R)	03/19/19	0.100 U	0.500 U	0.250 U	0.500 U	0.250 U	—	0.500 U	10.0 U	5.00 U	2.50 U	0.200 U	0.200 U	0.200 U	0.500 U	1.00 U	0.500 U	1.00 U	0.16

Table 5

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'able 5

5. Volatile Organic Compounds in the Shallow Zone
:r Fort Vancouver Plywood Site

BTEX Compounds and MTBE

'ell Location	Sample ID	Date Sampled	Benzene µg/l	Toluene µg/l	Ethylbenzene µg/l	m,p-Xylene µg/l	o-Xylene µg/l	Total Xylenes µg/l	Methyl Tertiary Butyl Ether µg/l
ogy's MTCA Method B Surface Water Cleanup Levels			23	18,900	6,820	NE	NE	NE	NE
logy's Acute Freshwater Surface Water Quality Criteria			NE	NE	NE	NE	NE	NE	NE
:'s National Toxics Rule Human Health Criteria for Surface Water			1.2	5,800	3,100	NE	NE	NE	NE
logy's MTCA Method A Groundwater Cleanup Levels			5.0	1,000	700	1,000	1,000	1,000	20
logy's MTCA Method B Groundwater Cleanup Levels			0.795	640	800	1,600	1,600	1,600	24
:2-MW-10(R)	C2-MW-10	02/27/09	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	—	1.0 U
	C2-MW-10	05/12/09	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	—	1.0 U
	C2-MW-10	12/17/09	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	—	1.0 U
	C2-MW-10	03/29/10	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	—	1.0 U
	C2-MW-10	05/25/10	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	—	1.0 U
	C2-MW-10	11/30/10	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	—	1.0 U
	C2-MW-10	03/25/11	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	—	1.0 U
	C2-MW-10	10/12/11	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	—	1.0 U
C2-MW-11	C2-MW-11	02/27/09	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	—	1.0 U
	C2-MW-11	05/12/09	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	—	1.0 U
	C2-MW-11	12/18/09	1.0 U	1.0 U	1.6	4.0	2.0	—	1.0 U
	C2-MW-11	03/29/10	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	—	1.0 U
	C2-MW-11	05/25/10	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	—	1.0 U
	C2-MW-11	11/30/10	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	—	1.0 U
	C2-MW-11	03/25/11	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	—	1.0 U
	C2-MW-11	10/12/11	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	—	1.0 U
	C2-MW-11	03/01/12	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	—	1.0 U
	C2-MW-11	09/20/12	0.10 U	0.10 U	0.10 U	0.20 U	0.10 U	—	0.10 U
	C2-MW-11	03/22/13	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	3.0 U	1.0 U
	C2-MW-11	09/23/13	0.24 U	0.23 U	0.24 U	0.48 U	0.24 U	—	0.50 U
	C2-MW-11	03/21/14	0.24	0.23 J	0.61	1.5	1.2	—	0.18 U

Historically Site Detected VOCs (Since 2009)

'ell Location	Sample ID	Date Sampled	Acetone µg/l	Chloroethane µg/l	Chloromethane µg/l	1,1-Dichloroethane µg/l	1,1-Dichloroethene µg/l	cis-1,2-Dichloroethene µg/l	Isopropylbenzene (Cumene) µg/l	Naphthalene µg/l	1,2,4-Trimethylbenzene µg/l	Trichlorofluoromethane µg/l	Vinyl Chloride µg/l
ogy's MTCA Method B Surface Water Cleanup Levels			NE	NE	NE	NE	23,100	NE	NE	4,710	NE	NE	3.7
logy's Acute Freshwater Surface Water Quality Criteria			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
:'s National Toxics Rule Human Health Criteria for Surface Water			NE	NE	NE	NE	0.057	NE	NE	NE	NE	NE	2
logy's MTCA Method A Groundwater Cleanup Levels			NE	NE	NE	NE	NE	NE	NE	160	NE	NE	0.20
logy's MTCA Method B Groundwater Cleanup Levels			7,200	NE	NE	7.68	400	16	800	160	NE	2,400	0.029
:2-MW-10(R)	C2-MW-10	02/27/09	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	0.27
	C2-MW-10	05/12/09	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U
	C2-MW-10	12/17/09	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U
	C2-MW-10	03/29/10	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U
	C2-MW-10	05/25/10	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U
	C2-MW-10	11/30/10	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U
	C2-MW-10	03/25/11	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.94
	C2-MW-10	10/12/11	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.28
C2-MW-11	C2-MW-11	02/27/09	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	12	1.0 U	1.0 U	1.4
	C2-MW-11	05/12/09	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.50
	C2-MW-11	12/18/09	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0	101	2.7	1.0 U	0.74
	C2-MW-11	03/29/10	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	51.4	1.3	1.0 U	0.73
	C2-MW-11	05/25/10	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	63.8	2.3	1.0 U	0.57
	C2-MW-11	11/30/10	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.9	1.0 U	1.0 U	1.5
	C2-MW-11	03/25/11	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	18.2	1.0 U	1.0 U	1.4
	C2-MW-11	10/12/11	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.6
	C2-MW-11	03/01/12	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.7	1.0 U	1.0 U	1.1
	C2-MW-11	09/20/12	1.0 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	1.8
	C2-MW-11	03/22/13	20 U	1:0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	1.0 U	1.0 U	1.1
	C2-MW-11	09/23/13	10 U	0.50 U	2.0 U	0.50 U	0.24 U	0.23 U	0.50 U	2.0 U	0.50 U	0.13 U	1.2
	C2-MW-11	03/21/14	5.0 U	0.17 U	1.0 U	0.14 U	0.14 U	0.16 U	0.87 J	130	4.8	0.10 U	0.28 J

tes:
— = Sample not analyzed for constituent
EX = benzene, toluene, ethylbenzene, and total xylenes
IP = Duplicate sample.
· Constituent was not positively identified; the associated value is estimated.
'BE = methyl tertiary butyl ether
'CA = Washington State Department of Ecology Model Toxics Control Act.
: = Not established
; = Not sampled because well was not accessible.
/l = micrograms per liter
= The sample results were rejected based on the data quality review.
= Constituent not detected at or above the reporting limit (prior to 2014) or method detection limit (2014 to current).
J = Constituent was not detected above the reporting limit (prior to 2014) or method detection limit (2014 to current); the limit is approximate.
OCs = volatile organic compounds
alues in bold were detected above the laboratory method detection limit.
= Indicates a monitoring well that was either abandoned or unlocatable as paved over.
= Indicates an exceedance of a screening criterion.
= Indicates the analyte was not detected; however, the reported method detection limit exceeds a screening criterion.
cology's MTCA values were obtained from the Washington State Department of Ecology Cleanup Level and Risk Calculations (CLARC) web site. The lower of the carcinogen and noncarcinogen MTCA Method B value is presented. https://fortress.wa.gov/ecy/clarc/CLARCHome.aspx
cology's Acute Freshwater Surface Water Quality Criteria were obtained from the Washington State Legislature Washington Administrative Code web site. http://apps.leg.wa.gov/WAC/default.aspx?cite=173-201A-240
PA's National Toxics Rule Human Health Criteria for Surface Water were obtained through the Washington State Department of Ecology web site for Toxics Standards and Criteria. http://www.ecy.wa.gov/programs/wq/swqs/toxics.html

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Table 7. Total Petroleum Hydrocarbons in the Shallow Zone
Former Fort Vancouver Plywood Site

