
# PERIODIC REVIEW

## Northlake Shipyard
## FS ID#: 23849623

**1441 Northlake Way**
**Seattle, Washington 98103**

**Northwest Region Office**

**TOXICS CLEANUP PROGRAM**

**February 2009**

# 1.0 INTRODUCTION

This document is a review by the Washington State Department of Ecology (Ecology) of site conditions and monitoring data to assure that human health and the environment are being protected at the Northlake Shipyard Property (Site). Activities at this Site were implemented under the Model Toxics Control Act (MTCA), Chapter 173-340 Washington Administrative Code (WAC).

Prospective Purchaser Consent Decree No. 94-2201158 was entered into with Ecology to provide for future cleanup at the Site. The Site contains residual concentrations of metals, polycyclic aromatic hydrocarbons (PAHs) and polychlorinated biphenyl (PCBs) exceeding MTCA Method A cleanup levels for soil and sediment. The cleanup levels for soil were established under WAC 173-340-740(2). The MTCA Method A cleanup levels for groundwater are established under WAC 173-340-720(3). 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 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; and
(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 Northlake Shipyard Property is located in an industrial area of Seattle in King County, Washington (Vicinity Map - Appendix 6.1). Northlake Shipyard (Northlake) entered into a Prospective Purchaser Consent Decree (PPCD) with Ecology in 1994. No remedial activities have taken place at the Site.

Shipbuilding and ship repair have been conducted at the Northlake Shipyard site since approximately 1946. Prior to its use as a ship repair facility, Pacific Coast Coal operated a coal loading facility at this location from which ships delivered coal to Puget Sound industries. Northlake Shipyard Inc., the current owner, is a property management company that operates the facility as a self-service ship repair facility for vessel owners and contractors and as an overflow yard for other shipyards in the area. The facility consists of offices and storage areas located along the shoreline and over-water structures (a wharf, piers, and two dry docks) that host the facilities operational areas. The shipyard was formerly owned and operated by UNIMAR, which was charged with civil violations of the Clean Water Act in the 1980s. A site plan is available as Appendix 6.2.

The primary environmental concern at the Site is the accumulation of sandblasting grit in nearby sediments. Sandblasting grit was generated during sandblasting operations at the Site to clean ship hulls and superstructures prior to painting.

## 2.2 Site Investigations and Cleanup

### 2.2.1 Site Specific Studies

In 1991, GeoEngineers, Inc. conducted a sampling event at the Site for Unimar to comply with Consent Decree (Number C85-382R) filed against UNIMAR to evaluate the extent and toxicity of sandblasting material beneath and near the facility. Two previous on-site investigations were also identified in this report:

- Marine Power and Equipment, Technical Status Report (U.S. Environmental Protection Agency March 3, 1987); and
- Report of Environmental Consultation, Bottom Sediment Conditions, Marine Power and Equipment, Yard I Dry Dock Facility, Seattle, Washington (GeoEngineers, Inc. June I, 1988).

During the January 1991 sampling event, 42 samples from nine sediment cores were collected and evaluated for toxicity and chemical analysis for total metals, Toxicity Characteristic Leaching Procedure (TCLP) metals, semi-volatile organic compounds (SVOCs), total petroleum

hydrocarbons (TPH), and PCBs. Surface sediment samples were also collected for the purpose of supplementing the core sample volumes to meet the analytical requirements. In addition, water samples were analyzed for total metals and hardness.

A sandblasting material thickness map also was developed as part of this study. Sandblast grit, generally described as black, fine to medium grained black sand and silt, was mapped at thicknesses up to greater than 3.5 feet. The sediment containing the sandblast material locally contained hydrocarbon staining. It was estimated that approximately 6,500 cubic yards of potentially contaminated sediment lie on the lake bottom at the facility

Data from this study is available as Appendix 6.3.

### 2.2.2 Lake Union Studies

Several other studies have been completed around the Site to evaluate Gas Works Park and Lake Union soil, sediment and groundwater conditions.

Data from these studies detected a wide range of contaminants. PAHs were detected in all of the surface sediment samples collected in the area. Total PAH (TPAH) concentrations in surface sediments ranged from 9 parts per million (ppm) to 3,749 ppm. TPAH was detected only in the shallowest depth intervals in subsurface sediment samples.

PCBs were detected in 8 of 11 surface sediment samples at concentrations ranging from 102 parts per billion (ppb) to 940 ppb. PCB concentrations were higher within the Northlake Shipyard area than outside the area.

Metals detected in sediment samples near the Site included antimony up to 420 ppm, arsenic up to 2,920 ppm, cadmium up to 9 ppm, copper up to 4,180 ppm, lead up to 2,550 ppm, mercury up to 3 ppm, nickel up to 131 ppm, silver up to 8 ppm and zinc up to 9,440 ppm.

## 2.3 Regulatory Actions

Northlake entered into a PPCD prior to purchasing the Site through bankruptcy proceedings from United Marine. Northlake entered into the PPCD to avoid incurring potential liability for present contamination at the Site.

The primary component of the PPCD is to require Northlake to make cash payments to a trust fund established for the cleanup of the contamination caused by past activities at the Site. Northlake was required to make an initial payment of $400,000 into the trust fund, followed by the contribution of 15% of its profits for a period of up to 15 years. Payments will continue until one of the following has occurred: (a) the final payment is made on August 31, 2009, (b) total payments total $1,100,000, or (c) the sandblast grit has been cleaned up.

The trust fund will be used to cover Ecology's direct remedial activities costs, remedial activity oversight costs, and the costs of a post-cleanup evaluation.

Ecology may initiate cleanup of the Site at any time. If Ecology has not yet started cleanup, Northlake or its successors may also conduct the cleanup. If Northlake chooses to conduct the cleanup, they may use their own funds, along with the funds contributed to the trust fund.

