



# **PERIODIC REVIEW REPORT FINAL**

**Murray Pacific 2  
Facility Site ID#: 1211**

**2407 Port of Tacoma Road  
Tacoma, Washington 98421**

**Southwest Region Office**

**TOXICS CLEANUP PROGRAM**

**June 2014**

# **TABLE OF CONTENTS**

<b>1.0 INTRODUCTION.....</b>	<b>1</b>
<b>2.0 SUMMARY OF SITE CONDITIONS .....</b>	<b>3</b>
2.1 Site History .....	3
2.2 Site Investigations.....	3
2.2.1 Feasibility Study.....	4
2.3 Remedial Activities.....	5
2.4 Cleanup Levels.....	5
2.5 Groundwater Monitoring .....	6
2.6 Restrictive Covenant.....	7
<b>3.0 PERIODIC REVIEW.....</b>	<b>9</b>
3.1 Effectiveness of completed cleanup actions .....	9
3.2 New scientific information for individual hazardous substances for mixtures present at the Site .....	9
3.3 New applicable state and federal laws for hazardous substances present at the Site .....	9
3.4 Current and projected site use.....	10
3.5 Availability and practicability of higher preference technologies .....	10
3.6 Availability of improved analytical techniques to evaluate compliance with cleanup levels .....	10
<b>4.0 CONCLUSIONS.....</b>	<b>11</b>
4.1 Next Review.....	11
<b>5.0 REFERENCES.....</b>	<b>12</b>
<b>6.0 APPENDICES.....</b>	<b>13</b>
6.1 Vicinity Map .....	14
6.2 Site Plan .....	15
6.3 1993 Remedial Investigation Soil Sampling Locations and Results .....	16
6.4 1992 and 1993 Remedial Investigation Storm/Surface Water Sampling Results.....	18
6.5 Remedial Investigaiton Groundwater Investigation Results.....	19
6.6 Long Term Groundwater Monitoring Well Locations and Results.....	22
6.7 Memorandum of Understanding.....	25
6.8 Restrictive Covenant.....	28
6.9 Photo Log.....	34

## 1.0 INTRODUCTION

This document is a review by the Washington State Department of Ecology (Ecology) of post-cleanup site conditions and monitoring data to ensure that human health and the environment are being protected at the Murray Pacific 2 site (Site). Cleanup at this Site was implemented under the Model Toxics Control Act (MTCA) regulations, Chapter 173-340 Washington Administrative Code (WAC).

Cleanup activities at this Site were completed under Consent Decree No. 94 2 099227, filed in the Pierce County Superior Court on September 16, 1994. The cleanup actions resulted in concentrations of metals (arsenic and lead) in soil exceeding MTCA Method A cleanup levels remaining at the Site. In addition, arsenic concentrations in groundwater also exceed the water quality criteria. The MTCA Method A cleanup levels for industrial soils established under WAC 173-340-745(2). The groundwater cleanup levels are established under Environmental Protection Agency (US EPA) Chronic Marine Water Quality Criteria (WAC 173-201A). 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.
- (b) New scientific information for individual hazardous substances or 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.

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

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## **2.0 SUMMARY OF SITE CONDITIONS**

### **2.1 Site History**

The Murray Pacific 2 Log Sort Yard property is located along the Blain Waterway at 2407 Port of Tacoma Road, between the Port of Tacoma Road and Lincoln Avenue, Tacoma, Washington (Vicinity Map - Appendix 6.1). Prior to 1970, the 49.5 acres property was owned by the Port of Tacoma (Port) and was undeveloped and unleased. From 1970 to 1994, the Murray Pacific Corporation leased the property for use as a log sort yard. Operations at the Site included receiving, sorting, and debarking logs before they were delivered to the Blair Waterway Terminal for export. A Site map is available as Appendix 6.2.

During the Site operations, logs were trucked into the sort yard, weighed, and unloaded into scaling bays. The natural soils and dredged fill material at the Site are fine-grained silt and sand, which are unstable under heavy loads, particularly during wet weather. Therefore, operation of the Site as a log sort yard required the use of ballast material to support the heavy machinery and log inventory on the Site. In addition to rock and gravel material, the ASARCO slag (a product of the ore smelting process from the ASARCO smelting facility in Tacoma) was placed on the Site as ballast material between 1975 and 1980. Approximately, 68,000 tons of slag was deposited on the Site.

During normal log sort yard operations, wood waste (primarily bark) is produced by loading, unloading, and movement of logs within the yard. This wood waste accumulates on top of natural soil, dredged fill material, and ballast. As a result of heavy vehicular traffic, wood wastes at the Site were mixed with surficial soils and slag ballast. Metals in the slag were believed to leach due to the acidic conditions caused by biological decomposition of the wood waste. This ability to leach was increased by pulverizing slag by heavy vehicular traffic, which caused slag particles to have more surface area with greater availability to leach metals.

### **2.2 Site Investigations**

Between November 1983 and June 1984, Ecology conducted surface water investigations by collecting storm water runoff samples at the Site. The results showed that concentrations of metals exceeded federal and state marine water quality criteria. The surface water runoff from the Site discharges to the Blair Waterway or to Lincoln Avenue ditch, which in turn discharges to the Blair Waterway. The maximum concentrations of arsenic, copper, lead and zinc were 10,000 microgram per liter ( $\mu\text{g/L}$ ), 1,200  $\mu\text{g/L}$ , 1,000  $\mu\text{g/L}$ , and 3,500  $\mu\text{g/L}$  respectively. It was concluded that in all probability the use of slag for ballast was the major source of elevated metals concentrations.

In 1993, a remedial investigation/feasibility study was performed by Kennedy/Jenks Consultants for the Port as an independent action in conformance with MTCA. Approximately 250 soil and bark samples were collected and analyzed during the RI. Results showed that elevated concentrations of arsenic, copper, lead, and zinc were detected in soil and bark samples. The

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maximum detected concentrations of arsenic, copper, lead, and zinc in these samples were 1,740 milligrams per kilogram (mg/Kg), 2,090 mg/Kg, 1.250 mg/Kg, and 3,690 mg/Kg respectively. The metal concentrations decreased significantly at depths 2.5 feet below the ground surface. Soil sampling locations and results are available as Appendix 6.3.

In addition, sediment samples were collected along the banks of the Lincoln Avenue ditch and the Blair Waterway. Maximum concentrations of arsenic, copper, lead, and zinc were detected at 411 mg/Kg, 262 mg/Kg, 200 mg/Kg, and 617 mg/Kg respectively.

During the RI in 1992 and 1993, surface water runoff monitoring was conducted. Surface runoff leaving the Site had maximum concentrations of arsenic, copper, lead, and zinc of 17,900 µg/L, 4,100 µg/L, 2,100 µg/L, and 5050 µg/L respectively. Results are available as Appendix 6.4.

The RI also included three rounds of groundwater sampling from eight monitoring wells. Concentrations of metals were generally low and indicated that the groundwater was not a significant pathway of contamination migration. Groundwater results are available as Appendix 6.6.

The RI concluded that migration of metals in the surface runoff was the most critical method of metals transport, and that leaching of the metals into the soil below 5 feet of ground surface or into the groundwater did not appear to have been a significant problem.

The RI/FS identified that approximately 76,100 cubic yards of soil with metal concentrations which exceeded MTCA Method A cleanup levels of 200 mg/Kg for arsenic. In addition, these soils contained significant concentrations of copper, lead, and zinc. Also, approximately 111,500 cubic yards of bark and surface material that may have also been contributing as source of contamination to surface water.

### **2.2.1 Feasibility Study**

In October 1993, a feasibility study (FS) was completed by Kennedy/Jenks Consultants following the remedial investigation. The FS screened a number of technologies to address the contamination present at the Site. The screening process resulted in the following three potential alternatives including a no action alternative:

Alternative 1: No Action.

Alternative 2: Excavating/Complete Off-Site Disposal/Backfilling/Grading/Storm Water Controls/Groundwater Monitoring/Institutional Controls.

Alternative 3: Excavating/Partial Off-Site Disposal/Homogenizing/Grading/Asphalt Cap/Storm Water Controls/Groundwater Monitoring/Institutional Controls.

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The FS recommended the alternative 3 as the preferred alternative for the remediation. Based on the findings of the RI/FS, the Port entered into a Consent Decree (CD No. 94 2 09922 7) with Ecology on September 16, 1994 for implementing the selected remedial alternative. The Port also entered into a federal CD (Civil No. C93-5462) for the Commencement Bay Nearshore/Tideflats Superfund site, which addressed contamination in the adjacent waterways.

## **2.3 Remedial Activities**

Remedial actions were conducted at the Site from 1995 through 1998. The Cleanup Action Plan (CAP) contained in the CD included the selected alternative 3 which included bark removal, installation of the storm water collection and treatment system, bank cutback, relocation of some of the contaminated material on the Site, off-Site disposal of some of the contaminated material, fill of the Lincoln Avenue ditch, construction of a low-permeable asphaltic concrete cap and monitoring of surface and groundwater.

In early 1995, bark was removed from the Site. Some of the material was disposed of at a permitted landfill facility and the remaining material was homogenized with the onsite soil, stabilized with concrete and evenly distributed throughout the Site, grading as necessary for the cap. In addition, sediments along the side-slopes of the Blair Waterway were removed during the Blair Waterway widening project. The preliminary storm water collection system was installed and the Site was regraded.

In the summer of 1995, a two-foot deep section of the soil and slag was excavated along entire length of the Site and from the 150-foot strip along the side slopes of the Blair Waterway. This excavated material was placed at center of the Site where it was later capped. This work was conducted in preparation for a separate project involving expansion of the Blair Waterway and pier construction. In the summer of 1997, the Lincoln Avenue ditch was filled and relocated, with flows routed to a concrete culvert.