Well ID	Sample ID	Date Sampled	TPH-Dx Diesel-Range mg/l	TPH-Dx Oil-Range mg/l	TPH-Gx Gasoline-Range mg/l
Ecology's MTCA Method B Surface Water Cleanup Levels			NE	NE	NE
Ecology's Acute Freshwater Surface Water Quality Criteria			NE	NE	NE
EPA's National Toxics Rule Human Health Criteria for Surface Water			NE	NE	NE
Ecology's MTCA Method A Groundwater Cleanup Levels			0.50	0.50	1.0 [a]
Ecology's MTCA Method B Groundwater Cleanup Levels			NE	NE	NE
C2-MW-11(R)	C2-MW-11(R)	09/03/14	0.110 J	0.198 U	0.050 U
	C2-MW-11(R)	04/08/15	0.0952 U	0.190 U	0.050 U
	C2-MW-11(R)	09/28/15	0.0943 U	0.286 J	0.050 U
	C2-MW-11R	03/28/16	0.0962 U	0.262 J	0.050 U
	C2-MW-11(R)	09/11/17	0.0952 U	0.190 U	0.050 U
	C2-MW-11(R)	03/19/19	0.0971 U	0.194 U	0.05000 U
C2-MW-10(R2)	C2-MW-10(R)	09/29/15	0.0943 U	1.55	0.050 U
	C2-MW-10R2	03/28/16	0.0962 U	5.25	0.385
	C2-MW-10(R2)	09/11/17	0.0952 U	0.216 J	0.0500 U
	C2-MW-10(R2)	03/19/19	0.0962 U	1.10	0.0500 U
Abandoned or Unlocatable Monitoring Wells					
Cell 2 - Deeper Unconsolidated Aquifer					
C2-MW-7	C2-MW-7	02/26/09	NS	NS	NS
	C2-MW-7	05/12/09	0.080 U	0.40 U	0.050 U
	C2-MW-7	12/17/09	NS	NS	NS
	C2-MW-7	03/29/10	NS	NS	NS
	C2-MW-7	05/26/10	NS	NS	NS
	C2-MW-7	11/30/10	NS	NS	NS
	C2-MW-7	03/25/11	0.19	0.84	0.050 U
C2-MW-10(R)	C2-MW-10	02/27/09	0.82 B	1.6	0.025 U
	C2-MW-10	05/12/09	1.1	0.85	0.050 U
	C2-MW-10	12/17/09	1.5	1.8	0.050 U
	C2-MW-10	03/29/10	0.82	1.0	0.050 U
	C2-MW-10	05/25/10	0.77	0.99	0.050 U
	C2-MW-10	11/30/10	1.7	1.9	0.050 U
	C2-MW-10	03/25/11	1.4	1.1	0.050 U
	C2-MW-10	10/12/11	0.70	0.90	0.050 U
	C2-MW-10	03/01/12	1.2	1.1	0.050 U
	C2-MW-10	09/20/12	1.2	0.92	0.025 U
	C2-MW-10	03/21/13	0.90	1.6	NA
	C2-MW-10	09/23/13	NS	NS	NS
	C2-MW-10	03/21/14	NS	NS	NS
	C2-MW-10	09/03/14	NS	NS	NS
	C2-MW-10	09/03/14	NS	NS	NS

Table 7

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6.7 Cell 1: Maximum Detected Contaminant Concentrations and Soil Remedial Excavation Areas

TABLE 1

Maximum Detected Contaminant Concentrations in Soil and Cleanup Levels
Former Fort Vancouver Plywood Leasehold - Cell 1
Vancouver, Washington

Page 1 of 2

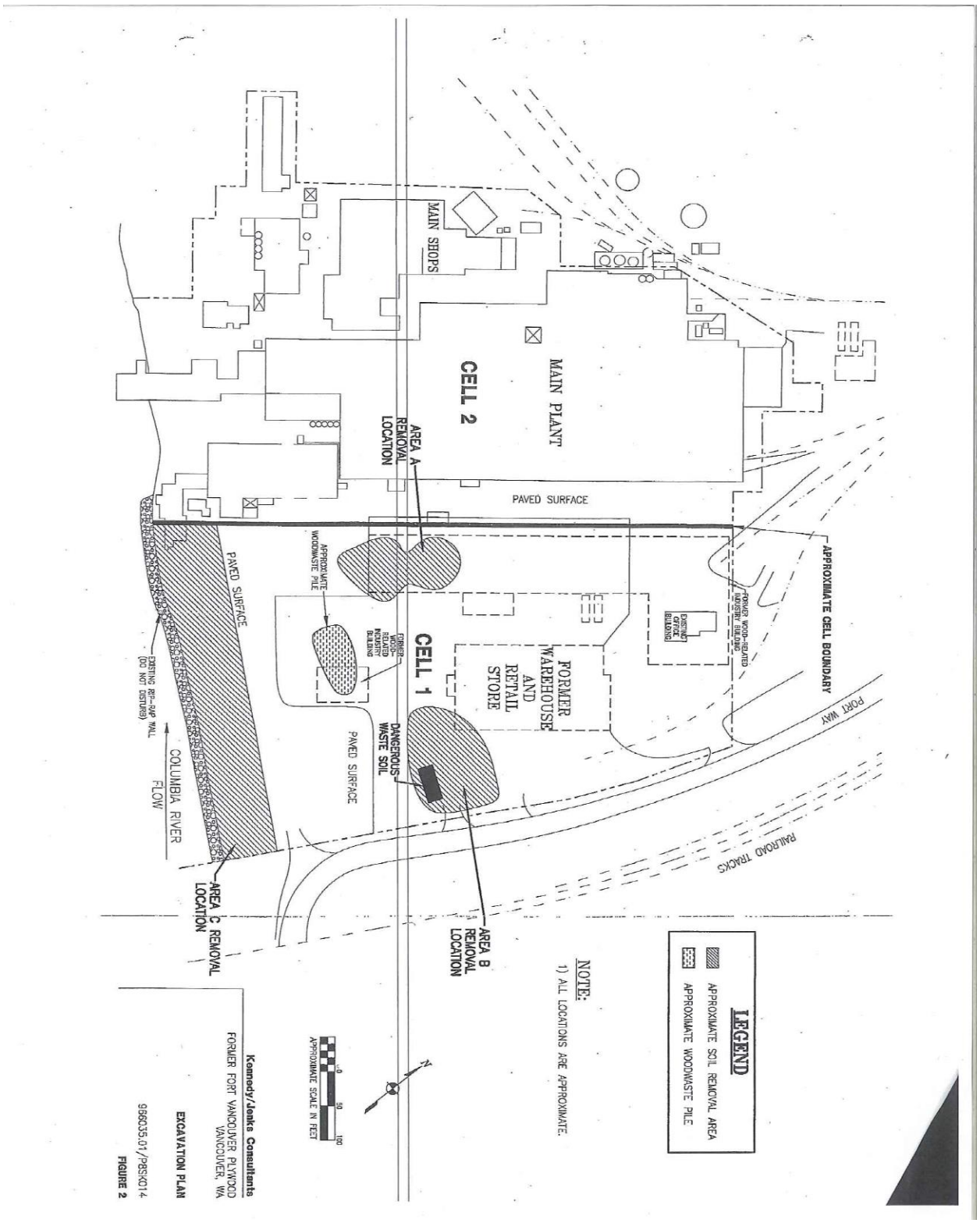
Chemical of Concern	Area A Maximum Detected Concentration	Area B Maximum Detected Concentration	Area C Maximum Detected Concentration	MTCA Method C Soil Cleanup Levels[a]
Petroleum Hydrocarbons (mg/kg)				
TPH-diesel	2,200	110[b]	14,000	200[c]
TPH-gasoline	7,900	--[d]	--	200[c]
TPH-other	2,300	290	5,300	200[c]
Volatile Organic Compounds (µg/kg)				
Toluene	5,700	ND[e]	180	7.0E+08
Ethylbenzene	6,800	ND	ND	3.5E+08
Total Xylenes	66,000	ND	ND	7.0E+09
Acetone	88	ND	940	3.5E+08
1,3,5-Trimethyl-benzene	110,000	ND	ND	NA[f]
1,2,4-Trimethyl-benzene	440,000	ND	ND	NA
4-Isopropyl-toluene	82,000	ND	8,600	NA
Metals (mg/kg)				
Antimony	ND	ND	20	1,400
Arsenic	14	ND	30	219
Barium	348	ND	446	245,000
Beryllium	0.6	0.5	0.8	30.5
Cadmium	1.5	3.4	12.7	3,500
Chromium	25	30	150	17,500
Copper	101	7,660	10,900	130,000
Lead	***3,070***	***7,560***	433	1,000[c]
Mercury	0.28	0.43	0.23	1,050
Nickel	35	37	90	70,000
Selenium	30	20	13	17,500
Silver	3.0	ND	8	17,500
Thallium	16	ND	ND	245
Zinc	134	2,520	2,910	1,050,000
Semivolatile Organic Compounds (µg/kg)				
Naphthalene	55,000	14	1,700	1.4E+08
4-Methylphenol (P-Cresol)	19,000	ND	220	1.75E+07
2-Methylphenol (O-Cresol)	12,000	ND	ND	1.75E+08
Acenaphthalene	1,100	ND	270	NA
Acenaphthene	1,000	18	2,400	2.1E+08
Semivolatile Organic Compounds (µg/kg) (continued)				
Dibenzofuran	200	30	1,100	NA
Fluorene	1,200	25	2,600	1.4E+08
Phenanthrene	6,500	98	29,000	NA
Anthracene	670	14	4,500	1.05E+09
Fluoranthene	15,000	92	19,000	1.4E+08
Pyrene	13,000	95	18,000	1.05E+08
Benzo(a)-anthracene	6,500	30	7,500	18,000
Chrysene	6,800	71	8,800	1.8E+04
Benzo(b)-fluoranthene	6,100	57	5,600	18,000
Benzo(k)-fluoranthene	6,200	43	6,800	18,000
Benzo(a)-pyrene	6,000	54	7,900	18,000
2-methylnaphthalene	ND	ND	1,700	NA
Carbazole	ND	ND	2,900	6,560,000
Pentachlorophenol	ND	ND	29	1,090,000
2,3,4,5-tetra-chlorophenol	ND	ND	14	42,600
Indeno(1,2,3-cd)pyrene	4,100	49	5,300	18,000
Dibenzo(a,h)-anthracene	1,600	18	1,700	18,000
Benzo(g,h,i)-perylene	3,700	82	5,000	NA
Total cPAHs	***37,300***	319	***42,600***	18,000