## 2.4 Deed Restriction

A notice of the PPCD was recorded with King County. The purpose of recording notice of the decree was to assure that the terms of the decree run with the land so that all successors in interest to the Site are bound by its terms. The notice of decree effectively creates the following requirements for Northlake and its successors:

1. Payments shall be made to the trust account as described previously.
2. Ecology shall be granted access to the site for the purpose of conducting remedial activities.
3. Northlake will operate the shipyard under the terms of NPDES Permit WA-003086-4 and all applicable environmental laws.
4. Northlake shall obtain and comply with all terms of Department of Natural Resources (DNR) leases and use agreements for all DNR property to be occupied.
5. Northlake shall continue a shipyard or similar industrial water-dependent use at the Site until such time as the zoning is changed to permit other uses or such use is no longer viable, reasonable or practicable. Such restriction on the use of the property shall expire at such time as Northlake's profit sharing obligation has been satisfied.

The deed restriction is available as Appendix 6.4.

# 3.0 PERIODIC REVIEW

## 3.1 Effectiveness of completed cleanup actions

Based upon the site visit conducted on January 27, 2009, the buildings and asphalt cover at the Site continue to eliminate exposure to contaminated upland soils by ingestion and direct contact. The asphalt appears in satisfactory condition and no repair, maintenance or contingency actions have been required. The Site continues to operate as a shipyard. A photo log is available as Appendix 6.5.

The deed restriction for the Site was recorded and is in place. This notice of decree requires continued payment into the trust fund to assure future cleanup funding and it maintains industrial marine use of the property.

Sediments with concentrations of metals, PAHs and PCBs that exceed MTCA sediment standards are still present at the Site. No cleanup activities have taken place at the Site, though financial assurance is in place to allow for future cleanup at the Site. Currently, these sediments are still exposed and pose a risk to human health and the marine environment.

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

There is no new relevant scientific information for the petroleum contaminants related to the Site.

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

Cleanup levels have changed for several contaminants of concern at the Site. Notably, PAH cleanup levels have been reduced from 1 ppm to 0.1 ppm in soil and mercury has been increased from 1 ppm to 2 ppm in soil. Site specific cleanup levels will likely be established when remedial activities are conducted at the Site.

## 3.4 Current and projected site use

The site is currently used for industrial marine purposes. There have been no changes in current or projected future site or resource uses.

## 3.5 Availability and practicability of higher preference technologies

A remedy has not been implemented at the Site. A cleanup action plan has not been created to evaluate and select remedial options for the Site.

## 3.6 Availability of improved analytical techniques to evaluate compliance with cleanup levels

The analytical methods used at the time of site investigations were capable of detection below MTCA sediment standards. The presence of improved analytical techniques would not effect decisions or recommendations made for the site.

# 4.0 CONCLUSIONS

The following conclusions can be made as a result of this periodic review:

- Soil and sediment cleanup levels have not been met at the Site.
- No remedial activities have been conducted at the Site, though financial assurance is in place to allow Ecology to complete such activities.
- The deed restriction for the property is in place and continues to be effective assuring funding for future remedial activities and maintaining current site use.

Based on this periodic review, the Department of Ecology has determined that activities at the Site to date are not protective of human health or the environment.