In the summer of 1998, the construction of the cap and storm water collection system began. Construction of the cap included 12 inches of aggregate base material (over the soil/bark subgrade), 4 inches of dense grade asphalt concrete (DGAC), a geotextile fabric, and 10 inches thickness of asphalt pavement. Construction of the cap was completed in November 1998, containing the contaminated soils which remained on the Site, and preventing from contact with surface water.

## **2.4 Cleanup Levels**

Cleanup levels for the Site were established in the Final Cleanup Action Plan, which was submitted to Ecology in 1993. These cleanup levels (CULs) are available in the table below:

**Table 2: Site Cleanup Levels**

Contaminant	Groundwater	Soil
	(µg/l)	(mg/Kg)
<b>Arsenic</b>	0.14 <sup>2</sup> (10 <sup>1</sup> )	200 <sup>a</sup>
<b>Copper</b>	2.9 <sup>3</sup> (10 <sup>1</sup> )	N/A
<b>Lead</b>	8.5 <sup>3</sup> (10 <sup>1</sup> )	1000 <sup>a</sup>
<b>Zinc</b>	86 <sup>3</sup>	N/A

Key:

- 1: *Practical Quantitation Limit (PQL)*
- 2: *National Toxics Rule*
- 3: *USEPA Water Quality Criteria – Marine Chronic*
- a: *MTCA Method A Cleanup Levels – Industrial Soil per WAC 173-340-745*

Cleanup standards were developed for this Site based on MTCA, Chapter 173-340 WAC. The use of Method A industrial soil cleanup standards per WAC 173-340-745 was justified for the following reasons: the Site cleanup may be defined as a routine cleanup per WAC 173-340-130; the Site is located in a heavy industrial area adjacent to other industrial properties; the Site is zoned for industrial use; and deed restrictions will limit the use of the Site to industrial activities in the future. Since the groundwater is not a current and potential source of drinking water, groundwater cleanup levels were established based USEPA Water Quality Marine Chronic Criteria.

## 2.5 Groundwater Monitoring

As required by the Final Cleanup Action Plan, semi-annual groundwater monitoring was being conducted at the Site from July 1998 to July 2009 and every 18 months thereafter. All the groundwater monitoring results are available as Appendix 6.6. Below is a brief discussion of monitoring results:

### Monitoring Wells MW-X, MW-Y, and MW-Z

- Copper and zinc: The dissolved concentrations have been below the laboratory detection limits (LDL) or below cleanup levels (2.9 µg/L and 86 µg/L respectively) in all of the monitoring wells for fifteen consecutive sampling events from July 1998 to January 2007. As a result, analyses for these metals were discontinued in February 2007 with Ecology's approval.
- Lead: Dissolved lead concentration was either below the LDL or below cleanup level (8.5 µg/L) during six sampling events from July 1998 through July 2001. Hence in

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August 1998, Ecology approved to eliminate the analysis for lead from the monitoring program.

- Arsenic: Analysis for dissolved arsenic will continue because concentrations of arsenic (7 µg/L – 26.6 µg/L) continue to exceed its cleanup level of 5 µg/L in monitoring well MW-Y. However, for the last seven rounds (February 2008 through February 2011), the arsenic concentrations are below cleanup levels in monitoring wells MW-X and MW-Z.

The Port of Tacoma (Port) is conducting groundwater monitoring and cap maintenance as required by an Agreed Order or a Consent Decree with similar contaminants at five sites. To standardize the groundwater monitoring frequency and cap inspection amongst all these sites, the Department of Ecology (Ecology) and the Port of Tacoma entered into a Memorandum of Understanding (MOU) on September 1, 2011. Per the MOU, the Port is required to conduct the cap inspection and groundwater monitoring at 30-month and 18-month frequencies respectively at Murray Pacific 2 Site. A copy of the MOU is included as Appendix 6.7.

## **2.6 Restrictive Covenant**

Following remediation, a Restrictive Covenant (RC) was recorded for the Site on August 24, 1998. The RC imposes the following limitations:

Section 1: The Site may be used only for Industrial uses as defined in and allowed under the City of Tacoma's zoning Regulations codified in the Tacoma City in accordance with the RC.

Section 2: Any activity on the Site that may interfere with or reduce the effectiveness of the Cleanup Action or operation, maintenance, or monitoring, or other activity required by the Order (or any Ecology-approved modification or amendment to the Order) is prohibited. Any activity that would threaten the structural integrity of the cap is prohibited. Any activity on the Site that would result in the release of a hazardous substance that was contained as a part of the Cleanup Action is prohibited. It is understood that disturbance of the cap may be required in the future for installation of utilities or other activities associated with future industrial use of the Site. Any damage to the cap resulting from removal of the wheel stop pins shall be immediately repaired. The Port shall obtain approval from Ecology prior to initiating any disturbance of the cap storm water drainage and/or monitoring system. Ecology shall not deny approval if the Port can show (1) that no releases of hazardous materials will occur; (2) integrity of the cap and storm water drainage and monitoring systems will be restored to their original condition in a timely manner; and (3) that material will be handled and disposed of in accordance with State law.

Section 3: The owner of the Site must give written notice to the Department of Ecology, or to a successor agency, of the owner's intent to convey any interest in the Site. No conveyance of title, easement, lease or other interest in the Site shall be consummated by the owner without adequate and complete provision for the continued operation, maintenance and monitoring of the Cleanup Action.

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Section 4: The owner shall allow authorized representatives of Ecology, or successor agency, the right to enter the Site at reasonable times for the purpose of evaluating compliance with the CAP and the Order, to take samples, to inspect Cleanup Actions conducted at the Site, and to inspect records that are related to the Cleanup Action

Section 5: The owner of the Site and owner's assigns and successors in interest reserve the right under WAC 173-340-730 and WAC 173-340-440 to record as instrument which provides that this RC shall no longer limit the use of the Site or be of any further force or effect. However, such an instrument may be recorded only with the consent of the Department of Ecology or a successor agency. The Department of Ecology or a successor agency may consent to the recording of such an instrument only after public notice and comment.

The RC is available as Appendix 6.8.

## **3.0 PERIODIC REVIEW**

### **3.1 Effectiveness of completed cleanup actions**

Based upon the Site visit conducted on April 24, 2014, the DGAC cover and the storm water collection system at the Site are in excellent condition except minor cracks at one location. The Port is in the process of repairing these cracks as the weather permits. Nonetheless, the overall integrity of the cap seems to be in satisfactory condition. The excavation and capping of the contaminated soils eliminated the risk of human and environmental exposure to the contaminated soils. The cap will continue to prevent direct contact with contaminated soils, as well as prevent storm water from contacting or infiltrating the capped soils. The asphalt cap and storm water collection system continues to be inspected and maintained by the Port. A Photo Log is available as Appendix 6.9.

The groundwater monitoring was being conducted on a semi-annual basis from July 1998 through July 2007. However, as per the requirements of the 2011 MOU, the groundwater sampling is being conducted at the Site on an 18-month schedule. Since the lead, copper and zinc concentrations were consistently either below the laboratory detection limits or below cleanup levels, monitoring for these metals were discontinued in 2001 and 2007 respectively. Due to the consistent detection of arsenic and exceedence in monitoring well MW-Y, groundwater monitoring for arsenic will be continued at the Site.

The RC for the Site was recorded and is in place. This RC prohibits activities that will result in the release of contaminants contained as part of the cleanup without Ecology's approval, and prohibits any use of the property that is inconsistent with the Covenant.

### **3.2 New scientific information for individual hazardous substances for mixtures present at the Site**

Cleanup levels at the Site were based on regulatory standards rather than calculated risk for chemicals and/or media. These standards continue to be protective of site-specific conditions.

### **3.3 New applicable state and federal laws for hazardous substances present at the Site**

The cleanup at the site was governed by Chapter 173-340 WAC (1996 ed.). WAC 173-340-702(12) (c) [2001 ed.] provides that,

“A release cleaned up under the cleanup levels determined in (a) or (b) of this subsection shall not be subject to further cleanup action due solely to subsequent amendments to the provision in

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this chapter on cleanup levels, unless the department determines, on a case-by-case basis, that the previous cleanup action is no longer sufficiently protective of human health and the environment.”

The current MTCA Method A Industrial soil cleanup standard for arsenic has been reduced from 200 mg/kg to 20 mg/kg since the final CD was issued. Because contaminated soils at the Site have been capped, the modification to the MTCA cleanup standard does not represent an increase in risk to human health or the environment. Several of the state marine chronic surface water quality criteria have also changed since the Consent Decree was issued. Values for lead and zinc have been reduced to 8.1 and 86 µg/L, respectively. Overall, the changes to the original standards have not resulted in the need for additional remedial actions at the Site.

### **3.4 Current and projected site use**

The Site is currently used for industrial purposes. The Site currently leased to Hyundai Shipping Company, Ltd. (Hyundai) and is used as a container terminal, which involves the loading, unloading, and storage of containers (see Site Plan in Appendix 2). The future Site use is likely to remain as a container terminal. Hyundai has a 20 to 30-years lease with the Port, which began in 1998. These uses are not likely to have a negative impact on the integrity of the Site cap.

### **3.5 Availability and practicability of higher preference technologies**

The remedy implemented included containment of hazardous substances, and it 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 action were capable of detection below MTCA Method A 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)(f), the cleanup action is determined to comply with cleanup standards since the long-term integrity of the containment system is ensured, and the requirements for containment technologies have been met.
- The RC for the property is in place and will be effective in protecting public health and the environment from exposure to hazardous substances and protecting the integrity of the cleanup action.
- Groundwater monitoring has been conducted on a semi-annual basis at the Site since 1998. However, as per the MOU, continued groundwater monitoring on an 18-months frequency is recommended for the Site.
- Continued cap inspection every 30-months and maintenance are required. Cap maintenance appears to be adequate at this time.

Based on this periodic review, Ecology has determined that the requirements of the RC are being met. The cap is currently in satisfactory condition, and the conditions set forth in the RC are being followed and no additional remedial actions are required at the Site at this time. It is the property owner's responsibility to continue to inspect the site to ensure that the integrity of the cap is maintained and to continue groundwater monitoring.