Notes:

(a) Interim action plan cleanup goals are equivalent to the MTCA Method C industrial soil cleanup levels.
(b) In the opinion of the analyst, there was not a pattern match for diesel
(c) No MTCA Method C cleanup level is available; therefore, MTCA Method A cleanup level for industrial soils is presented.
(d) -- Indicates not analyzed.
(e) ND Indicates analyte was not detected in sample.
(f) NA Indicates that no cleanup level is available for the analyte.

Analyte concentrations above cleanup levels are indicated in bold and italics.

Cell 1: Soil Remedial Excavation Areas



6.8 Cell 2: Maximum Detected Contaminant Concentrations and Soil Remedial Excavation Areas

TABLE 1

Maximum Detected Contaminant Concentrations in Soil Exceeding MTCA Method A/C Cleanup Levels

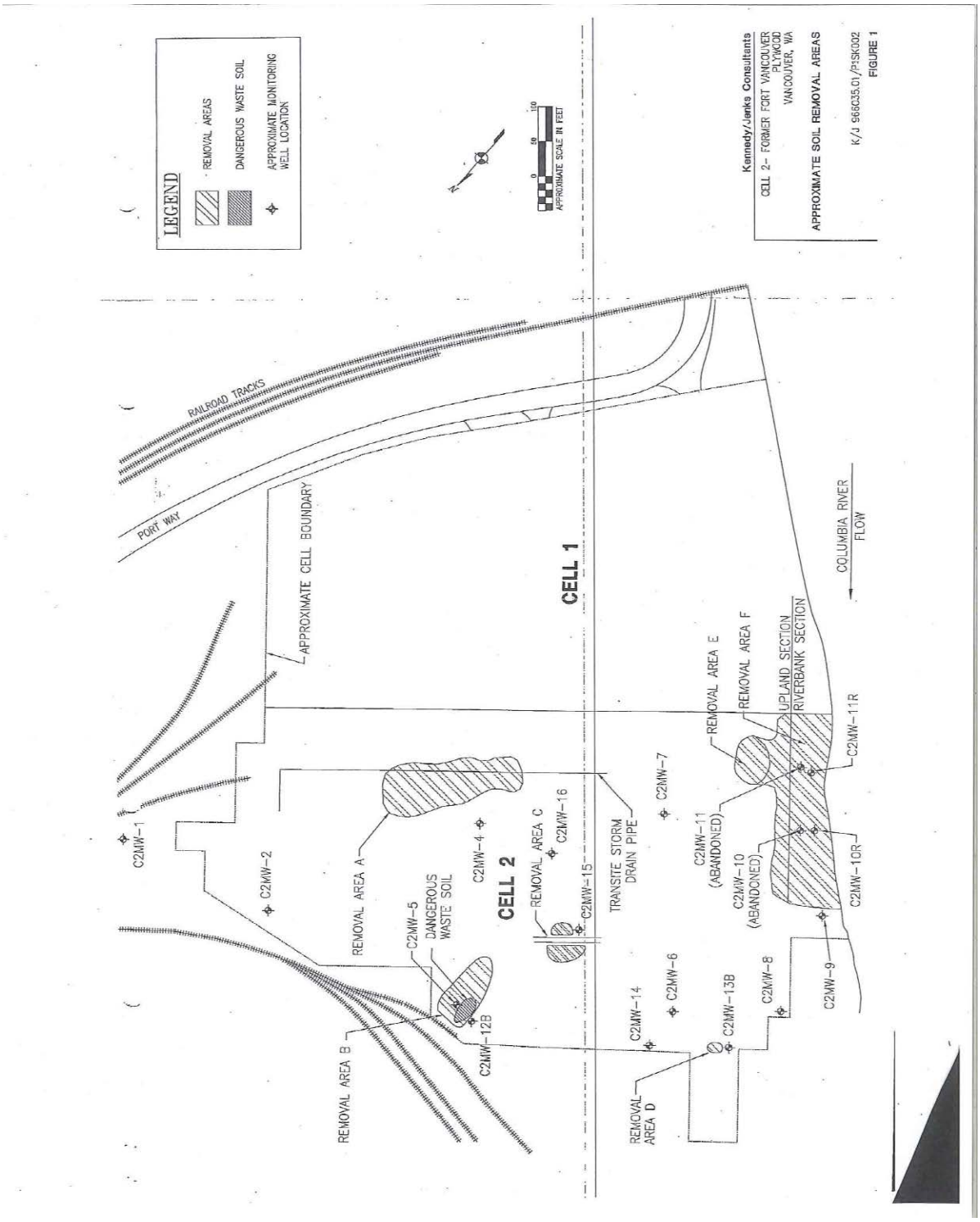
Former Fort Vancouver Plywood Leasehold - Cell 2
Vancouver, Washington