## 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

GeoEngineers. Report of Environmental Sampling. 1991

Ecology. Prospective Purchaser Consent Decree. 1994

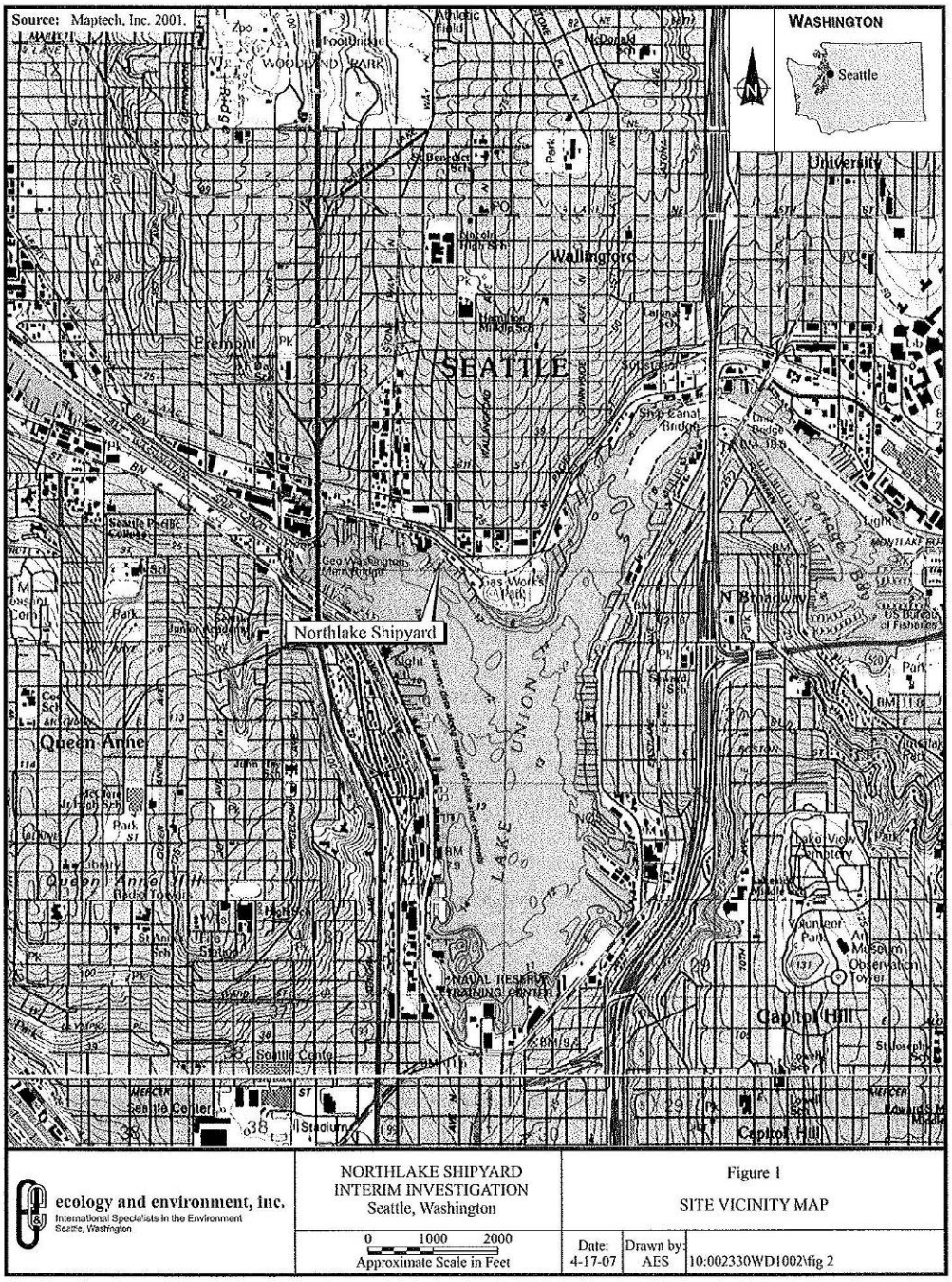
Ecology. Notice of Consent Decree. 1994

Ecology and Environment. Final Summary of Existing Information and Identification of Data Gaps. 2007

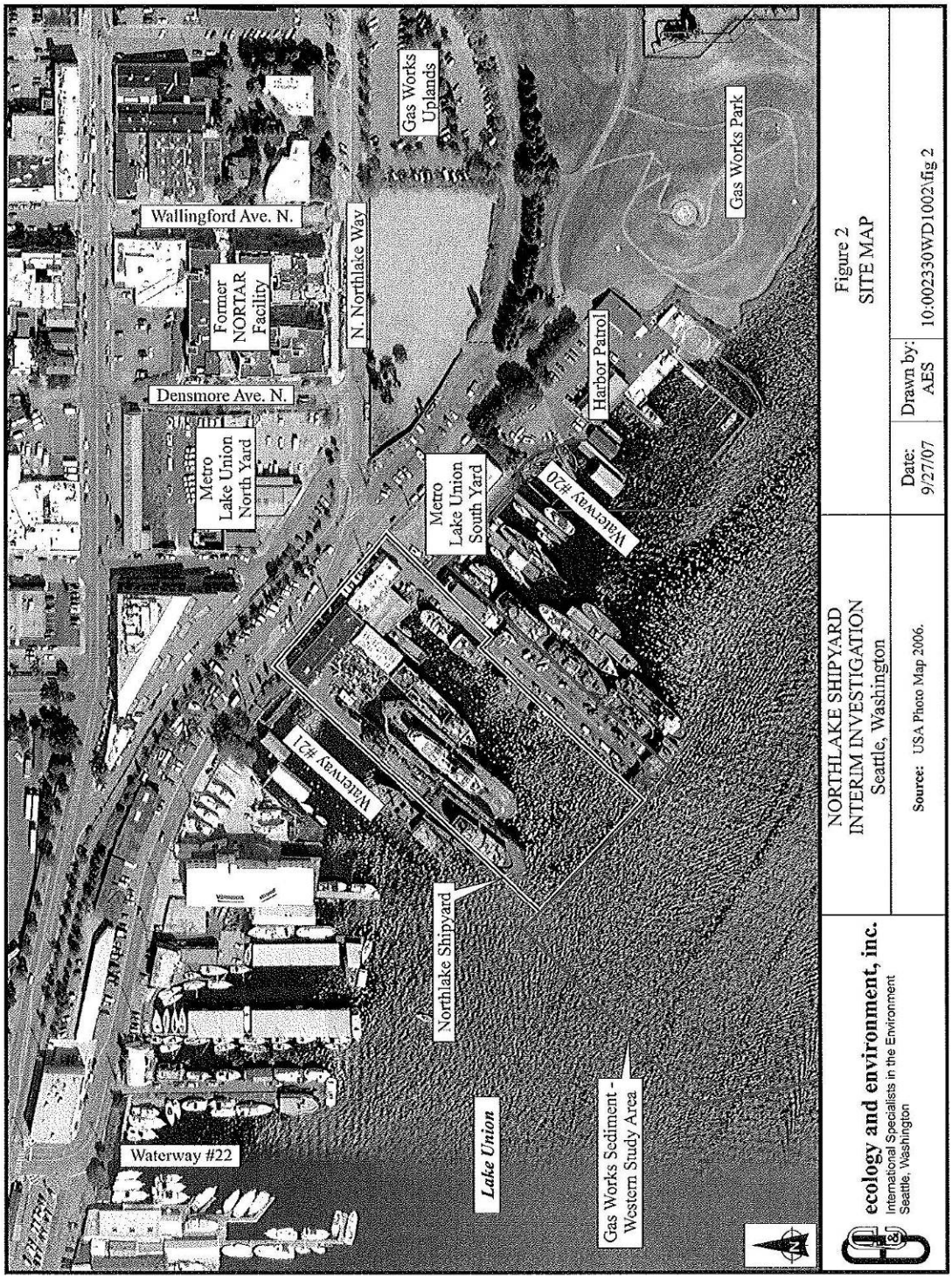
Ecology. Site Visit. January 27, 2009

# 6.0 APPENDICES

## 6.1 Vicinity Map



## 6.2 Site Plan


Waterway #22
Lake Union
Gas Works Sediment - Western Study Area
Northlake Shipyard
Waterway #21
Metro Lake Union North Yard
Metro Lake Union South Yard
Waterway #20
Harbor Patrol
Former NORTAR Facility
Wallingford Ave. N.
Densmore Ave. N.
N. Northlake Way
Gas Works Uplands
Gas Works Park
ecology and environment, inc.
International Specialists in the Environment
Seattle, Washington
NORTHLAKE SHIPYARD
INTERIM INVESTIGATION
Seattle, Washington
Source: USA Photo Map 2006.
Date: 9/27/07
Drawn by: AES
Figure 2
SITE MAP
10:002330WD1002\fig 2