### 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.



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## 5.0 REFERENCES

Kennedy/Jenks Consultants. 1993. Remedial Investigation/Feasibility Study Report, Murray Pacific Log Yard No. 2, Tacoma, Washington. October 1993.

Hart Crowser. 1993. Summary of Arsenic Data, Murray Pacific Log Sort Yard No.2, Tacoma, Washington. December 1993.

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Pierce County. 1998. Restrictive Covenant (N0. 9808240631) filed on August 24, 1998. Pierce County Auditor.

Kennedy/Jenks Consultants. 2002 to 2009. Semi-Annual Groundwater Monitoring/Operations and Maintenance Cap Inspection Summary Reports. Murray Pacific Log Yard N0. 2, Tacoma, Washington. October 7, 2002 to August 25, 2009.

Kennedy/Jenks Consultants. 2009 to 2010. Groundwater Monitoring Summary Reports, Murray Pacific Log Yard N0. 2, Tacoma, Washington. August 7, 2009 to May 4, 2010.

Conestoga-Rovers & Associates. 2010 to 2011. Groundwater Monitoring Reports. Former Murray Pacific N0. 2 Log Sort Yard, Port of Tacoma, Tacoma, Washington. September 2010 and February 2011.

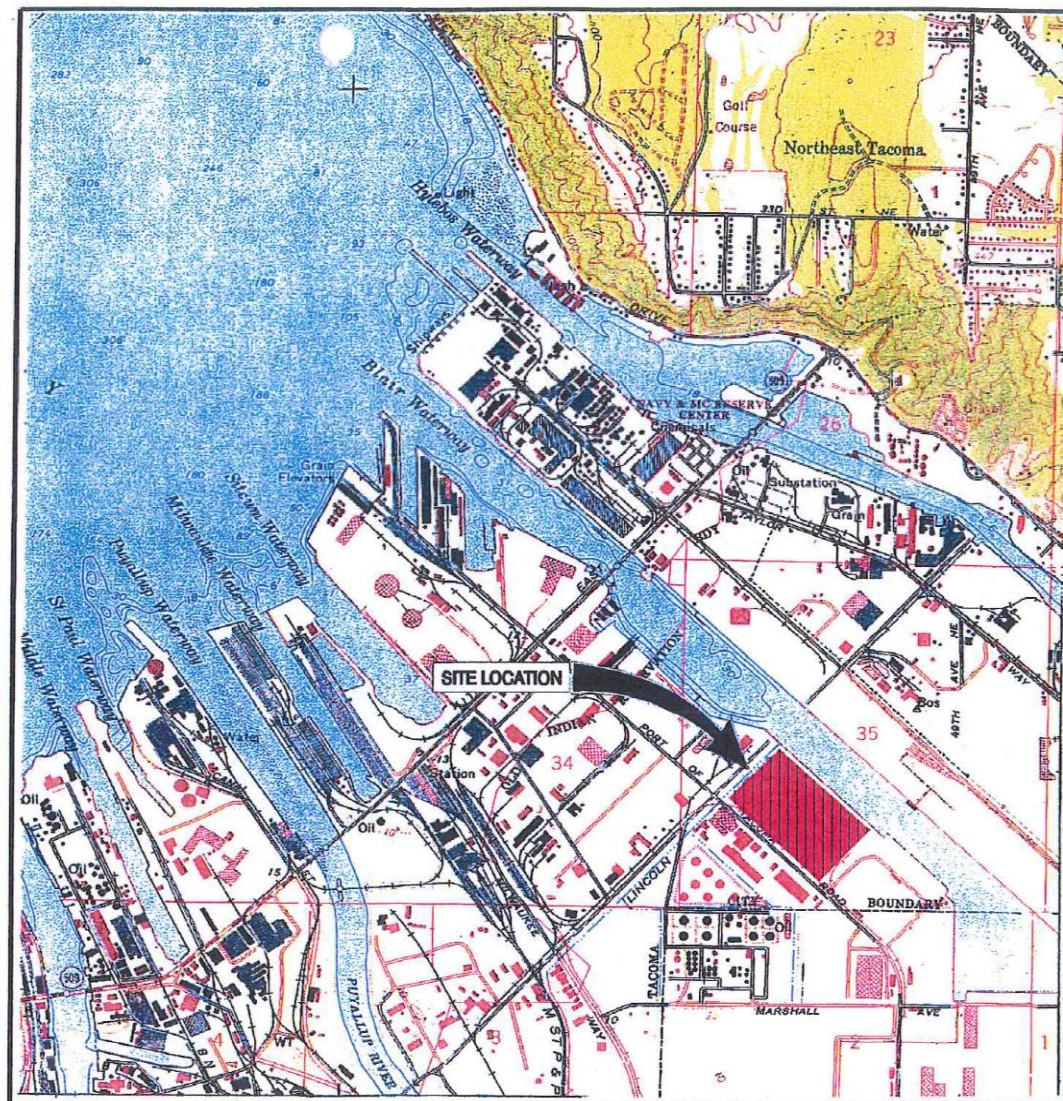
Conestoga-Rovers & Associates. 2011. Cap Inspection Report, former Murray Pacific N0.2 Log Sor Yard, Port of Tacoma, Tacoma, Washington. February 2011.

Ecology. April 24, 2014 Site Visit.