Chemical of Concern	Columbia Riverbank/Buried Debris Areas Maximum Detected Concentration	PCP Dip Tank Area Maximum Detected Concentration	West Rail Spur Alignment Area Maximum Detected Concentration	East Rail Spur Alignment Area Maximum Detected Concentration	MTCA Method C Soil Cleanup Levels[a]
Petroleum Hydrocarbons (mg/kg)					
TPH-diesel	8,200	NE[b]	NE	240	200[c]
TPH-oil range	21,000	NE	NE	680	200[c]
Metals (mg/kg)					
Lead	7,660	2,110	NE	4,220	1,000[c]
Semivolatile Organic Compounds (µg/kg)					
Benzo(a)-anthracene	20,000	NE	53,000	NE	18,000
Chrysene	24,000	NE	56,000	NE	18,000
Benzo(b)-fluoranthene	NE	NE	44,000	NE	18,000
Benzo(k)-fluoranthene	NE	NE	38,000	NE	18,000
Benzo(a)-pyrene	20,000	NE	52,000	NE	18,000
Indeno(1,2,3-cd)pyrene	NE	NE	31,000	NE	18,000
Total cPAHs	111,500	NE	281,800	21,350	18,000

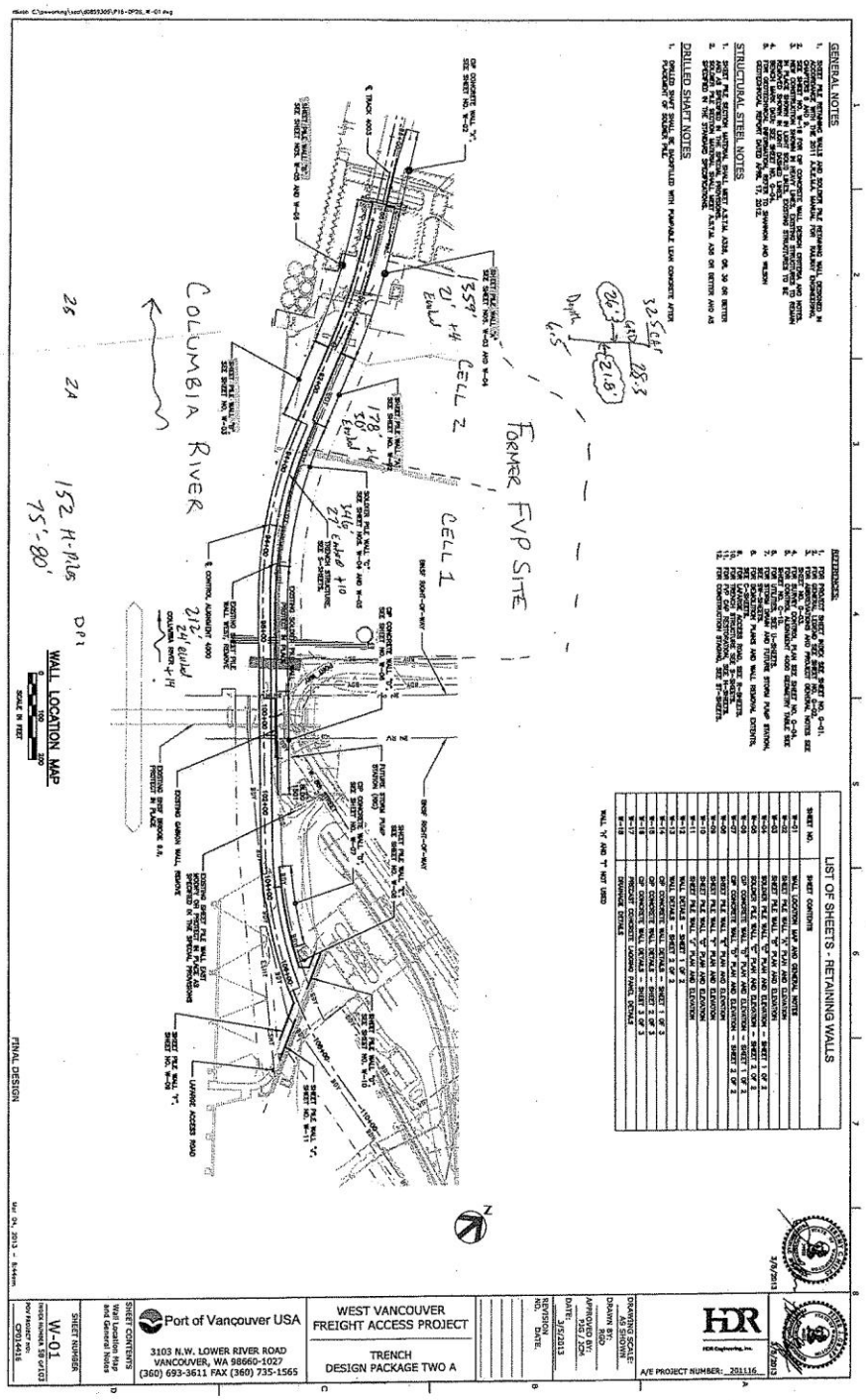
Notes:

(a) Interim action plan cleanup goals are equivalent to the MTCA Method C industrial soil cleanup levels.
(b) NE indicates analyte concentration did not exceed indicated cleanup level.
(c) No MTCA Method C cleanup level is available; therefore, MTCA Method A cleanup level for industrial soils is presented.

Cell 2: Soil Remedial Excavation Areas



6.9 West Vancouver Freight Access Project



6.10 Cell 1: Environmental Covenant

RESTRICTIVE COVENANT

Former Fort Vancouver Plywood Site

901 Port Way, Vancouver, Washington

The Port of Vancouver, USA, Owner

This Declaration of Restrictive Covenant is made pursuant to RCW 70.105D.030(1)(f) and (g) and WAC-173-340-440 by the Port of Vancouver, USA, its successors and assigns, and the State of Washington Department of Ecology, its successors and assigns (hereafter "Ecology").

Work to clean up the property (hereafter "Remedial Action") is described in the Agreed Order entered into between the Port of Vancouver and Ecology (Agreed Order No. DE 99TC-S 108), and the attachments to the Agreed Order and in documents referenced in the Agreed Order. These documents are on file at Ecology's Southwest Regional Office.

This Restrictive Covenant is required because the Remedial Action resulted in residual concentrations of metals, petroleum hydrocarbon compounds, and volatile organic compounds which exceed the Model Toxics Control Act Method A Residential Cleanup Level for soil established under WAC 173-340-740. This Restrictive Covenant is also required because a conditional point of compliance has been established for shallow groundwater discharging from the site to the Columbia River in accordance with WAC 173-340-720(6)(d).

The undersigned, The Port of Vancouver, USA, is the fee owner of real property (hereafter "Property") in the County of Clark, State of Washington, that is subject to this Restrictive Covenant. The Property is legally described in Attachment A of this Restrictive Covenant and made a part hereof by reference.

The Port of Vancouver makes the following declaration as to limitations, restrictions, and uses to which the Property may be put and specifies that such declarations shall constitute covenants to run with the land, as provided by law and shall be binding on all parties and all persons claiming under them including all current and future owners of any portion of or interest in the Property (hereafter "Owner").