## 6.3 Sediment Sampling Data

TABLE 1
SUMMARY OF METALS ANALYSES IN SEDIMENTS (Page 1 of 2)

| Sample Number | Sample Depth (ft) | EPA Method | 7060 | 7080 | 7130/7031 | 7190 | 7210 | 7420/7421 | 7470/7471 | 7520 | 7740 | 7760 | 7950 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | units | Arsenic | Barium | Cadmium | Chromium | Copper | Lead | Mercury | Nickel | Selenium | Silver | Zinc |
| 1A | 0.0-0.3 | mg/kg | 3,100 | 380 | 7.4 | 52 | 5,900 | 2,900 | 0.84 | 46 | <3 | 4.2 | 10,000 |
| 1B | 0.3-1.0 | mg/kg | -- | -- | 2.8 | -- | 2,300 | 1,300 | -- | -- | -- | -- | 2,800 |
| 1C | 1.0-1.5 | mg/kg | -- | -- | <1 | -- | 69 | 78 | -- | -- | -- | -- | 160 |
| 1D | 1.5-2.0 | mg/kg | -- | -- | 1.3 | -- | 34 | 36 | -- | -- | -- | -- | 94 |
| 1E | 2.0-2.5 | mg/kg | -- | -- | 4.4 | -- | 2,600 | 1,600 | -- | -- | -- | -- | 4,700 |
| 1F | 2.5-3.0 | mg/kg | -- | -- | 2.1 | -- | 1,400 | 1,500 | -- | -- | -- | -- | 2,100 |
| 1G | 3.0-3.5 | mg/kg | -- | -- | <1 | -- | 38 | 45 | -- | -- | -- | -- | 150 |
| 1H | 3.5-4.0 | mg/kg | -- | -- | <1 | -- | 96 | 31 | -- | -- | -- | -- | 94 |
| 2B | 0.0-0.3 | mg/kg | 3,000 | 380 | 12 | 110 | 3,800 | 2,100 | 1.43 | 42 | <3 | <2 | 13,000 |
| 2C | 0.3-1.5 | mg/kg | 2,000 | 196 | 4.4 | 230 | 2,300 | 1,800 | 1.50 | 130 | <3 | 3.0 | 4,200 |
| 2D | 1.5-2.0 | mg/kg | -- | -- | 7.5 | -- | 3,400 | 2,800 | -- | -- | -- | -- | 6,200 |
| 2E | 2.0-.25 | mg/kg | -- | -- | 8.2 | -- | 4,600 | 2,700 | -- | -- | -- | -- | 5,700 |
| 2F | 2.5-3.0 | mg/kg | -- | -- | 9.8 | -- | 5,300 | 2,800 | -- | -- | -- | -- | 8,700 |
| 2G | 3.0-3.5 | mg/kg | -- | -- | 3.8 | -- | 2,200 | 2,300 | -- | -- | -- | -- | 6,500 |
| 2H | 3.5-4.0 | mg/kg | -- | -- | 3.4 | -- | 560 | 570 | -- | -- | -- | -- | 1,700 |
| 2I | 4.0-4.5 | mg/kg | -- | -- | 1.7 | -- | 46 | 95 | -- | -- | -- | -- | 130 |
| 2J | 4.5-4.9 | mg/kg | -- | -- | 2.9 | -- | 40 | <25 | -- | -- | -- | -- | 190 |

## TABLE 1
## SUMMARY OF METALS ANALYSES IN SEDIMENTS (Page 2 of 2)

| Sample Number | Sample Depth(ft) | EPA Method units | 7060 Arsenic | 7080 Barium | 7130/7031 Cadmium | 7190 Chromium | 7210 Copper | 7420/7421 Lead | 7470/7471 Mercury | 7520 Nickel | 7740 Selenium | 7760 Silver | 7950 Zinc |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3A | 0.0-0.3 | mg/kg | 240 | 32 | 4.4 | 18 | 230 | 210 | <0.80 | 13 | <0.5 | 2 | 660 |
| 3B | 0.3-5.0 | mg/kg | 64 | 45 | 3.7 | 18 | 90 | 97 | <0.80 | 20 | <0.5 | <2 | 225 |
| 4A | 0.0-0.3 | mg/kg | 1,800 | 210 | 27 | 89 | 1,500 | 1,700 | 0.80 | 72 | <1 | 4.7 | 4,800 |
| 4B | 0.3-4.3 | mg/kg | 180 | 120 | 10 | 59 | 240 | 290 | 0.91 | 59 | <1 | <2 | 620 |
| 5A | 0.0-0.3 | mg/kg | 190 | 130 | 17 | 78 | 510 | 620 | 1.52 | 75 | <2.0 | <2 | 1,600 |
| 5B | 0.0-5.0 | mg/kg | 26 | 110 | 8.2 | 45 | 89 | 130 | 1.05 | 55 | <1 | <2 | 210 |
| 6A | 0.0-0.3 | mg/kg | 190 | 180 | 19 | 76 | 1,200 | 500 | <0.80 | 69 | <2.0 | <2 | 1,700 |
| 11 (6A) | 0.0-0.3 | mg/kg | 150 | 170 | 16 | 77 | 850 | 480 | 0.83 | 78 | <2.0 | <2 | 1,400 |
| 6B | 0.3-5.0 | mg/kg | 67 | 110 | 10 | 57 | 252 | 230 | <0.80 | 57 | <2.0 | <2 | 430 |
| 7A | 0.0-0.3 | mg/kg | 190 | 130 | 13 | 59 | 540 | 470 | <0.80 | 74 | <2.0 | <2 | 1,000 |
| 7B | 0.3-5.0 | mg/kg | 27 | 90 | 8.0 | 44 | 130 | 170 | <0.80 | 51 | <2.0 | <2 | 270 |
| 8B | 0-0.3 | mg/kg | 71 | 92 | 2.4 | 47 | 170 | 250 | 1.53 | 48 | <1 | <2 | 340 |
| 8C | 0.3-2.0 | mg/kg | 24 | 92 | 3.0 | 32 | 94 | 130 | 1.18 | 49 | <1 | <2 | 260 |
| 8D | 0.3-0.5 | mg/kg | -- | -- | 3.6 | -- | 62 | 61 | -- | -- | -- | -- | 160 |
| 8E | 0.5-1.0 | mg/kg | -- | -- | <2 | -- | 56 | 53 | -- | -- | -- | -- | 150 |
| 8F | 1.0-1.5 | mg/kg | -- | -- | <4 | -- | 120 | 160 | -- | -- | -- | -- | 294 |
| 8G | 1.5-2.0 | mg/kg | -- | -- | <3 | -- | 150 | 180 | -- | -- | -- | -- | 301 |
| 8H | 2.0-2.5 | mg/kg | -- | -- | <3 | -- | 180 | 350 | -- | -- | -- | -- | 430 |
| 8I | 2.5-3.0 | mg/kg | -- | -- | 3 | -- | 68 | 83 | -- | -- | -- | -- | 190 |
| 8J | 3.0-3.5 | mg/kg | -- | -- | 2 | -- | 39 | 45 | -- | -- | -- | -- | 93 |
| 8K | 3.5-4.0 | mg/kg | -- | -- | <5 | -- | 13 | <50 | -- | -- | -- | -- | 46 |
| 8L | 4.0-4.5 | mg/kg | -- | -- | <5 | -- | 18 | <45 | -- | -- | -- | -- | 63 |
| 8M | 4.5-4.8 | mg/kg | -- | -- | 12 | -- | 12 | <40 | -- | -- | -- | -- | 39 |
| 9A | 0-0.3 | mg/kg | 8.9 | 110 | <2 | 39 | 38 | 68 | <0.40 | 41 | <1.0 | <2 | 120 |
| 9B | 0.3-2.5 | mg/kg | 2.3 | 51 | <1 | 32 | 15 | <10 | <0.15 | 31 | <0.5 | <2 | 44 |