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## **6.0 APPENDICES**

## 6.1 Vicinity Map



0 1000 2000  
APPROXIMATE SCALE



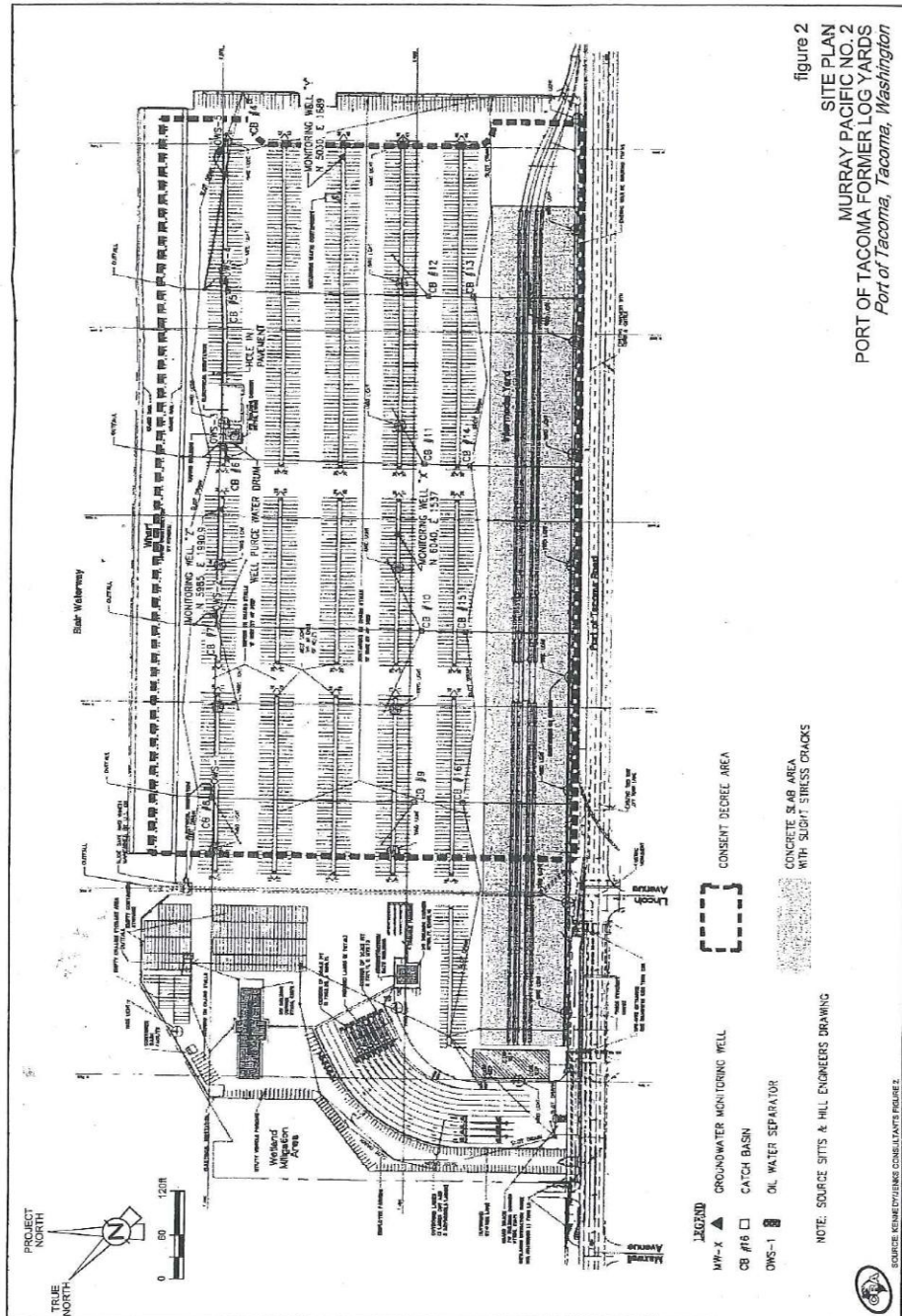
Kennedy/Jenks Consultants

PORT OF TACOMA  
TACOMA, WASHINGTON

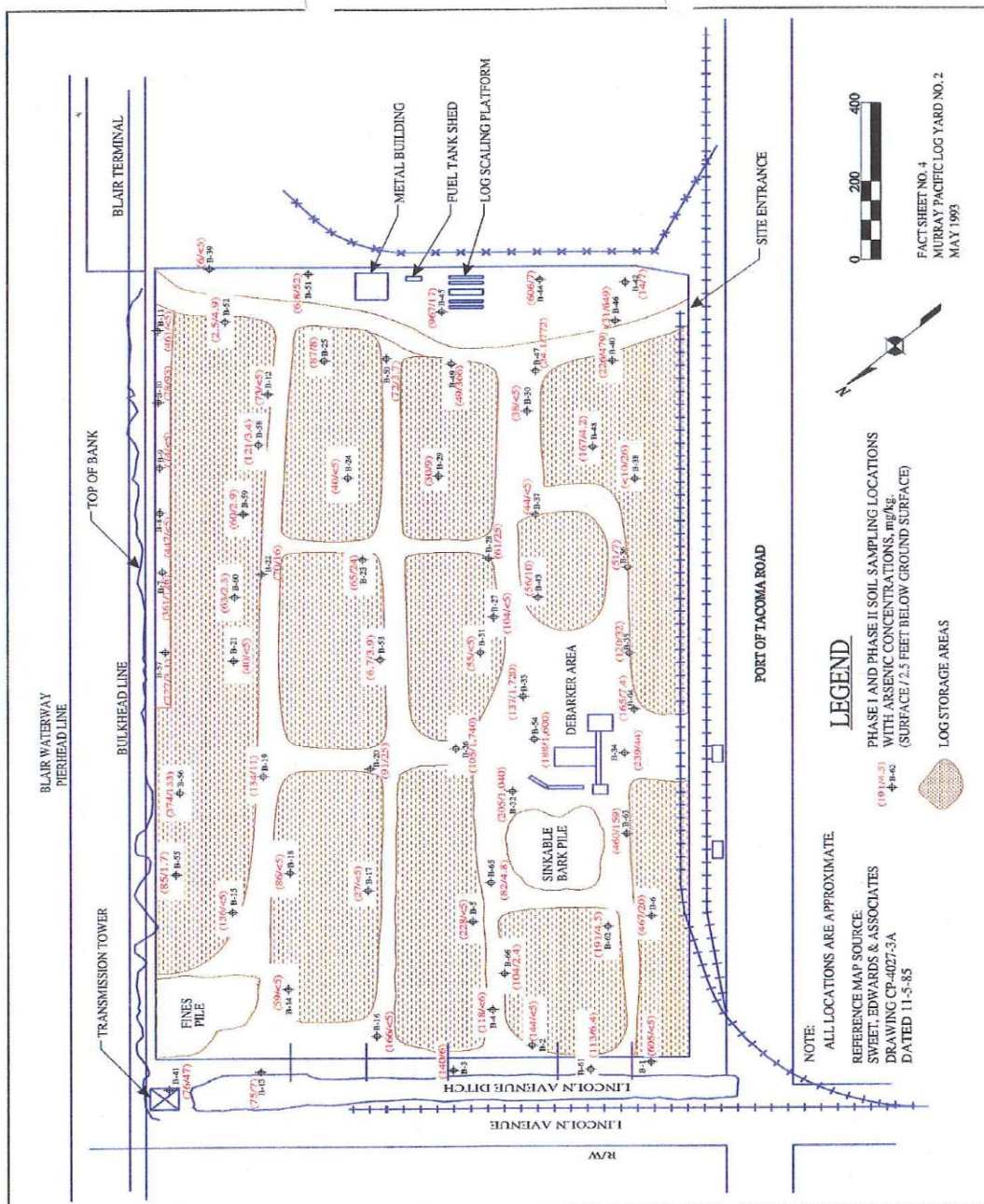
**SITE LOCATION MAP**

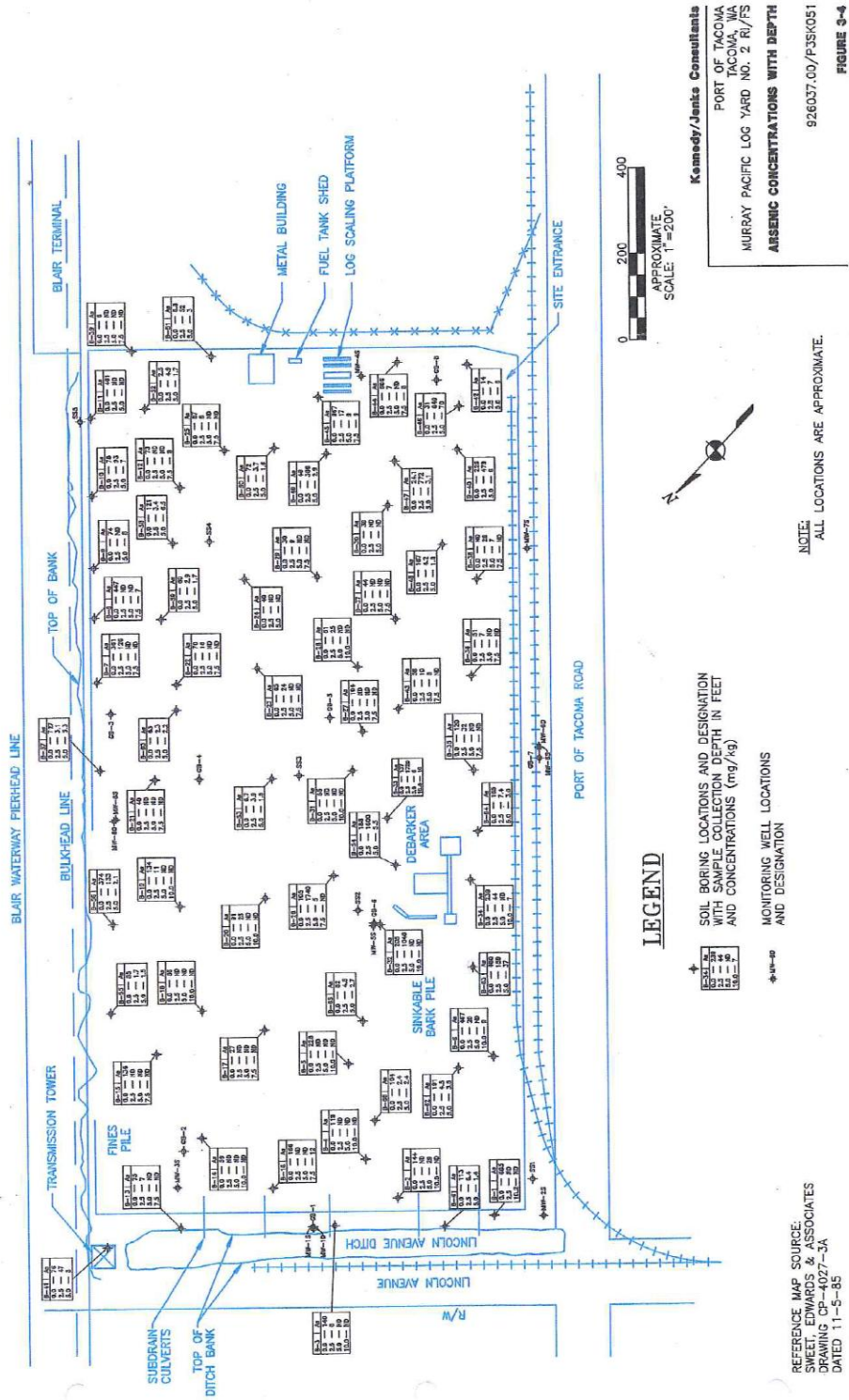
016088.00/P01SK001  
**FIGURE 1**

## 6.2 Site Plan



## 6.3: 1993 Remedial Investigation Soil Sampling Locations and Results





## 6.4 1992 and 1993 Remedial Investigation Storm/Surface Water Runoff Sampling Results

**TABLE 5-3**  
**CHEMICALS DETECTED IN STORMWATER,**  
**CONCENTRATION RANGES, AND MEAN CONCENTRATIONS<sup>(a)</sup>**  
**Port of Tacoma - Wasser & Winters RI/FS**

Chemical	Minimum (mg/L)	Maximum (mg/L)	Mean (mg/L) <sup>(b)</sup>	WAC 173-201A <sup>(a)</sup>	
				Acute	Chronic
Arsenic <sup>(d)</sup>				0.069 <sup>(e)</sup>	0.036
Total	0.260	17.9	2.32		
Dissolved	0.189	14.9	1.82		
Copper <sup>(f)</sup>				0.0025 <sup>(e)</sup>	NC <sup>(g)</sup>
Total	0.095	4.1	0.633		
Dissolved	0.009	0.122	0.049		
Lead <sup>(f)</sup>				0.1511 <sup>(e)</sup>	0.0058 <sup>(h)</sup>
Total	0.022	2.1	0.347		
Dissolved	0.004	0.029	0.012		
Zinc <sup>(f)</sup>				0.0846 <sup>(e)</sup>	0.0766 <sup>(h)</sup>
Total	0.219	5.05	1.13		
Dissolved	0.094	1.05	0.351		

**Notes:**

- (a) Source for concentration data: Table 3-13 (includes data from three events).
- (b) For concentrations below detection levels, a value equal to one-half the detection level was used to calculate the mean.
- (c) Water Quality Standards for Surface Waters of the State of Washington.
- (d) Arsenic III criteria; the criteria are based on the total recoverable fraction of the metal.
- (f) A 1-hour average concentration not to be exceeded more than once every 3 years on the average.
- (e) Criteria for copper, lead, and zinc are based on the dissolved fraction of the metal.
- (g) NC - No criterion.
- (h) A 4-day concentration average not to be exceeded more than once every 3 years on the average.