Section 1. The following restrictions apply to the property:

1. "The Property shall be used only for traditional industrial uses, as described in RCW 70.105D.020(23) and defined in and allowed under the City of Vancouver's zoning regulations codified in the City of Vancouver Municipal Code, Chapter 20 as of the date of this Restrictive Covenant."

2. "Shallow-zone groundwater from the property shall not be used e.g., domestic, agricultural, or any use as a potable water supply source."

3. "Any activity on the Property that results in the release or exposure to the environment of the contaminated soil that was contained as part of the Remedial Action, or create a new exposure pathway, is prohibited. Some examples of activities that are prohibited in the capped areas include: drilling, digging, placement of any objects or use of any equipment which deforms or stresses the surface beyond its load bearing capability, piercing the surface with a rod, spike or similar item, bulldozing or earthwork."

Section 2. Any activity on the Property that interferes with the integrity of the Remedial Action and continued protection of human health and the environmient is prohibited.

Section 3. Any activity on the Property that results in the release or exposure to the environment of a hazardous substance that remains on the Property as part of the Remedial Action, or creates a new exposure pathway, is prohibited without prior written approval from Ecology.

Section 4. The Owner of the property must give thirty (30) days advance written notice to Ecology of the Owner's intent to convey any interest in the Property. No conveyance of title, easement, lease, or other interest in the Property shall be consummated by the Owner without adequate and complete provision for continued monitoring, operation, and maintenance of the Remedial Action.

Section 5. The Owner must restrict leases to uses and activities consistent with the Restrictive Covenant and notify all lessees of the restrictions on the use of the Property.

Section 6. The Owner must notify and obtain approval from Ecology prior to any use of the Property that is inconsistent with the terms of this Restrictive Covenant. Ecology may approve any inconsistent use only after public notice and comment.

Section 7. The Owner shall allow authorized representatives of Ecology the right to enter the Property at reasonable times for the purpose of evaluating the Remedial Action; to take samples, to inspect remedial actions conducted at the Property and to inspect records that are related to the Remedial Action.

Section 8. The Owner of the Property reserves the right under WAC 173-340-440 to record an instrument that provides that this Restrictive Covenant shall no longer limit use of the Property or be of any further force or effect. However, such an instrument may be recorded only if Ecology, after public notice and opportunity for comment, concurs.

Date: February 26, 1999

PORT OF VANCOUVER

By: Lawrance Paulson

Title: Executive Director

STATE OF WASHINGTON)
) ss.
County of Clark)

On this 26th day of February, 1999, before me, the undersigned, a Notary Public in and for the state of Washington, duly commissioned and sworn, personally appeared Lawrance Paulson, known to be the Executive Director of the Port of Vancouver, the municipal corporation that executed the foregoing instrument, and acknowledged the instrument to be the free and voluntary act and deed of that corporation for the uses and purposes therein mentioned, and on oath stated that they were authorized to execute the instrument on behalf of the corporation.

WITNESS my hand and official seal hereto affixed the day and year first above written.

NANCY I. BAKER
NOTARY PUBLIC
STATE OF WASHINGTON
COMMISSION EXPIRES
APRIL 1, 1999

NOTARY PUBLIC in and for the State of Washington, residing at Vancouver
My Commission Expires: 4/1/99

01/08/99

3226928
Page: 4 of 5
08/14/2000 02:45P
PORT OF VANCOUVER COV 12.00 Clark County, WA

BICKFORD-
MURSELL
SURVEYING

ATTACHMENT A

September 25, 1996
Job No. 1574

PORT OF VANCOUVER
FT. VANCOUVER PLYWOOD SITE
PARCEL A
(EASTERLY PARCEL)

CELL 1

BEGINNING at a point that is 434.09 feet South and 1267.72 feet East of the concrete monument in the West line of the Amos Short Donation Land Claim, said concrete monument being N00°44'45"E, 136.05 feet from the Southwest corner of said Claim, said monument being the point of origin for the Port of Vancouver and the City of Vancouver coordinate systems;

THENCE S41°39'06E, 164.00 feet;

THENCE S43°42'22"E, 203.54 feet to the East right-of-way line of Port Way;

THENCE Southerly, along the arc of a 1128.75 foot radius curve, concave Westerly, through a central angle of 14°16'16", an arc distance of 281.14 feet (chord bears S29° 44'57", 280.42 feet);

THENCE S36°53'16"W, 470.44 feet to the Inner Harbor Line;

THENCE N48°34'36"W, along said line, 542.76 feet;

THENCE N47°30'27"E, 785.06 feet to the point of beginning.

Containing 8.16 acres.

NOTE: CELL 1 REVISED TO EXCLUDE
A 50' WIDE BY 785' LONG STRIP ON
THE WEST SIDE OF THE ABOVE AREA
TO COMPRISE 7.26 ACRES.

(360) 693-1361
1310 MAIN STREET
VANCOUVER, WASHINGTON 98660

(503) 224-1407
29970 S.W. TOWNCENTER LOOP W.
SUITE B-423
WILSONVILLE, OREGON 97070

09/25/96 WED 13:13 [TX/RX NO 5818]