Notes:
11(6A) - 11 is a duplicate sample of 6A
mg/kg - milligrams per kilogram
"<" - less than
"--" - not tested

# TABLE 2
# SUMMARY OF SEMIVOLATILE ORGANIC COMPOUNDS ANALYSES IN SEDIMENT SAMPLES

| Sample Number | | 1A | 2B | 3A | 3B | 4A | 4B | 5A | 5B | 6A | 11 (6A) | 6B | 7A | 7B | 8B | 8B | 8C | 9A |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample Interval (feet) | | 0-0.3 | 0-0.3 | 0-0.3 | 0.3-5.0 | 0-0.3 | 0.3-4.3 | 0-0.3 | 0.3-5.0 | 0-0.3 | 0-0.3 | 0.3-5.0 | 0-0.3 | 0.3-5.0 | 0-0.3 | 0-0.3 | 0.3-2.0 | 0-0.3 |
| EPA Method | | 8270 | 8270 | 8270 | 8310 | 8270 | 8310 | 8270 | 8310 | 8270 | 8270 | 8310 | 8270 | 8270 | 8310 | 8270 | 8310 | 8270 |
| **LPAHs** | Units | | | | | | | | | | | | | | | | | |
| Napthalene | mg/kg | 1.3J | 2.6 | <3.5 | 2.4 | 2.6J | <3.8 | <11 | 1.2 | 38 | 33 | 120 | 2.6J | 4.2 | <4.0 | 4.1 | 0.87 | <0.68 |
| 2-methylnaphthalene | mg/kg | <1.8 | 6.9 | <3.5 | NA | 12 | NA | <11 | NA | 95 | 80 | NA | 2.4J | NA | NA | 3.7J | NA | <0.68 |
| Acenaphthylene | mg/kg | <1.8 | <2.4 | <3.5 | <5.0 | 4.5 | <7.7 | <11 | 1.0 | 4.9J | <8.9 | 50 | <4.6 | 16 | <5.5 | 2.6J | 0.50 | <0.68 |
| Acenaphthene | mg/kg | 2.1 | 18 | <3.5 | <5.0 | 22 | <7.7 | 8.8J | <0.68 | 40 | 33 | 150 | 8.3 | 68 | <5.5 | 6.6 | <0.57 | <0.68 |
| Fluorene | mg/kg | 2.1 | 20 | <3.5 | 1.0 | 20 | 4.1 | 6.5J | 1.8 | 38 | 31 | 53 | 8.9 | 25 | <0.55 | 5.9 | 0.40 | <0.68 |
| Phenanthrene | mg/kg | 10 | 5.3 | 3.5J | 7.1 | 56 | 15 | 15 | 5.6 | 100 | 88 | 160 | 27 | 97 | 9.0 | 16 | 1.7 | <0.68 |
| **HPAHs** | | | | | | | | | | | | | | | | | | |
| Anthracene | mg/kg | 2.8 | 13 | 3.4J | 2.4 | 20 | 5.0 | 9.6J | 2.3 | 33 | 28 | 44 | 9.6 | 26 | 28 | 6.8 | 0.47 | <0.68 |
| Fluoranthene | mg/kg | 11 | 25 | 5.3 | 18 | 34 | 32 | 52 | 19 | 31 | 40 | 47 | 24 | 60 | 29 | 43 | 7.7 | <0.68 |
| Pyrene | mg/kg | 11 | 17 | 4.1 | 15 | 32 | 40 | 54 | 23 | 34 | 36 | 47 | 25 | 34 | 36 | 40 | 9.7 | <0.68 |
| Benzo(a)anthracene | mg/kg | 4.4 | 6.0 | 2.0J | 5.9 | 14 | 11 | 18 | 6.0 | 12 | 13 | 13 | 9.1 | 13 | 11 | 16 | 2.9 | <0.68 |
| Chrysene | mg/kg | 5.5 | 6.8 | 2.1J | 7.4 | 15 | 15 | 21 | 7.6 | 14 | 15 | 22 | 15 | 16 | 14 | 17 | 4.0 | <0.68 |
| Benzo(b)fluoranthene | mg/kg | 6.5 | 6.6 | 2.7J | 5.0 | 14 | 7.7 | 23 | 5.2 | 11 | <8.9 | 7.4 | 11 | 14 | 11 | 23 | 2.6 | <0.68 |
| Benzo(k)fluoranthene | mg/kg | 1.8 | 1.9J | <3.5 | 2.7 | 4.9 | 4.5 | 67 | 2.9 | 30 | 29 | 4.7 | 33 | 7.4 | 6.2 | 8.3 | 1.5 | <0.68 |
| Benzo(a)pyrene | mg/kg | 5.4 | 4.8 | 2.6J | 7.6 | 14 | 14 | 26 | 9.2 | 12 | 10 | 13 | 12 | 24 | 17 | 25 | 4.3 | <0.68 |
| Indeno(1,2,3-cd)pyrene | mg/kg | 2.8 | 1.9J | <3.5 | 6.5 | 6.9 | 10 | 17 | 6.4 | 6.2J | 4.8J | 6.2 | 7.5 | 16 | 14 | 15 | 3.1 | <0.68 |
| Dibenz(a,h)anthracene | mg/kg | <1.8 | <2.4 | <3.5 | 1.8 | 2.0J | 4.5 | <11 | 0.39 | <8.5 | <8.9 | 6.5 | <4.6 | 5.8 | <1.6 | 2.9J | 1.3 | <0.68 |
| Benzo(g,h,i)perylene | mg/kg | 3.4 | 2.1 | <3.5 | 6.5 | 8.2 | 13 | 20 | 8.0 | 6.5J | 4.8J | 6.5 | 8.8 | 12 | 18 | 21 | 4.0 | <0.68 |
| **MISCELLANEOUS** | | | | | | | | | | | | | | | | | | |
| Dibenzofuran | mg/kg | 1.0J | 14 | <3.5 | NA | 6.3 | NA | <11 | NA | 12 | 9.9 | NA | <4.6 | NA | NA | <4.0 | NA | <0.68 |
| Bis(2-ethylhexyl)phthalate | mg/kg | 5.9 | 10 | 1.8J | NA | 1.9J | NA | <11 | NA | <8.5 | <8.9 | NA | <4.6 | NA | NA | <4.0 | NA | <0.68 |
| **Total LPAHs (1)** | mg/kg | **20** | **68** | **16** | **20** | **137** | **35** | **56** | **13** | **349** | **298** | **384** | **61** | **240** | **39** | **46** | **5** | **2** |
| **Total HPAHs (1)** | mg/kg | **54** | **74** | **26** | **76** | **145** | **152** | **302** | **88** | **161** | **162** | **173** | **148** | **168** | **157** | **211** | **41** | **2** |