FINAL  
October 1993

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## 6.5 Remedial Investigation Groundwater Investigation Results

TABLE 3-9

Page 1 of 2

**GROUNDWATER ANALYTICAL RESULTS FOR TOTAL  
AND DISSOLVED METALS OF CONCERN<sup>(a,b)</sup>  
IN THE DREDGE FILL UNIT  
Port of Tacoma - Murray Pacific Log Yard No. 2 RI/FS**

Sample Location		Arsenic (mg/L) (Total/Dissolved)	Copper (mg/L) (Total/Dissolved)	Lead (mg/L) (Total/Dissolved)	Zinc (mg/L) (Total/Dissolved)
<b>1st Event (October 1992)</b>					
MW-1S		(c)	(c)	(c)	(c)
MW-2S		0.003/0.003	0.004/<0.002 <sup>(d)</sup>	0.002/<0.001	0.01/0.008
MW-2SD <sup>(a)</sup>		0.003/0.003	0.004/<0.002	0.003/0.001	0.01/0.008
MW-3S		0.004/0.004	<0.002/0.004	0.002/<0.001	0.006/0.007
MW-4S		0.003/0.004	0.005/0.007	<0.001/0.001	0.009/0.009
MW-5S		0.001/<0.001	0.004/<0.002	0.003/0.001	0.01/0.008
MW-6S		(c)	(c)	(c)	(c)
MW-7S		0.002/0.002	0.005/0.004	0.001/<0.001	0.022/0.015
MW-8S		0.002/<0.001	0.004/<0.002	0.005/0.004	0.062/0.01
MW-8SD <sup>(a)</sup>		0.002/<0.001	0.004/<0.002	0.002/<0.001	0.073/0.01
WAC 173-201A	Acute	0.089	0.0025	0.1511	0.0846
	Chronic	0.036	—	0.0058	0.0766
<b>2nd Event (December 1992)</b>					
MW-1S		<0.001/0.001	0.019/0.023	0.003/0.002	0.077/0.066
MW-2S		0.003/0.003	0.008/0.006	0.005/0.002	0.030/0.016
MW-3S		0.007/0.006	0.008/0.008	0.004/0.003	0.079/0.008
MW-4S		0.003/0.003	0.011/0.015	0.002/0.002	0.010/0.010
MW-5S		0.003/0.002	0.052/0.016	0.001/0.001	0.072/0.017
MW-6S		0.007/0.007	0.019/0.026	0.005/0.003	0.072/0.026
MW-7S		0.003/0.003	0.012/0.023	<0.001/<0.001	0.014/0.012
MW-7SD <sup>(b)</sup>		0.003/0.003	0.017/0.019	<0.001/0.001	0.015/0.012
MW-8S		0.002/0.002	0.025/0.017	0.003/<0.001	0.024/0.012
WAC 173-201A <sup>(a)</sup>	Acute	0.069	0.0025	0.1511	0.0846
	Chronic	0.036	—	0.0058	0.0766

FINAL  
October 1993

926037.00

TABLE 3-9

Page 2 of 2

**GROUNDWATER ANALYTICAL RESULTS FOR TOTAL  
AND DISSOLVED METALS OF CONCERN<sup>(a,b)</sup>  
IN THE DREDGE FILL UNIT  
Port of Tacoma - Murray Pacific Log Yard No. 2 RI/FS**

Sample Location	Arsenic (mg/L) (Total/Dissolved)	Copper (mg/L) (Total/Dissolved)	Lead (mg/L) (Total/Dissolved)	Zinc (mg/L) (Total/Dissolved)
<b>3rd Event (January 1993)</b>				
MW-1S	<0.001/<0.001	<0.002/0.005	<0.001/<0.001	0.052/0.046
MW-2S	0.003/0.003	0.003/0.004	0.002/0.002	0.025/0.015
MW-3S	0.005/0.003	0.004/0.004	0.002/<0.001	0.035/<0.004
MW-4S	0.001/0.002	0.002/0.004	0.002/0.001	0.005/<0.004
MW-4SD <sup>(h)</sup>	0.001/0.002	0.002/<0.002	<0.001/<0.001	0.005/<0.004
MW-5S	0.001/<0.001	0.001/<0.004	0.002/<0.001	0.052/0.034
MW-6S	0.017/0.015	0.003/0.003	0.002/<0.001	0.026/0.021
MW-7S	0.002/0.002	0.003/0.008	0.001/<0.001	0.014/<0.004
MW-8S	0.007/0.015	0.003/0.005	0.005/<0.001	0.027/0.011
WAC 173-201A <sup>(a)</sup>	Acute	0.089	0.0025	0.1511
	Chronic	0.036	—	0.0058

Notes:

- (a) Groundwater samples were analyzed for total and dissolved metals using EPA Methods 6010 and 7000 series.
  - (b) Groundwater samples were field filtered.
  - (c) Sample not collected because well was dry.
  - (d) "<" denotes analyte was not detected at the indicated detection limit.
  - (e) Samples MW-2SD and MW-8SD are field duplicate samples collected at MW-2S and MW-8S, respectively, during the 1st groundwater sampling event.
  - (f) Sample MW-7SD is a field duplicate sample collected at MW-7S during the 2nd groundwater sampling event.
  - (g) Water Quality Standards for Surface Waters of the State of Washington.
  - (h) Samples MW-4SD and MW-8SD are field duplicate samples collected at MW-4S and MW-8S, respectively, during the 3rd groundwater sampling event.
- Shade** = Sample exceeds either acute or chronic WQS (WAC 173-201A). Values exceeding the WQS are based on total recoverable concentrations (i.e., seasonal partitioning of dissolved metals was not evaluated as part of the RI).

FINAL  
October 1993

926037.00

**TABLE 3-12**  
**GROUNDWATER ANALYTICAL RESULTS FOR TOTAL**  
**AND DISSOLVED METALS OF CONCERN<sup>(a,b)</sup>**  
**IN THE MIDDLE SAND UNIT**  
**Port of Tacoma - Murray Pacific Log Yard No. 2 RI/FS**

Sample Location		Arsenic (mg/L) (Total/Dissolved)	Copper (mg/L) (Total/Dissolved)	Lead (mg/L) (Total/Dissolved)	Zinc (mg/L) (Total/Dissolved)
<b>1st Event (October 1992)</b>					
MW-1D		<0.001 <sup>(a)</sup> /0.001	0.01/0.008	0.003/0.003	0.006/<0.004
MW-6D		0.001/0.001	<0.002/0.002	0.001/<0.001	<0.004/<0.004
MW-8D		0.002/<0.001	0.003/<0.002	0.005/0.001	0.008/<0.004
WAC 173-201A <sup>(d)</sup>	Acute	0.089	0.0025	0.1511	0.0846
	Chronic	0.036	--	0.0058	0.0766
<b>2nd Event (December 1992)</b>					
MW-1D		0.003/0.002	0.027/0.022	0.002/0.003	0.012/0.007
MW-6D		0.003/0.002	0.014/0.023	0.002/0.001	0.007/0.005
MW-8D		0.003/0.002	0.014/0.013	0.003/0.001	0.007/>0.004
WAC 173-201A <sup>(d)</sup>	Acute	0.089	0.0025	0.1511	0.0846
	Chronic	0.036	--	0.0058	0.0766
<b>3rd Event (January 1993)</b>					
MW-1D		<0.001/0.001	<0.003/<0.002	<0.001/<0.001	<0.004/<0.004
MW-6D		<0.001/<0.001	<0.002/<0.002	<0.001/<0.001	<0.004/<0.004
MW-8D		0.001/0.001	0.008/<0.002	<0.001/0.001	<0.004/<0.004
MW-8DD <sup>(e)</sup>		0.002/<0.001	0.004/<0.002	0.001/<0.001	<0.004/<0.004
WAC 173-201A <sup>(d)</sup>	Acute	0.089	0.0025	0.1511	0.0846
	Chronic	0.036	--	0.0058	0.0766

**Notes:**

- (a) Groundwater samples were analyzed for total and dissolved metals by EPA Methods 6010 and 7000 series.
- (b) Groundwater samples were field filtered.
- (c) "<" denotes analyte was not detected at the indicated detection limit.
- (d) Water Quality Standards for Surface Waters of the State of Washington.
- (e) Sample MW-8DD is a field duplicate sample collected at MW-8D during the 3rd groundwater sampling event.

**Notes:** = Sample exceeds either acute or chronic WQS (WAC 173-201A). Values exceeding the WQS are based on total recoverable concentrations (i.e., seasonal partitioning of dissolved metals was not evaluated as part of the RI).