Exhibit A - Page 1 of 2

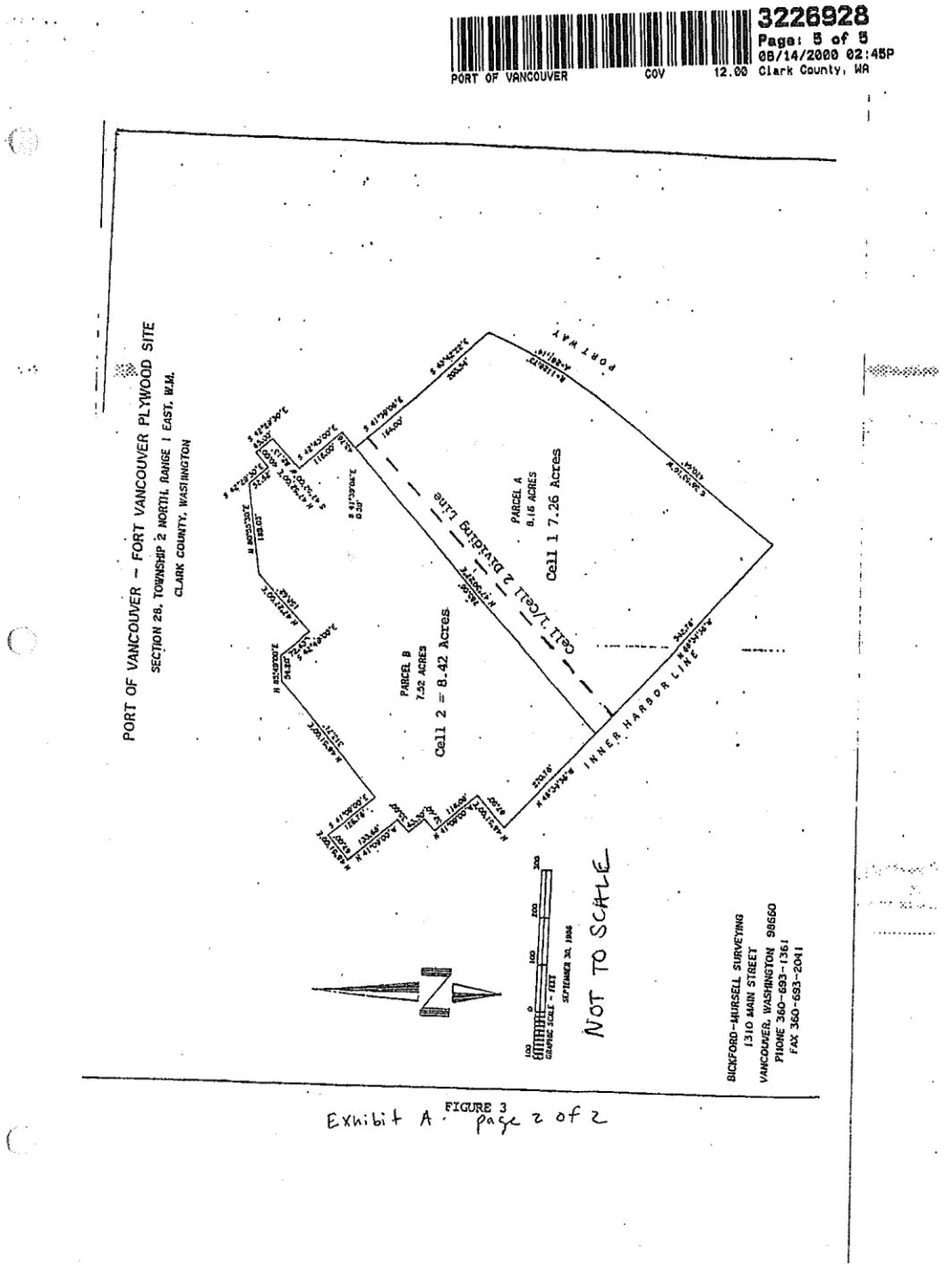


FIGURE 3

Exhibit A · page 2 of 2

6.11 Cell 2: Environmental Covenant

4155720 COV
RecFee - $39.0000 Pages: 8 - PORT OF VANCOUVER
Clark County, WA 4/21/06 11:41 AM

AFTER RECORDING RETURN TO:

Patricia Boyden
Port of Vancouver, USA
3103 NW Lower River Rd.
Vancouver, WA 98660-1027

COPY

Cell 2

COVER SHEET

DOCUMENT TITLE: Restrictive Covenant

REFERENCE NUMBER(S):

NAME(S) OF GRANTOR(S): Port of Vancouver, USA

NAME(S) OF GRANTEE(S): Washington Department of Ecology

PAGE(S) WHERE ADDITIONAL NAMES CAN BE FOUND: N/A

ABBREVIATED LEGAL DESCRIPTION: #51, East half of Section 28, Township 2 North, Range 1 East

ASSESSOR'S PROPERTY TAX PARCEL NUMBER: 058657-000

RESTRICTIVE COVENANT

Port of Vancouver, USA
Former Fort Vancouver Plywood Site—Cell 2

This Declaration of Restrictive Covenant is made pursuant to RCW 70.105D.030(1)(f) and (g) and WAC 173-340-440 by Port of Vancouver, U.S.A., its successors and assigns, and the State of Washington Department of Ecology, its successors and assigns (hereafter "Ecology").

The undersigned, Port of Vancouver, U.S.A., is the fee owner of real property (hereafter "Property") in the County of Clark, State of Washington, that is subject to this Restrictive Covenant. The Property is legally described in Exhibit A of this restrictive covenant and made a part hereof by reference.

An independent remedial action (hereafter "Remedial Action") occurred at the property that is the subject of this Restrictive Covenant. The Remedial Action conducted at the property is described in the documents listed in Exhibit B. These documents are on file with Ecology.

This Restrictive Covenant is required because the Remedial Action resulted in residual concentrations in soil of petroleum hydrocarbons that exceed the applicable Model Toxics Control Act (hereafter "MTCA") cleanup levels. In addition, this Restrictive Covenant is required because halogenated volatile organic compounds and metals are present in groundwater at levels exceeding applicable cleanup standards.

The Port of Vancouver, U.S.A. makes the following declaration as to limitations, restrictions, and uses to which the Property may be put and specifies that such declarations shall constitute covenants to run with the land, as provided by law and shall be binding on all parties and all persons claiming under them, including all current and future owners (hereafter "Owner") and tenants of any portion of or interest in the Property.

Section 1.

a. The Property shall be used only for traditional industrial uses, as described in RCW 70.105D.020(23) and defined in and allowed under the City of Vancouver's zoning regulations codified in Chapter 20.440 of the Vancouver Municipal Code as of the date of this Restrictive Covenant.

b. Groundwater contaminated with halogenated volatile organic compounds and metals remains beneath the property. No groundwater may be taken from the Property for domestic, agricultural, or any other use.

c. Soil contaminated with petroleum hydrocarbons, lead, and carcinogenic polycyclic aromatic hydrocarbons was removed from the Property during the Remedial Action but some contaminated soil remains at the property. To complete the Remedial Action, an asphalt cap was constructed over the entire Property to contain residual soil contamination. Any activity on the Property that may result in the release or exposure to the environment of the

contaminated soil that was contained as part of the Remedial Action, or creates a new exposure pathway, is prohibited. Some examples of activities that are prohibited in the capped areas include: drilling, digging, placement of any objects or use of any equipment which deforms or stresses the surface beyond its load bearing capability, piercing the surface with a rod, spike or similar item, bulldozing or earthwork.

Section 2. Any activity on the Property that may interfere with the integrity of the Remedial Action and continued protection of human health and the environment is prohibited.

Section 3. Any activity on the Property that may result in the release or exposure to the environment of a hazardous substance that remains on the Property as part of the Remedial Action, or creates a new exposure pathway, is prohibited without prior written approval from Ecology.

Section 4. The Owner of the property must give thirty (30) day advance written notice to Ecology of the Owner's intent to convey any interest in the Property. No conveyance of title, easement, lease, or other interest in the Property shall be consummated by the Owner without adequate and complete provision for continued monitoring, operation, and maintenance of the Remedial Action.

Section 5. The Owner must restrict leases to uses and activities consistent with the Restrictive Covenant and notify all lessees of the restrictions on the use of the Property.

Section 6. The Owner must notify and obtain approval from Ecology prior to any use of the Property that is inconsistent with the terms of this Restrictive Covenant. Ecology may approve any inconsistent use only after public notice and comment.

Section 7. The Owner shall allow authorized representatives of Ecology the right to enter the Property at reasonable times for the purpose of evaluating the Remedial Action; to take samples, to inspect remedial actions conducted at the property, and to inspect records that are related to the Remedial Action.

Section 8. The Owner of the Property reserves the right under WAC 173-340-440 to record an instrument that provides that this Restrictive Covenant shall no longer limit use of the Property or be of any further force or effect. However, such an instrument may be recorded only if Ecology, after public notice and opportunity for comment, concurs.

Port of Vancouver, U.S.A.

By: Lawrence L Paulson

Lawrance L Paulson, Executive Director

Date: 4-12-06

STATE OF WASHINGTON)
) ss.
County of Clark)

On this day personally appeared before me LAWRANCE L. PAULSON, Executive Director of the PORT OF VANCOUVER, and to me known to be the individual that executed the foregoing instrument and acknowledged said instrument to be the free and voluntary act and deed of said Port of Vancouver for the uses and purposes therein mentioned, and on oath stated that he is authorized to execute the said instrument.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal this 12th day of April, 2006.

Marie E Day

Print Name Here: Marie E DAY
NOTARY PUBLIC in and for the State of Washington residing at Vancouver
My Commission Expires: 1-2-10

MARIE E. DAY
NOTARY PUBLIC
COMMISSION EXPIRES
JANUARY 2, 2010
STATE OF WASHINGTON

EXHIBIT A

13033ld1
8-16-00
GOF/gof

MacKay & Sposito Inc.