Notes:
(1) Calculated totals include 0.5 times the detection for less than values and 0.5 times the lowest detection limit or the lowest detected concentration for the constituents not analyzed under the EPA Method 8310.
11 (6A) - 11 is a duplicate of 6A
LPAHs - Light polynuclear aromatic hydrocarbons
HPAHs - Heavy polynuclear aromatic hydrocarbons
mg/kg - milligrams per kilogram
"<" - less than method detection limit
NA = not applicable
J - estimated value

## TABLE 3
## SUMMARY OF TOTAL PETROLEUM HYDROCARBONS IN SEDIMENT SAMPLES

| Sample Number | | 1A | 1C (1) | 3A | 3B | 4A | 4B | 5A | 5B | 6A | 11 (6A) | 6B | 7A | 7B | 8B | 8F | 9A | 9B |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample Interval (feet) | | 0-0.3 | 1.0-1.3 | 0-0.3 | 0.3-5.0 | 0-0.3 | 0.3-4.3 | 0-0.3 | 0.3-5.0 | 0-0.3 | 0-0.3 | 0.3-5.0 | 0-0.3 | 0.3-5.0 | 0-0.3 | 1.0-1.5 | 0-0.3 | 0.3-2.5 |
| EPA Method | Units | 418.1 | 418.1 | 418.1 | 418.1 | 418.1 | 418.1 | 418.1 | 418.1 | 418.1 | 418.1 | 418.1 | 418.1 | 418.1 | 418.1 | 418.1 | 418.1 | 418.1 |
| TPH | mg/kg | 1600 | 950 | 99 | 230 | 390 | 420 | 780 | 39 | 200 | 110 | 130 | 160 | 190 | 120 | 350 | 65 | 13 |

Notes
(1) Laboratory results were reported for two sample 1C's listed on separate COCs; only the result presented above is a representative sample.
11 (6A) - 11 is a duplicate of 6A
mg/kg - milligrams per kilogram

## TABLE 4
## SUMMARY OF POLYCHLORINATED BIPHENYLS IN SEDIMENT AND RINSEATE SAMPLES

| Sample Number | | 1A (1) | 1C | 2B | 3A | 4A | 5A | 6A | 11 (6A) | 7A | 8B | 8C | 9A | 9B |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample Interval (feet) | | 0-0.3 | 1.0-1.5 | 0-0.3 | 0-0.3 | 0-0.3 | 0-0.3 | 0-0.3 | 0-0.3 | 0-0.3 | 0-0.3 | 0.3-2.0 | 0-0.3 | 0.3-2.5 |
| EPA Method 8080 | units | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| PCBs IN SEDIMENT | | | | | | | | | | | | | | |
| PCB 1016 | | <0.033 | <0.063 | <0.033 | <0.14 | <0.14 | <0.22 | <4.1 | <4.3 | <2.2 | <0.033 | <0.033 | <0.13 | <0.058 |
| PCB 1221 | | <0.033 | <0.063 | <0.033 | <0.14 | <0.14 | <0.22 | <4.1 | <4.3 | <2.2 | <0.033 | <0.033 | <0.13 | <0.058 |
| PCB 1232 | | <0.033 | <0.063 | <0.033 | <0.14 | <0.14 | <0.22 | <4.1 | <4.3 | <2.2 | <0.033 | <0.033 | <0.13 | <0.058 |
| PCB 1242 | | <0.033 | <0.063 | <0.033 | <0.14 | <0.14 | <0.22 | <4.1 | <4.3 | <2.2 | <0.033 | <0.033 | <0.13 | <0.058 |
| PCB 1248 | | <0.033 | <0.063 | <0.033 | <0.14 | <0.14 | <0.22 | <4.1 | <4.3 | <2.2 | <0.033 | <0.033 | <0.13 | <0.058 |
| PCB 1254 | | <0.033 | <0.063 | <0.033 | <0.14 | <0.14 | <0.22 | <4.1 | <4.3 | <2.2 | <0.033 | <0.033 | <0.13 | <0.058 |
| PCB 1260 | | 0.43 | <0.063 | <0.033 | <0.14 | <0.14 | <0.22 | <4.1 | <4.3 | <2.2 | <0.033 | <0.033 | <0.13 | <0.058 |