FINAL  
October 1993

926037.00

## 6.6 Long Term Groundwater Monitoring Well Locations and Results

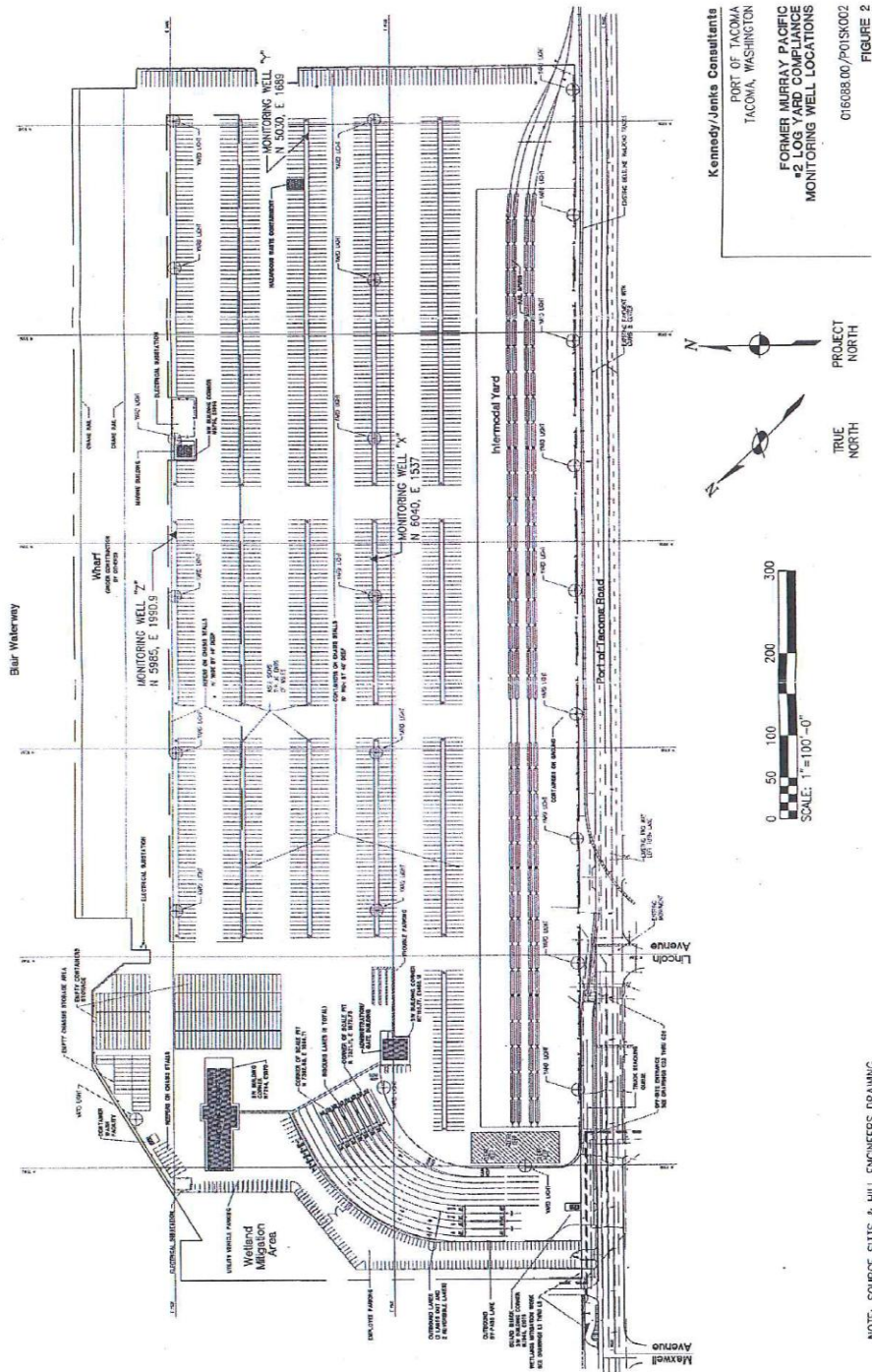


TABLE 1

Page 1 of 3

GROUNDWATER ANALYTICAL DATA  
FORMER MURRAY PACIFIC #2 LOG SORT YARD  
PORT OF TACOMA  
TACOMA, WASHINGTON

Well	Date	<i>Metals</i>			
		<i>Dissolved Arsenic</i>	<i>Dissolved Copper</i>	<i>Dissolved Lead</i>	<i>Dissolved Zinc</i>
		<i>ug/L</i>	<i>ug/L</i>	<i>ug/L</i>	<i>ug/L</i>
<i>Groundwater Cleanup Levels <sup>(1)</sup>:</i>		5	2.9	8.5	86
MW-X	07/22/98	20	3.2	0.52	8.9
MW-X	01/21/99	0.98	ND	ND	23
MW-X	07/20/99	7.7	2.2	ND	79
MW-X	02/24/00	4.5	2.2	ND	86
MW-X	07/27/00	4.9	1.4	ND	5.5
MW-X	07/17/01	4.4	1.2	ND	50
MW-X	01/16/02	3.88	1.5	--	ND
MW-X	07/16/02	5.06	1.53	--	1.29
MW-X	01/13/03	4.97	ND	--	ND
MW-X	07/15/03	4.81	ND	--	ND
MW-X	02/04/04	9.22	1.32	--	5.46
MW-X	08/02/04	8.24	2.61	--	18.6
MW-X	07/26/05	5.37	ND	--	ND
MW-X	08/11/06	3	ND	--	ND
MW-X	01/29/07	6.7	ND	ND	ND
MW-X	02/08/08	3.1	--	--	--
MW-X	09/12/08	0.7	--	--	--
MW-X	02/27/09	0.6	--	--	--
MW-X	07/23/09	0.7	--	--	--
MW-X	02/04/10	<0.5	--	--	--
MW-X	09/17/10	<0.5	--	--	--
MW-X	02/15/11	<0.5	--	--	--
MW-Y	07/22/98	15	2	1.7	8.5
MW-Y	01/21/99	0.52	ND	ND	24
MW-Y	07/20/99	3	ND	ND	73
MW-Y	02/24/00	2	ND	ND	94
MW-Y	07/27/00	ND	ND	ND	ND
MW-Y	07/17/01	8	ND	ND	23
MW-Y	01/16/02	13.1	ND	--	6.92
MW-Y	07/16/02	18.7	0.584	--	2.77
MW-Y	01/13/03	9.49	ND	--	ND
MW-Y	07/15/03	16.5	ND	--	ND
MW-Y	02/04/04	8.45	2.45	--	9.64
MW-Y	08/02/04	7.64	ND	--	12.9

CRA 060288 (5)

TABLE 1

Page 2 of 3

GROUNDWATER ANALYTICAL DATA  
FORMER MURRAY PACIFIC #2 LOG SORT YARD  
PORT OF TACOMA  
TACOMA, WASHINGTON

		Metals			
Well	Date	Dissolved Arsenic ug/L	Dissolved Copper ug/L	Dissolved Lead ug/L	Dissolved Zinc ug/L
Groundwater Cleanup Levels <sup>(1)</sup> :		5	2.9	8.5	86
MW-Y	07/26/05	10.7	ND	--	ND
MW-Y	08/11/06	13	ND	--	ND
MW-Y	01/29/07	7	ND	--	ND
MW-Y	02/08/08	9.3	--	--	--
MW-Y	09/12/08	8.9	--	--	--
MW-Y	02/27/09	7.4	--	--	--
MW-Y	07/23/09	2.3	--	--	--
MW-Y	02/04/10	10.9	--	--	--
MW-Y	09/17/10	26.6	--	--	--
MW-Y	02/15/11	3.3	--	--	--
MW-Z	07/22/98	6.5	ND	0.84	3.7
MW-Z	01/22/99	ND	ND	ND	16
MW-Z	07/20/99	30	2.3	ND	68
MW-Z	02/24/00	11	2.3	0.52	44
MW-Z	07/27/00	11	1.9	ND	ND
MW-Z	07/17/01	7.3	1.4	ND	16
MW-Z	01/16/02	5.68	1.84	--	5.69
MW-Z	07/16/02	5.99	2.25	--	3.3
MW-Z	01/13/03	5.1	2.92	--	ND
MW-Z	07/15/03	5.12	ND	--	ND
MW-Z	02/04/04	8.62	1.62	--	6.62
MW-Z	08/02/04	8.41	2.07	--	14.3
MW-Z	07/26/05	5.88	ND	--	ND
MW-Z	08/11/06	2.6	ND	--	ND
MW-Z	01/29/07	14	ND	--	ND
MW-Z	02/08/08	3.4	--	--	--
MW-Z	09/12/08	0.6	--	--	--
MW-Z	02/27/09	0.8	--	--	--
MW-Z	07/23/09	0.4	--	--	--
MW-Z	02/04/10	<0.5	--	--	--
MW-Z	09/17/10	0.6	--	--	--
MW-Z	02/15/11	2.9	--	--	--

CRA 060288 (5)

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## 6.7 Memorandum of Understanding

### MEMORANDUM OF UNDERSTANDING

#### Former Log Yard Groundwater Monitoring and Cap Inspection

This Memorandum of Understanding (MOU) is entered into this 12 day of September 2011 between the Washington State Department of Ecology ("Ecology") and the Port of Tacoma ("Port") (collectively the "Parties") to memorialize the Parties' agreement to modify the requirements for future groundwater monitoring and cap inspection frequencies for five Port sites, as set forth below.

These sites affected by this agreement are Cascade Timber No. 3, Murray Pacific No. 2, Wasser Winters, Portac, and Louisiana-Pacific (aka Pony Lumber) ("Monitored Sites").

Each Monitored Site was cleaned up under an administrative agreement between Ecology and the Port, either as an original party or successor interest, as follows: Cascade Timber No. 3, Murray Pacific No. 2, and Wasser Winters were cleaned up under Consent Decrees, Louisiana-Pacific under an Enforcement Order, and Portac under a pre-Model Toxics Control Act (MTCA) Order On Consent (cumulatively referred to as: "Ecology Orders"). Portac, Inc. was also a respondent to the Portac Order on Consent along with the Port.

Each Monitored Site addressed similar contaminants of concern (COCs), which included arsenic, copper, lead, and zinc. However, each Ecology Order had site-specific requirements with respect to cleanup levels, and cap and groundwater monitoring frequencies.

In Spring 2010, the Port initiated a request to Ecology to standardize the monitoring requirements for the Monitored Sites in an effort to align the timing of the periodic monitoring/inspections at the sites so that the Port may better align a contractor to do the work all at once, as required.

In August 2010, to supplement the information already provided to Ecology, the Port provided Ecology with a tour of the Monitored Sites. As part of the tour, Ecology inspected the type and condition of the caps; the current site uses, specifically on the capped areas, and the locations and conditions of existing monitoring wells and stormwater basins.

Ecology has reviewed the information provided by the Port, as well as observations made during the site tour, and has chosen to provide a response in the form of this MOU.

This MOU was created for the Parties to understand and agree upon the requirements associated with Ecology's response, and to memorialize the decisions made with respect to each of the Port's requests.

In preparing this MOU, Ecology took into account, for each site, the type and condition of the cap and stormwater collection system, the adequacy of the groundwater monitoring system, and the recent groundwater compliance history.