M&S

ENGINEERS SURVEYORS PLANNERS
1703 MAIN STREET, VANCOUVER, WASHINGTON 98660
WASHINGTON (360) 695-3411 FAX (360) 695-0833 OREGON (503) 289-6726 EMAIL msinc@mackaysposito.com

PORT OF VANCOUVER
LEGAL DESCRIPTION
ADJUSTED FORMER FORT VANCOUVER PLYWOOD LEASEHOLD
VANCOUVER, WASHINGTON

That portion of the Amos Short Donation Land Claim No. 51 lying in the East Half of Section 28, Township 2 North, Range 1 East, Willamette Meridian, City of Vancouver, Clark County, Washington, described as follows:

Beginning at a 2 inch iron pipe marking the Northwest corner of said Short Donation Land Claim as shown in Book 39 of Surveys at Page 125, records of said county; thence along the West line of said Short Donation Land Claim South 02° 19' 42" West 3631.16 feet to the Southwest corner thereof; thence continuing along the Southerly projection of said West line South 02° 19' 42" West 740.33 feet; thence South 87° 40' 18" East 617.91 feet to a point on the Inner Harbor Line as shown on the 1981 Supplemental Maps of Vancouver Harbor on file in the Office of the Commissioner of Public Lands at Olympia and also shown in unrecorded Survey Book "D" at Page 155-C, records of said county, said point being the True Point of Beginning; thence along said Inner Harbor Line North 45° 24' 01" West 319.81 feet; thence leaving said Inner Harbor Line North 50° 25' 57" East 93.59 feet; thence North 39° 34' 03" West 51.28 feet; thence North 49° 01' 57" East 652.27 feet; thence North 82° 30' 27" East 142.92 feet to a point on the arc of a 1600.00 foot radius curve; thence from a tangent bearing of North 56° 35' 27" East, along said curve to the left, through a central angle of 10° 47' 03", an arc distance of 301.15 feet; thence South 04° 01' 12" West 110.69 feet to a point of curvature with a 500.00 foot radius curve; thence along said curve to the left, through a central angle of 03° 55' 50", an arc distance of 34.30 feet to a point of tangency; thence South 00° 05' 22" West 114.99 feet to a point of curvature with a 275.00 foot radius curve; thence along said curve to the right, through a central angle of 36° 51' 40", an arc distance of 176.92 feet to a point on the Northwesterly line of the

13033ld1
8-16-00
GOF/gof

"Pacific Coast Shredding Leasehold" parcel; thence along said Northwesterly line South 49° 05' 00" West, 815.08 feet to the True Point of Beginning.

Containing approximately 8.070 acres.

8/17/00

Page 2 of 3

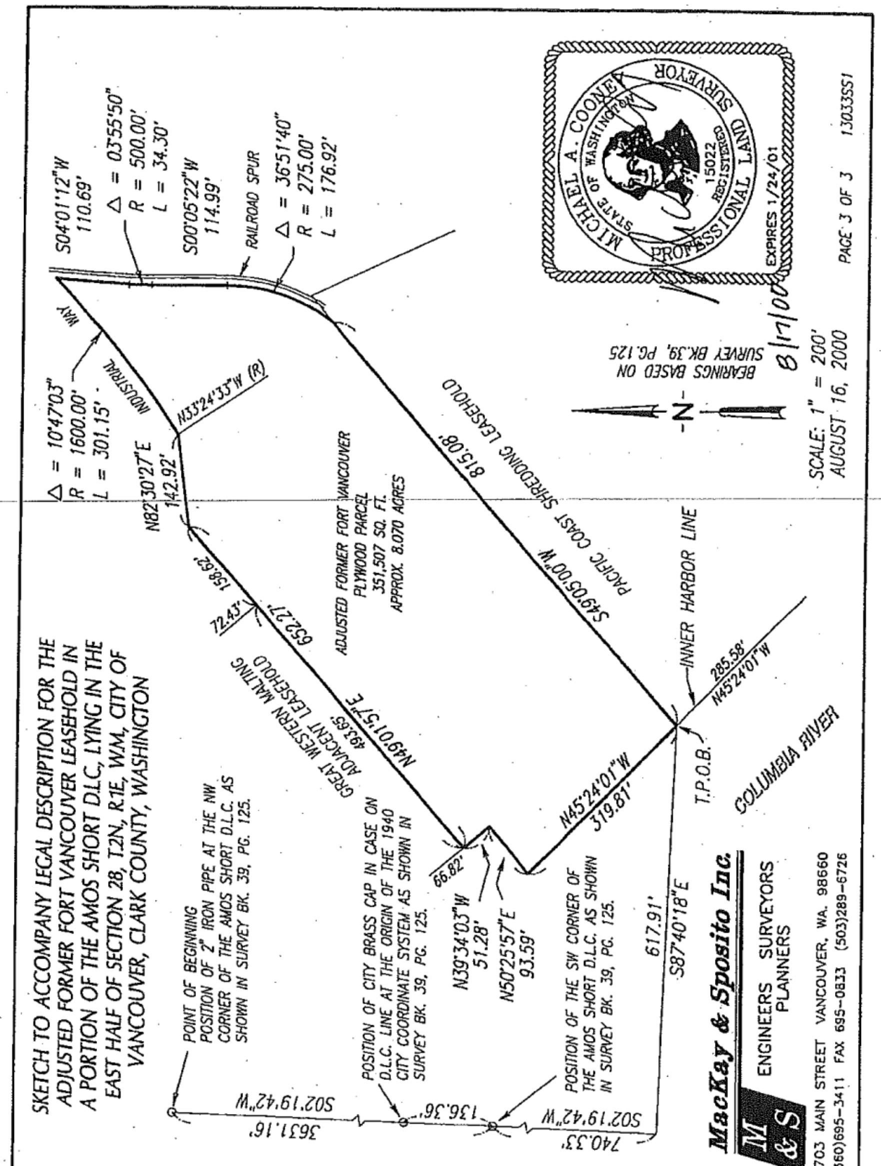

SKETCH TO ACCOMPANY LEGAL DESCRIPTION FOR THE ADJUSTED FORMER FORT VANCOUVER LEASEHOLD IN A PORTION OF THE AMOS SHORT D.L.C. LYING IN THE EAST HALF OF SECTION 28, T2N, R.1E, W.M., CITY OF VANCOUVER, CLARK COUNTY, WASHINGTON
POINT OF BEGINNING POSITION OF 2" IRON PIPE AT THE NW CORNER OF THE AMOS SHORT D.L.C. AS SHOWN IN SURVEY BK. 39, PG. 125.
POSITION OF CITY BRASS CAP IN CASE ON D.L.C. LINE AT THE ORIGIN OF THE 1940 CITY COORDINATE SYSTEM AS SHOWN IN SURVEY BK. 39, PG. 125.
POSITION OF THE SW CORNER OF THE AMOS SHORT D.L.C. AS SHOWN IN SURVEY BK. 39, PG. 125.
S02°19'42"W
3631.16'
136.36'
740.33'
S87°40'18"E
617.91'
N39°34'03"W
51.28'
N50°25'57"E
93.59'
66.82'
N45°24'01"W
319.81'
T.P.O.B.
COLUMBIA RIVER
285.58'
N45°24'01"W
INNER HARBOR LINE
GREAT WESTERN MALTING ADJACENT LEASEHOLD
N49°01'57"E
493.05'
652.27'
72.43'
158.62'
N82°30'27"E
142.92'
ADJUSTED FORMER FORT VANCOUVER PLYWOOD PARCEL 351,507 SQ. FT. APPROX. 8.070 ACRES
S49°05'00"W
815.08'
PACIFIC COAST SHREDDING LEASEHOLD
Δ = 10°47'03"
R = 1600.00'
L = 301.15'
N33°24'33"W (R)
INDUSTRIAL WAY
S04°01'12"W
110.69'
Δ = 03°55'50"
R = 500.00'
L = 34.30'
S00°05'22"W
114.99'
RAILROAD SPUR
Δ = 36°51'40"
R = 275.00'
L = 176.92'
BEARINGS BASED ON SURVEY BK.39, PG.125
SCALE: 1" = 200'
AUGUST 16, 2000
MICHAEL A. COONEY
STATE OF WASHINGTON
15022
REGISTERED
PROFESSIONAL LAND SURVEYOR
EXPIRES 1/24/01
8/17/00
PAGE 3 OF 3
13033SS1
MacKay & Sposito Inc.
M & S
ENGINEERS SURVEYORS PLANNERS
1703 MAIN STREET VANCOUVER, WA. 98660
(360)695-3411 FAX 695-0833 (503)289-6726