| Sample Number | | 10B | 10C | 10D | 10E |
|---|---|---|---|---|---|
| Sample Interval (feet) | | Shelby Rinseates | | Van Veen Rinseates | |
| EPA Method 8080 | units | ug/l | ug/l | ug/l | ug/l |
| PCBs IN WATER | | | | | |
| PCB 1016 | | <1.0 | <1.0 | <1.0 | <1.0 |
| PCB 1221 | | <1.0 | <1.0 | <1.0 | <1.0 |
| PCB 1232 | | <1.0 | <1.0 | <1.0 | <1.0 |
| PCB 1242 | | <1.0 | <1.0 | <1.0 | <1.0 |
| PCB 1248 | | <1.0 | <1.0 | <1.0 | <1.0 |
| PCB 1254 | | <1.0 | <1.0 | <1.0 | <1.0 |
| PCB 1260 | | <1.0 | <1.0 | <1.0 | <1.0 |

Notes
(1) A tenative identification for a PCB like pattern was made, but a positive match could not be verified.
11 (6A) - sample 11 is a duplicate of 6A
'<' = less than not detected
mg/kg = milligrams per kilogram
ug/l = micrograms per liter

## 6.4 Deed Restriction

WHEN RECORDED, RETURN TO:

Preston Gates & Ellis
5000 Columbia Center
701 Fifth Avenue
Seattle, Washington 98104-7078
Attn: Jennifer L. Belk

**MEMORANDUM OF CONSENT DECREE**

THIS MEMORANDUM OF CONSENT DECREE, dated as of the 20TH day of SEPTEMBER 1994, is notice of a consent decree between Northlake Shipyard, Inc., a Washington corporation ("Northlake") and the State of Washington Department of Ecology ("Ecology").

1. **Settlement**. Ecology has settled a declaratory judgment action with Northlake under King County Superior Court cause number 94-2-20115-8 upon the terms and conditions of the consent decree between the parties (the "Decree"), entered in that Court on August 12, 1994, which terms and conditions are incorporated by this reference, regarding a parcel of real property, situated in the City of Seattle, King County, Washington, legally described in Attachment A attached hereto and incorporated herein by reference (the "Property").

2. **Effect**. Under the Decree, Ecology covenants not to sue Northlake or successor owners of the Property for certain known and documented contamination on the Property, or that migrates onto the Property. The Decree also provides Northlake, and any eligible successor owners of the Property, with protection from suits for MTCA contribution claims regarding contamination on the Property. Northlake, and any successor owners of the Property, covenant to perform certain environmental tests and ongoing monitoring to expedite cleanup of contamination in the area.

3. **Term**. This Decree shall run with the land commencing _____, 1994, so long as successors in interest qualify under the Decree and become parties to the Decree as provided in § XIII of the Decree.

4. **Full Decree**. Copies of the full Decree are available from King County Superior Court file under King County cause number 94-2-20115-8. Copies of the Decree may also be obtained from the parties to the Decree at the following addresses:

Ecology: Toxics Cleanup Program
Department of Ecology
Northwest Regional Office
3190 - 160th Avenue S.E.
Bellevue, WA 98008-9452

9409210183

Filed by Chicago Title Insurance Co.
Ref. # 40546-6

9409210183 09:08:00 AM KING COUNTY RECORDS 003 JM 9.00

Northlake:

E. Peter Kelly
President
Northlake Shipyard, Inc.
2602 - 39th West
Seattle, WA 98199

5. **Purpose of Memorandum of Consent Decree.** This memorandum of consent decree is prepared for the purpose of recordation only, and it in no way modifies the Decree. The entire Decree should be examined by interested parties. In the event of any conflict between this Memorandum and the Decree, the provisions of the Decree shall control.

NORTHLAKE SHIPYARD, INC.

By _____
E. Peter Kelly
Its President

STATE OF WASHINGTON )
) ss.
COUNTY OF KING )

9409210183

On this 9th day of September, 1994, before me, the undersigned, a Notary Public in and for the State of Washington, duly commissioned and sworn, personally appeared E. PETER KELLY, President of Northlake Shipyard, Inc. the corporation that executed the within and foregoing instrument, and acknowledged the said instrument to be the free and voluntary act and deed of said corporation for the uses and purposes therein mentioned, and on oath stated that he is authorized to execute the said instrument and that the seal affixed is the corporate seal of said corporation.

WITNESS my hand and official seal hereto affixed the day and year in this certificate above written.

Donna Lee Mitchell
NOTARY PUBLIC in and for the State of Washington, residing at Seattle
Title: _____
Print Name: Donna Lee Mitchell
My commission expires: 1/26/96



JLB04A.DOC 94/08/12

ATTACHMENT A

**LEGAL DESCRIPTION OF REAL PROPERTY**

PARCEL A:

THE SOUTHEASTERLY HALF OF LOT 6;
ALL OF LOTS 7, 8 AND 9; AND
THE NORTHWESTERLY HALF OF LOT 10;
ALL IN BLOCK 101, LAKE UNION SHORE LANDS, IN KING COUNTY, WASHINGTON.