Based on the above, Ecology and the Port agree as follows:

A. CAP MONITORING FREQUENCY

1. The Port may standardize the cap monitoring (inspection and reporting) frequency for the Monitored Sites to 30 months as requested. However, the following shall also occur:
  - During the site tours, Ecology noted that some of the stormwater basins were in better condition than others. Stormwater basins at each of the Monitored Sites should be inspected quarterly and cleaned out as needed, such that they are continuously operational.
  - Any unanticipated breaches of the cap for any of the Monitored Sites shall be reported to Ecology and repaired as soon as practicable. As per the respective Ecology Orders, the Port shall provide Ecology with a plan for each of the sites that summarizes intended action and reporting by the Port for unanticipated cap breaches.
  - Advance notice shall be provided and prior approval shall be obtained from Ecology for any planned cap breaches and repairs that are not otherwise permitted under the respective Ecology Order for each Monitored Site.
  - Minor cracking and normal wear and tear shall be repaired and reported as anticipated by and according to each Monitored Site's Ecology Order.
  - The appropriate Ecology Site Manager shall be informed, in writing, of any changes in site use on capped areas.
2. The next cap monitoring for the Monitored Sites based on this new 30-month frequency shall be February 2012, which corresponds to the next 30-month groundwater monitoring event for Wasser Winters described below. Unless changed by Ecology, all future cap monitoring for the Monitored Sites shall occur every 30 months beginning February 2012 to coincide with the groundwater monitoring that is intended to target alternating wet and dry seasons.

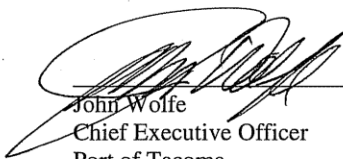
B. GROUNDWATER MONITORING FREQUENCY

1. The Port may standardize the groundwater monitoring frequency for each of the Monitored Sites as requested, which included the following:
  - Cascade Timber No. 3 – 18 months (formerly 12 months).
  - Murray Pacific No. 2 – 18 months (formerly 6 months).
  - Wasser Winters – No change (currently 30 months).
  - Portac – No change (currently discontinued).
  - Louisiana-Pacific – 30 months (formerly 24 months wet/dry).

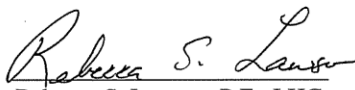
2. The next groundwater monitoring for the Monitored Sites shall be conducted in February 2012. Unless changed by Ecology, all future groundwater monitoring for the Monitored Sites shall occur according to the frequency identified above beginning February 2012.

C. EFFECT OF MODIFICATION

1. Except as modified herein, all provisions of the Original Ecology Orders for each Monitored Site as existing and as may have been amended, including addressing any potential data compliance issues, remain in full force and effect.
2. A copy of this MOU shall be filed with the Ecology Project Manager for each of the Monitored Sites.

  
John Wolfe  
Chief Executive Officer  
Port of Tacoma

9.1.11  
Date

  
Rebecca S. Lawson, P.E., LHG  
Section Manager, Toxics Cleanup Program  
Southwest Regional Office  
Washington State Department of Ecology

9/12/2011  
Date

cc:

Jason Jordan – Port of Tacoma  
Mark Rettmann – Port of Tacoma  
William Evans – Port of Tacoma  
Leslee Connor – Port of Tacoma  
Scott Hooton – Port of Tacoma  
Dom Reale – Ecology  
Marv Coleman – Ecology  
Guy Barrett – Ecology  
James DeMay – Ecology  
Scott Rose – Ecology  
Rebecca Lawson – Ecology

## 6.8 Environmental Covenant

PIERCE COUNTY, WA  
9808240631  
8-24-1998 03:20 PM  
Fee Amt: \$13.00

COI

Name & Return Address:

PORT OF TACOMA  
ATTN: SUSAN MOEN  
PO BOX 1838  
TACOMA WA 98401-1838  
Please print legibly or type information.

Document Title (Or transaction contained therein)
DECLARATION OF RESTRICTIVE COVENANT
Grantor(s) (Last name first, then first name, middle name)
PORT OF TACOMA
____ Additional Names on Page ____ of Document
Grantee(s) (Last name first, then first name, middle name)
DEPT OF ECOLOGY
____ Additional Names on Page ____ of Document
Legal Description (Abbreviated: i.e., lot, block, plat or section, township, range)
SW QTR SECTION 35 TOWNSHIP 21 NO RANGE 3 EA OF WILLAMETTE MERIDIAN, COUNTY OF PIERCE, STATE OF WASHINGTON
Complete Legal Description on Page <u>6</u> of Document
Auditor's Reference Number(s)
Assessor's Property Tax Parcel/Account Number(s)
03-21-35-3-016 5 - 007 - 014 - 011
The Auditor/Recorder will rely on the information provided on this cover sheet. The staff will not read the document to verify the accuracy or completeness of the indexing information provided herein.

gpcovhln 298

9808240631

B2

**DECLARATION OF RESTRICTIVE COVENANT**

The property that is the subject of this Restrictive Covenant is the subject of remedial action under Chapter 70.105D RCW. The work done to clean up the property (hereafter the "Cleanup Action") is described in Washington State Department of Ecology Consent Decree No. 94 2 099227, and in attachments to the Decree. This Restrictive Covenant is required by WAC 173-340-440 because the Cleanup Action at the Site will result in residual concentrations of arsenic and lead which exceed Ecology's Method A cleanup levels for Industrial soil established under WAC 173-340-745.

This Restrictive Covenant shall take effect twenty days after completion of the cap paving, as required in the Consent Decree, or December 20, 1998, whichever comes first.

The Port of Tacoma is the fee owner of real property known as the Murray Pacific Log Yard No. 2 in the county of Pierce, state of Washington of which 49.5 acres are referred to as the "Site" (Exhibit B).

As a result of the Cleanup Action, the Site will include a woodwaste, soil, and slag mixture which will be covered with a cap system equipped with a surface water collection system. The Site will also include monitoring wells as per WAC 173-340-360 (8).

DECLARATION OF RESTRICTIVE COVENANT - 1

PT 440772

**9808240631**

The Port of Tacoma makes the following declaration as to limitations, restrictions, and uses to which the Site 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 person claiming under them, including all current and future owners of any portion of or interest in the Site.

Section 1 The Site may be used only for Industrial uses as defined in and allowed under the City of Tacoma's Zoning Regulations codified in the Tacoma City Code as of the date of this Restrictive Covenant.

Section 2 Any activity on the Site that interferes with or reduces the effectiveness of the Cleanup Action or any operation, maintenance, monitoring, or other activity required by the Decree (or any Ecology-approved modification or amendment to the Decree) is prohibited. Any activity that would threaten the structural integrity of the cap is prohibited. Any activity on the Site that would result in the release of a hazardous substance that was contained as a part of the Cleanup Action is prohibited. It is understood that disturbance of the cap may be required in the future for installation of utilities or other activities associated with future industrial use of the site. Any damage to the cap resulting from removal of the wheel stop pins shall be immediately repaired. The Port shall obtain approval from Ecology prior to initiating any disturbance of the cap storm water drainage and/or monitoring system. Ecology shall not deny approval if the Port can show (1) that no releases of hazardous materials will occur; (2) integrity of the cap and storm water drainage and monitoring systems will be restored to their original condition in a timely manner; and (3) that material will be handled and disposed of in accordance with State law.

DECLARATION OF RESTRICTIVE COVENANT - 2

PT 440772

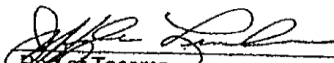
**9808240631**

Section 3 The owner of the Site must give written notice to the Department of Ecology, or to a successor agency, of the owner's intent to convey any interest in the Site. No conveyance of title, easement, lease or other interest in the Site shall be consummated by the owner without adequate and complete provision for the continued operation, maintenance and monitoring of the Cleanup Action.

Section 4 The owner shall allow authorized representatives of the Department of Ecology, or of a successor agency, the right to enter the Site at reasonable times for the purpose of evaluating compliance with the Cleanup Action Plan and the Order, to take samples, to inspect Cleanup Actions conducted at the Site, and to inspect records that are related to the Cleanup Action.

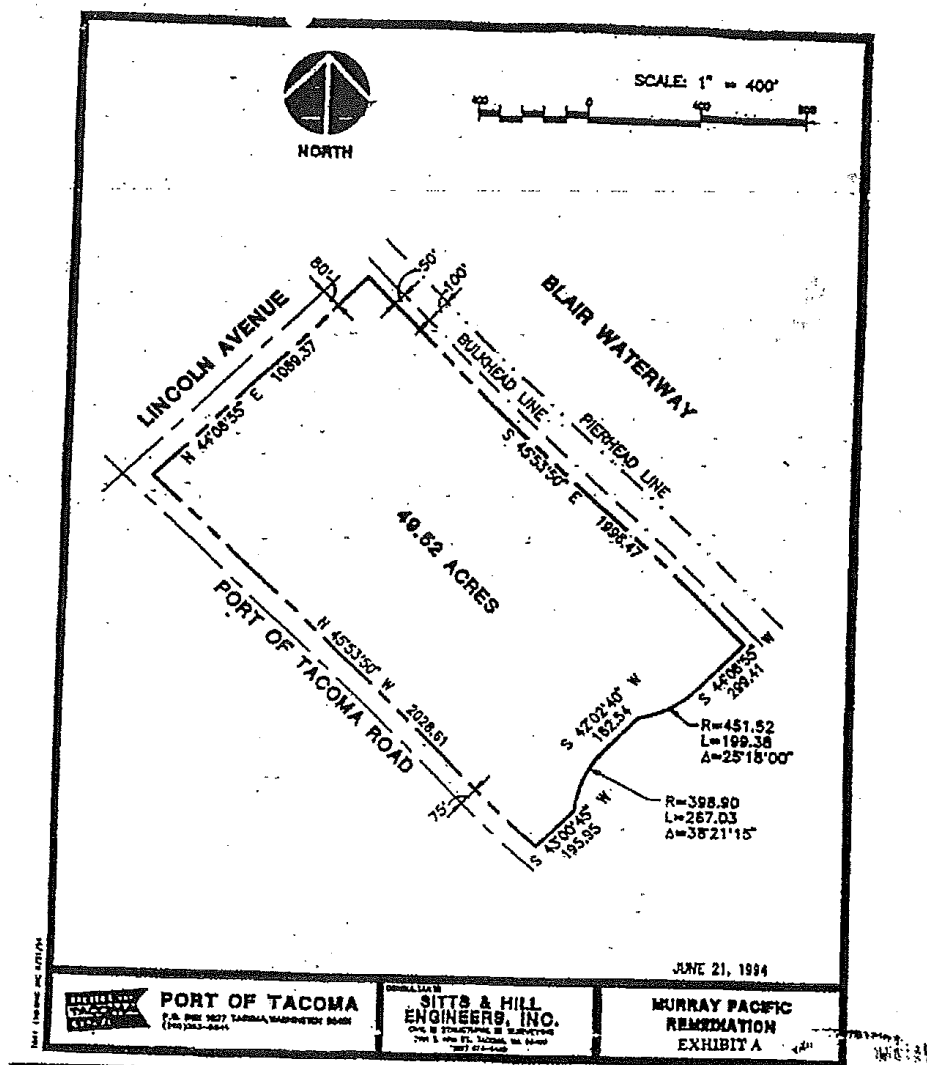
Section 5 The owner of the Site and owner's assigns and successors in interest reserve the right under WAC 173-340-730 and WAC 173-340-440 to record an instrument which provides that this Restrictive Covenant shall no longer limit the use of the Site or be of any further force or effect. However, such an instrument may be recorded only with the consent of the Department of Ecology or of a successor agency. The Department of Ecology or a successor agency may consent to the recording of such an instrument only after public notice and comment.