EXHIBIT B

1. Final Cell 2 Remedial Investigation and Feasibility Study, Former Fort Vancouver Plywood Site, Vancouver, Washington, prepared by Kennedy/Jenks Consultants, December, 1999.

2. Cell 2 Remedial Action Plan, Former Fort Vancouver Plywood Site, Vancouver, Washington, prepared by Kennedy/Jenks Consultants, July, 2000.

3. Cell 2 Remedial Action Report, Former Fort Vancouver Plywood Site, Port of Vancouver, Washington prepared by Kennedy/Jenks Consultants, July, 2001.

4. Final Engineering Design Document, Cell 2 Former Fort Vancouver Plywood Leasehold, Port of Vancouver, Washington, prepared by Kennedy/Jenks Consultants, August 2, 2002.

5. Cell 2 Groundwater Monitoring Report, January 2002 Monitoring Event, Former Fort Vancouver Plywood Leasehold, Port of Vancouver, U.S.A., Vancouver Washington, by Kennedy/Jenks Consultants, March 21, 2002.

6. Construction Documentation Report, Cell 2 of the Former Fort Vancouver Plywood Leasehold, Port of Vancouver, Washington, prepared by Kennedy/Jenks Consultants, March 2004.

7. Cell 2 Groundwater Monitoring Report, February 2004, Former Fort Vancouver Plywood Port of Vancouver, U.S.A., Vancouver, Washington, by Environmental Resources Management, July 12, 2004.

8. Cell 2 Groundwater Monitoring Report, June 2004, Former Fort Vancouver Plywood Port of Vancouver, U.S.A., Vancouver, Washington, by Environmental Resources Management, February 24, 2005.

9. Cell 2 Groundwater Monitoring Report, September 2004, Former Fort Vancouver Plywood Port of Vancouver, U.S.A., Vancouver, Washington, by Environmental Resources Management, May 2005.

10. Cell 2 Groundwater Monitoring Report, January 2005, Former Fort Vancouver Plywood Port of Vancouver, U.S.A., Vancouver, Washington, by Environmental Resources Management, August 24, 2005.

11. Cell 2 Groundwater Monitoring Report, May 2005, Former Fort Vancouver Plywood Plywood Port of Vancouver, U.S.A., Vancouver, Washington, by Environmental Resources Management, March 2006.

6.12 Photo Log

Photo 1: Cell 1 Yard Operations and Scrap Metal Piles – From the Southwest.

Photo 2: Cell 1 Yard Operations, Crushed Cars, and Scrap Metal Piles–From the Southeast.

Photo 3: Cell 1 Yard Operation, Crushed Cars, and Asphalt Cap – From the South.

Photo 4: Cell 2 Asphalt Cap and Scrap Metal Piles – From the South.

Photo 5: Cell 1 Yard Operation, Scrap Metal Piles, and Asphalt Cap – From the Southeast.

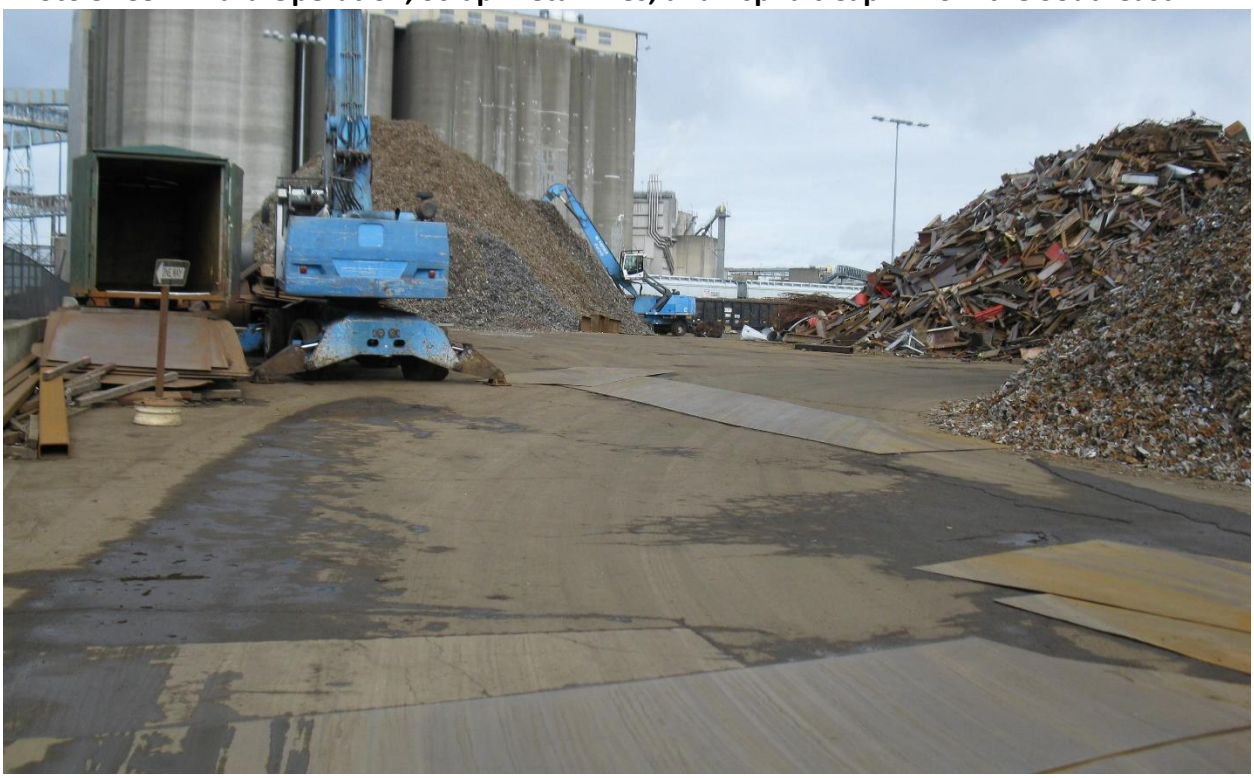


Photo 6: Cell 2 Asphalt Cap and Monitoring Well C2-MW-4 on Cell 2–From the Southeast.

Photo 7: Cell 2 Asphalt Cap – From the Northwest.

Photo 8: Groundwater Monitoring Well C2-MW-9 on Cell 2.