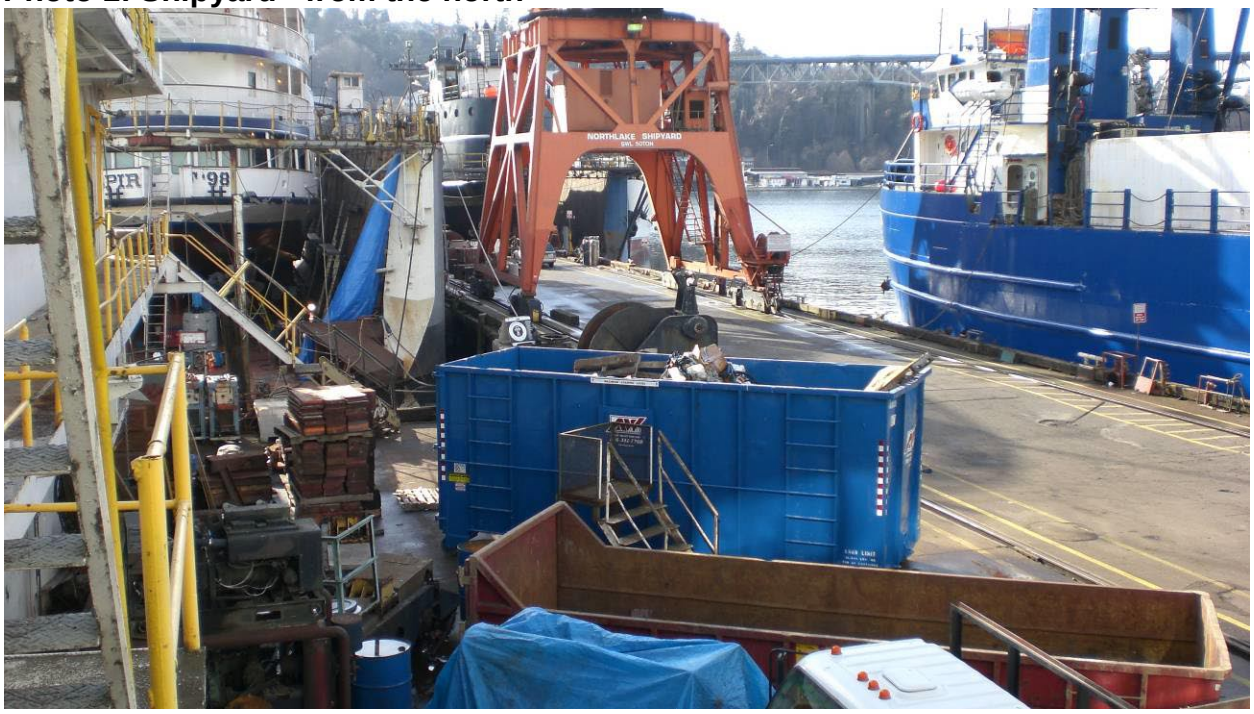
PARCEL D:

LOTS 1, 2, 3, 4 AND 5 AND THE NORTHWESTERLY HALF OF LOT 6, BLOCK 101, LAKE UNION SHORE LANDS, IN KING COUNTY, WASHINGTON; EXCEPT THAT PORTION CONDEMNED FOR NORTHLAKE AVENUE IN KING COUNTY SUPERIOR COURT CAUSE NUMBER 108136, AS PROVIDED BY ORDINANCE NUMBER 33626 OF THE CITY OF SEATTLE.

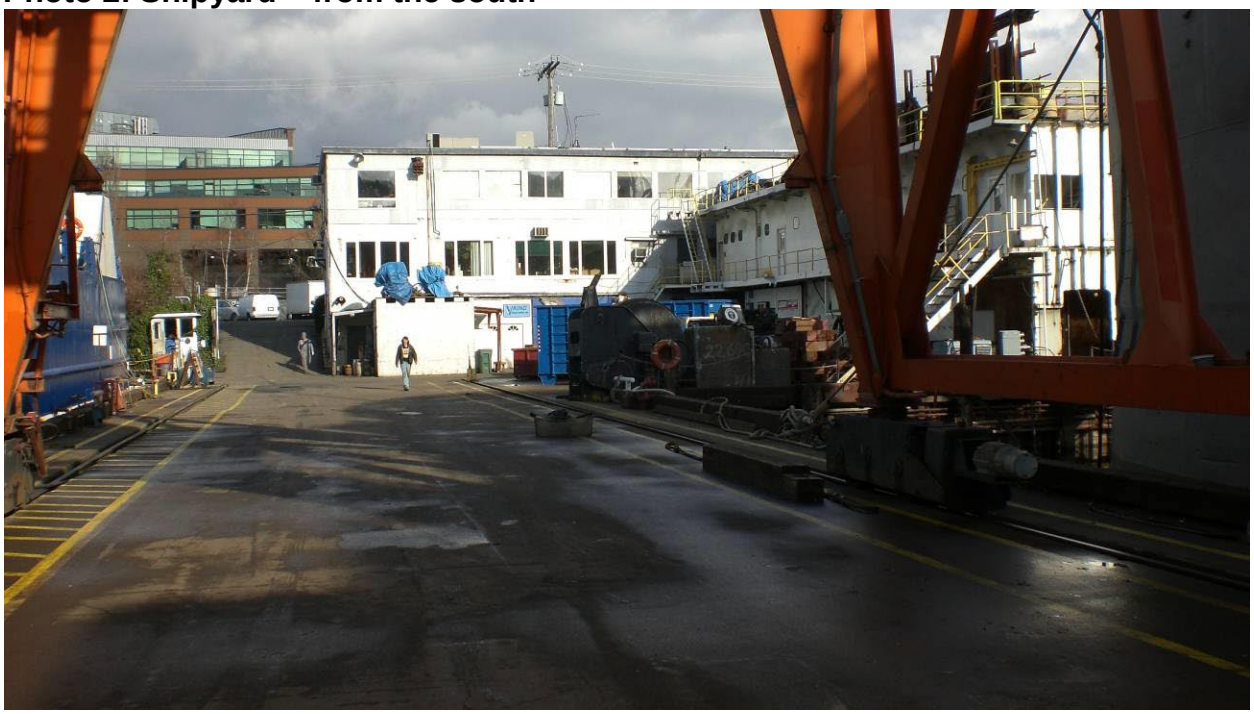
9409210183

## 6.5 Photo log

### Photo 1: Shipyard - from the north




### Photo 2: Shipyard – from the south



## Photo 3: Shipyard – from the Gas Works Park to the East


## Photo 4: Lake Union – from the north