The Port of Tacoma agrees to file this Restrictive Covenant in the Site property deed with the Pierce County Auditor and provide the Department of Ecology with a filed copy.

  
Port of Tacoma  
8/24/98  
Date

DECLARATION OF RESTRICTIVE COVENANT - 3

PT 440772



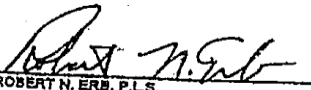
9808240631

EXHIBIT B  
DESCRIPTION  
MURRAY PACIFIC REMEDIATION

A PARCEL OF LAND SITUATE IN THE SOUTHWEST QUARTER OF SECTION 35, TOWNSHIP 21 NORTH, RANGE 3 EAST OF THE WILLAMETTE MERIDIAN, COUNTY OF PIERCE, STATE OF WASHINGTON AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE MONUMENT IN THE INTERSECTION OF PORT OF TACOMA ROAD AND LINCOLN AVENUE AS SHOWN ON THE PLAT OF THE PORT OF TACOMA INDUSTRIAL DEVELOPMENT DISTRICT FIRST ADDITION RECORDED MARCH 20, 1957 IN VOLUME 18 OF PLATS AT PAGE 8; THENCE SOUTH 45°53'50" EAST ALONG THE MONUMENT LINE OF SAID PORT OF TACOMA ROAD, 80.00 FEET; THENCE NORTH 44°08'55" EAST, 78.00 FEET TO THE INTERSECTION OF EASTERLY RIGHT-OF-WAY LINE OF SAID PORT OF TACOMA ROAD AND THE SOUTHERLY RIGHT-OF-WAY LINE OF SAID LINCOLN AVENUE AND THE TRUE POINT OF BEGINNING; THENCE CONTINUING ALONG SAID SOUTHERLY RIGHT-OF-WAY LINE, NORTH 44°08'55" EAST 1089.37 FEET TO A POINT LYING 50 FEET SOUTHWESTERLY OF THE SOUTHWESTERLY BULKHEAD LINE OF THE BLAIR WATERWAY; THENCE SOUTHEASTERLY AND PARALLEL WITH SAID BULKHEAD LINE, SOUTH 45°53'50" EAST 1996.47 FEET; THENCE SOUTHWESTERLY AND PARALLEL WITH SAID SOUTHERLY RIGHT-OF-WAY LINE OF LINCOLN AVENUE, SOUTH 44°08'55" WEST 299.41 FEET TO THE BEGINNING OF A NON-TANGENT CURVE CONCAVE TO THE NORTH HAVING A RADIUS POINT WHICH BEARS NORTH 38°19'23" WEST, 481.52 FEET; THENCE SOUTHWESTERLY ALONG THE ARC OF SAID CURVE 182.33 FEET THROUGH A CENTRAL ANGLE OF 25°18'00"; THENCE SOUTHWESTERLY AND NOT TANGENT TO THE PRECEDING CURVE, SOUTH 42°02'40" WEST 182.54 FEET TO THE BEGINNING OF A NON-TANGENT CURVE CONCAVE TO THE SOUTHEAST HAVING A RADIUS POINT WHICH BEARS SOUTH 48°52'35" EAST 398.90 FEET; THENCE SOUTHERLY ALONG THE ARC OF SAID CURVE 287.03 FEET THROUGH A CENTRAL ANGLE OF 35°21'18"; THENCE SOUTHWESTERLY AND NOT TANGENT TO THE PRECEDING CURVE, SOUTH 43°00'45" WEST 185.93 FEET TO THE EASTERLY RIGHT-OF-WAY LINE OF SAID PORT OF TACOMA ROAD; THENCE NORTHWESTERLY ALONG SAID EASTERLY RIGHT-OF-WAY LINE, NORTH 45°53'50" WEST 2028.61 FEET TO THE POINT OF BEGINNING.

CONTAINING 2,157,237.83 SQ. FEET OR 49.52 ACRES MORE OR LESS.

  
ROBERT N. ERB, P.L.S.  
WASHINGTON REGISTRATION NO. 18082

SITTS & HILL ENGINEERS, INC.  
2901 SOUTH 40TH STREET  
TACOMA, WASHINGTON 98409

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PROJECT NO. 7897  
JUNE 21, 1994



9808240631

## 6.9 Photo log: Murray Pacific Log Yard 2

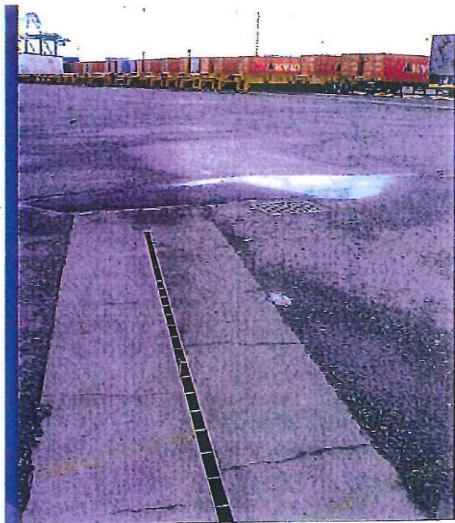


Photo 2 Stormwater system - slot drain.

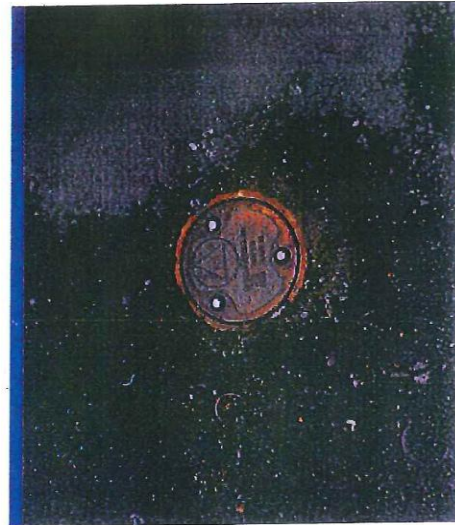


Photo 4 Groundwater monitoring well.

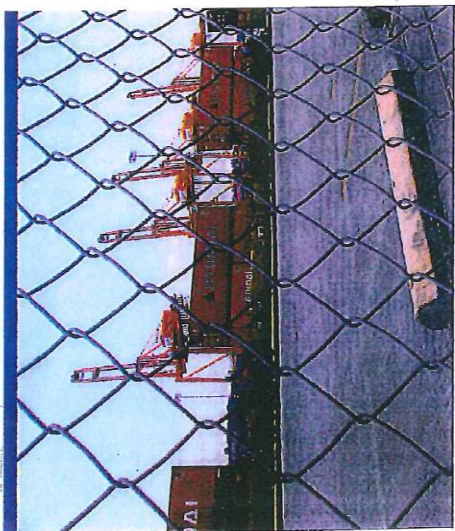


Photo 1 Container storage on the cap.

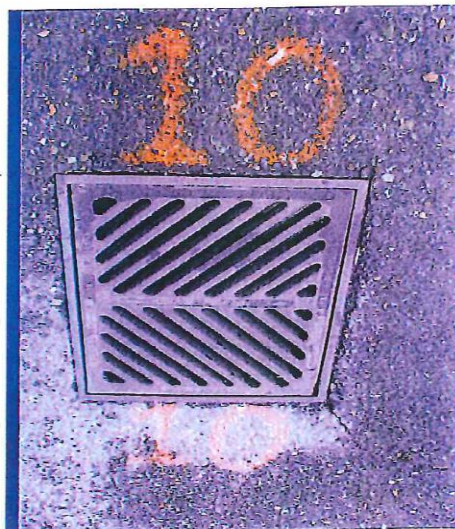


Photo 3 Stormwater system - catch basin.

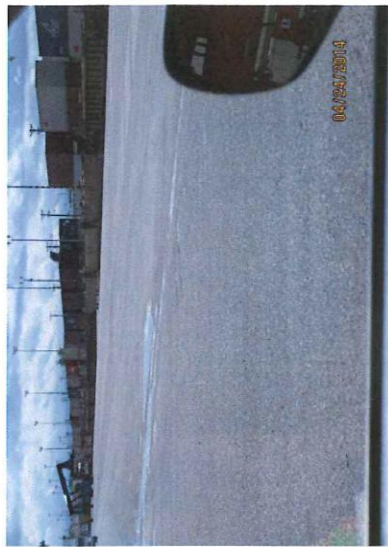


Photo 6: Asphalt Cap and Container Storage, Looking Northwest.



Photo 8: Asphalt Cap and Container Storage, Looking East



Photo 5: Asphalt Cap, Looking West



Photo 7: Small Cracks in the Asphalt Cap